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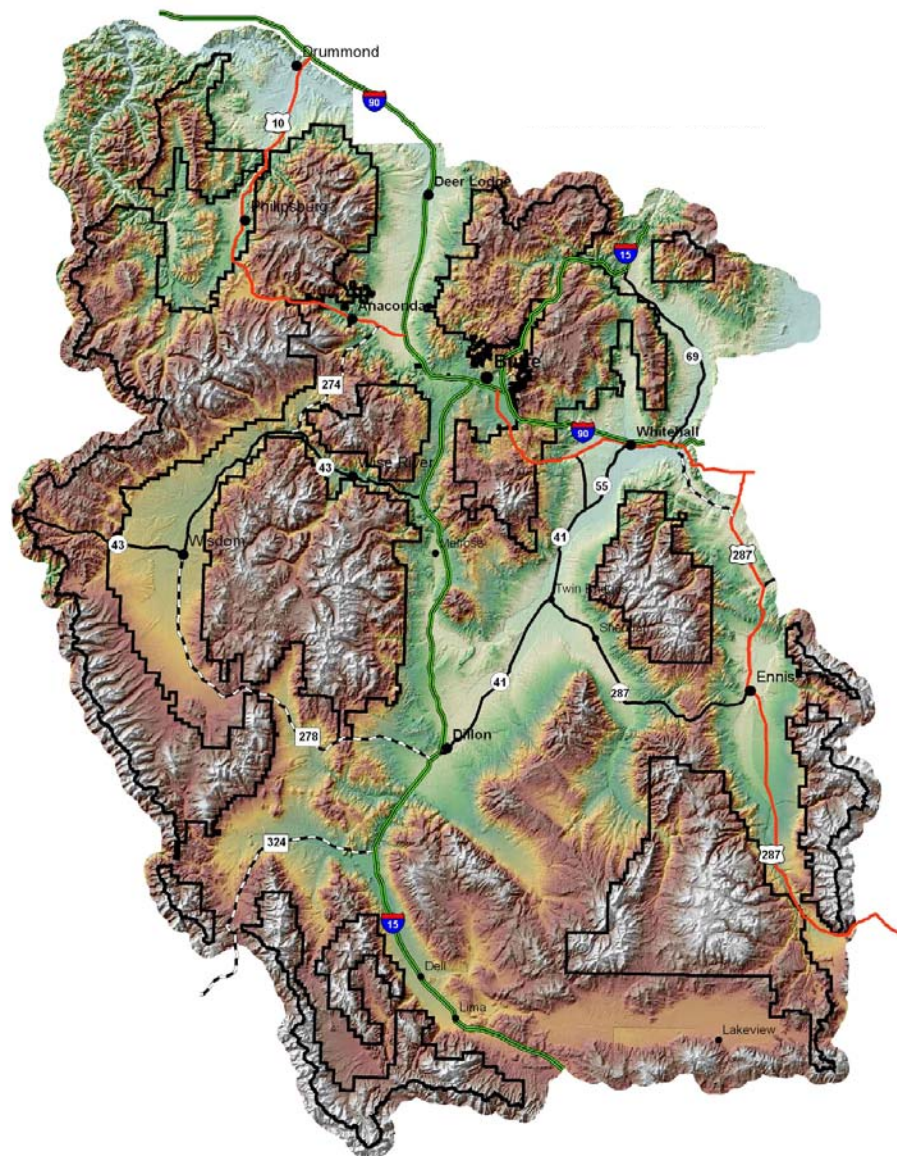


Beaverhead-Deerlodge National Forest

Land and Resource Management Plan

Corrected

Final Environmental Impact Statement



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Final Environmental Impact Statement With Errata

For the

Beaverhead-Deerlodge National Forest Land and Resource Management Plan December 2008

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Abstract: The planning effort represented by the Final Environmental Impact Statement (FEIS) is called the Beaverhead-Deerlodge Forest Plan Revision. One land and resource management plan has been prepared for the administratively combined Beaverhead and Deerlodge National Forests. This FEIS provides environmental analysis for both units. Furthermore, this FEIS documents the analysis of six alternatives developed in detail for possible management of the 3.3 million acres administered by the USDA Forest Service in the planning area. This FEIS has been prepared for public review pursuant to federal laws and regulations.

CORRECTED FEIS

REPLACEMENT PAGES

This edition of the FEIS with replaced pages has corrected text or additional analysis in order to address public comments on the FEIS.

Most typos and spelling errors were not part of the corrections.

The replacement pages are inserted in this FEIS.

Highlights indicate text changes.

These pages are also posted on the web at <http://www.fs.fed.us/r1/b-d/forest-plan/index.shtml>.

ROADLESS AREA TERMINOLOGY

This update applies throughout the document

The roadless area discussion on pages 274 – 294 applies the term “Inventoried Roadless Areas” or “IRAs” throughout. This terminology was commonly applied to roadless areas prior to the 2001 Roadless Area Conservation Rule (RACR) and acceptable under the Forest Service Handbook (FSH) used to inventory and evaluate areas for potential wilderness in Appendix C (FSH 1909.12, Chapter 7 (WO Amendment 1909.12-92-1 effective 8/3/92). Inventoried roadless areas now have a distinct status imparted to them by RACR and continued use of that term may be confusing to the public. Forest Service Handbook direction developed since RACR modifies terminology for roadless areas to clarify these are areas being evaluated for wilderness potential, FSH 1909.12, Chapter 70, (Effective 1/21/07). This terminology now applies agency-wide.

The FEIS describes the existing condition and effects to areas mapped in the current 2006 inventory of areas with potential for wilderness, described in detail in Appendix C, which are different than IRAs mapped for the 2001 RACR. We now call the roadless areas inventoried in 2006 “areas with wilderness potential” to distinguish them from the IRA inventory described in the RACR. References to IRAs throughout the FEIS are hereby corrected to “areas with wilderness potential.” Only discussions which mention RACR or road construction prohibitions relate to IRAs mapped in 2001. See Chapter 3 for more detailed discussion about these areas and the status of RACR under the heading “Areas with Wilderness Potential and National Wilderness Preservation System Additions” or Appendix C.

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CHAPTER ONE

Guide to This Document

Chapter One contains background information on the planning process and decisions to be made. The stage is set in this chapter for information presented in the rest of the document.

Chapter Two presents the alternative management scenarios developed to address the purpose and need for change. The issues are identified in the alternatives. At the end of the chapter is Table 1, a comparison of design elements by alternative. This table is a handy reference while reading Chapter 3, the affected environment and environmental consequences of alternatives.

Chapter Three is divided into sections by resource or use. The affected environment and environmental consequences sections are both in the chapter.

Chapter Four lists document contributors, the list of recipients of the draft publication, literature cited, appendices, and the glossary.

Maps in this document are all small scale. Detailed maps for Appendix C are available on a CD included with the document. The large maps are available for viewing at the Supervisor's Office in Dillon.

Context for Revision

The Forest Service is required to revise the Beaverhead National Forest and Deerlodge National Forest Land and Resource Management Plans. The area covered under the current plans is 3.38 million acres, including parts of the Lolo National Forest in the Clark Fork Flint Landscape administered by the Beaverhead-Deerlodge National Forest (BDNF). This revision effort will not include the Elkhorn Mountains. The Elkhorn Mountains are managed as a single unit with the Helena National Forest. Since the majority of the Elkhorn Mountains are on the Helena National Forest, direction for that portion will be revised when the Helena National Forest completes their revision process. Until then, the Elkhorns will be managed using current direction. This leaves approximately 3.35 million acres in this revision effort.

Since the original Beaverhead and Deerlodge National Forest plans were approved in 1986 and 1987 respectively, there have been 11 forest plan amendments. The forests were administratively combined in 1996; therefore, this revision will result in a single forest plan to provide consistent management and administrative efficiency.

This revision is proposed to meet legal and regulatory requirements and to address changes, issues, and concerns that have developed since the forest plans were originally released. This revised plan will be used to guide all natural resource management activities to meet federal law, regulations, and policy.

PROPOSED ACTION

The Forest Service proposes to revise the Beaverhead and Deerlodge National Forest plans under the National Forest Management Act of 1976 (16 U.S.D. 1604, et seq.) and the 1982 planning regulations. The use of the 1982 regulations is allowed under the 2000 planning rule (36 CFR

219, see CFR parts 200 to 299, Revised as of July 1, 2004) currently in effect. Section 36 CFR 219.35 of the 2000 regulation says a responsible official may elect to continue or to initiate new plan amendments or revisions under the 1982 planning regulations.

The Draft Environmental Impact Statement (DEIS) with the Draft Plan were published June 2005 under the 1982 Planning Regulations as allowed by the 2005 regulations (36 CFR 219.14). On March 30, 2007, the United States District Court for the Northern District of California enjoined the Forest Service from using the 2005 planning rule.

The Notice of Availability was published July 1, 2005 in the Federal Register. The first notice indicated a 45 day comment period. The notice was corrected to specify our preference for a 90 comment period ending September 30, 2005. The comment period was then extended to October 31, 2005.

Purpose

The intent of revision is to provide a Beaverhead-Deerlodge Forest Plan that will, 1) guide all natural resource management activities on the Forest for the next 15 years, 2) address changed conditions and directions that have occurred since the original plans were approved, 3) meet federal laws, regulations, and policies, and 4) provide consistent direction for both units. This purpose will be met by the selected management strategy described in the Final Forest Plan which accompanies this document and best achieves a combination of the following goals:

- ◆ Maintains or restores long-term ecosystem function and integrity.
- ◆ Contributes to the economic and social needs of people, cultures, and communities.
- ◆ Provides sustainable and predictable levels of products and services from National Forest System Lands on the BDNF.
- ◆ Provides direction that adapts to changed policy and direction.
- ◆ Provides consistent direction at the Forest level to assist managers in making project decisions in the context of broader social and ecological considerations.

Need for a Revised Forest Plan

The need for change is based on legal requirements, changed conditions and the Analysis of the Management Situation (AMS). A draft of the AMS (USFS 2002) used five preliminary sources to determine the need for change.

1. Forest plan monitoring reports and five-year reviews
2. Forest Service Regulations, Manual, and Handbook requirements
3. National direction, policy and initiatives
4. New science and changes in public values, needs, desires, and demands
5. Forest landscape assessments

Revision Topics

The Draft AMS identified eight primary topics in need of management direction revision. They provide the basis for the development of the Proposed Action. After public review these topics were refined as follows.

Topic 1: Vegetation. Vegetation is the key to sustaining terrestrial and aquatic ecosystems. Vegetation objectives in the current plans focus primarily on timber production. They do not recognize the importance of natural processes, like fire, as part of the ecosystem. Public comments support our finding that vegetation objectives and standards should emphasize healthy forests. Opinions differ widely among the public on what a “healthy” forest is, and the means to achieve it. We used terms such as functioning, sustainable, and integrity to describe desired ecosystem attributes rather than the undefined term “healthy.”.. Desired conditions, objectives, and standards for vegetation need to incorporate these concepts to maintain or restore the integrity of sustainable ecosystems.

Topic 2: Wildlife. There is a need to provide habitat to support viable populations of desirable native and introduced vertebrate species and consolidate management direction for wildlife. Currently each plan operates under a mix of direction for terrestrial and avian species with a heavy emphasis on elk. In the current plans there are notable differences between wildlife objectives and standards. For instance, management indicator species, and elk management approaches are quite different. Desired conditions and objectives need to focus efforts on managing ecosystems for viable and diverse wildlife populations rather than individual species.

Topic 3: Aquatic Resources. New information and increased awareness of physical watershed and aquatic organisms indicate a need to strengthen forest plan direction to conserve and restore aquatic resources. Independent creation of the Beaverhead and Deerlodge Forest Plans in the mid 1980s, subsequent amendments to each, including the Inland Native Fish Strategy (INFISH), resulted in three separate sets of direction for aquatic resource management. State and federal designation under the Clean Water Act and Endangered Species Act changed the amount, type, location and timing of a variety of uses. The need is to review and change management direction to reflect and meet commitments under those acts. Specific direction is needed for effective restoration of watersheds and to manage for properly functioning systems and aquatic populations.

Aquatic and hydrology topics were treated separately in the 2002 Analysis of the Management Situation. They are combined under “Aquatic Resources” to integrate watershed health and restoration, coordination of watershed restoration strategies, riparian and fish habitat management, native fish conservation strategies, amphibians, and management indicator species.

Topic 4: Recreation and Travel Management. Technology and popularity of motorized recreational vehicles, particularly winter recreation, has increased. For much of the forest, this use has evolved over time rather than evolved with management. This has resulted in resource damage, wildlife conflict, and conflicts between user groups.

Current plans do not provide adequate direction concerning recreation settings and related travel opportunities on the BDNF. People have indicated a desire to know what to expect in terms of conditions, management, and recreation opportunities in each season of use.

Consistent direction is needed to manage recreation settings and travel because of changes in technology, type, and distribution of use.

In addition, the 2001 Off Highway Vehicle Plan Amendment for Montana, North Dakota, and portions of South Dakota (Tri-State OHV Decision) identifies motorized roads and trails based on a visual interpretation by the user of whether a route existed prior to 2001. Some of the roads and trails established prior to 2001 are user created and may not be the desired system necessary to meet resource needs. There is a need to identify an unambiguous system of roads and trails for vehicle access while addressing resource concerns. Public comments generally supported designation of routes although opinions diverge greatly about the amount of motorized use to include.

Topic 5: Fire Management. New policies recognize the ecological role of fire in fire dependent ecosystems, as well as the increasing risk, to firefighter and public safety, and resource values such as threatened, endangered and sensitive species (TES), water and air quality, soils, etc.

Existing plans are inconsistent in terms of current fire management policy. The Beaverhead and Deerlodge forest plans are inconsistent in management of unplanned ignitions for resource benefit. Fire management on the combined BDNF needs to be consistent with current policy. Appropriate Management Response (AMR) allows the use of a range of responses to wildland fire that address safety, cost containment and resource management objectives.

Topic 6: Livestock Grazing. Livestock grazing outputs are of economic interest to the ranching industry, local governments, and local communities. Preserving a viable ranching industry has also become a concern of several collaborative and environmental groups active in land use planning. Ranches are seen as an effective tool for preserving open space in the face of increasing pressure for development and subdivision.

There is a need to identify areas suitable for livestock grazing as one of numerous uses that may be appropriate for a land area. The permitted livestock grazing objectives tied to Animal Unit Months (AUMs) need to be changed to a result-oriented objective that reflects other resource protection standards.

Topic 7: Timber. Timber harvest levels and methods have changed much in the last 15 years because of threatened, endangered, and sensitive species habitat management, riparian and water quality standards, roadless area management, and clearcutting policy. Some of these changes, like clearcutting policy and prohibitions within inventoried roadless areas, have come from the National level.

There is a need to identify lands suitable for timber production as well as lands where timber harvest is allowed to achieve vegetation management goals and objectives. Timber harvest, firewood, post and poles, and other forest products could be used as tools to achieve integrated resource goals and objectives and not be confined to lands suitable for timber production.

Topic 8: Recommended Wilderness. Planning regulations require evaluation of roadless areas for Wilderness consideration during forest plan revision. Public comments and review of previous landscape analysis also identified a need to make alternative Wilderness recommendations.

The following list describes additional topics where a need to incorporate more current law, policy, or achieve consistency between the two forests was identified. Public review of the Analysis of the Management Situation substantiated this view. These will be treated in the analysis as common to all action alternatives.

Soils: Soil protection is mandated by law and Forest Service policy. Soil quality standards were updated in 1999 and are listed and defined in FSM 2500-99-1 R1 Supplement and FSH 2509-18, R1 Supplement 2509-18-91-1. These standards apply to site-specific projects. The Regional Manual and Handbook are updated as the results of long-term soil productivity studies and other research become available.

Air Quality: The Clean Air Act as amended in 1990 and 1999 provides the overall direction for air quality management. The Montana Code Annotated further defines legal requirements to meet air quality standards through the Clean Air Act of Montana. Since smoke from wildfires and prescribed fires is prevalent in the Northern Rockies Geographic Area, federal, state, and local government agencies and the forest products industry formed the Montana/Idaho Airshed group to manage smoke impacts to individual airsheds.

Scenery: The management system used to identify and sustain the scenic value of National Forests was the Visual Management System, (Agricultural Handbook 462) referenced in existing Plans. In 1995, the Forest Service adopted a new Scenery Management System (Agriculture Handbook No. 701), to replace the Visual Management System. The scenery inventory will be updated according to his process.

Heritage Resources: Laws and regulations provide most of the management direction for this resource. Forest plan direction between the two current plans is different and needs to be consolidated for consistency.

Minerals, Oil & Gas: Management direction for these resources is provided through laws and regulations. Forest direction for some mineral activities varies between plans and needs to be consolidated. The oil and gas availability and leasing stipulations for the Beaverhead Unit will be carried forward, but may be modified to ensure they are consistent with the revised forest plan.

Lands: Current forest plans include general goals for land ownership adjustment to consolidate lands, ensure public access, and better manage forest resources, which are pursued as budget and opportunity allow. The revised plan needs to consolidate this direction forestwide.

Wild & Scenic Rivers: Regulations require evaluation of Eligible Wild and Scenic Rivers. The evaluation identified no additional rivers and none of the current eligible rivers were found ineligible.

Research Natural Areas and Special Interest Areas: The current Beaverhead and Deerlodge Forest Plans identified 16 proposed Research Natural Areas, and one Special Interest Area. Fourteen have since been designated through amendments and two remain to be reviewed. The AMS documented no anticipated changes or additions to the existing list.

Legal Requirements

Development of the revised forest plan through this Final Environmental Impact Statement is intended to satisfy regulatory requirements, as well as address new and changing information about the forest and its uses.

The forest plan incorporates the provisions of the National Forest Management Act, implementation regulations, and other guiding documents. Multiple-use objectives, standards, and management area prescriptions define management direction.

Under the 1982 Planning Regulations, instructions to revise forest plans were formulated in the Code of Federal Regulations (CFR) at 36 CFR 219.10(g):

“A forest plan shall ordinarily be revised on a 10-year cycle or at least every 15 years. It also may be revised whenever the forest supervisor determines that conditions or demands in the area covered by the plan have changed significantly, or when changes in RPA policies, goals, or objectives would have a significant effect on forest level programs.”

This is consistent with the 2000 Planning Rule as amended in 2004 (36 CFR 219.35).

Current Beaverhead and Deerlodge National Forest Plans were approved in 1986 and 1987 respectively. Revision is warranted because the plans are beyond the 10 to 15 year time period allotted for revision and conditions and demands have changed.

DECISIONS TO BE MADE

Six Decisions Made in Forest Plans

A forest plan establishes key decisions for the long-term management of a national forest. The 1982 planning regulations establish the following as decisions required in forest plans:

1. Forestwide multiple-use goals and objectives including Projections of Goods and Services that may be produced (36 CFR 219.11(b)).
2. Forestwide management requirements (standards) (36 CFR 219.13 – 219.27).
3. Management Area direction and prescriptions, including Management Practices (36 CFR 219.11(c)).
4. Suitability for Timber and Grazing (36 CFR 219.14, 219.16, and 219.20).
5. Monitoring and Evaluation Requirements (36 CFR 219.11(d)).
6. Recommendation to Congress of areas eligible for wilderness designation as required (36 CFR 219.17 (a)) and rivers eligible for inclusion in the National Wild and Scenic Rivers System as required (16 USC 1271-1287), (36 CFR 297) and (47 FR 39454).

The Regional Forester for the Northern Region, as the responsible official for the forest plan, identified Alternative 6 as the preferred alternative. After consideration of comments received after distribution of this FEIS and revised Draft Forest Plan, a final decision will be made in a Record of Decision (ROD). The ROD will set a course of action for managing the BDNF in the next 10 to 15 years.

Related Decisions Which Implement the Forest Plan

The six forest plan decisions listed above are strategic. Implementation of the forest plan generally happens later through a secondary level of site- or project-specific analysis and decisions. However, there are situations where a site-specific decision is made at the same time as the strategic decisions. For example a strategic decision would allocate an area as non-motorized to provide quiet recreation or to protect wildlife in winter range. It would not be reasonable to allow motorized use in this allocation as it would not meet visitor expectations, nor would it protect the wildlife as intended. Therefore, the Record of Decision following the FEIS will make a site-specific decision implementing the travel management decision, in the form of a standard restricting motorized travel.

A second ROD will be issued by the BDNF Forest Supervisor making site-specific decisions, including travel management decisions, necessary to implement the forest plan and manage resources or meet public expectations where existing non-conforming activity is taking place in an allocation. There is also a decision to be made whether the current direction from the 2001 Plan Amendment for Montana, North Dakota and portions of South Dakota (the Tri-State OHV Decision) will be modified to use a map base for defining roads and trails. The specific proposals to be decided on include:

1. A proposal to close all roads and trails to motorized uses on national Forest System lands allocated to non-motorized uses in the Revised BDNF Plan.

Non-motorized recreation allocations are designed to provide quiet recreation and protect wildlife on winter range. Continued motorized use in this allocation following identification of the need would conflict with need for this allocation. Forest users indicated a desire to know what to expect of their favored areas in terms of conditions, management, and recreation opportunities in each season of use.

Forest Service policy requires protection of wilderness potential in areas recommended for wilderness (FS Manual 1923.03 (2)): In this case a site-specific decision may be made to implement the standard which restricts activities not allowed in recommended wilderness.

2. A proposal to further define direction carried forward in the Revised BDNF Plan from the Tri-State OHV Decision is displayed on the Forest Plan Interim Roads and Trail Map which represent the GIS layer of roads and trails on the BDNF open to motorized travel.

The Tri-State OHV Decision amended Forest and Grassland Plans in Montana and the Dakotas to restrict motorized wheeled vehicle travel off roads or trails (cross-country travel). That decision established the legality of motorized travel based on a visual interpretation by the user rather than a map of roads and trails where motorized uses are allowed. Monitoring and public comments since 2001 have shown that the “user interpretation” approach to identifying these routes has been confusing and ineffective. There has been a proliferation of new user-built routes and new motorized use of other routes that were not available to those uses prior to 2001. Therefore, the Forest Service is proposing to adopt a map (Revised Draft Plan, Page 55) developed over the past 5 years, through public involvement, specifying those routes in which motorized use is allowed. In conjunction, the direction of the Tri-State OHV decision

would be supplemented to specify that cross-country wheeled motorized travel would be prohibited off of these routes, except as allowed by proposed Recreation Standards 2 and 3 of the proposed Revised Beaverhead-Deerlodge Forest Plan.

This prohibition is not intended to supersede road and trail motorized vehicle restrictions already in place that regulate the type of vehicle or season of use. This decision is intended to be interim direction until such time as route specific motorized use designations are completed.

A third Record of Decision on oil and gas leasing will be issued for lands within the administrative boundaries of the Beaverhead National Forest. The revised plan includes determinations of lands administratively available for leasing under the specified conditions and the leasing decisions for specified lands (36 CFR 229.102(d) and (e)). Under the implementing regulations, the Forest Service has two decision points relating to oil and gas leasing. In this instance, the Forest Service has decided to combine the Lands Administratively Available Decision, with the Leasing of Specific Lands Decision.

The BLM is a cooperating agency in this process. They will make oil and gas leasing decisions based on this FEIS for the Beaverhead Unit of the forest. These decisions include the decision to lease National Forest System lands authorized for leasing subject to stipulations required by the Forest Supervisor. The BLM will also make the decision to lease any split estate lands (non-Forest Service/federal minerals) within the boundaries of the Beaverhead Unit subject to stipulations developed and adopted through this FEIS.

COLLABORATION

The BDNF began a history of collaboration with federal, state, local governments and citizen stakeholders in the mid-1990s through landscape analysis. Landscape analysis was a long range planning tool that looked at resource issues and social and economic needs across some of the eleven landscapes defined for the forest. Beginning with the Tobacco Root Landscape in 1994 and the Pioneer Landscape in 1998, residents, Forest users, and other agencies came together to discuss desired conditions and opportunities for large parcels of the Forest. Six of the eight landscape analyses completed involved other agencies and/or citizen stakeholders.

Through Landscape Analysis, planners and staff developed relationships with a number of community members, advocacy groups and other agencies. Interagency steering groups in Madison and Beaverhead Counties continue to meet on a regular basis. Post analysis surveys of participants, however, showed a level of frustration and process burnout in the extensive meetings required. In March 2001, the BLM Dillon Field Office and Montana Consensus Council conducted an assessment of how citizens would prefer to participate in the BLM Resource Management Plan process. Citizens showed a preference for agencies coming to them rather than holding public meetings and hearings. The BDNF adopted this outreach approach in public outreach and involvement for the revision process.

Relationship to Other Entities

Forest Service planning regulations require the agency to consider other federal, state and local government and tribal plans and policies. As part of the outreach effort, a number of discussions with federal, state, local and tribal representatives were initiated.

County Governments

Beginning with initiation of the planning process in 2001, local government officials from the seven counties within BDNF lands have been invited to participate in forest plan development. Beaverhead and Madison Counties sought and received cooperator status in the revision planning process. As a result, the BDNF, Beaverhead County and Madison County established a Memorandum of Understanding (MOU) outlining the special expertise the counties could bring to the planning process. Invitations were also sent to the other five counties involved, Anaconda-Deerlodge, Butte-Silver Bow, Granite, Jefferson, and Powell. While none of these invitations resulted in additional formal cooperating agencies, information sharing and less formal involvement continued.

All county plans were considered as the planning process developed.

State

Several State of Montana agencies are affected by, or affect, Forest Service management. These include Montana Fish, Wildlife and Parks, Montana State Environmental Protection Agency, Department of Natural Resource Conservation, and Montana State Department of Transportation. We coordinated information with Montana Fish, Wildlife, and Parks and the State Environmental Protection Agency during all phases of the process. Those offices provided formal comments during the scoping and DEIS review periods. We also consulted the Montana State Department of Transportation as described in the Forest Roads Analysis Report.

Tribes

Members of the Interdisciplinary team consulted Tribal representatives during development of the BDNF Plan. The Forest Supervisor met with the Confederated Salish and Kootenai, Shoshone-Bannock tribes and corresponded with the Blackfoot Tribe in addition to regular annual tribal consultation. Specific tribal comments are incorporated in the FEIS and Revised Draft Forest Plan as a result.

Federal

Management of federal lands adjacent to the BDNF is considered in the formulation of alternatives and their cumulative effects. The Dillon Field Offices of the BLM recently revised their Resource Management Plan. The Butte Field Office of the BLM is in the process of revising their Resource Management Plan and may complete it by late 2008. Again, the BLM is a cooperating agency on this revision document for the purpose of the oil and gas leasing decisions for the Beaverhead Unit. Resource specialists for both agencies share data and information. The Forest Service Interdisciplinary Team (IDT) coordinates with the appropriate BLM specialists where resources and management issues cross boundaries.

Consideration of national scenic and historic trails, utility corridors and other management concerns across boundaries were discussed with the Targhee, Salmon, Lolo, Bitterroot and Gallatin National Forest staff. We met with these entities to ensure we didn't create management problems for them because of revised forest plan direction.

On the upper end of Rock Creek, the Beaverhead-Deerlodge National Forest administers a section of the Lolo National Forest because of geographic proximity. All data used in this revision includes this section. The Elkhorn Mountains portion of the BDNF is managed as a

single unit in cooperation with the Helena National Forest. Management direction for the Elkhorn Mountains will be coordinated by the Helena National Forest in their forest plan revision process.

Public Involvement

The BDNF revision effort sought involvement in the planning process from a variety of stakeholders outside of government and agency groups. Individuals and organizations involved to date represent a wide range of interests, including but not limited to advocacy groups for wildlife, livestock grazing and agriculture, timber, motorized recreation, quiet recreation, hunting and wilderness

Scoping efforts began with a formal Notice of Intent (NOI) to revise the plans under the 1982 Planning Regulations published in the Federal Register, May 3, 2002. On September 30, 2002, a news bulletin was mailed to 3,400 people on the forest mailing list asking for involvement.

Forest planning regulations (1982) require an Analysis of the Management Situation, to initiate forest plan revision. The BDNF developed a draft of the analysis through review of the 1986 and 1987 plans, subsequent landscape analyses, monitoring reports, and the result of appeals and litigation. In December 2002, 650 printed copies of the AMS were distributed to people who responded to the initial news bulletin, NOI, or other request. Twenty-six public meetings were held by invitation to discuss the analysis. The AMS, and all revision documents, are posted on the forest website.

Beaverhead and Madison Counties also provided public hearing opportunities as forums to encourage public input. This parallel process provided additional formal comments from two county commissions, individual commissioners, a county planning board, and a resource use committee, along with comments from individual county residents. Public review resulted in 93 letters and requests for 24 meetings.

A revised Notice of Intent to prepare an Environmental Impact Statement was published August 22, 2003. Requests were filled for 950 printed and 100 CD copies of the Proposed Action. This document contained a detailed description of proposed desired conditions, integrated objectives, standards, and management areas.

More than 50 meetings concerning the Proposed Action (2003) were held by request with special interest groups, civic organizations, state, and county governments. An overview of the revision process and elements of the proposal were presented at those meetings. Information and offers to meet with interested groups were also circulated in the initial press release, subsequent newspaper articles, and in our responses to inquiries. These and subsequent meetings generated more than 800 letters, and a petition opposed to wilderness and motorized closures. The public response was used to develop alternatives for analysis in the DEIS.

Forest representatives met at least once with ninety special interest groups, civic organizations, state, and county government groups and individuals to discuss forest plan revision. The meetings and DEIS, generated 1,379 original letters and 9,213 form letters and petitions. After the comment period, the Forest Supervisor received over 300 letters. Review and discussion of those letters have been considered and incorporated in the FEIS and revised Draft Forest Plan.

Relationship to Other Assessments

There are broad scale assessments in place that affect management decisions on the Beaverhead-Deerlodge National Forest. We include them in this chapter in order to explain our process in the context of these larger analyses.

National Scale: In March 1999, the Committee of Scientists published a report entitled, “Sustaining the Peoples’ Lands: Recommendations for Stewardship of the National Forests and Grasslands into the Next Century” (USDA 1999). This report emphasizes ecosystem management and the need for sustainability of all Forest lands. The report also emphasizes the need for standards and guidelines or any other technical requirements to be based on scientific research. The Beaverhead-Deerlodge National Forest has incorporated this guidance by using accepted scientific data and recovery plans as the basis for developing resource-specific requirements.

In accordance with the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) the national RPA Program provides a programmatic context and general strategic course we will strive to attain until 2045. The program describes all Forest Service activities under its jurisdiction and identifies broad resource and program needs that respond to anticipated demands as discussed in the draft AMS.

New direction such as the Healthy Forest Initiative, National Fire Plan and the associated Cohesive Strategy direct the management of national forests to curtail uncharacteristic wildfire and reduce the risks to people, property and resources.

Regional Scale: Regional assessments consider different geographic scales, and can help identify or maintain future public land management options. As part of the context for revision efforts, it is important to consider the findings and management strategies contained in these larger assessments, such as the Columbia River Basin Assessment, Northern Region Overview, USFS Region 1 Eastside Data, Inland Native Fish Strategy, data collection for Greater Yellowstone Area and applications on the Forest. The Statewide Transportation Improvement Program provides some context for roads analysis.

Forestwide Scale: In October 2002, the Social and Economic Assessment for the Beaverhead-Deerlodge National Forest was completed under private contract. The Northern Region Office also produced an Economic Assessment of Eastern Montana National Forests, including a chapter on the Beaverhead-Deerlodge NF Economic Area. Other forestwide information includes the Roads Analysis and the Draft Westslope Cutthroat Trout Sub-Basin Assessment.

The 1995 Beaverhead National Forest Oil and Gas Leasing FEIS analyzed the effects of potential oil and gas development on other Forest resources and analyzed the effect of seven management prescriptions on the development of oil and gas. The analysis of oil and gas leasing will tier to the 1995 FEIS and Decision.

Monitoring reports contributed significantly to our knowledge of what is and is not working. Ten monitoring reports have been published for the Beaverhead and Deerlodge Forest Plans. The first seven addressed each monitoring item. The most recent reports examine emerging issues to deal with during revision of forest plans and are incorporated in the vegetation and fire management discussions. The revised forest plan will also incorporate the BDNF Fire Management Plan.

Landscape Scale: Between 1984 and 2000 the Pioneer, Gravelly, Tobacco Root, Boulder River, Lima-Tendoy, Madison, Clark Fork-Flint, Big Hole and Rock Creek Sub-Basin Review landscape assessments were conducted to aid in future management of those areas. These assessments are not decision documents. They serve to update resource inventories, described existing conditions, and provide information in the Global Information System for comparison. They review relationships between biological, social, and economic components of landscapes. This information is incorporated in the development of alternatives summarized in Chapter 2, and examined in detail in Chapter 3.

CHAPTER TWO

This chapter describes the alternatives developed for revising the Beaverhead-Deerlodge Forest Plan. It contains the following discussion.

- ◆ Development of key issues and alternatives
- ◆ Elements Common to All Alternatives
- ◆ Description of each alternative including the “no-action alternative” which describes the existing situation
- ◆ Description of alternatives considered but eliminated from detailed study
- ◆ Comparison of the alternatives and major features, including how they respond to issues

DEVELOPMENT OF ALTERNATIVES

Preliminary alternatives for revision were based on the need for change identified in the Analysis of the Management Situation (2002), implementation and monitoring of the current plans, and public scoping on the Proposed Action (2003). As a result, a list of key issues was identified that will drive alternatives. There is also a list of issues common to all alternatives. Some items are addressed because they are required by planning regulations (36 CFR 219 (1982)).

Alternative 1, the “No Action Alternative,” reflects current management practices under the existing Forest Plans, as amended and implemented. It provides the basis for comparing alternatives. While all alternatives provide a wide range of multiple uses, goods, and services, some give slightly greater emphasis to selected resources based on key issues.

Alternatives to the No Action Alternative were developed around issues identified by the public during the comment period following publication of the Draft Analysis of the Management Situation (2002), Proposed Action (2003) for the Beaverhead-Deerlodge Forest Plan Revision (2003), and Draft EIS and Draft Forest Plan (2005). Alternatives represent a range of possible management scenarios from which to choose. Each alternative emphasizes an issue or group of compatible issues but shares the essential concepts and policies all national forests must follow. Key issues are identified and described in this chapter. All action alternatives are designed to meet the elements described in the purpose of revision, Chapter 1.

Forest plans are not budget documents, but should be developed with budgets in mind. Public comments to the DEIS supported a forest plan based on realistic budgets. Alternatives in this FEIS are based on fiscal year 2005 “current services” level, consistent with budgets since 2002. Funds for various resource programs like wildlife or timber may vary within the total budget, however, depending on the alternative. Should Congress emphasize specific programs by appropriation, a redistribution of priorities would follow, regardless of the alternative implemented.

All reasonable alternatives to the Proposed Action (2003) must meet the purpose and need for change, and address one or more of the significant issues. These alternatives are considered for detailed study. However, not all possible alternatives were carried into detailed study as the list of options would have been prohibitively large. Instead, the responsible official identified those

alternatives that both met the criteria and created a reasonable range of outputs, direction, costs, management requirements, and effects from which to consider implementation options.

The key issues are outlined in this chapter followed by the alternatives considered for detailed study.

Key Issues

Vegetation Management

Forest Stand Structure: Historic models of forest types in southwest Montana show more small trees in younger stands than are found today. This is attributed to fire suppression having allowed more trees to advance into larger size classes. The trends in the SIMPPLLE model and FIA are supported by data presented by Losensky (1993) from the 1930's timber inventories for Southwestern Montana that also show more seedling and sapling size classes than exist today as shown in the following table. Maintenance of size class diversity is a coarse filter approach to providing for the habitat composition, distribution and structure that meets the needs of animal and plant species populations that have historically been present in these forests.

The issue: How much vegetation management is needed in the next 10 to 15 years to achieve a balance of size classes closer to historic trends?

Decision criteria: Percentage of forested types in early, mid, and late seral stages

Aspen: Analysis indicates aspen stands are declining. Although this is attributed to a variety of causes, conifer encroachment and cropping of regenerating aspen sprouts by herbivores are two of the larger concerns. Modeled historic aspen populations compared to the existing condition, indicate aspen have dwindled to less than 20 percent of the minimum Historic Range of Variability (HRV).

The issue: How much vegetation management is needed in the next 10 to 15 years to establish an upward trend for aspen?

Decision criteria: Acres of restored aspen.

Grassland/Shrubland: Analysis indicates conifer encroachment is reducing grassland/shrubland habitat. Public scoping also identified encroachment as a concern for a variety of reasons such as habitat loss and water production.

The issue: How much vegetation management in grassland/shrublands is needed in the next 10 to 15 years to reduce conifer encroachment?

Decision criteria: Acres of grassland/shrubland restored by reducing conifer encroachment.

Old-Growth: Old-growth is a unique component of a diverse vegetative community. It provides important habitat in addition to social and aesthetic values as identified by a variety of people during scoping.

The issue: What minimum amounts of old-growth should be maintained, by forested type?

Decision criteria: Percentage of forest type maintained in old-growth condition.

Wildlife Management

Wildlife Security: Public comment on the proposed action, indicated concern about the effects of open motorized roads and trails on wildlife habitat and connectivity.

The issue: What open motorized road/trail densities are appropriate for wildlife security during the summer season?

Decision criteria: Miles per square mile of open motorized roads/trails during the summer season.

Elk Habitat Effectiveness: Members of the public expressed concern about elk security, particularly during big game hunting season. Montana Fish Wildlife and Park expressed concern regarding their ability to maintain big game hunting season objectives.

The issue: What open motorized road/trails densities are appropriate to provide security and escapement for elk during the general rifle season while allowing for a variety of hunting experiences across forest?

Decision criteria: Miles per square mile of open motorized road/trail during the general rifle hunting season.

Aquatic Resources Management

Aquatic Restoration: Forest Service data and public concern support the need for watershed improvement. Restoration of all watersheds identified as needing restoration is not feasible over the next 15 years, given projected budgets; therefore we need to prioritize watersheds for treatment.

The issue: How much and where should we focus watershed restoration?

Decision criteria: Number of restoration emphasis key watersheds.

Bull Trout and Westslope Cutthroat Trout Conservation: Public concerns, Forest Service direction, and fisheries data support the need to conserve native species to ensure that the strongholds of westslope cutthroat and bull trout populations are secure on the BDNF.

The issue: How and where should we focus conservation of bull trout and westslope cutthroat trout?

Decision criteria: Number of fish conservation key watersheds.

Aquatic Strategies: Administrative consolidation of the Beaverhead and Deerlodge National Forests in 1996 resulted in 3 separate sets of aquatic habitat direction. The Inland Native Fish Strategy (INFISH), an amendment to the Deerlodge Forest Plan in 1995, applies west of the Continental Divide because of the range of bull trout. The Deerlodge Forest Plan standards apply east of the Divide and the Beaverhead Forest Plan applies on the entire Beaverhead portion. We seek to consolidate all three sets of direction into a comprehensive strategy for the entire Forest.

The issue: What aquatic strategy or strategies are best for managing aquatic species and water quality across the Forest?

Decision criteria: Type(s) of aquatic strategies.

Recreation and Travel Management

Some public comments indicated a desire to maintain existing motorized recreation opportunities in summer and winter while others wanted to expand quiet areas free of motorized use with easy vehicle access and parking. Yet others wanted increased motorized opportunities.

Recreation activities are important to local lifestyles and economies. ATV and snowmobile use grew rapidly since completion of the 1986 and 1987 Plans. Other types of recreation have also increased. We receive more than 1.1 million visits each year, and expect continued growth of at least 10 to 15 percent over the life of the plan.

Summer issue: Where and how many acres are allocated and managed for summer motorized and non-motorized opportunities?

Decision criteria: Percent of the Forest and location of areas allocated as non-motorized and miles of roads and trails currently open to motorized use closed.

Winter issue: Where and how many acres are allocated and managed for winter motorized and non-motorized opportunities?

Decision criteria: Percent of the Forest and location of areas allocated as non-motorized.

Until the 2001 Off-Highway Vehicle Record of Decision and Plan Amendment for Montana, North Dakota and Portions of South Dakota (Tri-State OHV Decision), National Forest System lands were not closed to off road or trail use, and cross country travel was allowed. Prior to the OHV amendment the public had been allowed to drive wherever they wanted to go for the most part; limited only by terrain, technology, and limited site-specific closures. This resulted in user conflict and resource damage.

Both forest staff and members of the public identified a concern with the existing forest plan, as amended by the Tri-State OHV Decision, which restricted cross-country travel by motorized wheeled vehicles. Under this decision a visual determination made by the user determines the open or closed status of a route rather than an inventory designating existing roads and trails. Monitoring and public comments indicate visual determinations contribute to the creation of new roads or trails (user created routes). This situation is created when someone travels cross-country illegally, the first time. The next person sees the track and may be unaware the origin of the road or trail was created illegally. In these cases, the track is visible on the ground and meets the current definition of a road or trail. Repeated use results in a defined track on the ground. The problem is further compounded as Forest Service budgets for site-specific travel planning required by the OHV amendment dwindle. Until routes are inventoried, analyzed and designated, new routes will continue to appear. A map, inventory, or other instrument that identifies road and trail locations as of 2001 is the most cost efficient way to achieve the OHV amendment objective. This would also bring the BDNF into compliance with the National OHV Policy currently published in the Federal Register for public comment.

The issue: In order to better to define unauthorized cross-country travel, where and how many miles of roads and trails are located on the forest?

Decision criteria: Location and miles of roads on the forest.

Location and miles of trails on the forest.

Method used to determine what is a road or trail.

Fire Management

The 2001 Federal Wildland Management Policy directs federal agencies to first and foremost protect firefighters, as well as directing the full range of fire management activities to achieve ecosystem sustainability. Response to wildland fires is based on ecological, social and legal consequences of the fire. The circumstances under which a fire occurs and the likely consequences in terms of firefighter and public safety and welfare, natural and cultural resources, and values to be protected, dictates the appropriate response to the fire.

The issue: Where and on how much of the BDNF should wildland fire use be allowed as part of AMR.

Decision criteria: Acres available for wildland fire use as part of AMR.

Suitable Rangeland

Regulations require (CFR 219.20) the identification of suitable rangeland in forest plan revision. The BDNF contains 938,000 acres of land capable for livestock grazing. Current plans allocate 846,000 acres suitable for livestock.

The issue: How much capable rangeland will be allocated as suitable for livestock grazing?

Decision criteria: Acres of suitable rangeland.

Suitable Timberland

Regulations require (36 CFR 219.14) the identification of lands suitable for timber production in forest plan revision. Public comments asked for various levels of more and less timber harvest. The BDNF contains 1,513,000 acres of lands tentatively suitable for timber production. Current plans allocate 676,000 suitable acres.

This issue includes those lands suitable for timber production as well as lands where timber harvest is allowed to achieve other resource objectives.

The issue: How much of the land tentatively suitable for timber production should be allocated for timber production?

Decision criteria: Acres of lands suitable for timber production.

Timber harvest can be a useful tool outside of suitable timberlands to protect resource values and to meet resource objectives such as reduction of fire risk through fuel treatments, vegetation objectives, aspen restoration, conifer encroachment, wildlife habitat and salvage objectives established by a forest plan. The volume produced from these lands would be incidental to other management objectives and not included in the ASQ. However, this volume would contribute to the forest timber sale program.

The issue: How much of the forested lands allow timber harvest to accomplish resource objectives?

Decision Criteria: Acres of land where timber harvest is allowed.

Wilderness Recommendations

Planning regulations (36 CFR 219.17 (a)) require all roadless areas be identified, inventoried, evaluated, and considered as potential wilderness if appropriate. Public comments included requests for both more and less recommended wilderness.

The issue: Where and how much land should be recommended for wilderness?

The measure: Location and acres recommended for wilderness.

Other Topics Analyzed

Oil and Gas Leasing: The 1995 Oil and Gas Leasing Decision amended the Beaverhead National Forest Land and Resource Management Plan. Scoping did not indicate a need to change this decision. However, new information and the way alternatives were developed affect the stipulations in the current oil and gas decision. Alternative 1 includes the original oil and gas decision with updated inventory data. Stipulations in Alternatives 2 thru 6 vary from Alternative 1 in two ways:

1. The number of acres where stipulations apply changes between alternatives. For example the No Surface Occupancy stipulation stays the same for recommended wilderness; however, the amount of recommended wilderness changes between alternatives.
2. Some stipulations were modified to better address a particular resource. In the example of protection for westslope cutthroat trout, the stipulations were modified, to fit the key watershed approach and to reflect recent monitoring data.

The effects of these changes are described by alternative in the appropriate effects sections in Chapter 3.

An updated decision will apply to the administrative boundaries of the Beaverhead National Forest only. Leases issued prior to the Record of Decision for this document will continue until they expire. The original 1994 FEIS analysis analyzed alternatives ranging from no leasing of any lands to leasing most legally available lands (i.e. not in wilderness). It also analyzed an array of different types of stipulations.

Elements Common to All Alternatives

All alternatives in this document adhere to multiple use and ecosystem management principles. In addition, they share objectives and standards for managing forest resources and complying with applicable laws and policies. They also contain the same direction to manage ecological conditions for maintenance of viable populations of native and desirable non-native species.

The following forest plan elements will not change between alternatives. Specific desired conditions, objectives and standards are described in the revised forest plan that accompanies this FEIS:

- ◆ **Air Quality:** The State of Montana regulates air quality. Requirements are defined by existing laws and regulations. Desired conditions, objectives, standards, and/or management

prescriptions concerning air quality are consistent with legal requirements and are common to all alternatives.

- ◆ **American Indian Rights & Interests:** Indian tribes are distinct political communities that are domestic dependent nations. The United States has a federal trust responsibility under CFR 219.1(6) to protect and preserve “the inherent right of freedom of American Indians to believe, express, and exercise their traditional religions,” and exercise treaty rights. It is the United States government’s permanent legal obligation to exercise statutory and other legal authorities to protect tribal lands, assets, resources, and treaty rights, and duty to carry out mandates of federal law with respect to American Indian and Alaska native tribes. For the Forest Service, trust responsibilities relate to the reserved rights and privileges of federally recognized Indian Tribes. Those duties are found in treaties, executive orders, laws, and court decisions that apply to the national forests and grasslands and are carried forward in all alternatives.
- ◆ **Arctic grayling:** Arctic grayling recovery efforts by Montana Fish, Wildlife and Parks over the last several years have included reintroduction in the Ruby River. They now exist in low numbers in the upper portion where the river runs through the BDNF. It has not been determined whether the Ruby River system can sustain a viable grayling population over the long term. If recovery efforts are successful, grayling habitat preferences suggest they would largely confine themselves to the main river. Their general absence in tributary streams makes the use of 6th HUC watersheds poor management units for defining conservation measures. For these reasons, we are not proposing to allocate key fish watersheds solely to benefit grayling. Grayling will remain a sensitive species with Forestwide standards and objectives to meet their habitat requirements in all alternatives.
- ◆ **Fire Management:** The 2001 Federal Wildland Fire Management Policy defines direction for use of the full range of fire management activities to achieve ecosystem sustainability including its interrelated ecological, economic, and social components. Fires are suppressed at minimum cost, considering firefighter and public safety, and all values to be protected, consistent with resource objectives. Appropriate Management Response will be implemented on all fire ignitions.
- ◆ **Management of Sensitive Species:** Regulations and policy require special management emphasis for sensitive species to ensure viability. This direction will remain common to all alternatives.
- ◆ **Locatable Mineral Resources:** Federal lands open to locatable minerals under the Mining Act of 1872 will not change by alternative. Most decisions concerning locatable minerals are made at the project level. Desired conditions, objectives, standards, or management prescriptions concerning locatable minerals will be common to all alternatives.
- ◆ **Saleable Mineral Resources:** Federal lands available for mineral material permits will not change by alternative. Decisions for mineral materials are discretionary and made at the project level. Desired conditions, objectives, standards, or management prescriptions concerning saleable minerals will be common to all alternatives.

◆ **Non-motorized Allocations:**

- **Summer Non-Motorized:** These allocations are designed to provide secure wildlife habitat especially in areas which link landscapes and quiet summer and fall recreation opportunities and desirable semi-primitive settings. Semi-primitive non-motorized recreation settings offer opportunities for mountain biking, horse and stock travel, hiking, dispersed camping, and other activities. Use of motorized roads and trails will not be allowed in these allocations.
- **Winter Non-Motorized:** These allocations are designed to protect low elevation winter range for deer, elk, and moose; protect high elevation secure habitat for mountain goat and wolverine. They also provide quiet winter recreation opportunities in locations people can drive to. Primitive and semi-primitive non-motorized recreation settings are provided in these areas, and offer opportunities for ski touring, snowshoeing, and hiking, and other non-motorized activities. Motorized use will not be allowed in this allocation.
- ◆ **Noxious Weeds:** Noxious weed prevention and control is a very important issue in southwestern Montana. The decision was made to update methods of treatment and increase the emphasis on prevention of weeds in the Beaverhead-Deerlodge Noxious Weed Control Final Environmental Impact Statement and Record of Decision signed in 2002. This direction is common to all alternatives and will be carried forward into the revised Forest Plan.
- ◆ **Recreation Residences and Commercial Resorts:** Direction in FSM 2347 and 2343 respectively, outline administration of special use permits. Management of these permits will continue to be guided by this direction and is common to all alternatives.
- ◆ **Soils:** Regional soil objectives and standards are found in FSM 2500-99-1, R1 Supplement and FSH 2509-18, R1 Supplement 2509-18-91-1. These objectives and standards are common to all alternatives.
- ◆ **Special Designations:** The following special designations have existing management plans or other management direction which will be carried forward under all alternatives.

Continental Divide National Scenic Trail (CDNST) - managed under the 1985 CDNST Management Plan and 1989 Montana CDNST Environmental Assessment

Lewis & Clark National Historic Trail (LCNHT) - managed under the 1982 LCNHT Comprehensive Management Plan

Nez Perce National Historic Trail (NPNHT) also known as the Nee-Me-Poo Trail - managed under the 1990 NPNHT Comprehensive Management Plan.

Lemhi Pass National Historic Landmark – managed under the 2002 Lemhi Pass National Historic Landmark Management Plan.

Anaconda Pintler Wilderness Area – managed under the 2000 Anaconda-Pintler Wilderness Plan and Beaverhead-Deerlodge Forest Plan Amendment.

Lee Metcalf Wilderness Area – managed under the 1987 Lee Metcalf Wilderness Management Plan, Beaverhead and Gallatin Forest Plans, and BLM Resource Management Area direction.

Eligible Wild & Scenic Rivers – managed under Forest Service Handbook 1909.12, Chapter 8.2.

Research Natural Areas – managed under management area prescriptions described in the decision notices in 1951 and 1972. Decision notices in 1996 and 2001 amended the Beaverhead and Deerlodge Forest Plans.

- ◆ **Utility Corridors and Electronic Sites:** Direction for and location of existing and proposed utility corridors and electronic sites does not change and is common to all alternatives (see Revised Draft Plan, Page 63).
- ◆ **Wilderness Study Areas:** The two Wilderness Study Areas on the forest were established by an Act of Congress in 1977. These areas and their management will continue as outlined by the Wilderness Study Act, supporting wilderness characteristic assessments completed by the BDNF in 2003 (West Pioneers) and 2006 (Sapphire Mountains), and the March 2007 Stipulation for Dismissal to the Montana Wilderness Association v U.S. Forest Service lawsuit. Site-specific travel planning will address winter and summer use within each WSA based on applicable law and policy including FSM 2329 by December 31, 2009.

Elements Common to All Action Alternatives

- ◆ **Developed Recreation Sites:** Existing developed recreation sites are retained in all action alternatives. Although alternatives make no decisions to remove or to create developed recreation sites, some management area prescriptions identify needs for improvements. Recreation site decisions will be made through site-specific NEPA analysis as necessary to implement the Forest Plan direction.
- ◆ **Fire Management:** Prescribed fire is allowed to achieve resource objectives forestwide in all action alternatives.
- ◆ **Grazing Interim Direction:** The Beaverhead and Deerlodge both developed a set of interim riparian grazing standards to be implemented until site-specific allotment management plans could be completed. Although the two forests were looking to achieve the same objectives, the interim direction was slightly different. This interim direction is consolidated and common to all action alternatives.
- ◆ **Heritage:** The protection of heritage resources is already recognized as an important resource in the current forest plans. Most of the guidance for the protection and management of heritage resources is stated in laws and regulations. The heritage resource is also coordinated with SHPO and American Indian Tribes. This emphasis and protection will continue. Desired Conditions, Objectives, Standards, and/or management prescriptions concerning heritage include this direction in all action alternatives.
- ◆ **Livestock Grazing:** Changes in suitable acres by alternative are based on formal closing of allotments, or portions of allotments vacant for a number of years, or allotments identified for closure through previous NEPA analysis. The permits for vacant allotments were generally waived back to the Forest Service or cancelled due to excessive non-use, permit violations or resource conflicts. Permittees that waive their permit back to the Forest Service are generally on allotments that are marginally economical to graze livestock. In some cases suitable portions of vacant allotment(s) are combined with another allotment to provide a more viable

operation. Forest Plan Revision does not consider site-specific land suitability for grazing. This evaluation takes place when allotment management plans are updated.

- ◆ **Management Indicator Species (MIS):** Elk, mountain goats, wolverine and mayfly (*Drunella doddsi*) were selected as MIS because these species can be monitored and a connection between population trends, habitat conditions, and management activities can be established. Mountain goats and wolverines were selected as the best indicator of the effects of disturbance on high elevation winter range and denning habitat. Elk are a commonly hunted species important to Montana Fish Wildlife and Parks and the populace in general.

Mayfly (*Drunella doddsi*) was selected because it is widespread, responds quickly to changes in the aquatic environment from management activities, and is easily monitored. These MIS species will be common to all action alternatives. Designation of a species as MIS does not infer a special degree of protection.

- ◆ **Tri-State OHV Decision:** The Tri-State OHV Decision restricted motorized cross-country travel off of roads or trails. That portion of the decision is common to all action alternatives.

A second portion of the Tri-State OHV Decision defined legal routes based on a visual determination by the user of whether the route was there prior to 2001. The determination resulted in some new user created routes. This portion of the Decision will not be common to all action alternatives, it will be re-considered in Alternatives 3, 4, 5, and 6 where the Forest Plan Interim Road and Trail Map (Forest Plan Page 55), developed with public involvement, would establish legal routes until site-specific travel planning is completed. Motorized travel off these roads and trails would be restricted. The Interim Map supplements the current Beaverhead-Deerlodge National Forest Visitor/Travel Maps. Seasons and type of use continue to apply in all areas outside of recommended wilderness or non-motorized allocations regardless of alternative. See the descriptions for Alternatives 3, 4, 5, and 6 for allocation information.

- ◆ **Outfitters and Guides:** Existing direction found in Forest Service Manual 2342.8 for Outfitter and Guide permits continues to apply. Desired Conditions, Objectives, Standards, and/or management prescriptions concerning outfitter and guides will be common to all action alternatives.
- ◆ **Recommended Wilderness:** In all action alternatives, motorized travel is restricted in recommended wilderness. Forest Service policy, FSM 1923.03 (2) states any area recommended for Wilderness is not available for any use or activity that may reduce the area's Wilderness potential. This national policy allows each forest to determine, through the land management planning process, the uses best suited to protect an area's Wilderness potential.
- ◆ **Research Natural Area:** There are currently 14 established Research Natural Areas (RNA's) and one Special Interest Area on the Forest. The revised forest plan designates two additional RNA's, Cattle Gulch and Elkhorn Lakes. All action alternatives would establish Cattle Gulch and Elkhorn Lake areas as Research Natural Areas.
- ◆ **Roadless Inventory:** A roadless inventory and evaluation was completed as required in the regulations (CFR 36 219.17) and FSH 1909.12.7.1. This inventory is documented in the planning project record. The effect of each alternative on these roadless areas can be found in Chapter Three. These areas will be common to all action alternatives.

- ◆ **Scenery Management System:** The Scenery Management System as described in the Landscape Aesthetics, Agriculture Handbook No. 701 is used to identify and manage scenery on National Forest System Land. The results of this inventory, including the Concern levels listed in the revised forest plan and will be applied consistently in all action alternatives.
- ◆ **Snag Management and Large Woody Debris:** Currently the two forest plans have similar objectives but different standards for snags and large woody debris. These have been consolidated into one objective and standard to provided consistency and apply to all action alternatives
- ◆ **Timber Harvest:** Timber harvest may be used as a tool to achieve a resource objective determined through a site-specific analysis. This applies to all areas on the forest unless specifically restricted in the forest plan. Timber harvest should not to be confused with timber production. Timber production is an allocation of land for the purpose of producing commercial sawlogs or other wood products, whereas timber harvest is a tool or activity used to achieve a desired condition or objectives.
- ◆ **Travel Management Plan:** The Beaverhead-Deerlodge National Forest currently has three Forest Visitor/Travel Plan maps. These maps define travel management and vehicle access that reflect management objectives and specific management areas. The maps display roads and trails available for public use as well as motor vehicle restrictions and will be updated to reflect the revised forest plan decisions.

Current restrictions, displayed on the Beaverhead-Deerlodge National Forest Visitor/Travel Maps, on seasons and type of use continue to apply in all areas outside of recommended wilderness or non-motorized allocations regardless of alternative.

Description of Alternatives

The BDNF Draft Environmental Impact Statement (DEIS) analyzed a range of alternatives for revising management direction. Based on the analysis in the DEIS and comments received, additional alternatives were considered or developed. Additional analysis of these alternatives is documented in this FEIS.

Alternative 1

Alternative 1 is the No Action Alternative which provides a baseline for comparison of the other alternatives as required by the National Environmental Policy Act (NEPA). It is considered in detail in the environmental analysis in accordance with (FSH 1909.15). “No-action” means management allocations, activities, and management direction described in the existing 1986 and 1987 forest plans continues for the next 15 years unless amended. This alternative contains recently updated administrative adjustments, litigation decisions, more accurate GIS information, and the following list of forest plan amendments.

To make distinctions between amendments to the existing plans in the table below, “B” indicates Beaverhead Forest Plan, “D” indicates Deerlodge Forest Plan, and “R1” identifies a regional amendment. Some amendments are numbered but are not in sequence because some were voided or dropped.

D-	Management Area Direction for J2	October	1990
B1	Wild & Scenic Rivers	June	1991
D-	Inland Native Fish Strategy	July	1995
B3	Oil & Gas Leasing	February	1996
D3/B4	Research Natural Area Designations	July	1996
B5	Cave Mountain Research Natural Area	September	1996
B7	Riparian Amendment	October	1997
D1	Elkhorn Oil & Gas Leasing	June	1998
R1	Off-Highway Vehicle Amendment	January	2001
D4/B9	Goat Flat Research Natural Area Designation	February	2001
D2/B8	Anaconda Pintler Wilderness Plan	May	2002

Vegetation: Aspen restoration and grassland/shrubland restoration (conifer encroachment) are not addressed. Existing old growth is retained at 10% of conifer and Engelmann spruce by compartment, on the Beaverhead Unit and 5% by compartment of all species on the Deerlodge Unit.

Wildlife: Habitat Effectiveness and Road Density vary between Plans. The Deerlodge Plan specifies 45 Elk Security Analysis Areas varying in size from 7,000 to 35,000 acres with varying standards and objectives for habitat and open road density. The Beaverhead Plan does not have Elk Analysis Areas but requires a minimum of 70% elk effective cover during general rifle season. Elk habitat effectiveness standards for the Beaverhead focus on timber sale activity which doesn't address potential habitat impacts from other vegetation management activities.

Aquatic Resources: Three separate sets of aquatic goals, objectives and standards (INFISH, as well as, the Deerlodge and Beaverhead Forest Plans) apply depending on the location of a stream east or west of the continental divide and north or south of the old forest boundary. Existing plans do not identify specific restoration or fish conservation key watersheds.

Fire Management: Wildland Fire Use for resource benefit is available on 2,768,000 acres. Currently only the Anaconda-Pintler and Lee Metcalf Wilderness plans have fire use plans allowing implementation.

Recreation and Travel Opportunities: The combined forest plans allocate or identify as a desired condition, objective or standard approximately 29% of the forest in a non-motorized summer setting and 16 % in a non-motorized winter setting. This includes motorized use in recommended wilderness, and wilderness study areas. Roads and trails as defined in the OHV amendment are a visual determination by the user. Cross-country motorized travel is restricted.

Suitable Rangeland: The existing plans identify approximately 846,000 suitable acres for grazing.

Suitable Timberland: The existing suitable timber base is approximately 676,000 acres (Excludes Elkhorn Mountains as discussed in Chapter 1). This is the result of removing management areas in the existing forest plans that do not allow timber production harvest from tentatively suitable acres. An additional 768,000 acres allow timber harvest for other purposes like salvage to prevent disease and insect population build-up or provide posts and poles.

Wilderness Recommendations: Current wilderness recommendations comprise about 174,000 acres. Motorized use is allowed in these areas according to the BDNF Travel Management Plan.

Alternative 2

Alternative 2 is the Proposed Action (2003) released for public review in August, 2003. The alternative was designed around the need for change evident after monitoring, landscape analysis, and public comments on the Draft Analysis of the Management Situation published December, 2002. The Proposed Action (2003) introduced large management areas designed to improve management of resources and which are readily identifiable by forest users. Alternative 2 addresses the key issues as follows:

Vegetation: Aspen restoration and grassland/shrubland restoration (conifer encroachment) are emphasized, but not quantified. Current amounts of old growth are retained by vegetation type: Douglas-fir at 8 to 10%, lodgepole pine at 10 to 15%. All Engelmann spruce, sub-alpine fir, white bark pine and limber pine old growth will be retained at existing levels.

Wildlife: Establishes a 50% habitat effectiveness requirement, derived by limiting motorized road and trail densities to 1.5 miles per square mile. It also includes an objective to retain 30% of forested land in security blocks of 250 acres or more.

Aquatic Resources: INFISH direction continues to apply west of the Continental Divide. East of the Divide different standards were developed from stream conditions in relatively undisturbed streams. This alternative does not identify restoration or fish conservation key watersheds.

Fire Management: Approximately 2,251,000 acres are available for wildland fire use and prescribed fire is permitted forestwide.

Recreation and Travel Opportunities: Non-motorized allocations would be approximately 39% in summer and 22% in winter. Roads and trails as defined in the Tri-State OHV Decision would continue visual determination by the user. Approximately 106 miles of roads and 136 miles of trails currently open to motorized travel would be restricted to motorized wheeled vehicles in the summer.

Suitable Rangeland: Lands suitable for grazing are approximately 846,000 acres.

Suitable Timberland: The suitable timber base is approximately 346,000 acres. This is the result of removing inventoried roadless areas (IRAs), riparian habitat conservation areas, management areas prohibiting timber production, and recommended wilderness from tentatively suitable acres. An additional 1,085,000 acres allow timber harvest to meet other resource objectives, specified as an “appropriate” vegetation or fuel management activity by management area.

Wilderness Recommendations: In this alternative approximately 195,000 acres are recommended for wilderness, including a revised West Big Hole proposal. Recommended Wilderness is closed to motorized, but not mechanized, travel.

Alternative 3

Alternative 3 addresses public comments asking the Forest Service to allow natural processes to maintain ecosystems, minimize mechanical vegetation treatment, and conserve or restore aquatic

health. The alternative meets concerns about the protection of roadless character by excluding summer motorized uses from inventoried roadless areas. The largest amount of recommended wilderness acres in this alternative addresses requests for additional recommended wilderness.

Alternative 3 addresses the key issues as follows:

Vegetation: This alternative establishes an objective to create an upward trend on 13,340 to 66,700 acres of aspen. Grassland/shrubland restoration (conifer encroachment) is addressed by an objective to treat from 0 to 74,000 acres over the planning cycle. Objectives would be met primarily through fire, from both planned and unplanned ignitions. Old growth will be retained by vegetation type as follows: Lodgepole pine is maintained at the existing amount of 14%, and all other species will be managed to preserve at least 15%.

Wildlife: Security is provided through limiting open motorized road and trail densities to 1 mile per square mile. This objective is applied to deer and elk hunting districts during the big game season and for landscapes during the summer season.

Aquatic Resources: INFISH direction as an aquatic strategy is applied on both sides of the Continental Divide (Forestwide), however, some INFISH standards have been modified to better clarify intent, dropped as they were determined not necessary, or added to reflect requirements outlined in the original biological opinion. Sensitive aquatic species was also added to this aquatic strategy. 135 Key watersheds are identified with associated management direction. Of those watersheds, 78 are restoration emphasis key watersheds and 57 are fish conservation key watersheds.

Fire Management: Approximately 3,355,000 acres are available for management of unplanned ignitions (wildland Fire Use) and prescribed fire is permitted forestwide.

Recreation & Travel Opportunities: Non-motorized allocations would be approximately 59% in summer and 45% in winter. The Forest Plan Interim Road and Trail Map was developed with public input, which serves as the route inventory. This map would serve as the basis for defining legal routes until site-specific travel planning is complete. Use of routes not displayed on this map would be considered cross-country travel and restricted. Approximately 491 miles of roads and 556 miles of trails currently open to motorized travel would be restricted to motorized wheeled vehicles in the summer.

Suitable Rangeland: Lands suitable for grazing are approximately 804,000 acres. Sheep allotments in occupied grizzly bear habitat will not be restocked with sheep if they become vacant.

Suitable Timberland: Alternative 3 allocates no suitable timberland. However, 1,259,000 acres allow timber harvest to meet other resource objectives where allowed by management area. Commercial harvest is not emphasized but 6 million board feet is estimated as the annual output of meeting other objectives.

Recommended Wilderness: This alternative includes approximately 706,000 acres of recommended wilderness. It includes existing wilderness recommendations, areas recommended by public comments, and areas identified in past legislation. Areas recommended for wilderness would be closed to motorized travel and mountain bikes.

Alternative 4

Alternative 4 responds to public comments that forest management should directly benefit local economies, and utilitarian traditions of families and communities through management emphasis on predictable sustained commodity outputs while allowing a variety of other uses.

Alternative 4 addresses the key issues as follows:

Vegetation: This alternative establishes an objective to create an upward trend on 13,340 to 66,700 acres of aspen. Grassland/shrubland restoration (conifer encroachment) is addressed with an objective to treat between 30,000 to 74,000 acres over the planning cycle. Objectives would be met through commercial timber harvest where allowed by management area direction and budgets. All species of old growth will be managed to preserve at least 10%, forestwide, by vegetation type.

Wildlife: Security is provided through limiting open motorized road and trail densities to 2 ½ miles per square mile. This objective is applied to the deer and elk hunting districts during the big game season and landscapes during the summer season.

Aquatic Resources: An aquatic strategy, based on INFISH, is applied Forestwide. Sensitive aquatic species were also added to this aquatic strategy. 57 Key watersheds are identified with associated management direction. Of those watersheds, 0 are restoration emphasis key watersheds and 57 are fish conservation key watersheds

Fire Management: Approximately 2,385,000 acres are available for management of unplanned ignitions (wildland Fire Use) and prescribed fire is permitted forestwide.

Recreation & Travel Opportunities: Non-motorized allocations would be approximately 36% in summer and 15% in winter. The Forest Plan Interim Road and Trail Map was developed with public input, which serves as the route inventory. This map serves as the basis for defining legal routes until site-specific travel planning is complete. Use of routes not displayed on this map would be considered cross-country travel and restricted. Approximately 35 miles of roads and 42 miles of trails currently open to motorized travel would be restricted to motorized wheeled vehicles in the summer.

Suitable Rangeland: Lands suitable for grazing are approximately 846,000 acres. Sheep allotments in occupied grizzly bear habitat will not be restocked with sheep if they become vacant.

Suitable Timberland: The suitable timber base is approximately 484,000 acres. This amount is the result of removing inventoried roadless areas, riparian habitat conservation areas, key watersheds, and recommended wilderness from tentatively suitable acres. Timber harvest to meet other resource objectives is allowed on another 1,005,000 acres where permitted by management area direction.

Recommended Wilderness: There are no acres identified as recommended wilderness.

Alternative 5

Alternative 5 is the Draft EIS preferred alternative. It was developed to balance the demand for diverse recreation opportunities, resource protection, and commodity outputs.

Alternative 5 addresses the key issues as follows:

Vegetation: This alternative establishes an objective to create upward trend on 13,340 to 66,700 acres of aspen. Grassland/shrubland restoration (conifer encroachment) is emphasized by an objective to treat between 30,000 to 74,000 acres over the planning cycle. Objectives would be met through a combination of timber harvest, planned and unplanned fire ignitions. All species of old growth will be managed to preserve at least 10% forestwide by vegetation type.

Wildlife: Fall hunting season security is provided in this alternative by managing open motorized road and trail densities at the state hunting district scale (MTFWP 2004 boundaries). The road densities range between 0 and 2.0 miles per square mile by hunting district to provide a range of hunting opportunities during the general hunting season. Objectives strive to reduce road densities in specific areas of concern.

Security for large carnivores and all other wildlife would be provided by a similar strategy at a larger scale. Open motorized road and trail densities at the Landscape level would range between 0.0 and 2.0 miles per square mile to provide a range of recreation opportunities during the summer season.

Aquatics: INFISH, as an aquatic strategy, applies west of the Continental Divide. However, some INFISH standards are either modified to better clarify intent or dropped as they were determined not necessary. In some cases, standards were added to reflect requirements outlined in the original biological opinion. An aquatic strategy, based on INFISH principles, is applied east of the Divide. Sensitive aquatic species were added to these aquatic strategies. Seventy two key watersheds are identified with associated management direction. Of those watersheds, 15 are restoration emphasis key watersheds and 57 are fish conservation key watersheds

Fire Management: Approximately 2,841,000 acres are available for management of unplanned ignitions (wildland Fire Use) and prescribed fire is permitted forestwide.

Recreation & Travel Opportunities: Non-motorized allocations would be approximately 45% in summer and 37% in winter. The Forest Plan Interim Road and Trail Map was developed with public input, which serves as the route inventory. This map establishes the basis for defining legal routes until site-specific travel planning is complete. Use of routes not displayed on this map would be considered cross-country travel and restricted. Approximately 144 miles of roads and 193 miles of trails currently open to motorized travel would be restricted to motorized wheeled vehicles in the summer.

Suitable Rangeland: Lands suitable for grazing are approximately 810,000 acres. If sheep allotments in occupied grizzly bear habitat (Gravelly Landscape) become vacant they will not be restocked with sheep but may be combined with existing sheep allotments in the Gravelly Landscape with no increase in sheep number/AUMs.

Suitable Timberland: The suitable timber base is approximately 216,000 acres. This amount is the result of removing inventoried roadless areas; riparian habitat conservation areas; areas closed to motorized travel; visual quality / recreation areas, (Delmoe Lake Basin or Georgetown Lake watershed, etc.); fish and restoration emphasis key watersheds; Rock Creek Drainage; half mile corridors on national trails, interstates, highways, eligible wild and scenic rivers; recommended wilderness, Pioneer Mountains Scenic Byway, Red Rock Pass, occupied grizzly bear habitat, and all areas with greater than a 35% slope from tentatively suitable acres.

Timber harvest is allowed on another 1,197,000 acres to meet other resource objectives where permitted by management area direction.

Recommended Wilderness: This alternative proposes approximately 248,000 acres of recommended wilderness. In addition to those in the current plan, it adds several others areas that rate high for wilderness suitability. The West Big Hole is not included. Areas recommended for wilderness would be closed to motorized travel and mountain bikes.

Alternative 6

Alternative 6 was developed after review of almost 11,000 comments and over 160 meetings with 90 interested groups and individuals between 2002 and 2006. It reflects an attempt to balance the demand for diverse recreation opportunities, resource protection, and commodity outputs and to positively respond to many comments and corrections to the DEIS. Alternative 6 draws from the positive responses to the other five alternatives.

Vegetation: This alternative establishes an objective to create an upward trend on 67,000 acres of aspen. Grassland/shrubland restoration (conifer encroachment) is addressed by an objective to treat up to 74,000 acres over the planning cycle. This differs from other alternatives by setting the objective at the high end of the range needed to move more aggressively toward the minimum modeled historic range of variability in this planning period.

Wildlife: Security is provided through limiting open motorized road and trail densities. This objective applies to deer and elk hunting districts during the big game season (with a range of 0 to 1.8 miles per square mile) and to landscapes during the summer season (with a range of 0 to 2.0 miles per square mile). Alternative 6 refines the road density objectives precision for landscapes and hunting districts to 1/10 mile per square mile rather than lumping the objectives in ½ mile per square mile categories (0, .5, 1.0 1.5, and 2.0). As a result, the objectives are all lower than or equal to objectives set in alternative 5.

Winter non-motorized allocations were adjusted based on public comment and comment from FWP to include more big game winter range and wolverine and mountain goat habitat.

Aquatic Resources: INFISH direction as an aquatic strategy is applied on both sides of the Continental Divide (Forestwide), however, some INFISH standards have been modified to better clarify intent, dropped as they were determined not necessary, or added to reflect requirements in the Biological Opinion. Sensitive aquatic species were also added to this aquatic strategy. Seventy-one key watersheds are identified with associated management direction. Of those watersheds, 15 are restoration emphasis key watersheds and 56 are fish conservation key watersheds. Three Fish Key Watersheds were added to those presented in Alternative 5 based on FWP comment and four were removed based on District input. The location of key restoration watersheds was modified based on updated data from the R1 Integrated Watershed Restoration Strategy.

Fire Management: Management of unplanned ignitions (wildland fire) and prescribed fire is permitted forestwide (3,335,000 acres). National fire policy changed between publication of the Draft and Final EIS. The new policy requires an “appropriate management response” for all wildfires based on risks, resources, and safety. Wildland fire use is one of the options available as a response to wildfires.

Recreation and Travel Opportunities: Non-motorized allocation boundaries proposed in Alternative 5 were modified for this alternative based on District and public input. The Forest Plan Interim Road and Trail Map, developed with public input, serves as the route inventory. This map establishes the basis for defining legal routes until site-specific travel planning is

complete A backcountry motorized allocation was added based on public comment, to assure uncrowded motorized trail opportunities through the planning period. Winter non-motorized allocations were expanded to include more big game winter range based on FWP comments and mapping. Non-motorized allocations would be approximately 39% in winter and 45% in summer. This alternative would place a summer restriction on approximately 104 miles of roads and 200 miles of trails which are currently open to motorized travel. Alternative 6 also distinguished the acreage available for different types of summer non-motorized allocations (for recreation opportunities, recommended wilderness and designated wilderness and motorized allocations (backcountry and roaded).

Suitable Rangeland: Lands suitable for grazing are approximately 802,000 acres. This is a decrease from Alternative 5 because the Trail Creek Allotment (Big Hole) was also removed from suitability and a NEPA decision was made between Draft and Final to close an allotment in the Tobacco Roots. Alternative 6 prescribes that if sheep allotments in occupied grizzly bear habitat (Gravelly landscape) become vacant they will not be restocked with sheep.

Suitable Timberland: Approximately 299,000 acres are allocated as suitable timberland. Alternative 6 modified criteria used for Alternative 5, based on internal and timber industry comment, which results in more suitable acres. The limitation to 35% or lower slopes was dropped in favor of applying slope constraints at project level analysis. Boundary and location changes for key watersheds, summer non-motorized area, and Georgetown Management Area (all of which exclude suitable timberland) left some suitable acres available that weren't in Alternative 5. In addition, Alternative 6 clarified the description of acres not suitable for timber production but where "timber harvest is allowed". Under this alternative, 1,614,000 acres are available where commercial harvest could take place if it meets other resource objectives. Alternative 6 has the greatest number of acres available for timber harvest because it includes lands that may be the target of aspen restoration, whitebark pine restoration, or fuel reduction. Some of these lands may produce less than 20 cubic feet of wood fiber annually and may not be restocked with timber species.

Recommended Wilderness: This alternative includes approximately 329,000 acres of recommended wilderness. Based on public comment this alternative reduced the size of recommendations for Mt Jefferson (dropping the south end), Lee Metcalf (dropped McAtee Basin), and Italian Peaks (dropped Deadman Lake). The Electric Peak recommendation was dropped because the Forest Service had previously promoted snowmobiling there which conflicts with recommended wilderness. Additions under this alternative which respond to public comment include Garfield, Stony and Table Mountain and increases to the Anaconda Pintler Additions, Torrey Mountain, and Snowcrest proposals.

Alternatives Considered but Not Analyzed in Detail

A number of alternatives were considered and eliminated from detailed study. Given the large area under consideration and the number of decisions being made, there is a vast array of possibilities for combining different alternative components. Some alternatives were not analyzed in detail because they closely resembled alternatives considered in detail; did not meet the needs for change, or were not appropriate for a Forest Plan decision, as described below.

No Livestock Grazing Alternatives

Among the comments were requests for analysis of a “no grazing alternative” considering phasing out livestock in favor of bighorn sheep or bison. While the National Forest Management Act requires the Forest Service to address rangeland capability and suitability, stocking decisions for specific grazing allotments are made through Allotment Management Plans. Grazing is authorized through a Term Grazing Permit (a long-term authorization subject to Forestwide Standards and Guidelines), Allotment Management Plan, and Annual Operating Instructions. Changes to these plans must be made through site-specific analysis, not forest plan revision.

The 1995 Riparian Amendment and 1995 Inland Native Fish Strategy Amendments provide most of the standards for grazing at the Forestwide scale. This analysis addresses the disposition of current vacant or closed allotments. See the rangeland capability and suitability determinations in Chapter 3 for a discussion of livestock grazing effects of decisions being considered in revision.

No Livestock Grazing in Riparian Areas Alternative

The Environmental Impact Statement (EIS) for the Beaverhead Forest Plan Riparian Amendment (September 1997) evaluated an alternative to eliminate grazing in riparian areas. After examining the effects discussion in that document, it was determined the rationale for not selecting this alternative are still valid. We concluded no new information has arisen to change the effects. Therefore, this alternative was considered but not analyzed in detail.

All Roadless Areas Recommended for Wilderness Alternative

Some people suggested all inventoried roadless areas be recommended for wilderness. Although some areas qualify as roadless by our inventory definition, they are not all suitable for Wilderness. This is largely because an inventoried roadless area may contain roads and other developments. By definition, an area may qualify for roadless if it does not have roads maintained for passenger cars. Some of our roadless areas have numerous roads not maintained for passenger cars. Some of these areas also have other developments. In combination, these areas are not suitable for wilderness designation. We evaluated existing inventoried roadless areas to determine wilderness suitability, including specific areas suggested during scoping. Areas that rate high enough to qualify as wilderness were put into an alternative, depending on the structure of the alternative. It was not reasonable to recommend areas for wilderness that did not qualify as such. Therefore, this alternative was considered but not analyzed in detail.

Alternative 3 includes all IRAs that were considered highly capable and suitable for Wilderness or had been previously included in a wilderness bill. The exception was the Stony Mountain IRA, only because it was overlooked in the construction of Alternative 3. Stony Mountain IRA is recommended for Wilderness in Alternative 6.

Ecological Forest Restoration Alternative

A comment requested development of an ecological forest restoration alternative that fully incorporates the principles and criteria included in DellaSala et al. 2003. DellaSalla identifies three core forest restoration principles; Ecological Forest Restoration, Ecological Economics, and Communities and Work Force Core Principles. These three principles and the criteria identified in DellaSalla were evaluated in the context of a forest plan.

Ecological Restoration Core Principle: This principle identified as its primary objective the reestablishment of a fully functioning ecosystem. It continues to state, “A restoration approach

based on ecological integrity incorporates the advantages of historical models while recognizing that ecosystems are dynamic and change over time. This is fundamental to the development of restoration approaches and the core principle central to all related principles and criteria”.

The revision process identified three forestwide desired conditions which we feel track with this statement. They are:

- Ecological processes, which affect the chemical, physical, and biological components of the aquatic and terrestrial ecosystems and fully support designated beneficial uses are present and functioning to provide the diversity of forest, shrub land, and grassland, riparian, and aquatic communities.
- Conditions for self sustaining or viable populations of native and desired non-native plant and animal species are supported within the natural capacity of the ecosystem.
- Natural disturbance processes are recognized and accepted as essential to the health of ecological communities at various spatial scales. Fire is allowed to play its natural role where appropriate and desired. Life, investments, and valuable resources are protected using the full range of appropriate management response to fire.

The revision process for all alternatives recognizes the importance functioning ecosystems. This was identified in the Analysis of Management Situation. It also needs to be pointed out that not all have been impacted the same and therefore their restoration needs are not the same. For example, many forest have seen reduction in their old growth component, which in turn results in a need to restore acres of old growth. The BDNF has not seen reduction in old growth. Since well over 20 percent of the forested vegetation type is currently in old-growth, no restoration need has been identified. With almost 50 percent of the forest in a roadless or wilderness condition and road densities around 1.5 miles per square mile, the BDNF has not identified the restoration needs that other forests may have identified. The BDNF identified aquatic systems as a major restoration need.

Ecological Economics Core Principle: This principle states, “Intact forest ecosystems provide the natural capital, including clean air and water, upon which all life and all human economies ultimately depend. It continues, “An economical and institutional framework that fully accounts for these non-market ecological services should be created in order to recognize the values of intact ecological systems and to guide restoration efforts.” Finally it states, “Therefore, economic incentives that drive the degradation of forests must be replaced with restoration incentives that protect and restore ecological integrity.”

In the forestwide desired conditions stated above, as well as others, there is recognition of the importance that sustainable ecosystems provide for economies. However, a forest plan is not capable of providing for the economical and institutional framework that fully account for these types of non-market ecological services. Nor is a forest plan capable of providing economic incentives as suggested here. Forest plans are strategic document for the management of national forest lands.

Communities and Work Force Core Principles: This principle states, “A highly skilled, well compensated work force is essential for restoration to meet high ecological stands”.

Again, a forest plan is not capable of nor is it intended to speak to the creation of a highly skill well compensated work force. Although we may agree for the need of such a work force to implement the restoration need, the forest plan is just not intended to address such topics.

In review of the DellaSala paper, we have incorporated some of the restoration principles identified, as well as other restoration principles not identified here. We also believe the watershed assessment process is similar to the process outlined in DellaSala, identified under the heading, “Ecological Forest restoration Principles and Criteria - Restoration Project Planning Principle”. As stated, this type of planning is best accomplished at the project level.

To base an entire alternative in the FEIS on this one research paper, and ignoring other science would not be appropriate; however the range of alternatives developed do incorporate the relevant principles relating to restoration, using the best available science.

All Inventoried Roadless Areas Non-motorized Year-Around Alternative

Other comments suggested all roadless areas be designated non-motorized. We developed an alternative with non-motorized roadless areas in the summer but not in winter. Restricting both summer and winter motorized recreation use in roadless areas would reduce the availability of motorized recreation opportunities to unacceptable levels, (nearly 55% of the BDNF is inventoried roadless area). Most elevations that receive consistently good snow for snowmobiling are in roadless areas. Snowfall at lower elevations outside roadless areas is inconsistent and doesn’t provide adequate snowmobiling opportunities. It is not reasonable to consider an alternative in detail that eliminates snowmobiling as a recreation opportunity. Alternative 3 greatly reduced the amount of winter motorized use in IRAs. The alternative was developed to provide a reasonable range of alternatives useful for contemplating the effects of making IRAs non-motorized.

No Snowmobile Restrictions Alternative

Comments suggested the FEIS should include an alternative that has no snowmobile restrictions. Alternative 1 represents no action which does not include any further restrictions on snowmobiles. Consideration of an alternative with no restrictions on snowmobiles would adversely impact resources by not protecting big game winter range and sensitive wildlife habitats. This alternative would not provide wildlife security and could adversely impact TES species. It would also not provide any quiet recreation opportunities. Therefore it is not considered reasonable and was not analyzed in detail.

No Wildland Fire Use Alternative

Comments received suggested the FEIS should include an alternative that eliminates wildland fire use for resource benefit. The Appropriate Management Response (AMR) is current national Forest Service fire policy. Wildland fire use is one of the options of AMR. Wildland fire use allows the Forest Service to manage naturally ignited fire considering resource benefits and firefighter and public safety. The FEIS identifies the importance of the role of fire. The FEIS also identified the need to return fire to fire dependent ecosystems for aspen restoration, conifer encroachment reduction and wildlife benefits. The Wilderness Act requires the Forest Service to allow natural processes to occur in designated Wilderness areas. To eliminate wildland fire use as an option would not achieve forest plan desired conditions or comply with the Wilderness Act. Therefore this alternative was not analyzed in detail.

Site-specific Travel Management Alternative -

Some public comments requested that individual roads or trails, or all unclassified roads/trails be evaluated and decisions made concerning their use through the revision process. A road-by-road or trail-by-trail review requires more site-specific analysis and more alternatives than would be practical during forest plan revision. A forest plan is strategic, making decisions concerning desired conditions, objectives, standards, and allocation of suitable uses. We identified key issues (see key issues above) related to vehicle access and travel management and will make decisions concerning these key issues.

The alternative to consider road by road or trail by trail travel planning was considered but not fully developed because this sort of decision is more appropriate to make at a site-specific level. This will be accomplished through site-specific travel management planning after the revised plan has been completed. This is not to say decisions resulting from this analysis will not close some roads or trails to motorized vehicles.

Other Management Indicator Species Alternative

The public submitted numerous species to be considered as management indicator species (MIS). The purpose of MIS is to show effects of management actions. ***The designation does not infer a special degree of protection.*** We selected elk, mountain goats, wolverine, and mayfly (*Drunella dodsii*) as MIS because we believe we can monitor them and make a connection between habitat and management activities. We were unable to make this connection with species recommended in comments and even those identified in the current forest plans. The complete list of species considered and the rationale for not selecting them is available in the project file for wildlife and aquatic species.

Fire Suppression Alternative

Some public comments suggested we analyze the effects of fire suppression on resources. Fire suppression is not discretionary and is considered an emergency action. Forest Service policy and regulation guides fire suppression, which makes that determination outside the scope of forest plan revision.

Settlement Agreement Alternative

Public comment suggested the Deerlodge Settlement Agreement continue as part of the forest plan. Although the Regional Forester never amended the Deerlodge Forest Plan, past forest supervisors considered it during forest plan implementation. Over time, public concerns, new science and even agency direction has changed with the result that many of the concerns in the Settlement Agreement are reflected in the key issues. As we developed a new range of alternatives around these issues we attempted to carry forward specific issues, such as the location of non-motorized (A4) management areas. The key issues and the settlement agreement are similar and do not require reiteration of the agreement.

Designating the BDNF Portion of the CDNST Non-motorized

Some comments asked for closure of sections of the Continental Divide National Scenic Trail as non-motorized year-long. The existing plans allow motorized uses in winter, summer, or yearlong, depending on travel plan direction in that section. While a complete non-motorized route is the national goal, existing motorized segments will require site-specific analysis before closure. Direction for the trail has been established nationally in the CDNST Comprehensive Management Plan. Changes to the CDNST are considered outside the scope of Revision because the existing national direction can be supported without revising it in the forest plan.

Remote Airstrip Alternative

We received a proposal during scoping to consider development of 10 remote airstrips in the revised plan. Where motorized use is allowed, an airstrip could be considered and would require site-specific analysis before development. Where motorized use is restricted, an airstrip would not be considered. Therefore, the alternatives could allow potential airstrips based on allocation of motorized use. However, the plan will not include site-specific analysis or decisions about individual airstrips. All specific proposals submitted were forwarded to district rangers for consideration in future site-specific documents.

Suitable Timber in Inventoried Roadless Areas

Public comment suggested an alternative that considered managing for suitable timber in inventoried roadless areas. Managing for timber production requires intensive activity and roads. It is possible to manage for timber production without roads, however the cost to thin, treat fuels, or commercially thin and harvest is high. When projects involve inventoried roadless areas the planning cost alone, becomes prohibitive. Based on past actions and cost of implementation it did not seem reasonable to consider an alternative to manage for timber production in inventoried roadless areas. In addition, this alternative will not comply with the 2001 RACR, under which the Forest Service currently operates.

If an area is not allocated for suitable timber in inventoried roadless, it does not mean commercial timber harvest will not take place. Harvest may be the best tool to accomplish fuels reduction, vegetation improvement or some other management objective. If removal for commercial value is decided, as the best means to meet the need for the project, after NEPA analysis, commercial harvest may take place. Therefore, this alternative was not analyzed in detail.

Partnership Alternative

An alternative was presented by a private contractor on behalf of Sun Mountain, Pyramid Lumber, RY Timber Inc., and Roseburg Forest Products, Trout Unlimited, National Wildlife Foundation, and the Montana Wilderness Association who referred to themselves as the Partnership. A more complete response to their comments can be found in Chapter 5. The alternative was not analyzed in detail because:

- Stewardship contracting is already authorized and used on the BDNF.
- The Partnership Alternative proposed similar or less acres available for treatment displayed by alternatives in the DEIS.
- The Partnership Alternative proposes a similar number of recommended wilderness acres as displayed in Alternative 3.
- Alternatives 1, 2, 4, 5, or 6 in the FEIS can accomplish the same amount of restoration as the Partnership Alternative.
- Many of the assumptions involved in the Partnership Alternative are speculative with no basis to support the outputs or desired results.
- Historically harvesting to the degree proposed by the Partnership has been shown to adversely affect threatened, endangered, and sensitive species and degrade water quality.
- The analysis did not describe all the elements necessary to be considered a viable alternative.
- The Partnership Alternative is addressed in the individual letter section of Chapter 5.

Pilot Forest Trust Alternative

A group of individuals proposed establishing a pilot forest trust administered and controlled locally to reform current public land administration policies based on reform ideas from a consensus group facilitated by the Thoreau Institute. The organization would be relieved from following Forest Manual and Handbook direction, would administer all revenue from leases and harvest activity, but not be responsible for fire suppression costs. That cost would be born by “state and federal agencies as in the current practice” but would use local resources for the majority of suppression activities.

The authority to turn over the establishment of public land management policy to private or civic groups and dispensation of congressionally appropriated funds are not in the decision space of a forest plan, much less in the hands of the agency itself. This alternative was not analyzed in detail because it does not comply with current law, regulation, and policy.

Forests for the Future (Coalition) Alternative

An “Alternative 5 Modified,” was presented by a private contractor on behalf of Sun Mountain, Pyramid Lumber, RY Timber Inc., and Roseburg Forest Products who referred to themselves as the Coalition. A more complete response to their comments can be found in Chapter 5. The alternative was not analyzed in detail for the following reasons:

- The Coalition Alternative provides similar or less acres available for treatment displayed by alternatives in the DEIS.

- Alternatives 1, 2, 4, 5, or 6 in the FEIS can accomplish the same amount of restoration as the Coalitions Alternative.
- The Coalitions' analysis is inconsistent and the conclusions cannot be accurately applied.
- Many of the assumptions involved in the Coalition Alternative are speculative with no basis to support the outputs or desired results.
- Historically harvesting to the degree proposed by the Coalition has been shown to adversely affect threatened, endangered, and sensitive species and degrade water quality.
- The analysis did not describe all the elements necessary to be considered a viable alternative.
- The proposed alternative is addressed in the individual letter section of Chapter 5.

Conformance with the Resource Planning Act (RPA)

The National Forest Management Act (NFMA) regulations require development of at least one alternative which incorporates the Resource Planning Act (RPA) Program's tentative objectives for each national forest as displayed in Regional Guides (36 CFR 219.12(f)(6)). The last RPA Program was developed in 1995. The Forest Service Strategic Plan 2004-2008, in lieu of an RPA Program, was completed in accordance with the Government Performance Results Act (GPRA) and the Interior and Related Agencies Appropriations Act. The Strategic Plan does not recommend outputs to incorporate in specific forest plans, but all alternatives analyzed in detail in this EIS incorporate the broad strategic objectives.

Comparison of Alternatives

Regulations in CFR 219.1 (a) require a plan that maximizes net public benefit. The same regulations define net public benefit as "an expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects(costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure and index. The maximization of net public benefits to be derived from management of units of the National Forest System is consistent with the principles of multiple use and sustained yield."

We are looking at key issues by alternative, and design criteria as defined earlier, plus other elements listed in the last table. Important details for each resource topic are found in Chapter 3.

See the following pages for alternative comparison tables.

COMPAPRISON TABLE

Table 1. Comparison of Design Criteria by Alternative. (7-15-07)

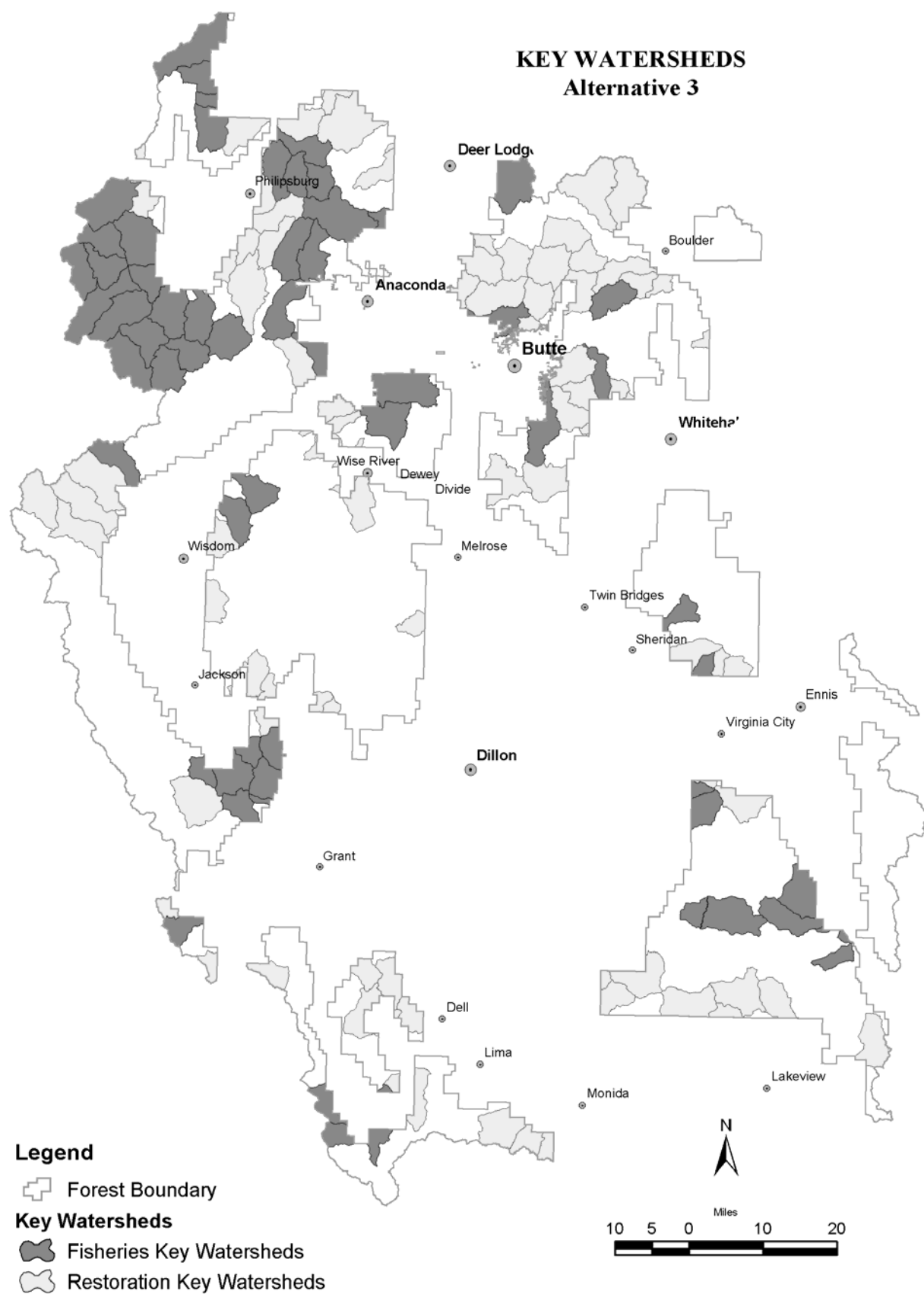
Design Criteria	Units of Measure	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 6-Modified
Fire								
Acres Available for Wildland Fire Mgmt ¹	Acres	2,768,000 (219,000)	2,251,000	3,355,000	2,385,000	2,841,000	3,355,000	3,355,000
Veg Management								
Active Aspen Restoration	Acres	Not Measured	Emphasized	13,340 - 66,700	13,340 - 66,700	13,340 - 66,700	67,000	67,000
Active Conifer Encroachment Reduction	Acres	Not Measured	Allowed	0 - 74,000	30 - 74,000	30,000 - 74,000	74,000	74,000
Dominance Type Retained in Old Growth (minimums)								
DF / PP / PF	Percent of Type	Bvrhd - 10% DF/ES retained by comp. Drldge - 5% all species retained by comp.	8 - 10%	15%	10%	10%	10%	10%
LP	Percent of Type		10 - 15%	14%	10%	10%	10%	10%
ES / SAF	Percent of Type		Existing	15%	10%	10%	10%	10%
WBP	Percent of Type		Existing	15%	10%	10%	10%	10%
OTHER	Percent of Type		Existing	15%	10%	10%	10%	10%
Timber Management								
Acres Suitable for Timber Production ²	Acres	676,000 (745,000)	346,000	0	484,000	216,000	299,000	284,000
Acres Timber Harvest Allowed (Unsuitable)	Acres	768,000	1,085,000	1,259,000	1,005,000	1,197,000	1,614,000	1,633,000
ASQ (NO Budget Constraint)	Million Board Ft	30.5	16.7	0.0	22.7	10.7	13.9	13.3
Long Term Sustained Yield (No Budget Constraints)	Million Board Ft	52.4	28.6	0.0	38.9	18.3	24.0	23.0
ASQ (\$1.8 mil. Budget Constraint)	Million Board Ft	15.7	15.7	0.0	15.7	10.4	13.2	12.7

Design Criteria	Units of Measure	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 6-Modified
Long Term Sustained Yield (\$1.8 mil. Budget Constraint)	Million Board Ft	29.4	28.0	0.0	29.1	17.9	23.0	22.0
ASQ (\$2.2 mil. Budget Constraint)	Million Board Ft	Not Applicable	Not Applicable	Not Applicable	19.2	Not Applicable	Not Applicable	Not Applicable
Long Term Sustained Yield (\$2.2 mil. Budget Constraint)	Million Board Ft	Not Applicable	Not Applicable	Not Applicable	37.7	Not Applicable	Not Applicable	Not Applicable
Livestock Grazing								
Acres of Grazing Allotment	Acres	2,723,000	2,723,000	2,508,000	2,723,000	2,555,000	2,499,000	2,499,000
Acres Suitable Rangeland	Acres	846,000	846,000	804,000	846,000	810,000	802,000	802,000
Recreation and Travel Management								
Road Miles Closed to Summer Motorized Travel by Alt	Miles	0	106	491	35	144	104	109
Trail Miles Closed to Summer Motorized Travel by Alt	Miles	0	136	556	42	193	200	186
Miles of Open Mountain Bike Trails	Miles	2,447	2,689	2,732	2,524	2,460	2,384	2392
Summer Motorized Travel Not Allowed	Percent of Forest	29%	39%	59%	36%	45%	45% ⁴	45% ⁴
Winter Motorized Travel Not Allowed	Percent of Forest	16%	22%	45%	15%	37%	39%	40%
Special Designations								
Recommended Wilderness	Acres	174,000	195,000	706,000	0	248,000	329,000	322,000
Existing Wilderness	220,000	220,000	220,000	220,000	220,000	220,000	220,000	220,000
Aquatics								
Number of Key Watersheds - Fish Emphasis	Count	Not Addressed	Not Addressed	57	57	57	56	56
Number of Key Watersheds - Restoration Emphasis	Count	Not Addressed	Not Addressed	78	0	15	15	15

Design Criteria	Units of Measure	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 6-Modified
Number of Key Watersheds - Total	Count	Not Addressed	Not Addressed	135	57	72	71	71
Number of Standards 'Sets'	Count	3	INFISH / Pete's	INFISH	INFISH Modified	INFISH / INFISH Modified	INFISH / INFISH Modified	INFISH / INFISH Modified
Wildlife								
Elk H.E. by Hunting District	Percent H.E.	Variable	50%	N/A	N/A	N/A	N/A	N/A
Road Density Objective (mi / mi squared by Landscape)			1.5	1.0	2.5	Varies	Varies	Varies
Road / Trail Miles Closed to meet Objective (Landscape) ³		---	479	1,308	0	66	67	67
Road Buffer			1/2 Mile	1/3 Mile	1/3 Mile	1/3 Mile	1/3 Mile	1/3 Mile
Hiding Cover			≥ 30% in 250+ Acre Forested Blocks	N/A	N/A	N/A	N/A	N/A
¹ Acres available for wildland fire use in Alt 1: (this is an Update/Correction to the DEIS) 219,000 Acres currently under a Fire Use Plan 2,650,000 additional acres currently available for fire use 2,869,000 Total acres available for fire use		² Acres suitable timber in Alt 1: 745,000 Acres in old Forest Plans 676,000 Acres modeled and analyzed (no Elkhorns, improved mapping).		³ Refers to 'Summer by Landscape' Objectives Road / Trail miles closed are IN ADDITION to miles closed under recreation		⁴ Estimate for Alternative 6 'Summer Motorized Travel Not Allowed' within WSA's is based on Alternative 5 non-motorized mapping.		

COMPARISON MAPS

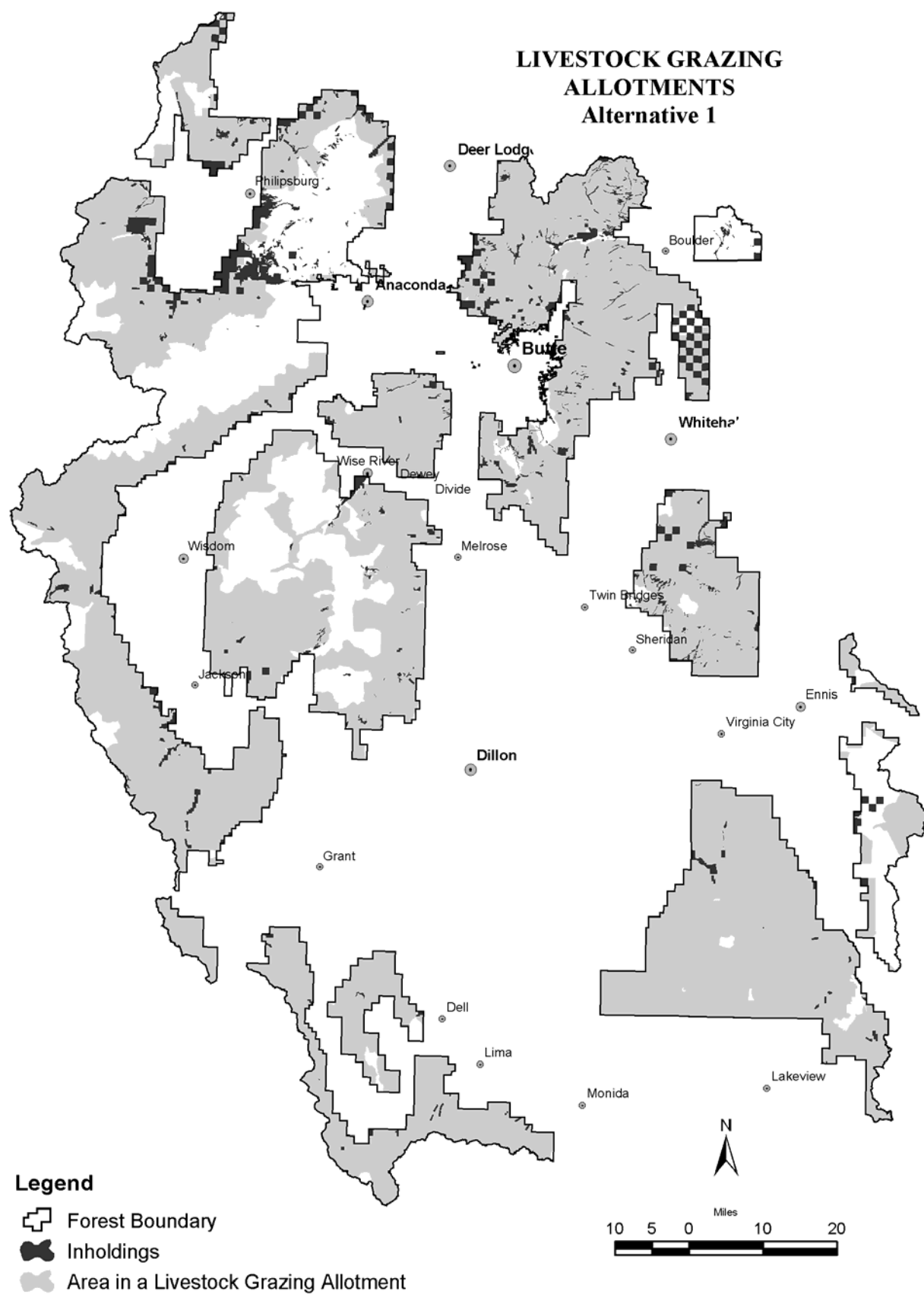
The following pages contain maps of the five categories for comparison of key watersheds by alternative (Key Watersheds are shown only for Alternatives 3, 4, 5, and 6, because they were developed *after* review of the Proposed Action (2003). There are six maps each for Livestock Grazing Allotments, Recommended Wilderness, Summer Recreation Allocations, Closed Roads and Trails, Winter Recreation Allocations and Wildland Fire Use Availability.

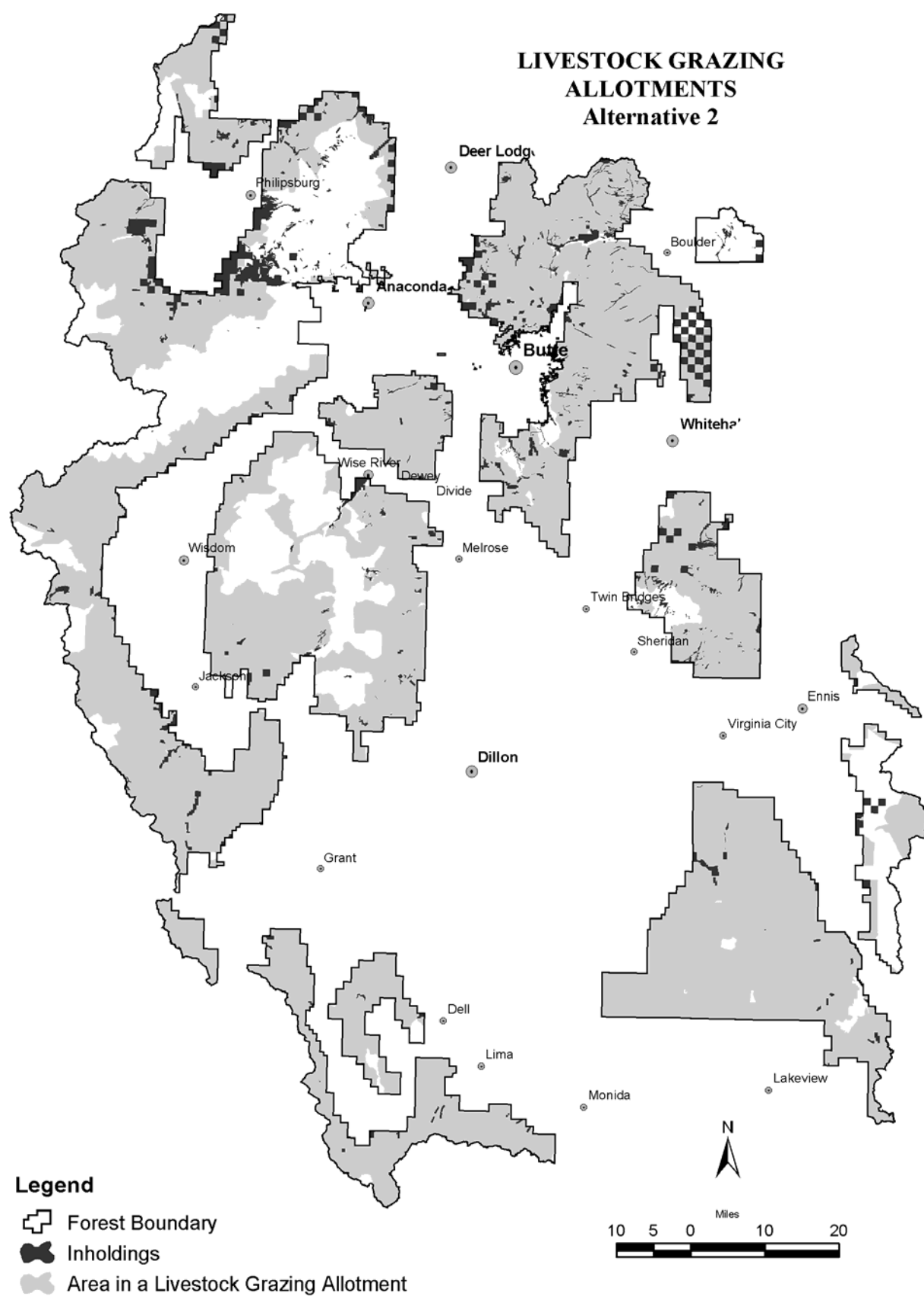


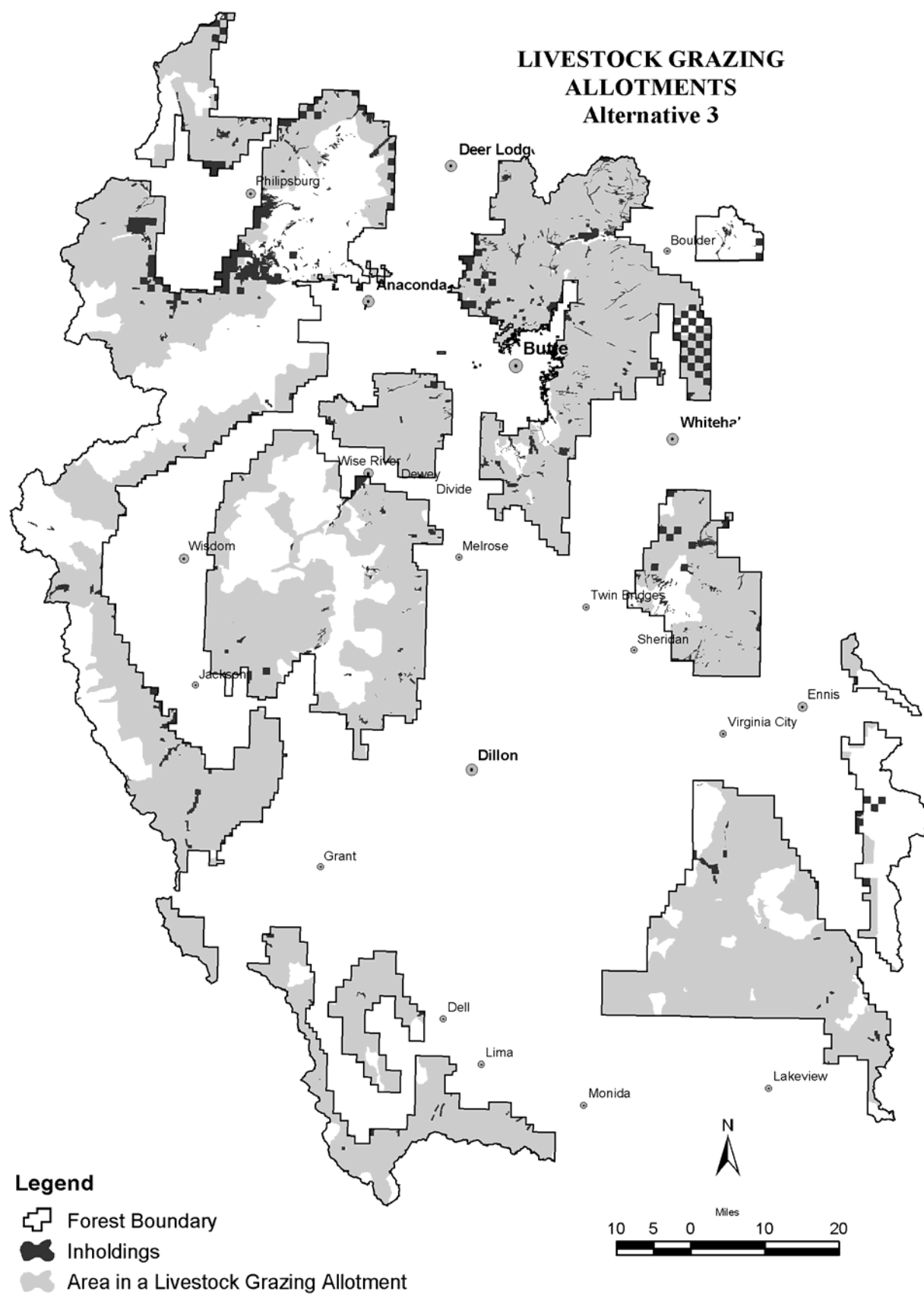


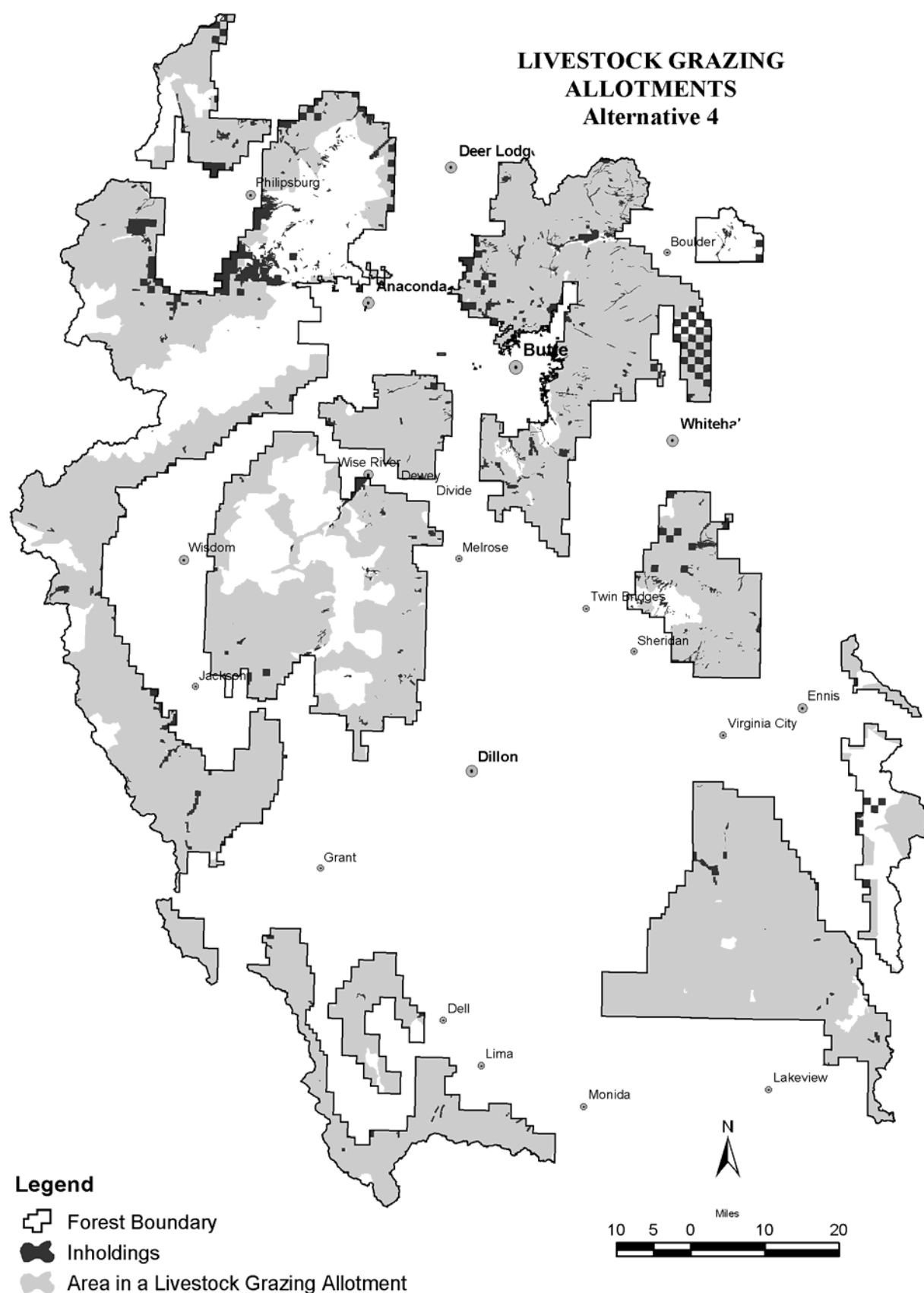


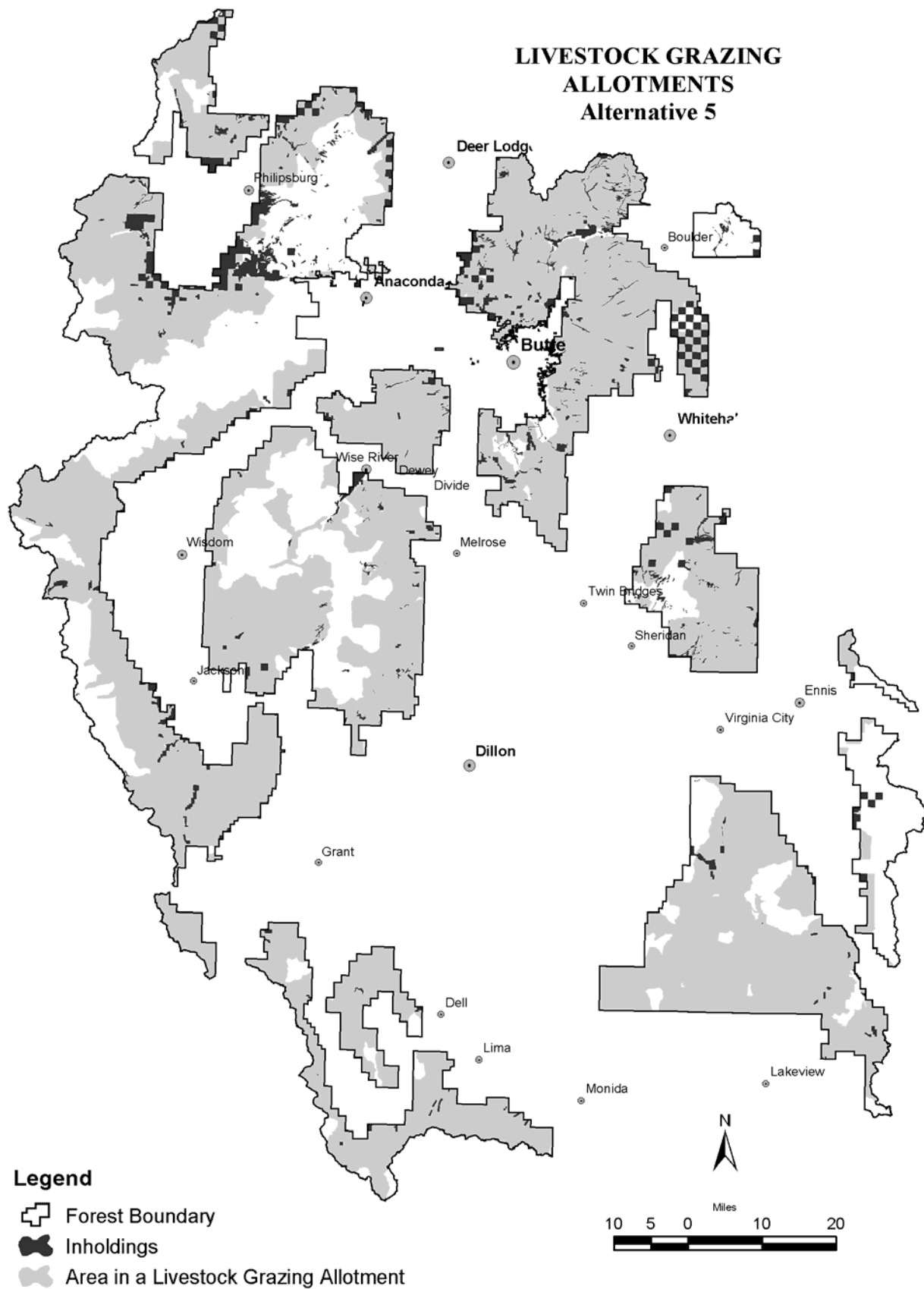


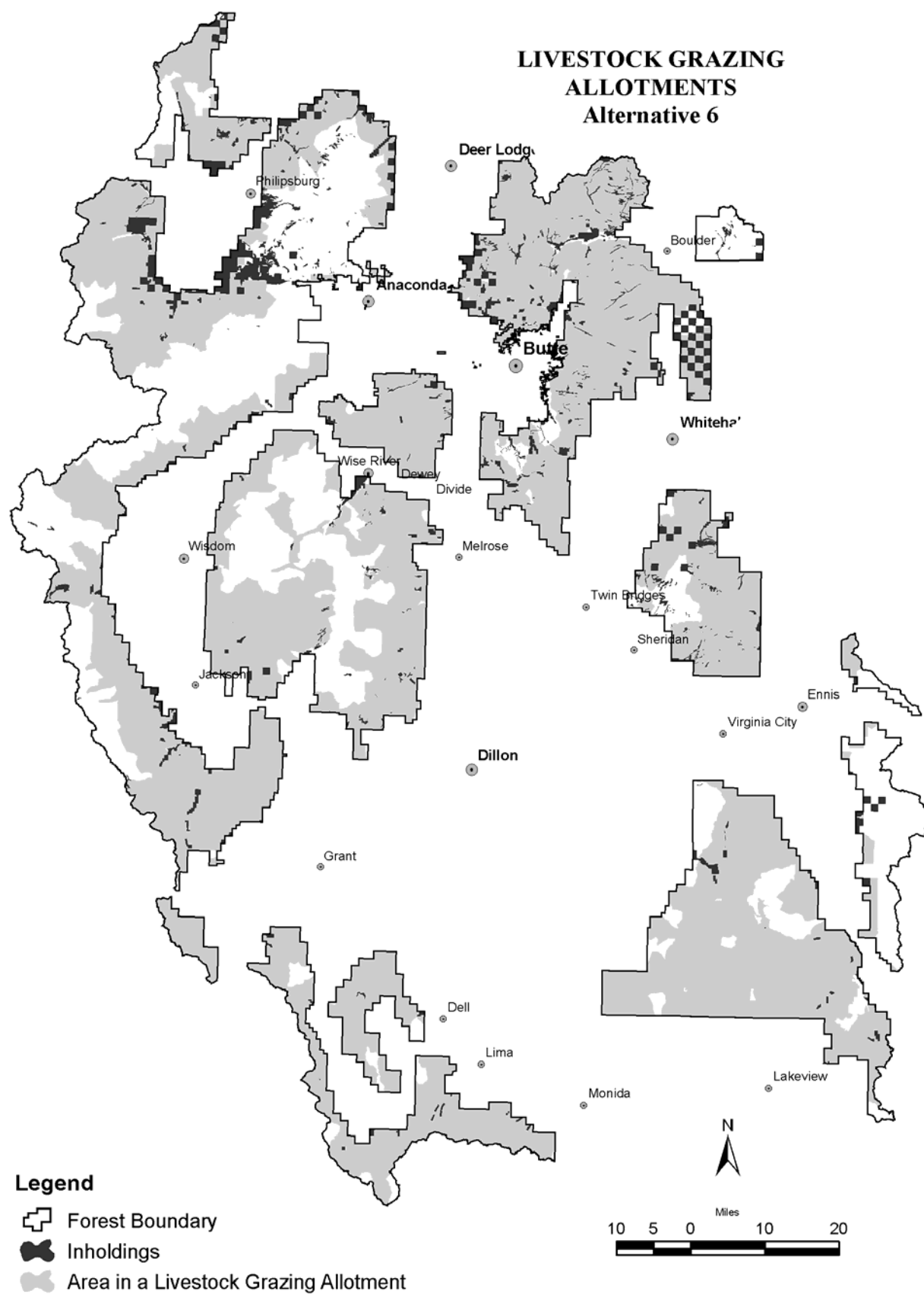


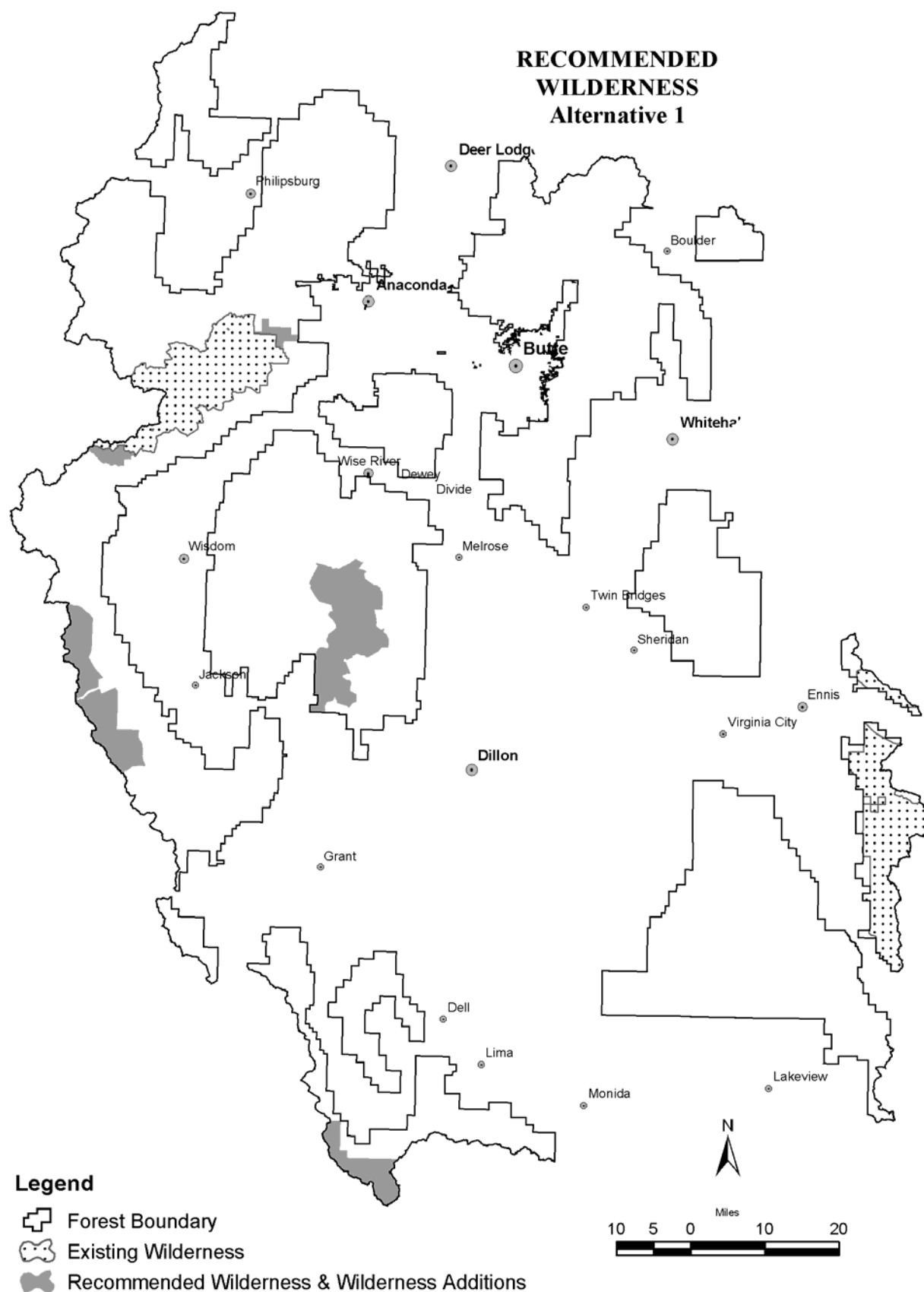


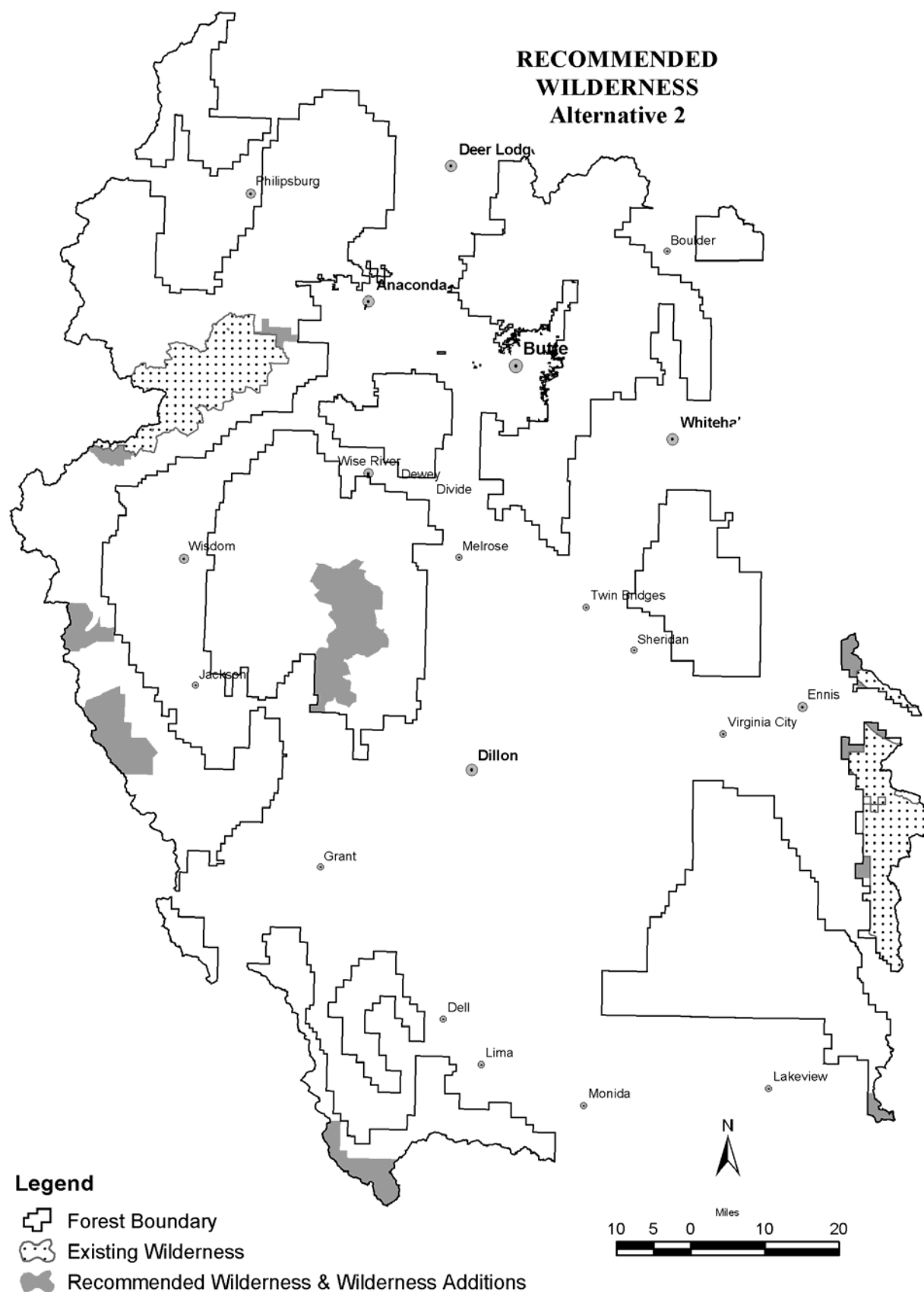


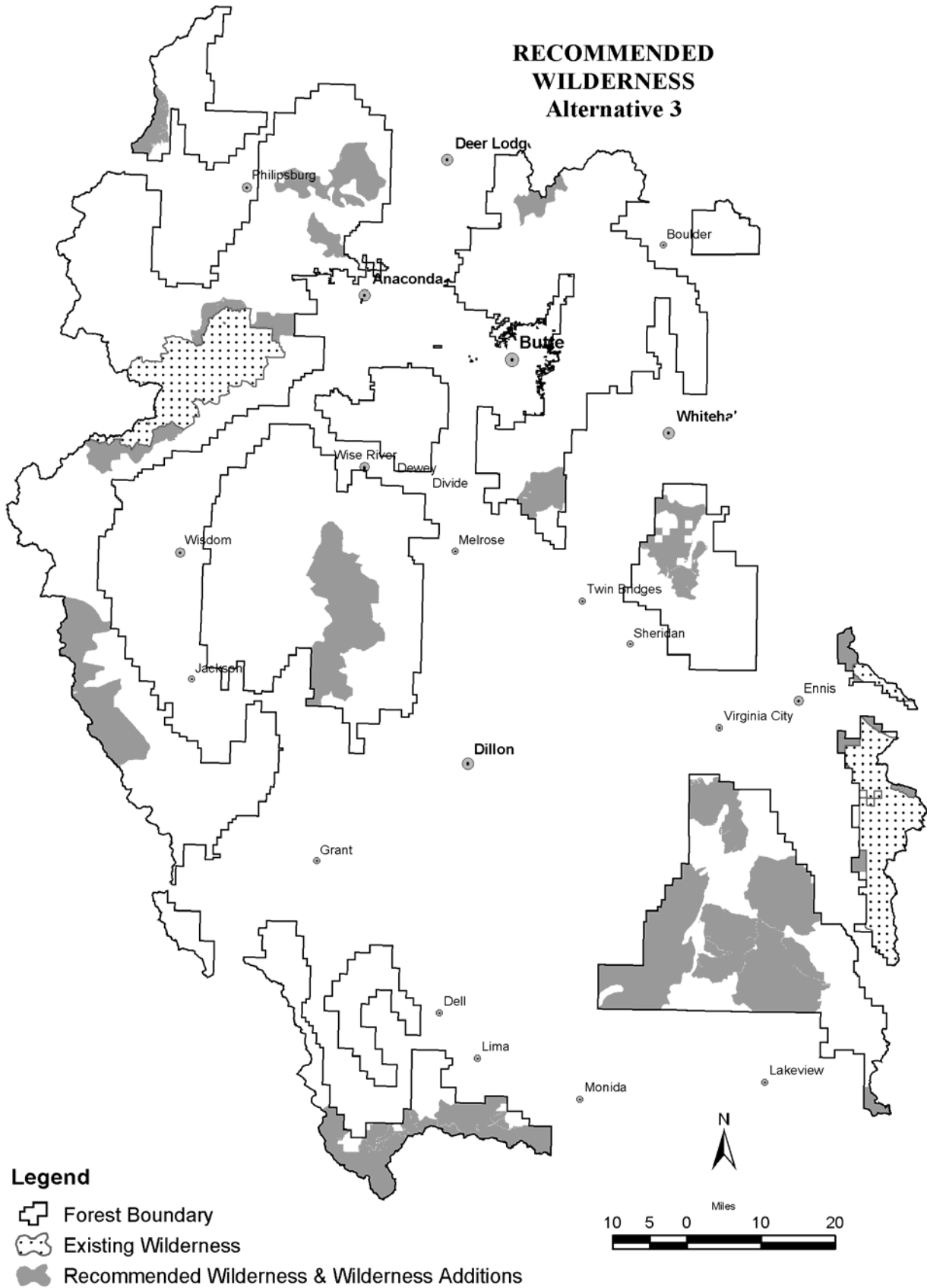


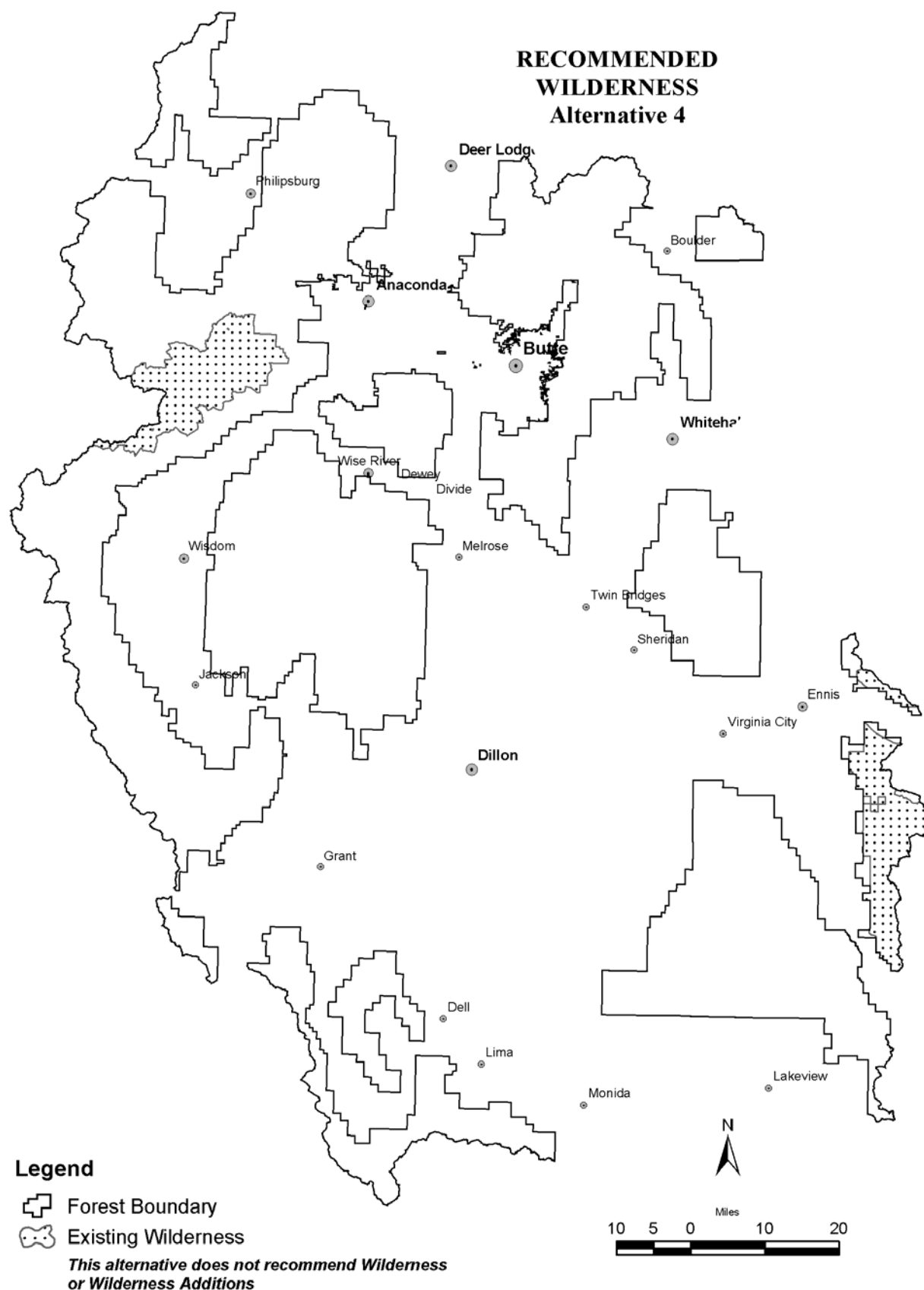


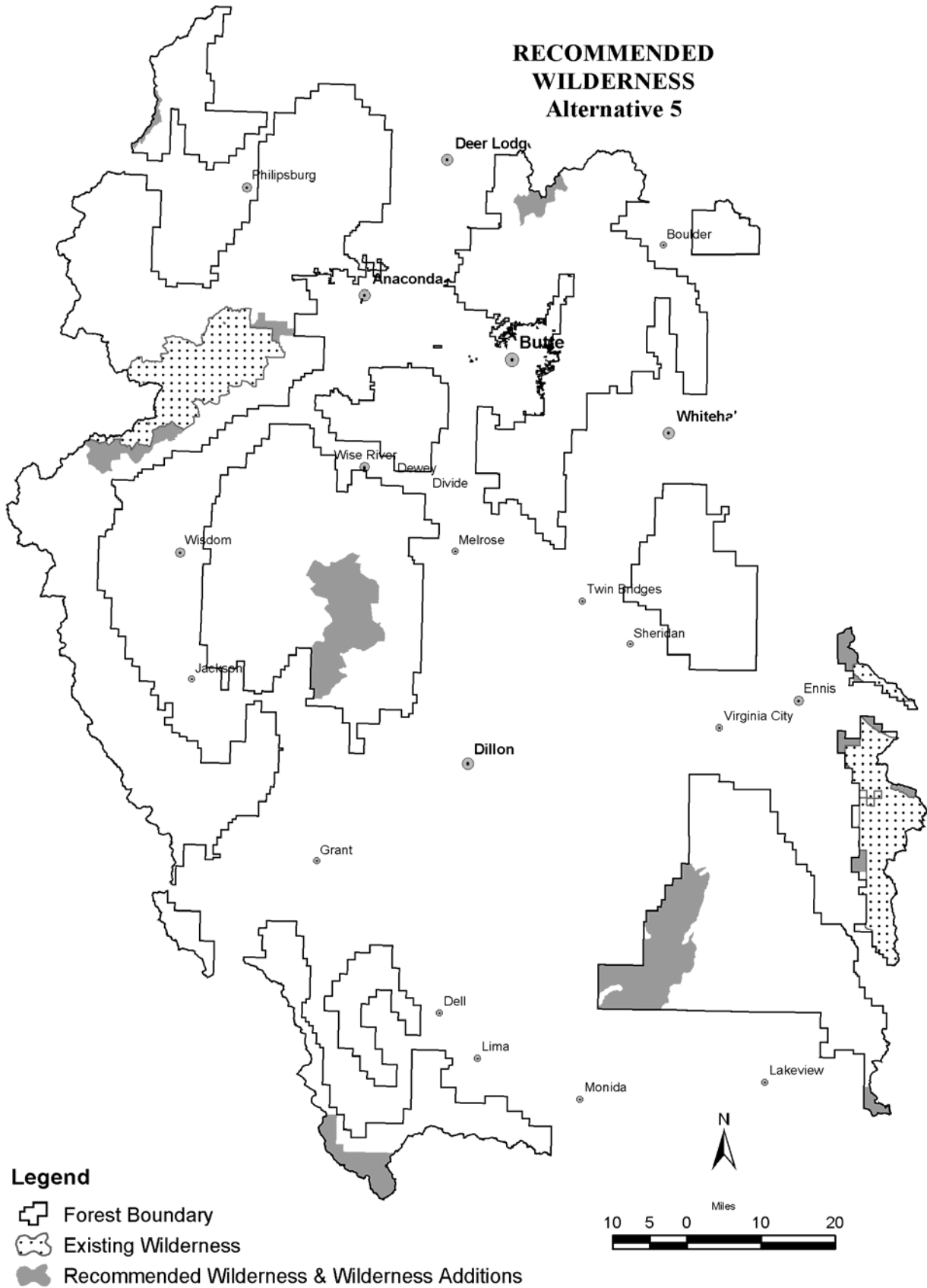


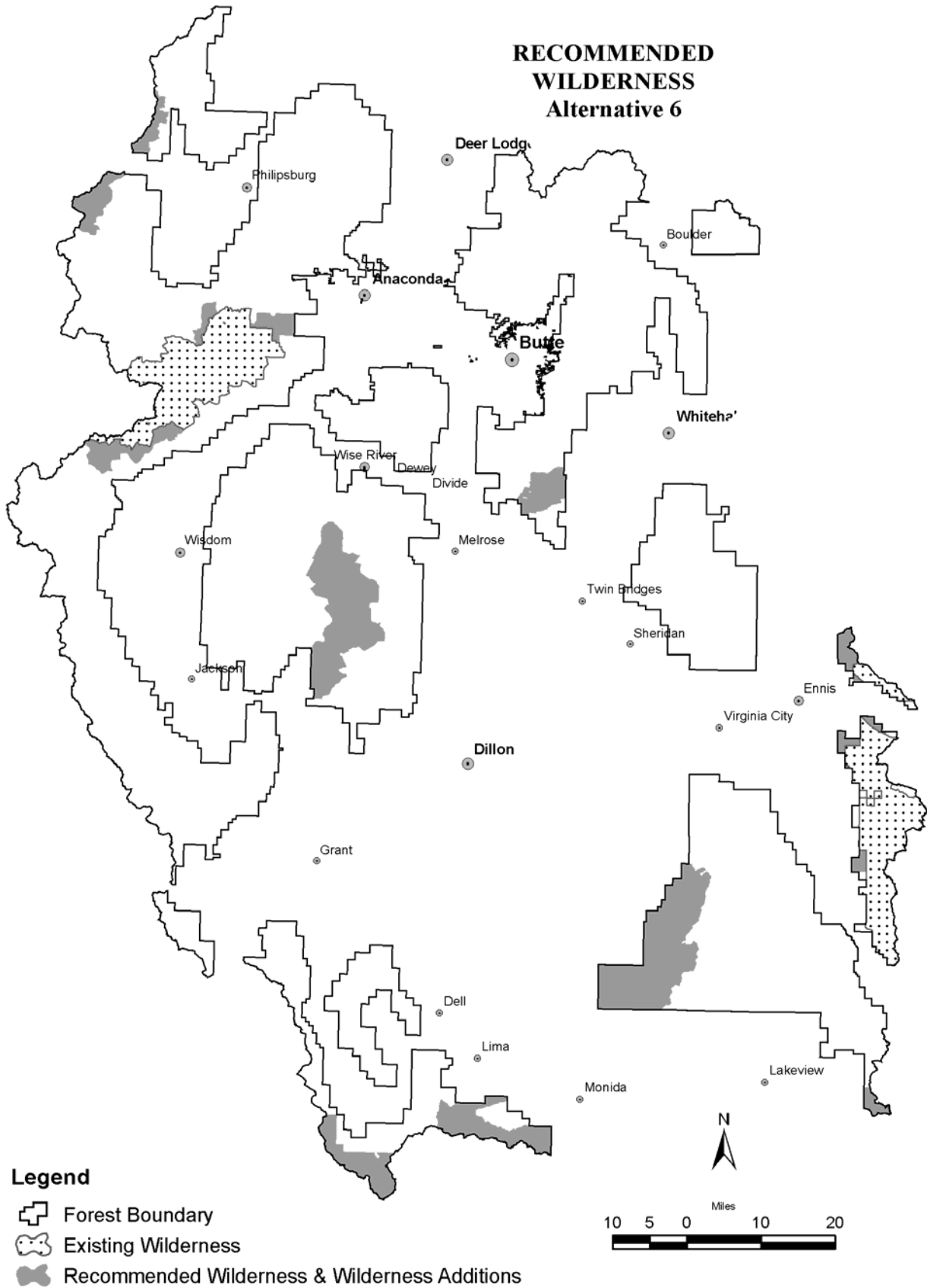


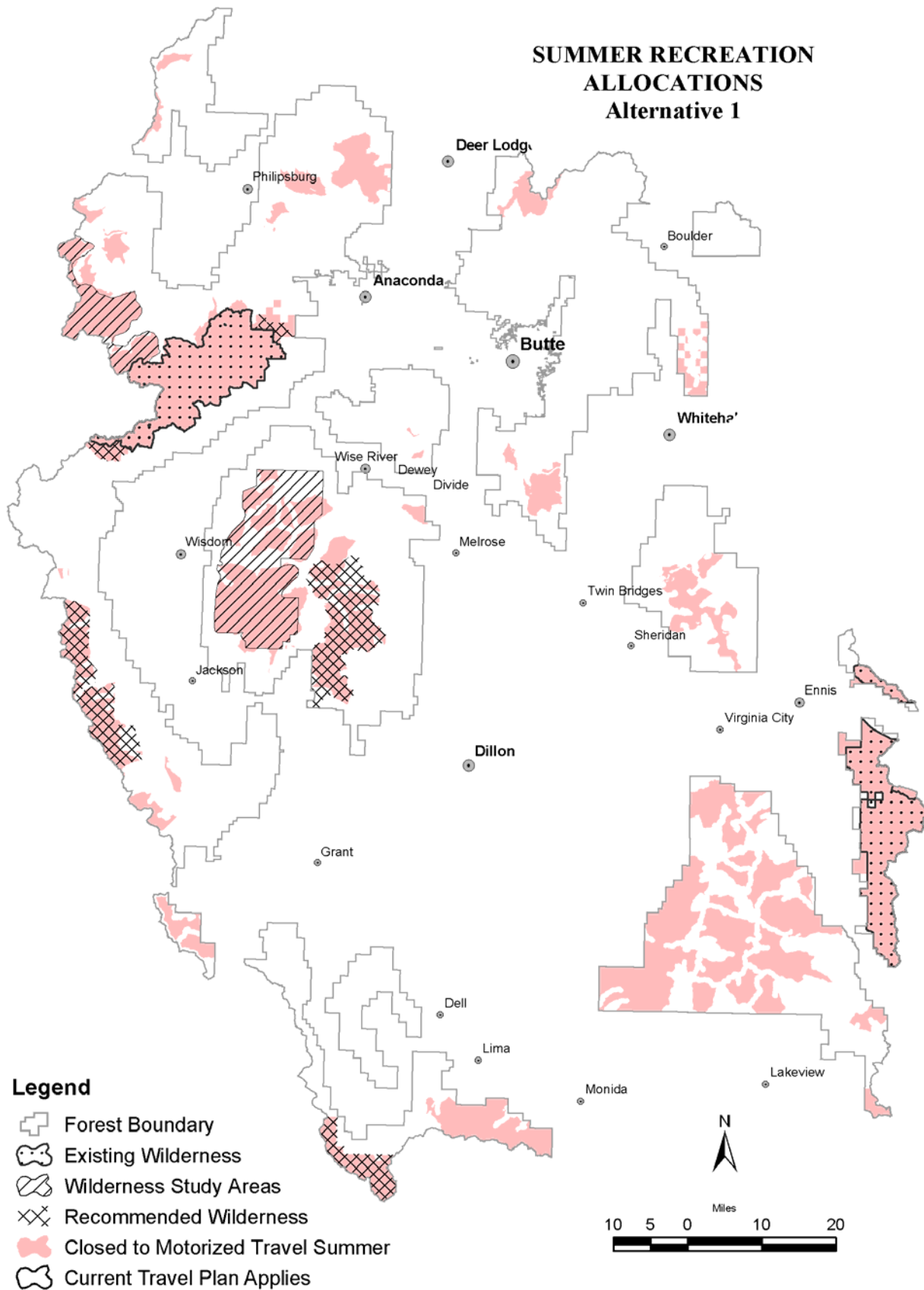


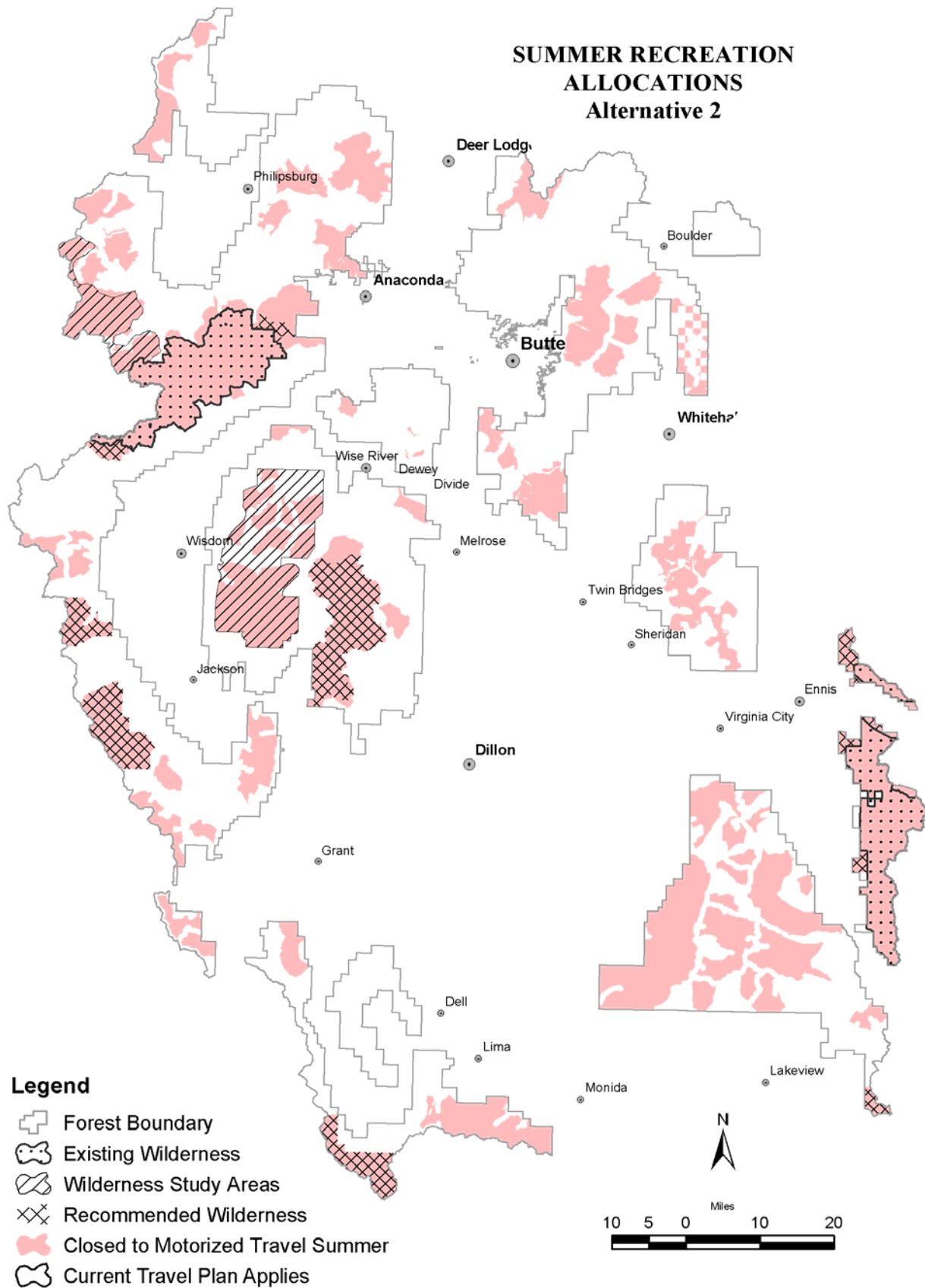


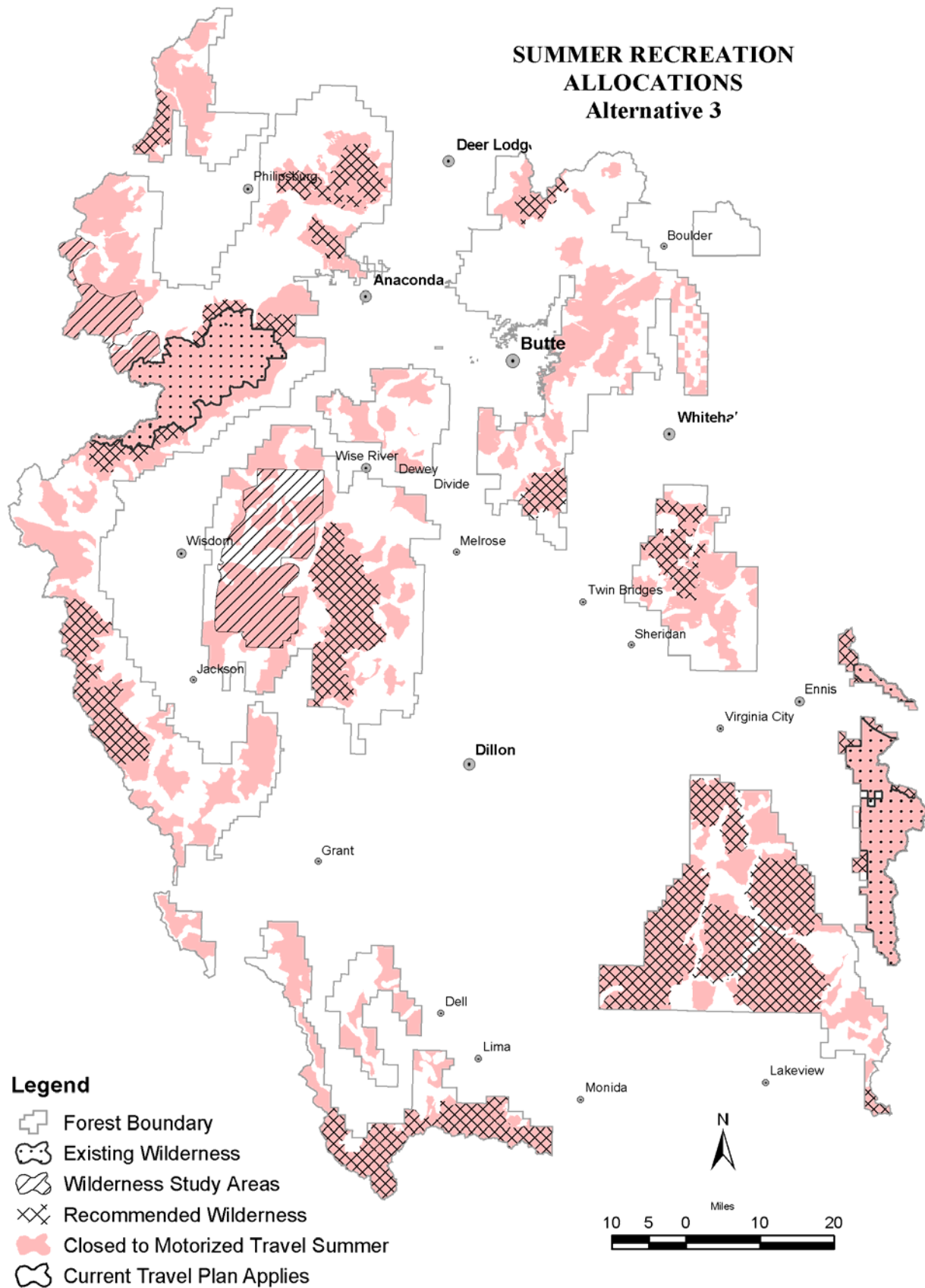


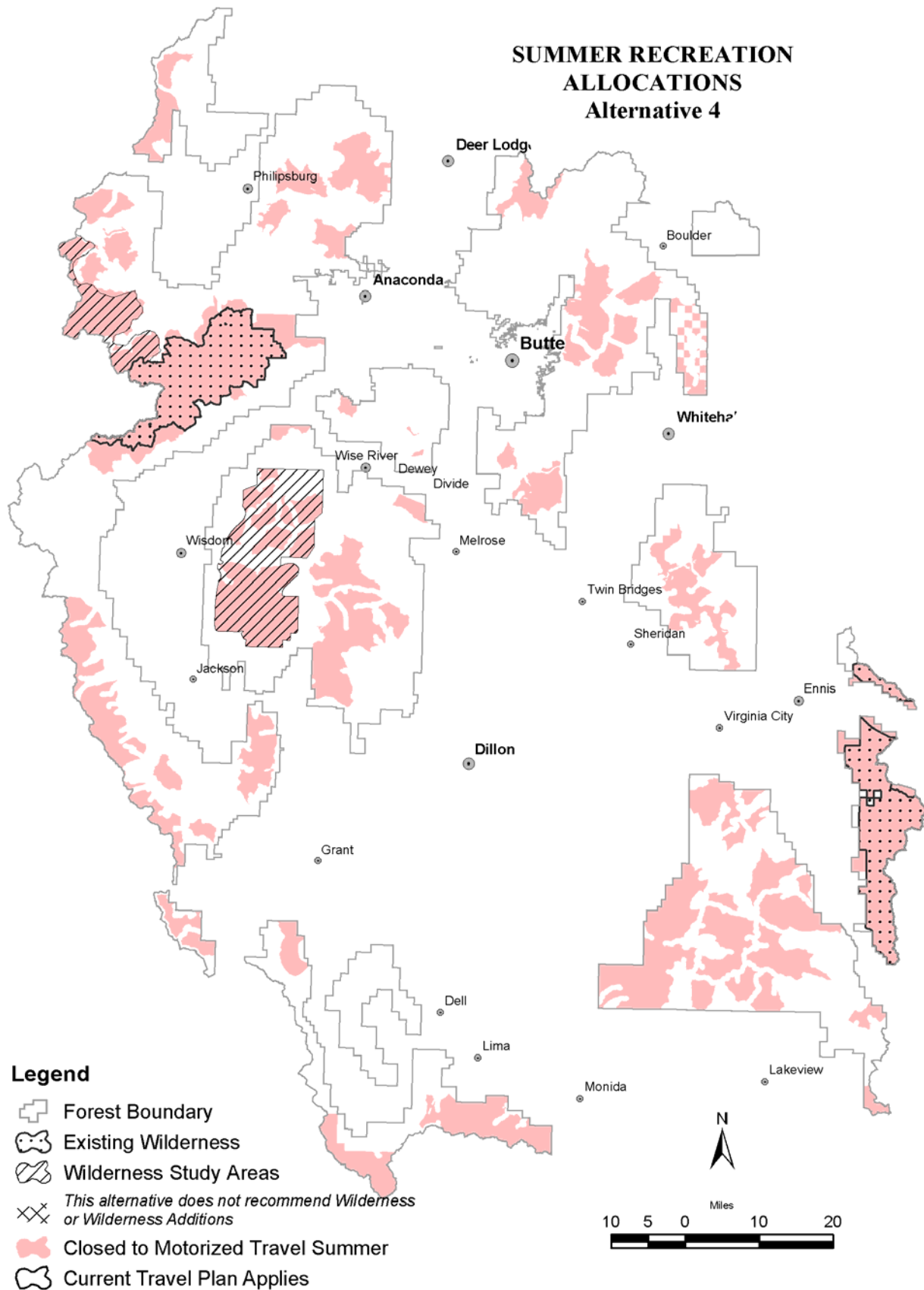


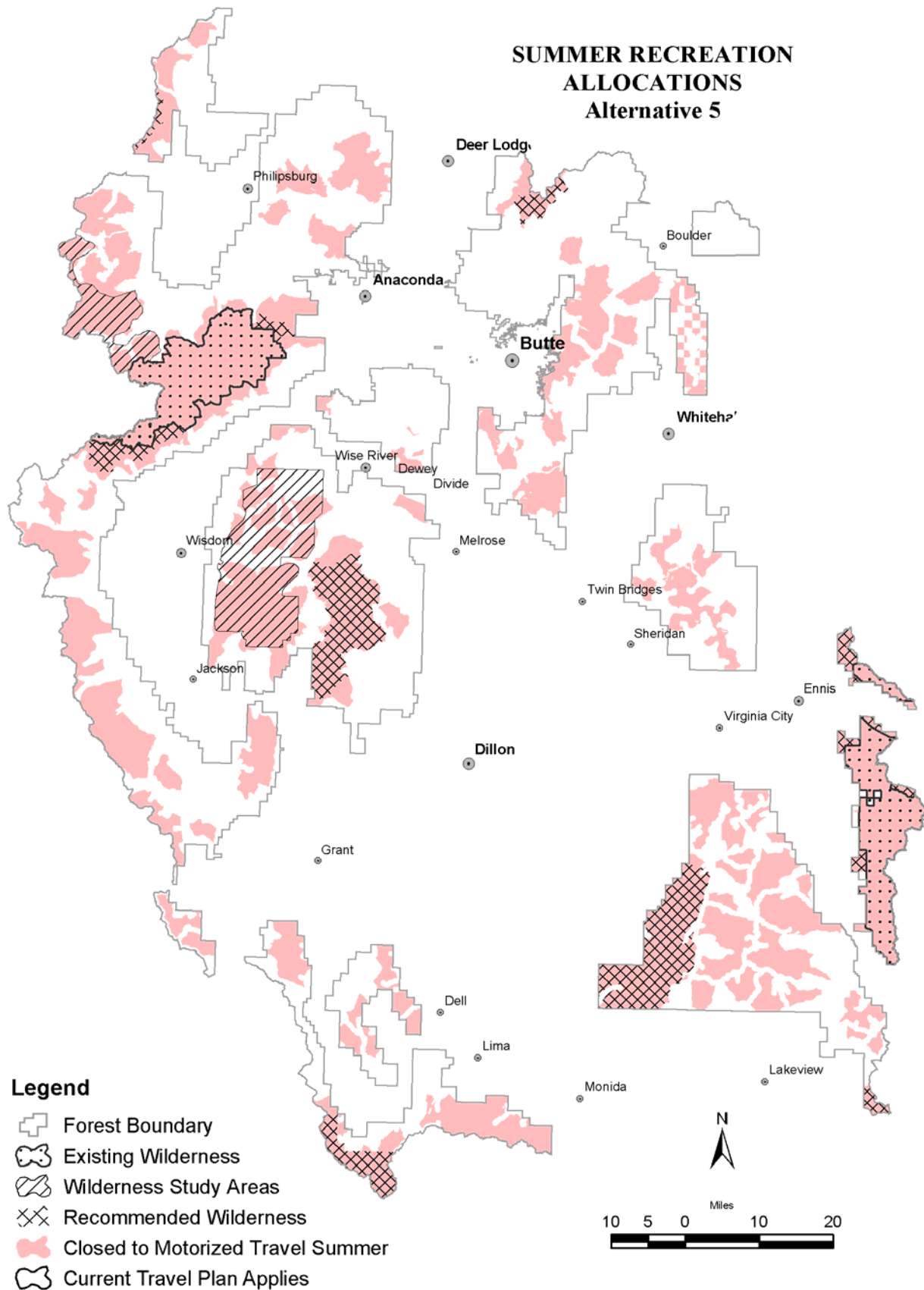


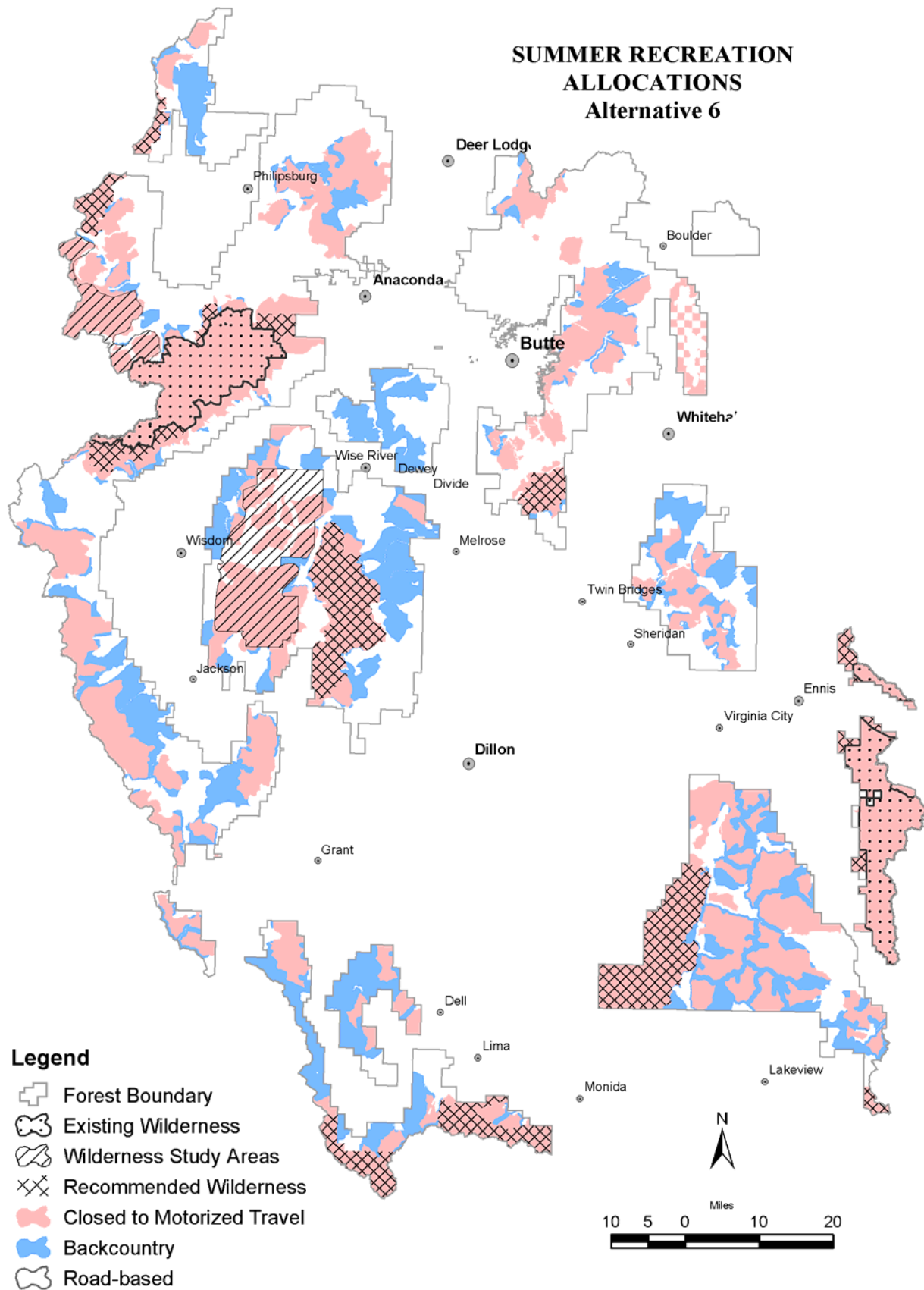




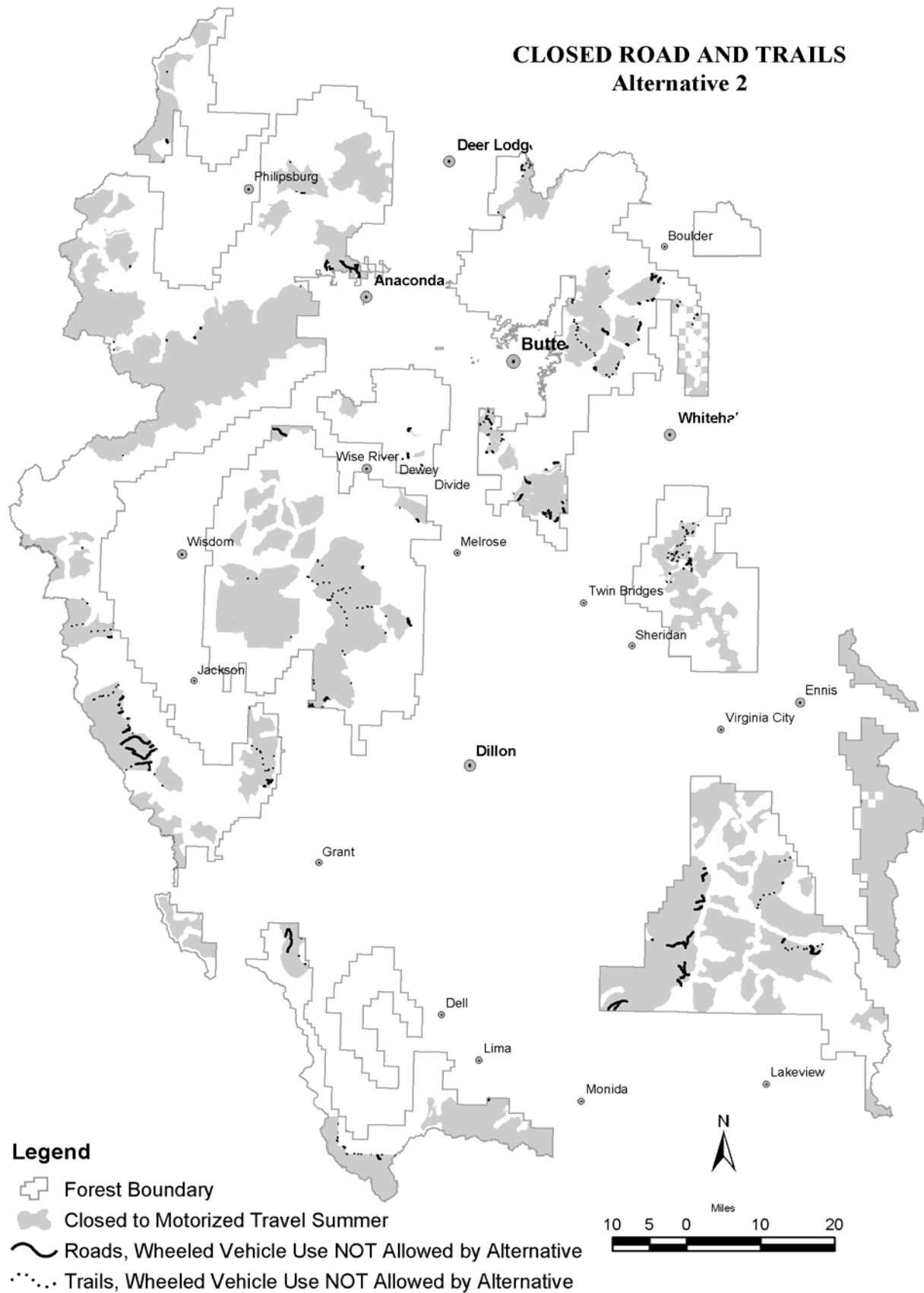






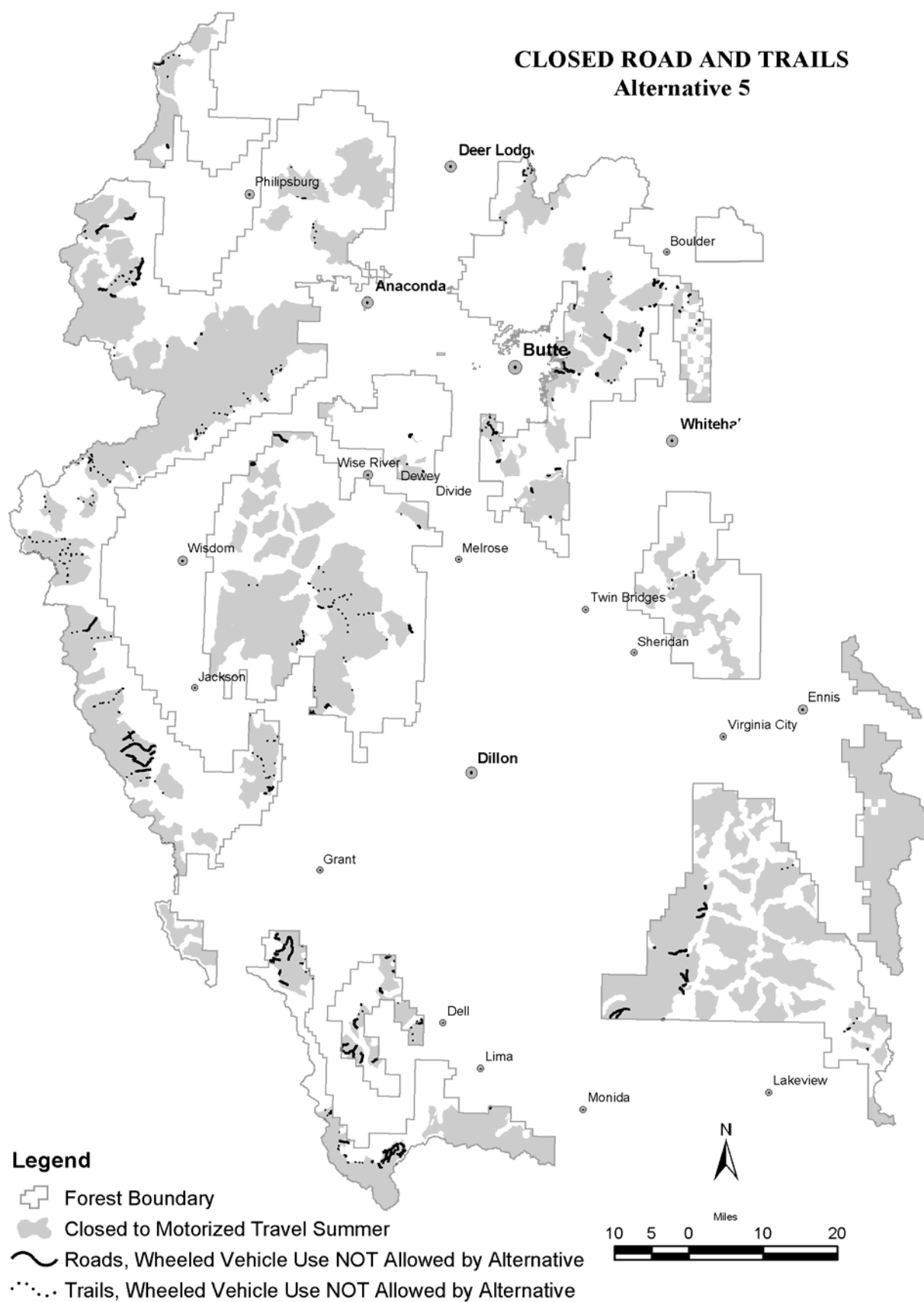


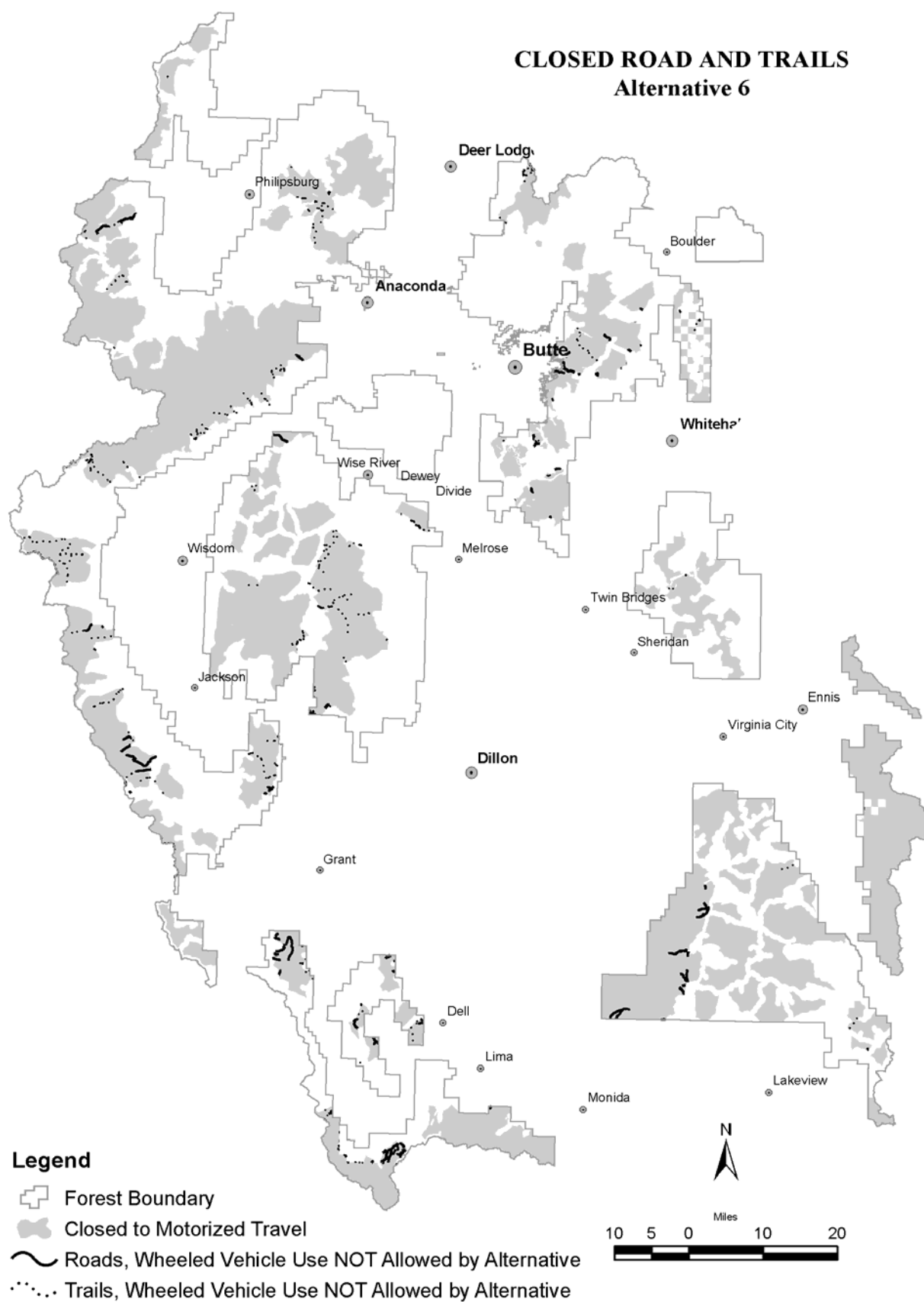


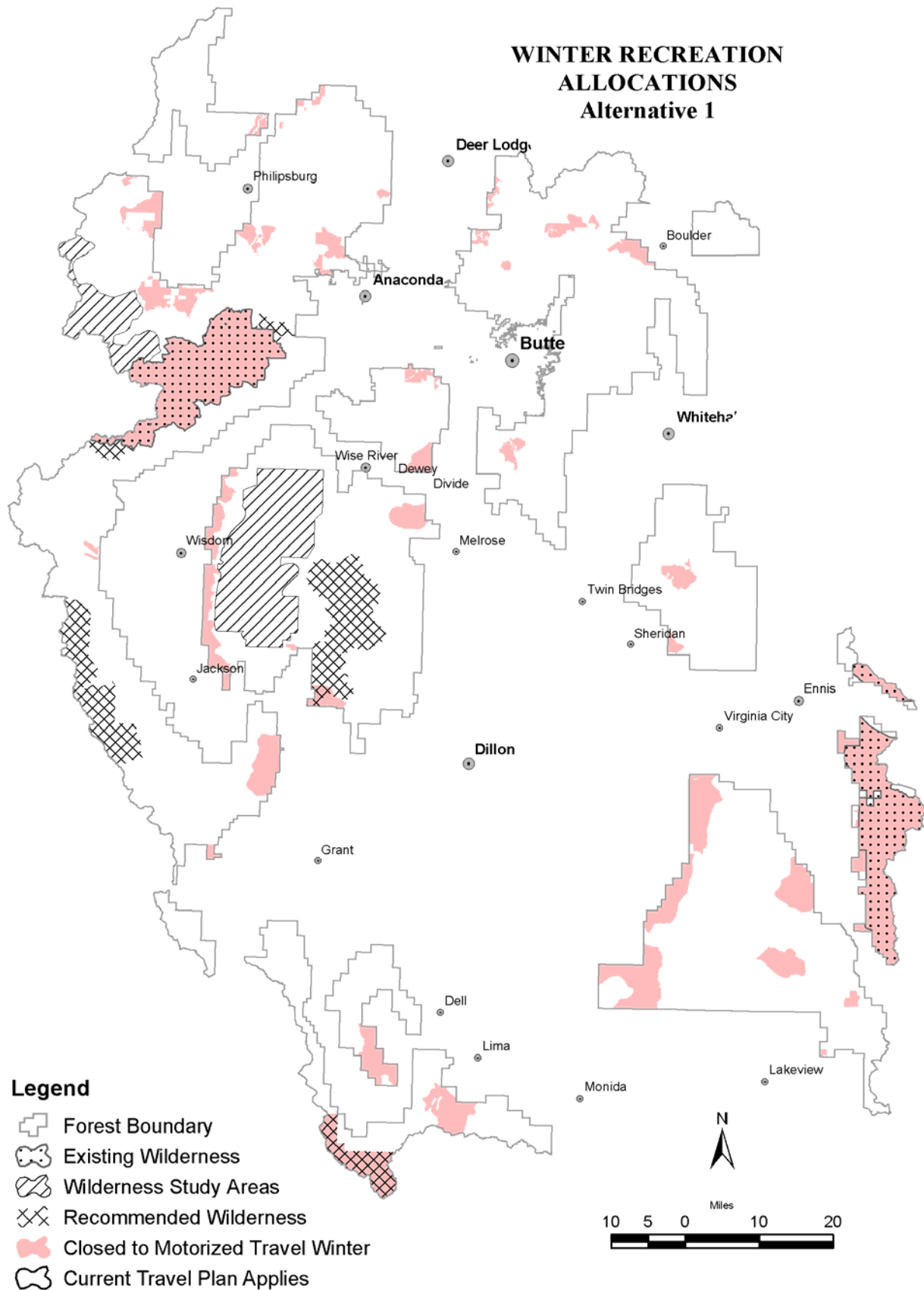


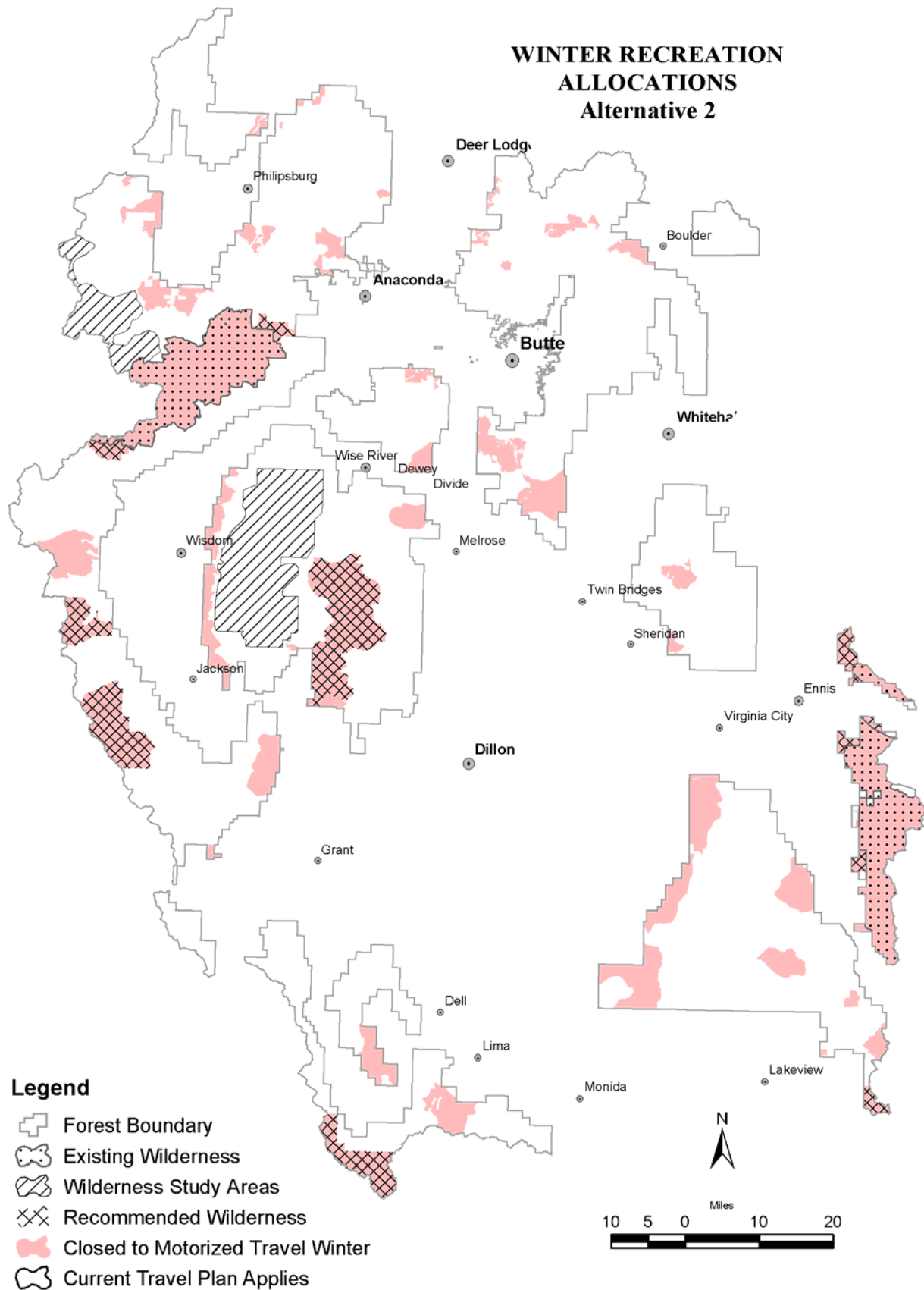


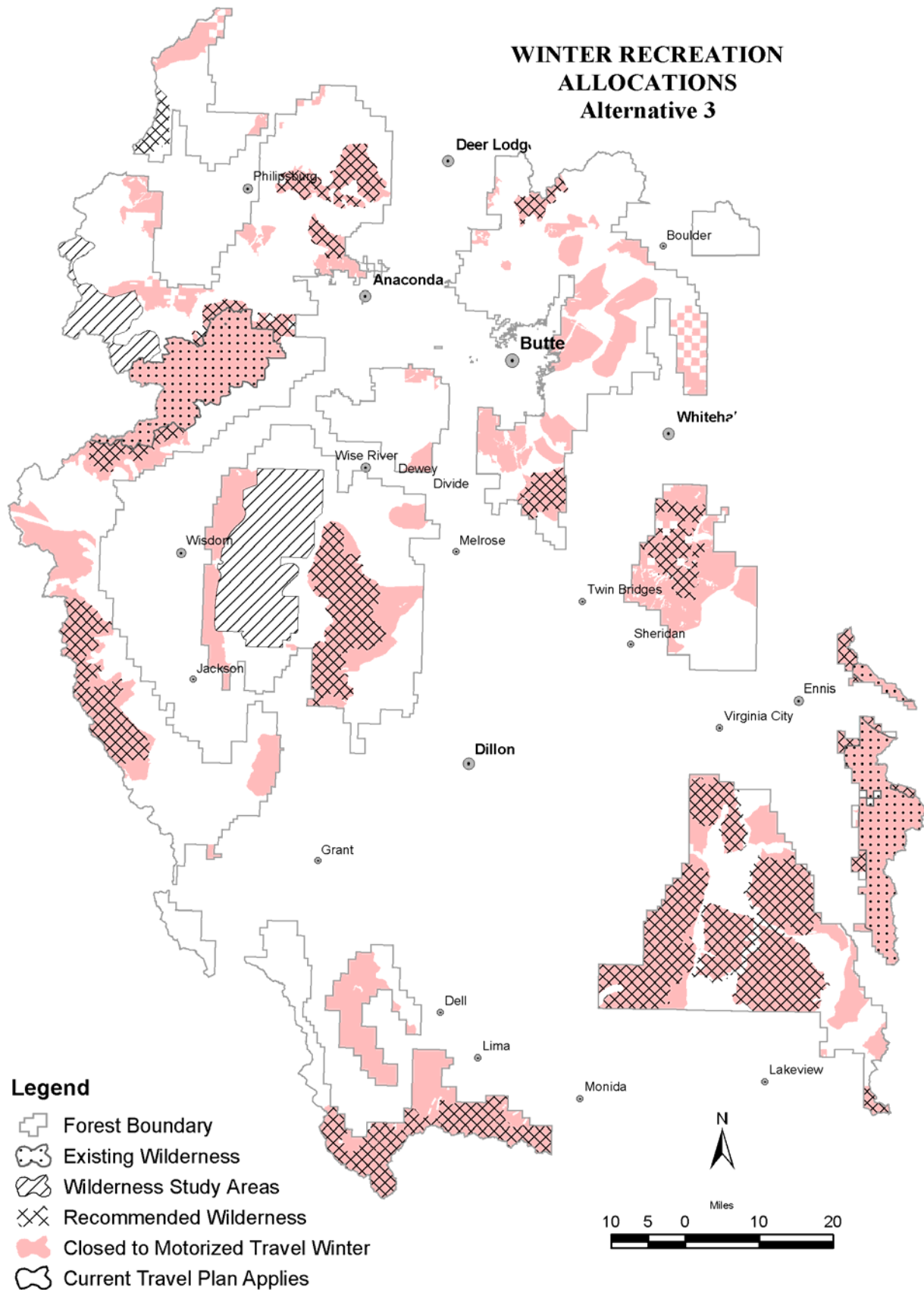


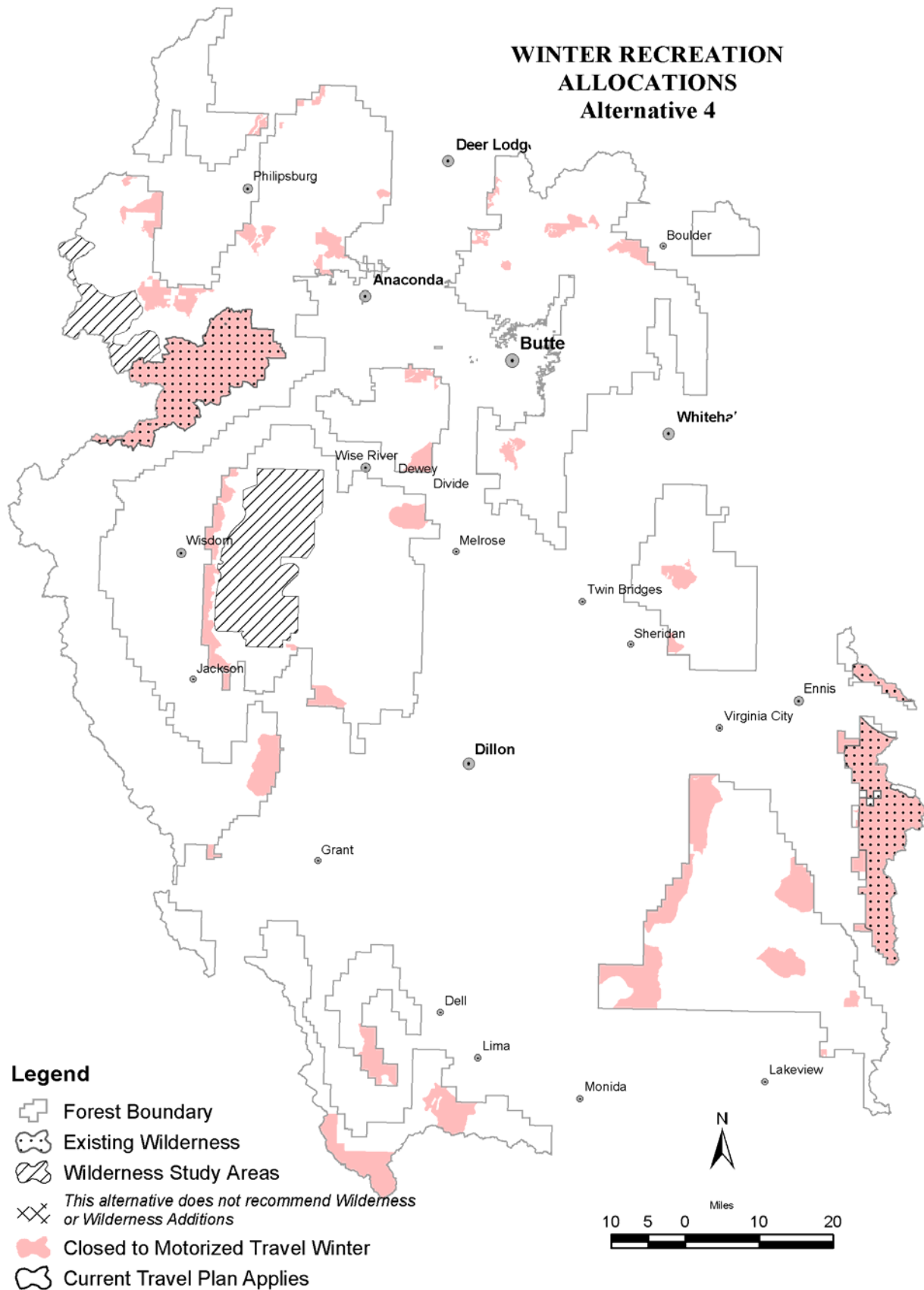


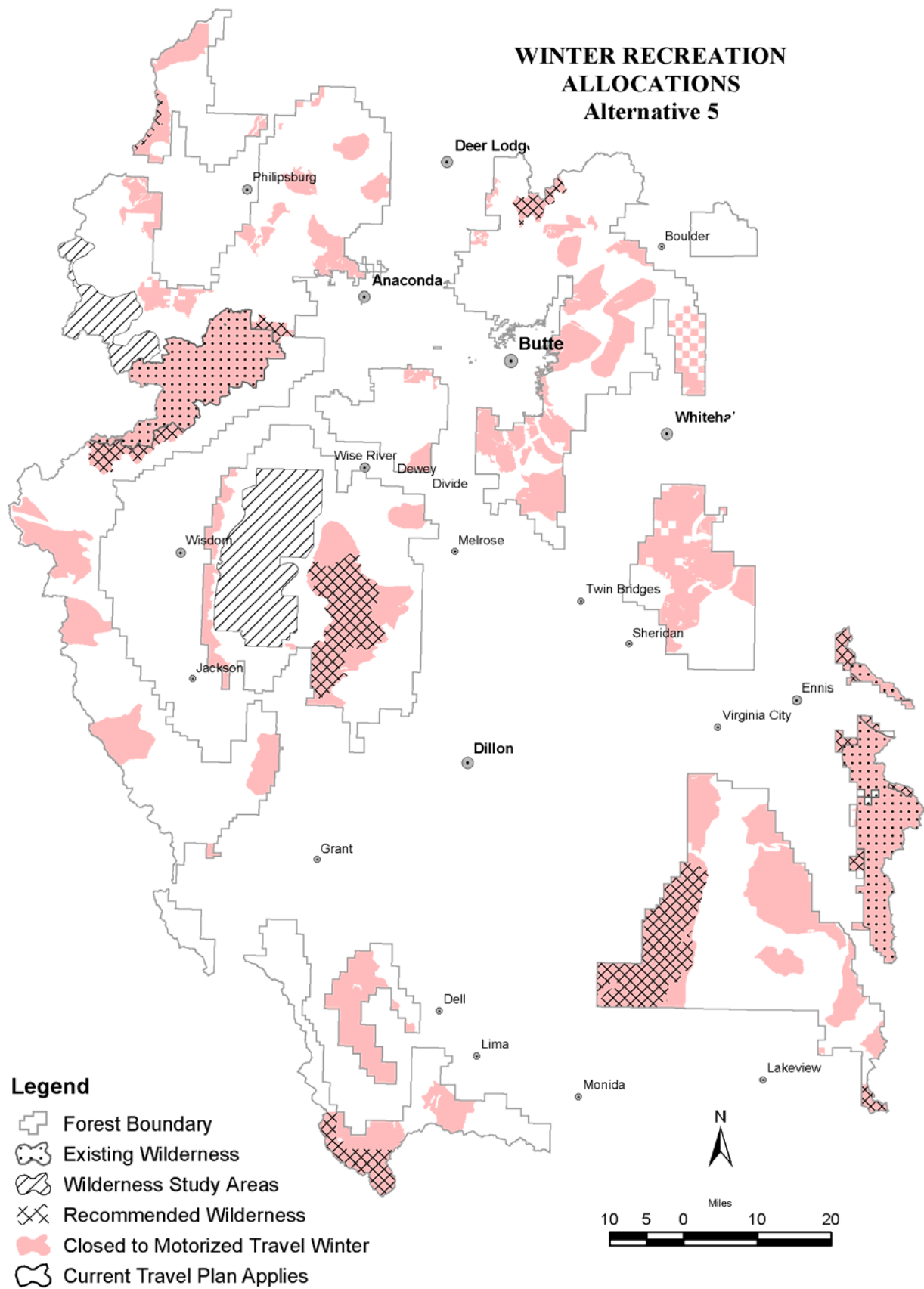


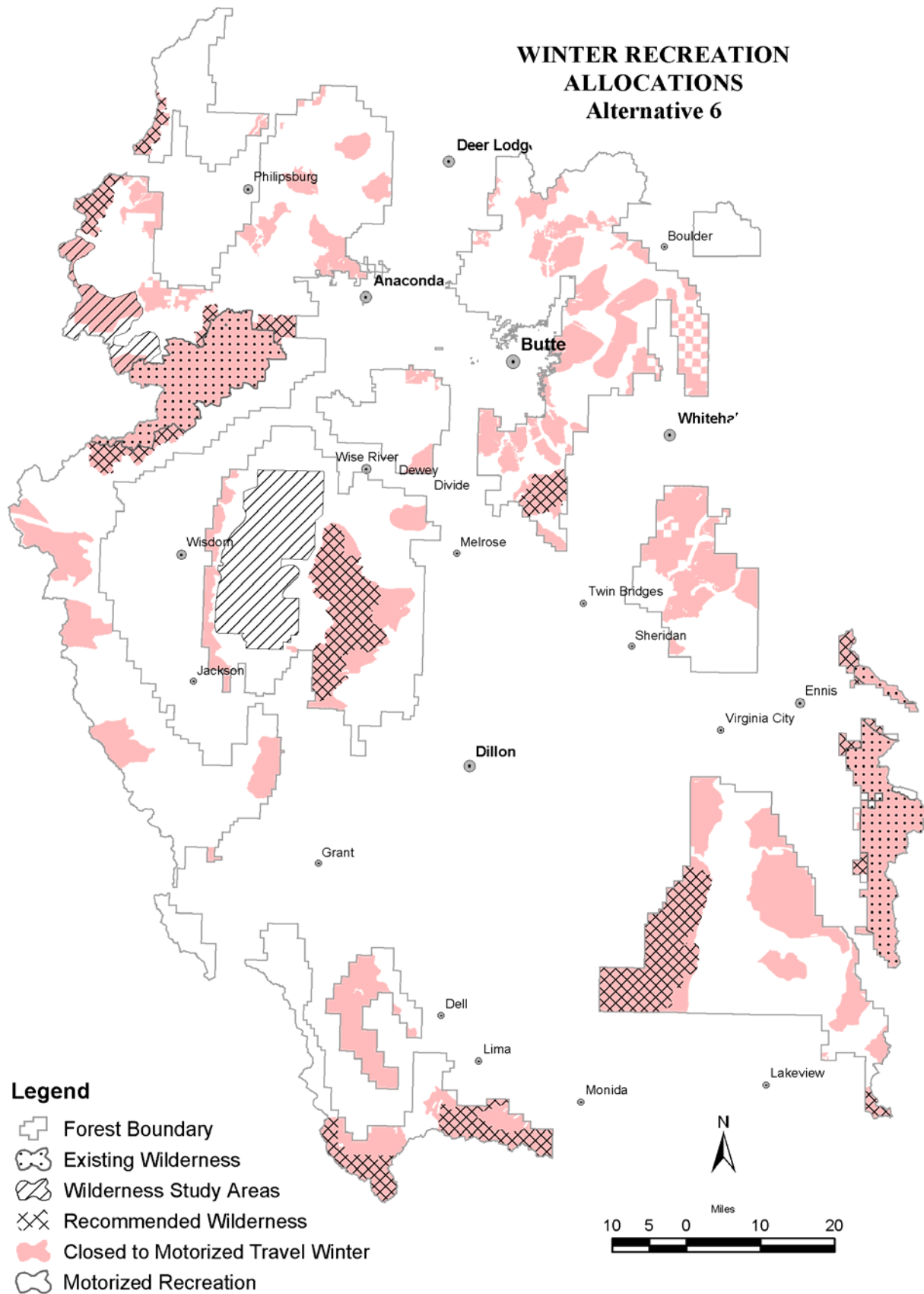


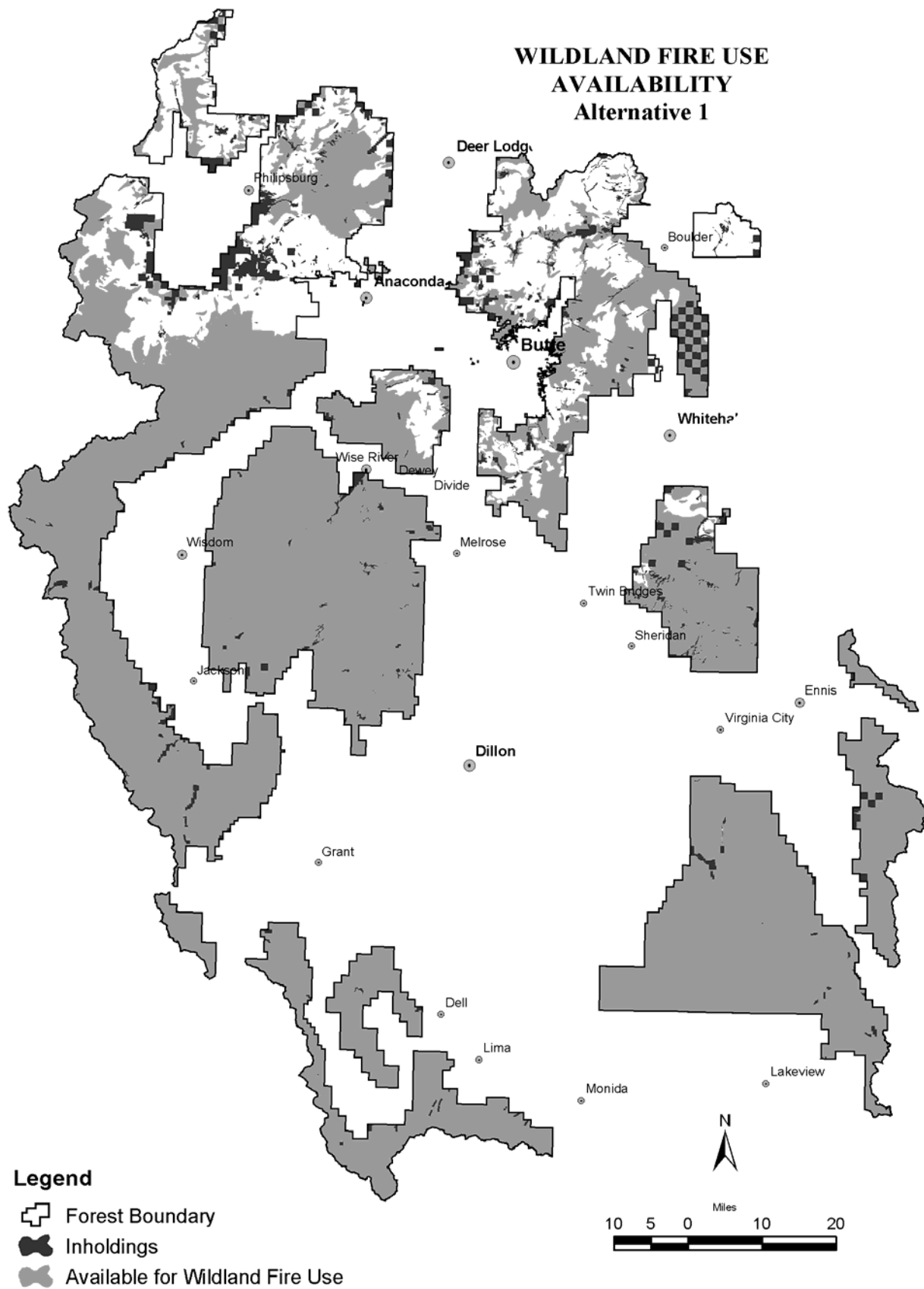


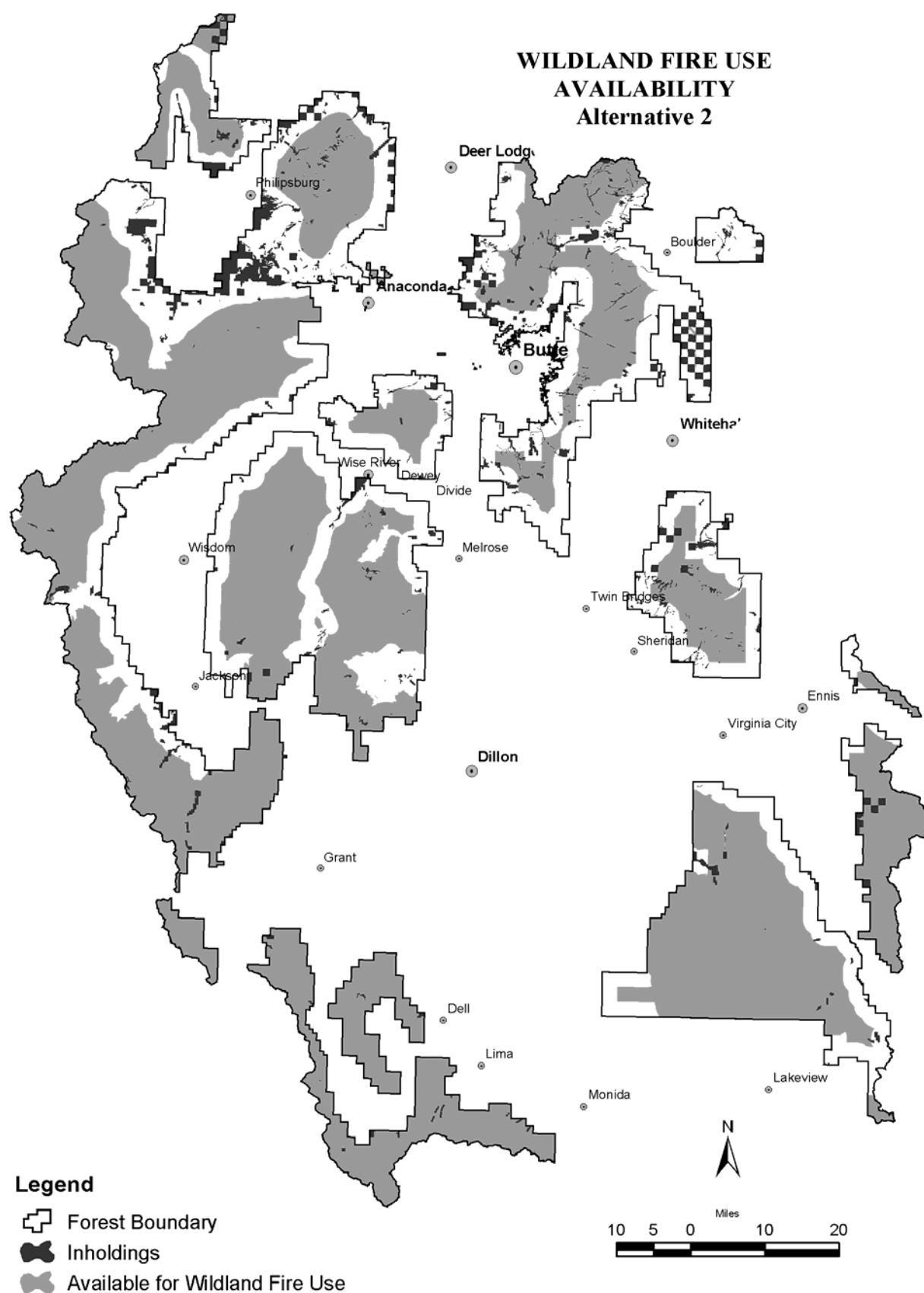


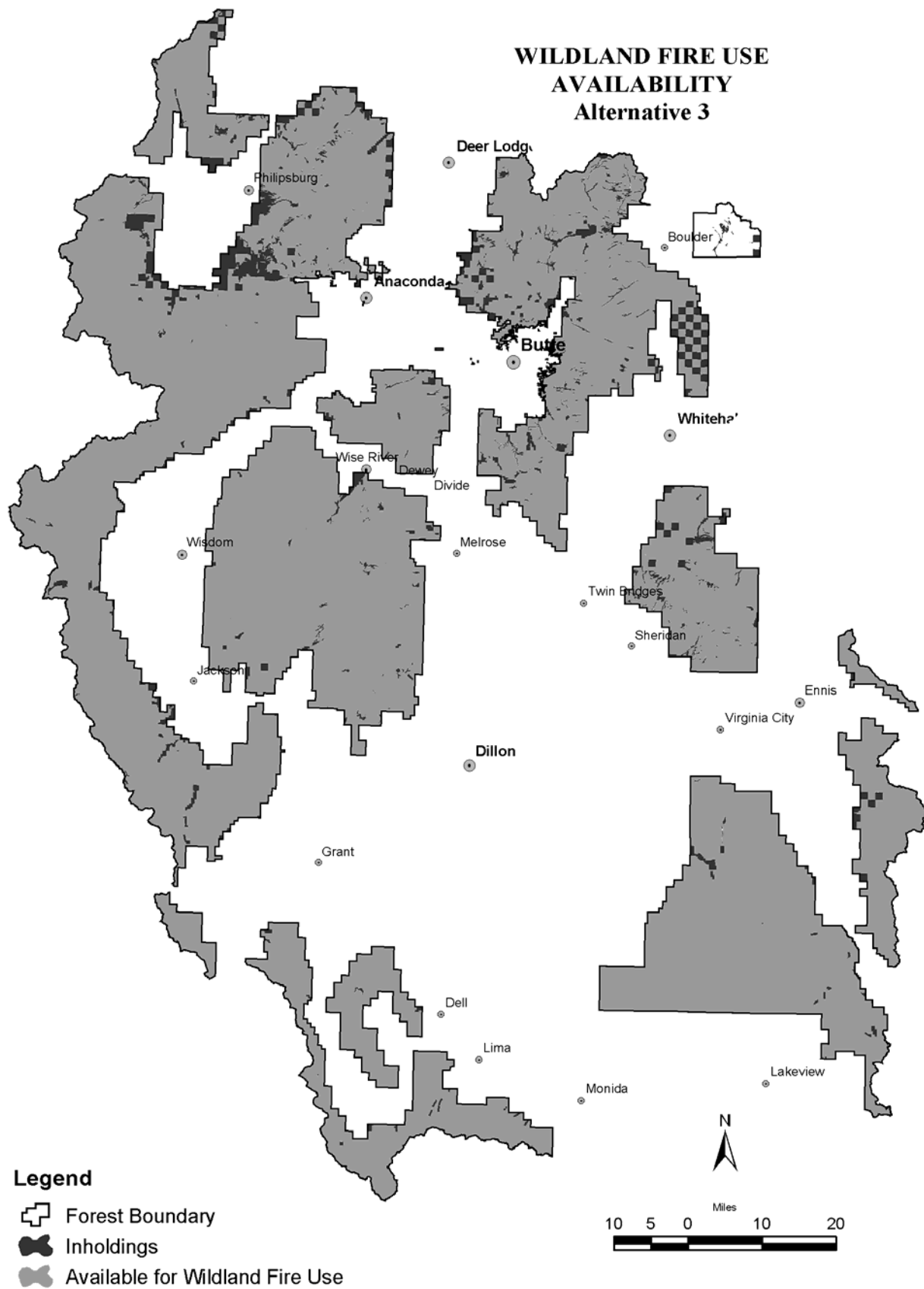


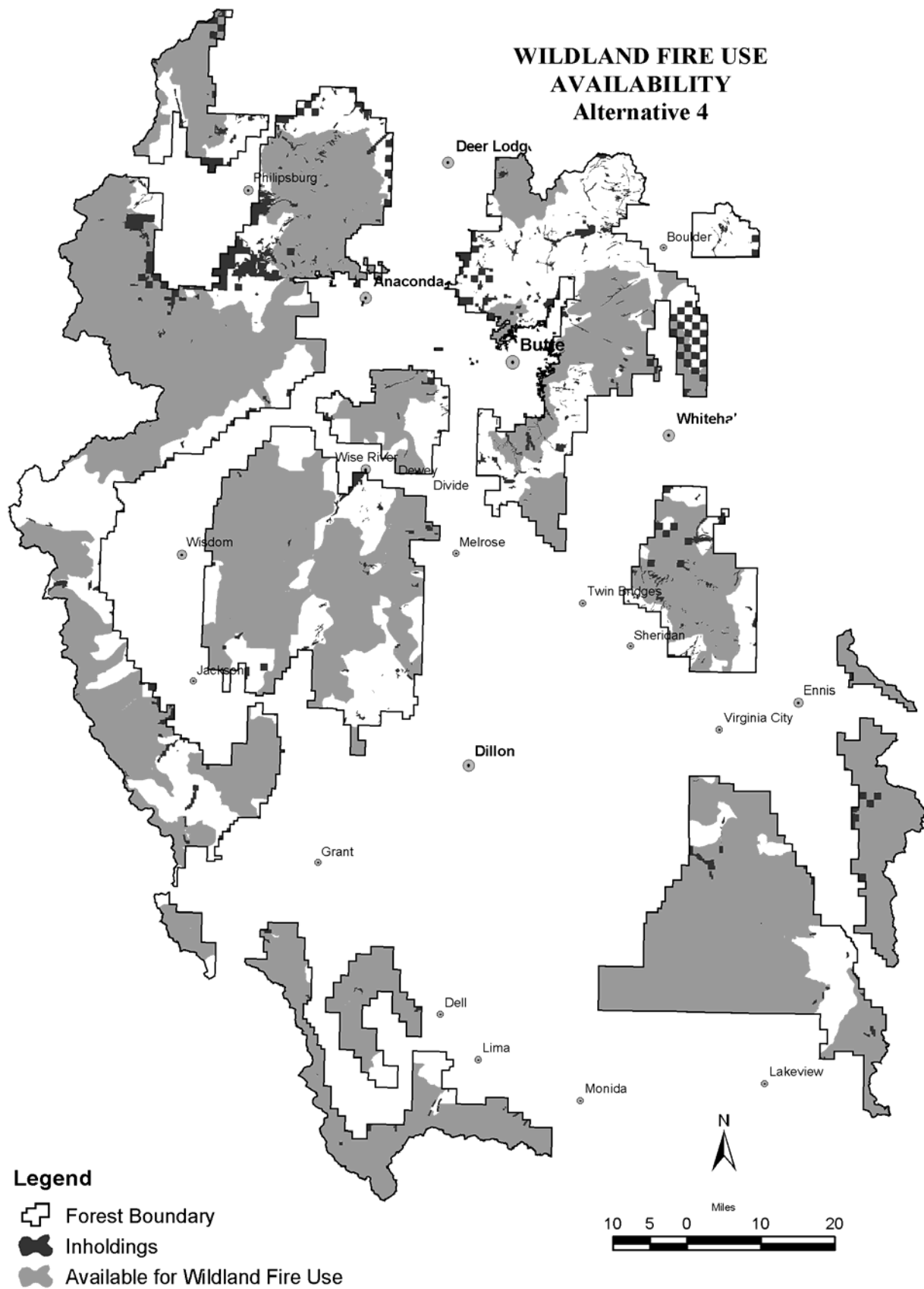


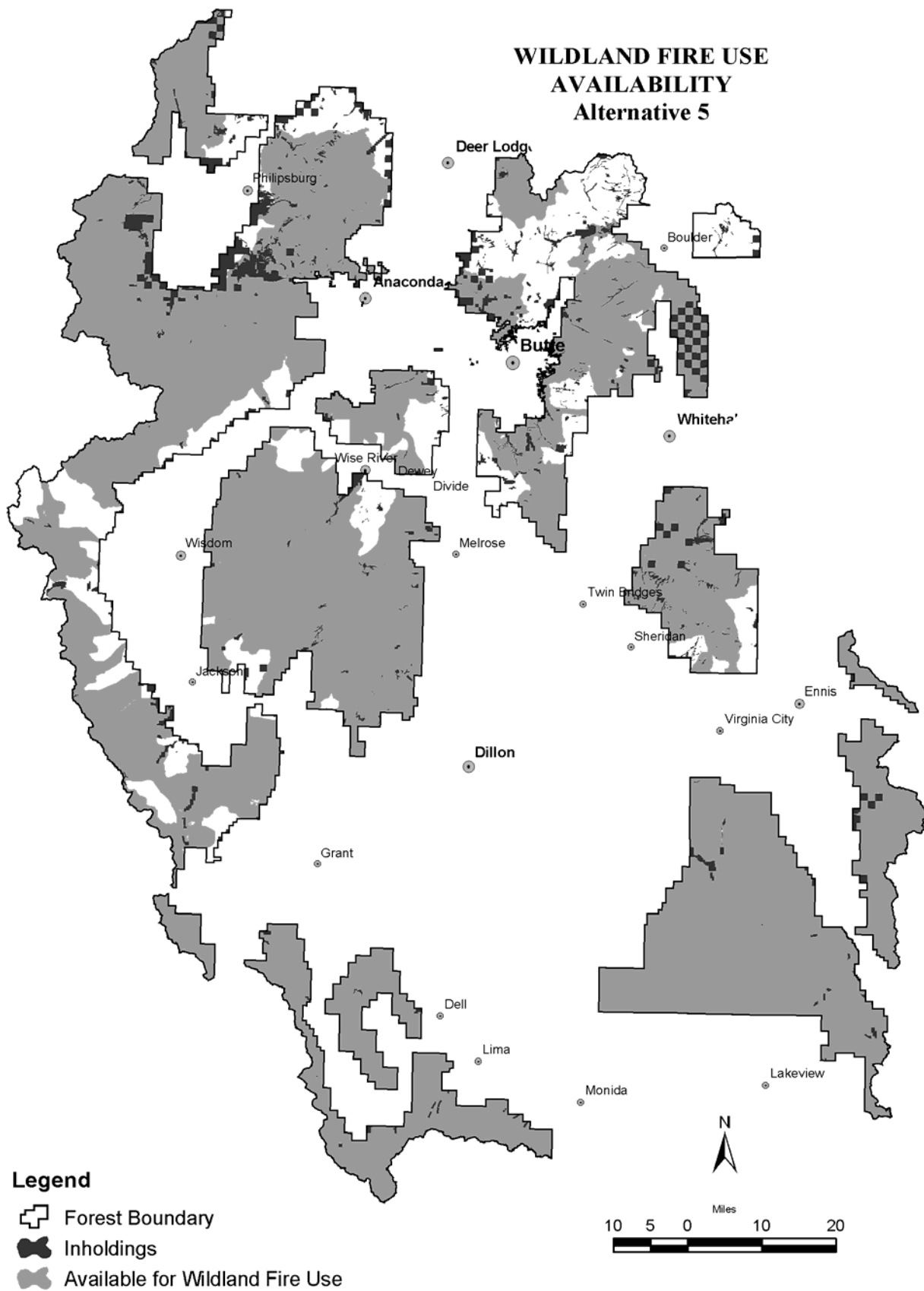


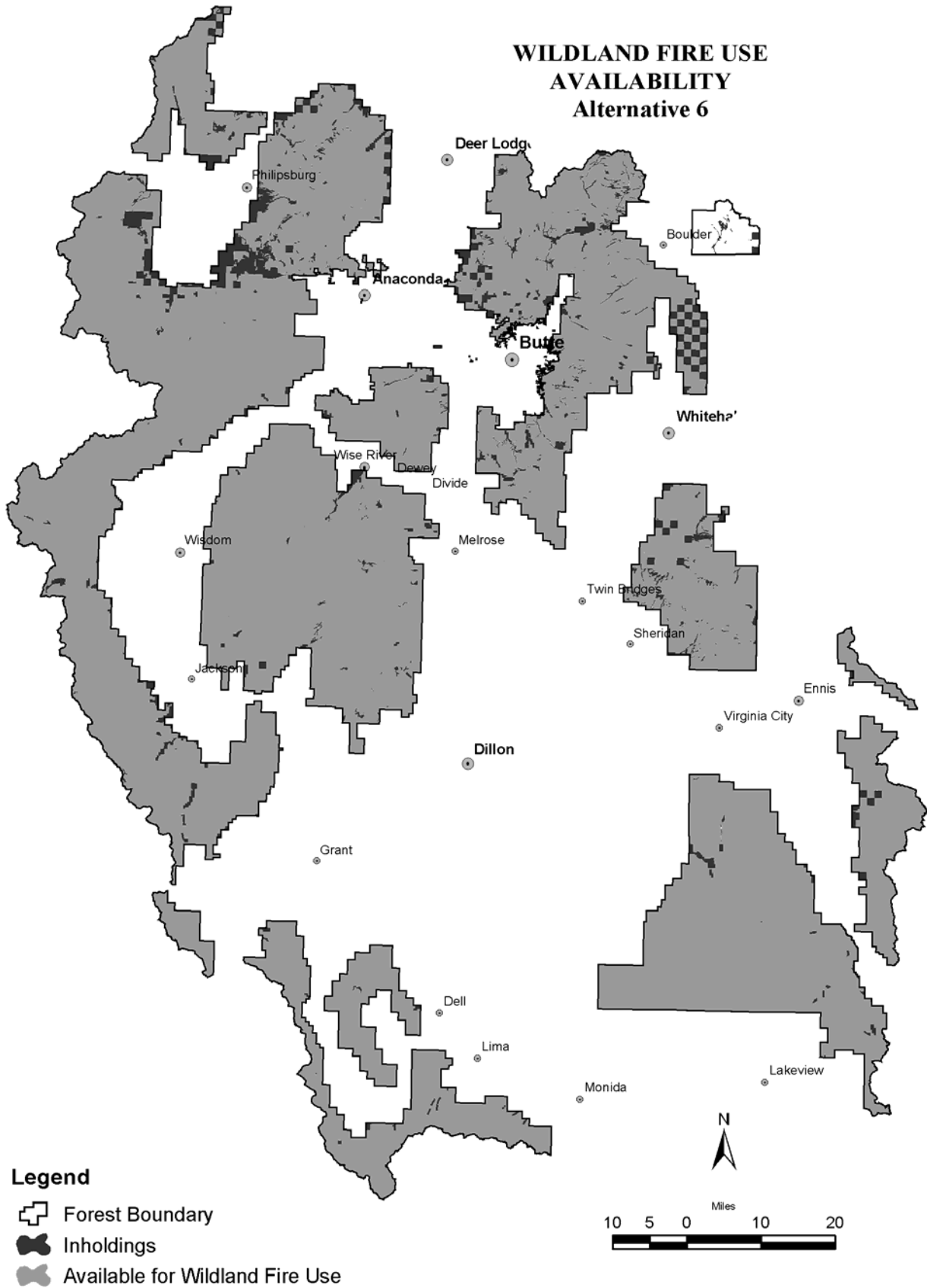












CHAPTER THREE

This section contains the affected environment and environmental consequences analysis of effect by alternatives for each resource area. Both sections have been combined in this chapter and are listed alphabetically. Many terms used in the analysis are defined in the glossary at the end of Chapter 4.

AIR QUALITY

Changes Draft to Final

Analysis clarified in response to comments.

Analysis Area

The analysis area for direct, indirect, and cumulative effects includes the entire BDNF and adjacent areas within a 100 km from the forest boundary. This figure is based on air pollution modeling and has been used on other forests. Air pollution has the potential to impact a variety of resources on the BDNF including visibility, water, soils, and sensitive species of flora and fauna. The Forest Service is involved in the protection of air quality through a number of laws and regulations. Air quality on the BDNF is good and typically meets national and state standards for air quality except in the case of large wildfires, where those standards may be temporarily exceeded in that location.

Analysis Methods and Assumptions

The Environmental Protection Agency (EPA) has established health-based National Ambient Air Quality Standards (NAAQS) for 6 pollutants called “criteria” pollutants. Concentrations higher than standards are considered unhealthy and are a potential violation of law; concentrations below are considered acceptable:

- **Carbon monoxide (CO)** is a colorless, tasteless, odorless gas produced primarily by motor vehicles (56%, nationwide). Other sources may include stoves, fireplaces, and wildland fires (6%). Elevated CO levels occur in high density urban areas and mountain valleys.
- **Ozone (O₃)** is a blue unstable gas with a characteristic odor. Ozone is created by a chemical reaction between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. Hydrocarbons are emitted by vehicles, wildland fire and other sources, including vegetation (e.g. terpenes emitted by pine trees). The highest ozone levels generally occur in the summer when sunlight is stronger and stagnant weather conditions cause reactive pollutants to remain in an area for several days.
- **Nitrogen dioxides (NO₂)** is a reddish-orange-brown gas with a pungent odor. Nitrogen oxides or NO_x, is the generic term for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. NO₂ is a common pollutant in this

family of gases that is formed during high temperature combustion such as in motor vehicle engines. A limited amount of nitrogen dioxide is emitted by wildland fires.

- **Particulate matter (PM₁₀ and PM_{2.5})** consists of very small particles of solid or semi-solid materials in the atmosphere. Elevated particulate matter levels are generally associated with high density urban areas or localized mountain valleys where dust, smoke, and emissions are common.
- **Lead** in the ambient air exists primarily as particulates coming from lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. The major source of lead used to be leaded gasoline, but this is no longer the case with the phase-out of leaded gasoline.
- **Sulfur Dioxide (SO₂)** belongs to the family of sulfur oxide gases (SO_x). SO_x gases are formed when fuel containing sulfur, such as coal and oil, is burned, and when gasoline is extracted from oil or metals are extracted from ore. Most SO₂ comes from electric utilities, especially those that burn coal. Some SO₂ comes from non-road diesel equipment that burns high sulfur fuel.

More information regarding the six criteria pollutants can be found on EPA websites. The discussion on criteria pollutants in June of 2006 came from this EPA website.at:
<http://www.epa.gov/ebtpages/airpollutants.html>

Areas where the National Ambient Air Quality Standards (NAAQS) are exceeded are considered non-attainment areas. The only non-attainment area in the BDNF vicinity is Butte, Montana for PM₁₀. (<http://www.deq.state.mt.us/AirQuality/Planning/AirNonattainment.asp>). No portion of the BDNF is currently located within the boundaries of a non-attainment area. However, the Anaconda Pintler Wilderness Class I) and the Lee Metcalf Wilderness (Class II) are air quality areas within the boundaries of the BDNF that are mandated for protection under the Clean Air Act. Class I areas have the highest level of protection for air pollutants, and very little deterioration of air quality is allowed in these areas.

All major drainages in the BDNF area are subject to temperature inversions which trap smoke and reduce smoke dispersal. Temperature inversions can occur at any time during the year, but are most common in the fall and winter. Generally, dispersion of emissions within the analysis area is very high due to the mountainous terrain and high wind activity. The Wind Energy Resource Atlas of the United States (Elliott et al. 1986) shows average wind speed for Dillon at 4.2 meter/second. All of the Reasonable Development Scenario well sites are mapped in wind power class 7 which has an annual wind speed of 7 meter/second (15.7 mph). Valley locations have much less wind dispersion than mountains and are more subject to pollutant concentration during temperature inversions.

The Ventilation Climate Information System (<http://www.fs.fed.us/pnw/airfire/vcis/>) shows that the BDNF area has generally excellent wind dispersion in mid-upper elevation areas with some lower dispersion areas in valley bottoms. The valley locations in and adjacent to the BDNF have the greatest potential for cumulative concentrations of urban, industrial, and transportation emissions. Up valley winds during daytime and down valley wind (cold air drainage) at night can dominate valley winds more than overall prevailing wind direction on ridge tops.

The average annual precipitation for the BDNF varies from approximately 40 inches in the higher elevations of the Pioneer Range to 10 inches in valley floors. Management actions have

not caused NAAQS to be exceeded. Recreation and management use of roads have potential to directly affect particulate levels because of dust. Potential impacts, smoke and soot, from fire is short-term but can result in significant increases in smoke and particulates and can cause localized, temporary health impacts. Managed fire activities are coordinated with the Montana Department of Environmental Quality, Air Resources Management Bureau and the Montana/Idaho State Airshed Group.

Key Indicators

- ♦ Visibility
- ♦ Potential particulate emissions (tons per year) generated from prescribed fire.

Affected Environment

Regional considerations

Pollution sources for sulfur dioxide, oxides of nitrogen, and volatile organic compounds, east of the continental divide include industrial sources, wildfires, prescribed burning, agricultural burning, residential and business development, and vehicle emissions. Montana's largest air pollution problem is particulate matter. Particulate matter is the term given to the tiny articles of solid or semi-solid material suspended in the atmosphere. Particulate matter 10 microns in diameter and smaller, called PM_{10} , is considered inhalable and can have certain impacts on human health. Particles 2.5 microns in diameter and smaller, called $PM_{2.5}$, are considered to be the most damaging to human health and have the most effect on atmospheric visibility. Combustion processes produce ultra fine particles which are the bulk of $PM_{2.5}$. $PM_{2.5}$ is the principal cause of haze since it settles and is usually removed from the air by rain. PM_{10} settles in hours and is often pollen spores and some dust. A particular management concern is smoke which is full of $PM_{2.5}$ affecting visibility and human health (Hammer 2000).

The Air Resources Management Bureau has estimated for southwest Montana, including the BDNF, a NO_2 background of 6 $\mu g/m^3$ (annual average) and one hour NO_2 maximum of 75 $\mu g/m^3$ are appropriate. These estimates can be improved and localized when more data is available. An average annual PM_{10} background concentration, for the purpose of emission concentration screening modeling, has been assumed to be 20 $\mu g/m^3$. This concentration overestimate is based on measured PM_{10} levels during the fall burning season at Butte.

Sulfur dioxide (SO_2) is a pollutant of concern from industrial sources in Billings/Laurel, East Helena, Colstrip, and Great Falls. Nitrogen dioxide (NO_2) or nitrogen oxide (NO) in Montana includes coal fired power plants, natural gas compressor stations, and oil refineries, but is not a pollutant of major concern. Data submitted by the Colstrip Power Company has shown no violations of the NAAQS or Montana Ambient Air Quality Standards (MAAQS) for (NO_2).

No active oil or gas wells currently exist on the BDNF. Scattered dry holes exist in the southwestern part of Montana, but no active production. The area is ranked as very low, low, or moderate for petroleum occurrence.

Emissions from wildland and prescribed fire are an important episodic contributor to visibility-impairing aerosols, including organic carbon, elemental carbon, and particulate matter ($PM_{2.5}$).

Agricultural burning emissions and their effects have been identified as a concern, but have not been quantified due to lack of data.

Other than statewide information, there are no data on emission or source category trends near the BDNF. This is a remote rural area and the potential for any activity besides smoke to affect air quality is low.

Forestwide Considerations

Generally, air quality within the Beaverhead-Deerlodge National Forest is excellent with limited local sources and consistent wind dispersion. All areas in and adjacent to the forest for both Class 1 and Class 2 areas are considered to be in attainment by the Montana Air Quality Division. Very limited specific information is available concerning existing air quality. A listing of stationary sources in Montana in the vicinity of the BDNF with permitted emissions greater than 100 tons/year can be found on the following EPA websites, as accessed in June of 2006: AirData: <http://www.epa.gov/air/data/index.html>; Clean Air Markets – Data and Maps: <http://cfpub.epa.gov/gdm/> or the Envirofacts Data Warehouse: <http://www.epa.gov/enviro/index.html>

Three stationary sources of air pollution on the Montana Air Quality Division inventory with emissions greater than 100 tons/year occur near the BDNF. These include the Pfizer talc plant located about 7.5 miles southwest of Dillon. The AQD data base lists the Pfizer plant as emitting annual totals of 91 tons/yr of PM10, 1 tn/yr of VOCs, and 6 tn/yr of CO for a total of 121 tons/year. This is a relatively small source (less than PSD permit). The Montana Resources Mine at Butte has projected annual totals of NOx 462 tons/year, PM10 of 1727 tons/year, SO2 of 50 tons/year, and VOC of 30 tons/year. The Golden Sunlight Mine near Whitehall has projected annual totals of NOx 520 tons/year, PM10 of 886 tons/year, SO2 of 40 tons/year, and VOC of 30 tons/year. No other sources of industrial emissions occur in the analysis area other than very small local sources.

Other types of emissions in the area include vehicle and agriculture equipment exhaust, road dust, wood smoke from residential areas, smoke from pile burning, broadcast burning, and wildfires. Although the Beaverhead and Deerlodge NF's have had a low frequency of wildfires during the last 20 years, wildfire smoke has accumulated within the area during periods of extensive regional wildfire activity in 1988, 1994, 2000, and 2003. The Mussigbrod Fire in 2000 in the west part of the Pintler Range combined with the upwind Valley Fire Complex on the Bitterroot National Forest to produce extensive smoke impacts through much of the BDNF in August of 2000. The prime source of wildfire emissions are from central and southern Idaho and the Bitterroot National Forest. Smoke from wildfire in Yellowstone National Park can also impact the BDNF as it did in 1988 and 1994.

Air quality conditions in rural areas surrounding the BDNF are generally very good, as indicated by limited air pollution emission sources from few industrial facilities and residential emissions in relatively small communities and isolated ranches. Good atmospheric dispersion conditions, resulting in relatively low air pollutant concentrations also contribute to good air condition. Occasional high concentrations of CO and particulate matter (PM10) may occur in more urbanized areas with automobiles and home fireplaces (for example Anaconda and Butte) and around industrial facilities and the interstates, (Rocker) especially in the stable atmospheric conditions common during winter.

Emissions from fire, including prescribed fire, wildfire, and campfires, are a contributor to air pollution in the spring, summer, and fall. During periods of drought and/or wind events, fires have historically grown quite large and can affect local air quality for several weeks. Slash disposal from timber harvest usually has been pushing logging residue into piles and burning the piles when fire hazard conditions are low.

Prescribed fires are an intermittent source of particulates and may cause short-term visibility problems and temporary change in ambient air quality. On the BDNF approximately 7,300 acres are burn annually by prescription. Smoke permits are obtained from the Montana/Idaho State Airshed Group and Montana Department of Environmental Quality, Air Quality Resources Bureau based on estimated emissions from prescribed burn plans. The Group is notified prior to, and must give approval for, any prescribed burning activities.

Road dust from vehicle traffic on unpaved forest roads (Maintenance levels 1-3) also adds particulates to the air. In general, these emissions only cause air quality concerns in localized areas. During dry periods of the year, traffic on some roads can generate localized road dust.

Motorized use on forest roads and trails may also contribute localized emissions. Odor generated by combustion engines, particularly two-cycle engines can diminish a non-motorized user's experience of forest trails. The EPA has set standards for emissions of non-road engines and vehicles (snowmobiles, ATVs, boats, etc). The standards set for emissions of oxides of nitrogen (NO_x), hydrocarbons (HC) and carbon monoxide (CO) are to ensure compliance with the Clean Air Act, and to regulate those emissions that contribute significantly to the formation of ozone and carbon monoxide. Compliance with these standards requires manufacturers to apply existing gasoline or diesel engine technologies to varying degrees, depending on the type of engine (EPA 2006).

Because the occurrence of inversion is more likely during the winter months, snowmobile and vehicle emissions might be more concentrated in parking areas and trailheads. As a comparison, the West Entrance of Yellowstone National Park has been an area of considerable discussion relative to air quality effects from snowmobiles. The National Park Service provides information that indicates snowmobiles have a much higher per vehicle emission rate than autos and trucks. Monitoring in 1999 documented carbon monoxide (CO) and particulate matter concentrations at the West Entrance, which were very close to violation of the CO one-hour and eight-hour NAAQS. Measured concentrations were less at Madison and Old Faithful. Modeling various alternatives of winter use at the West Entrance, found that none of the alternatives for winter use management in Yellowstone Park would exceed one-hour average CO concentrations for NAAQS or MAAQS, although CO concentrations would be elevated considerably above background levels (Morris et al. 1999).

Two wilderness areas on the BDNF are the Anaconda-Pintler (Class I) and Lee Metcalf Wilderness Areas (Class II). An air quality monitoring plan for the Anaconda-Pintler Wilderness was developed in 1995. The plan includes monitoring objectives, resource susceptibility and current status, monitoring protocols, and a section on how to use the monitoring data. AQRVs are general features or properties of a Class I Wilderness which made the area worthy of designation as Wilderness and which could or would be affected by man-made pollution. The wilderness values most likely to be impacted by reduced air quality in the APW are visibility, lichens, flora, and water quality in cases of severe air pollution.

Sensitive receptors are specific components of the wilderness system through which change can be quantified. Sensitive receptors for the APW were selected based on known or suspected sensitivity to atmospheric pollutants; availability of sampling methods and analysis methods, and availability of modeling capabilities for predicting the effects of proposed increases in emissions on the sensitive receptor. The Forest Service operates a visibility monitoring station on Sula Peak, on the Bitterroot National Forest as part of the IMPROVE monitoring network. These monitoring programs provide air quality data used in local, regional, and state-wide air quality assessments and are useful for understanding current conditions, trends, and potential impacts of proposed development on air quality and air quality related values. The Sula Peak IMPROVE site has measured visibility consistently in the 180-200 km range which is some of the best visibility in the United States. Visibility data is available at <http://vista.cira.colostate.edu/views/>

Visibility and lake chemistry, ozone, and deposition data have been collected at nearby sites. The following table lists the air quality data for the BDNF.

Table 2. AQRV Monitoring for the AP and Lee Metcalf Wilderness Areas.

AQRVs	Sensitive Receptor	Region 1 Sampling Method (sensitive receptor indicator)	Anaconda-Pintler (baseline completion year)	Lee Metcalf (baseline completion year)
Flora	Lichens	Tissue samples, community analysis	1992, 2001	NA
Visibility	High-use vista	Camera (Haziness)	Established 1994-Sula	NA
Visibility	Scenic vistas	IMPROVE (Haziness)	Established 1994-Sula	NA
Water Quality	High altitude lakes	Phase I Lakes (pH, alkalinity, conductivity, chemistry, Acid Neutralizing Capacity)	1985	1985
Water Quality	Lakes with low ANC	Phase II Lakes (pH, alkalinity, conductivity, chemistry, ANC)	1992	NA
Water Quality	Perennial Streams	Phase III Lakes (pH, alkalinity, conductivity, chemistry, ANC)	NA	NA
Water Quality	Vernal Pools	NADP (Acid Deposition)	1990-present	NA

Limits of Acceptable Change: The Air Quality Related Values Monitoring Plan for the Anaconda-Pintler Wilderness (USDA 1995a) discloses limits of acceptable change for visibility, lichens, terrestrial plants, and water quality.

A National Atmospheric Deposition Program (NADP) acid deposition gage was installed above Lost Trail Pass on the Bitterroot NF in 1990 about 2 miles west of the Beaverhead NF. This gage was located to measure acid deposition (acid rain, acid snow, acid fog etc.) levels in southwestern Montana with concern that air pollution from regional sources in the southwestern

US (coal burning power plants, smelters, transportation sources) is being transported into Montana. The site provides an upwind index of wet deposition in the BDNF. Only low levels of acid deposition however, have been measured (Story 2007). Mean monthly pH averaged 5.37 during the period of record and ranged from low of 4.88 in August of 1994 and 1997 to a high of 6.05 in July of 1991. The quarterly average pH for the period of record has been trending slightly downward during the period of record (from 5.49 during 1990-1993, 5.44 during 1990-1995 to 5.33 during 1995-2000). Too much variability exists in the pH data to verify a downward trend statistically.

Of particular interest in chemical analysis of the data is the acid anion sulfate and nitrate, which are the main agents of acid rain. Sulfate concentration measurements range from a monthly average low of 0.07 mg/L in November of 1994 to a high of 0.58 mg/L in August of 1994. Average sulfate for the period of record (1990 to 2000) was 0.18 mg/L, which has dropped from 0.22 mg/L from 1990 to 1992 and 0.23 mg/L from 1990 to 1996. Nitrate concentration measurements range from a monthly average low of 0.08 mg/L in April of 1996 to a high of 1.68 mg/L in August of 1992. Average nitrate for the period of record (1990 to 2000) was 0.26 mg/L, which was similar to 0.32 mg/L from 1990 to 1992 and 0.32 mg/L from 1990 to 1996.

Nitrate (NO₃) and sulfate (SO₄) trends over the period of record are fairly stable for overall monthly and quarterly averages. However, as with pH, a strong and consistent seasonal pattern is quite pronounced with lower concentrations in the winter and higher in the summer. These seasonal patterns are typical of NADP sites nationwide and result from reduced cloud temperatures in the winter which retards the photochemical transformation of SO₂ and NO_x emissions to sulfuric and nitric acid. Overall the Lost Trail NADP site data indicates wet deposition levels which are low and comparable to other NADP sites in the region (Glacier and Yellowstone National Parks, and Helena).

Lake chemistry data was collected for 11 lakes in the Lee Metcalf Wilderness, Spanish Peaks in 1994. The acid neutralizing capacity (ANC) in the lakes averaged 231 ueq/L and varied from 67 ueq/L to 361 ueq/L. Lee Metcalf Wilderness Lakes are more buffered to acid deposition change than Absaroka-Beartooth and Selway-Bitterroot lakes, and were not selected to the USFS Phase 3 lake monitoring program since they are not as sensitive to acid deposition as the 6 Phase 3 lakes.

Ferguson and Rorig (2003) evaluated pollution trajectories for particulates, NO_x, SO_x, and NH₄ from major stationary sources in the NW United States. Pollution trajectories were plotted at the surface, 700mb, and 850mb for January, July, and October. The trajectories indicate virtually no regional pollution trajectories crossing into the BDNF since the closest major sources are in Oregon, Northern California, and Utah with trajectories that generally track north or south of the BDNF.

Environmental Consequences

Summary of Effects by Alternative

No management activities resulting in more than localized, temporary smoke PM_{2.5} violations of NAAQS or visibility goals are anticipated under any alternative. None of the alternatives considered are expected to substantially change existing air quality. Temporary reductions in

visibility and increases of fine particulate matter may occur on the forest or in population centers downwind from sizeable wildland fires. There are no predicted long-term air quality impacts to the BDNF.

Effects Common to All

AQRVs are considered in the context of Class I protection under the Clean Air Act. Federal Land Managers of each Class I Area is charged with the affirmative responsibility to protect that area's unique attributes, expressed generally as air quality related values (AQRVs). This responsibility is carried out through the Prevention of Significant Deterioration (PSD) permit process and includes identification and determination of:

- Sensitive receptors, if any, for each AQRV.
- Potential effects, if any, on sensitive receptors from potential new air pollution sources.
- Potential adverse effects.

The Forest Service will review and comment on any PSD applications for sources that may have a potential impact on BDNF lands following the Federal Land Managers Air Quality Related Values (FLAG) policy and other applicable agency policies. The Forest Service will conduct monitoring for AQRVs and comply with federal Clean Air Act regulations. The Forest Service will evaluate activities on National Forest System land that might impact the BDNF and will mitigate emissions where necessary.

Smoke from prescribed fires will be managed by burning on days when air quality degradation can be minimized. How well the smoke will disperse is a key consideration in prescribed burning decisions. Coordination with the Montana /Idaho State Airshed Group will help ensure prescribed fires do not violate the state standard for particulate matter.

All prescribed fire activities will conduct the appropriate level of NEPA, as determined according to current agency direction. Analysis should include current reference to smoke management provided in agency guides or other appropriate agency direction. Project level NEPA should include discussion on any current EPA policy regarding prescribed fire.

Legal considerations regarding smoke produced from wildfire, prescribed fire and wildland fire use fall under the EPA's Exceptional Events Policy. Exceptional events are events for which the normal planning and regulatory process established by the Clean Air Act are not appropriate. Properly managed prescribed fire and wildland fire use activities are "exceptional events" according to the policy, and wildfire is considered to be a Natural event—pollution caused by these events are not subject to violations of National Ambient Air Quality Standard (NAAQS).

On all Forest Service projects, road dust will be evaluated if it is an air quality issue. Mitigation measures can include road surface material, season of use, daily time and use restrictions, road closures, dust abatement products or road watering, and requiring lower speeds on gravel and native surface roads.

Direct and Indirect Effects

Management activities can directly affect air resources such as fire management activities, travel routes, developed recreation, mining, and oil and gas development. Indirect impacts to air quality can occur from management decisions: for example, issuance of a special use permit to expand a

ski resort results in increased vehicle emissions from additional employees and skiers driving to the ski area.

Effects to Air Quality from Aquatic Species Management

Effects to air quality from Aquatic species management are negligible and are not expected to differ between alternatives.

Effects to Air Quality from Fire Management

Compliance of Rx burn emissions with NAAQS and applicable federal, state and local standards should be done at the project NEPA level using the SIS or SASEM model (or future refined models). Schmidt

Both wildfires and prescribed fires generate smoke and particulates that can temporarily degrade visibility and ambient air quality conditions in downwind sensitive areas. The risk of adverse air quality impacts from fires increases with the acreage burned. Those alternatives with the most fuel treatment acres proposed are Alternatives 3, 4 and 5. Alternative 1 proposes the least. Alternatives that emphasize natural processes have the highest potential for, and the most acreage potentially impacted by, wildfire. Alternative 3 has the highest percentage of management area prescriptions emphasizing natural processes, followed by 5, 4, and 2.

Forest management and permitted activities will comply with national and state ambient air quality standards, regional haze visibility requirements, Class I and Class II Prevention of Significant Deterioration increments, conformity analysis requirements and other state and national air quality standards and coordination requirements such as the 1988 Montana Smoke Management Memorandum of Agreement.

Historically fire and smoke have been a part of the Northern Rockies ecosystem. Currently, smoke is a very sensitive issue in many areas of the Region, both from a health and visibility perspective. Several communities in Montana and Idaho are non-attainment for particulate matter which can be exacerbated by smoke impacts. To minimize impacts, the Region participates in the Montana and North Idaho State Airshed Groups, which are self-regulated cooperatives of major open burners in Montana and Idaho. Project level planning for smoke impacts should include an analysis of smoke using current modeling technology. Operational smoke management is coordinated through the Montana/Idaho Airshed Group.

Effects to Air Quality from IRAs and NWPS Additions

Effects to air quality from wilderness recommendations are negligible and are not expected to differ between alternatives.

Effects to Air Quality from Livestock Grazing

Effects to Air quality from suitable range allocations are negligible and are not expected to differ between alternatives. Livestock grazing can generate dust, which can affect visibility and particulate levels. For the next decade, the area grazed is expected to be the same for all alternatives. Dust impacts are expected to occur only in localized areas, during limited and short-duration periods. Overall the effects of this use are undetectable on an allotment, county, or

forestwide scale, and the effects of livestock grazing on air quality would not vary measurably by alternative.

Effects to Air Quality from Minerals and Oil and Gas

There are no changes to any alternatives or new information that materially changes the effects discussed in the Beaverhead National Forest Oil and Gas Leasing Final Environmental Impact Statement (USDA 1995c). Air quality effects of oil and gas leasing, drilling, and development were reviewed and updated (Story 2007). The updated analysis, specific to oil and gas, can be found in its entirety in the Mineral project file for The conclusion of this document is that the oil and gas operation 14 RFD sites evaluated in the FEIS would be in compliance with State requirements.

Effects to Air Quality from Recreation and Travel Management:

Air quality impacts from forest travel routes are associated with vehicle emissions and dust from traffic on unpaved roads. These effects typically are localized and temporary, and their extent depends on the amount of traffic. Dust from unpaved roads increases with dryness as well as vehicle weight and speed.

Forest roads and trails are typically unpaved and used recreationally and for resource management purposes. Closures by alternatives vary only by area restrictions for motorized traffic. Alternative 4 and 5 propose the least reduction in motorized traffic whereas Alternative 3 has the most reduction in road traffic. However as a matter of scale, there will be no measurable difference between alternatives as it relates to dust created by roads.

Motorized recreation occurs year-round. Summer use includes off-highway vehicles. Travel on unpaved surfaces by vehicles can stir up dust. To date, these localized impacts have not adversely affected air quality in sensitive areas (e.g., those with important scenic vistas). As use of the forest transportation system increases with visitation, road dust impacts to sensitive areas may need to be addressed.

Direct and indirect effects of vehicle emissions on air quality as a result of implementing any of the alternatives are not expected to result in measurable variations from current conditions. Most of the effects of motorized recreation are expected to be localized and temporary.

Winter motorized recreation use is mostly limited to snowmobiles. Emissions from these vehicles include carbon monoxide, oxides of nitrogen, and particulate matter. Conflicts arise when this recreation use occurs alongside non-motorized pursuits, where clean-smelling air is desirable. While snowmobiles produce what is referred to as “nuisance” emissions, the snowmobile areas on the BDNF receive much less use than West Yellowstone. By comparison, snowmobile emissions monitoring at West Yellowstone in 2002-2003 indicated no instances where NAAQS or MAAQS were exceeded. It is reasonable to expect there would be no such instances in the better ventilated, lower use areas, on the BDNF.

While some alternatives have more areas closed to snowmobiling this is expected to displace that snowmobile use rather than decrease the amount of overall use. Over the planning period, the amount of snowmobile use is expected to increase equally among all alternatives, including the No Action.

Effects to Air Quality from Timber Management

Effects to air quality from suitable timber allocations are related to the treatment of fuels created from managing timber lands as discussed in the Fire Management section.

Effects to Air Quality from Vegetation Management

Effects to air quality from vegetation management, such as prescribed burning, are likely to result in short-term impacts to visibility. Each prescribed burn will have unique characteristics, and the smoke impacts can be mitigated by following sound smoke management practices. Also see discussion in next paragraph.

Effects to Air Quality from Wildlife Habitat Management

Effects to air quality from wildlife management are negligible and are not expected to differ between alternatives.

Cumulative Effects

Cumulative effects include the list of past, present, and reasonably foreseeable future activities considered with regard to cumulative effects to air quality. Since past and future emissions do not overlap as cumulative air quality effects are caused by concurrent emissions. Generally, long-term air quality impacts will likely come from adjacent communities as populations increase. Emissions can come from both mobile and stationary sources. Mobile source contributors include vehicle exhaust, dust from construction activities, and dust from increasing road traffic on and near the BDNF. Stationary source contributions off-forest includes industrial and commercial operations.

Minor road construction could occur under any alternative. The cumulative disturbance from road construction, reconstruction, or maintenance varies little among alternatives. Recreational traffic on forest roads under all alternatives is expected to increase in response to an increasing population. Overall, air quality impacts generated by recreational use of roads would vary little among alternatives. As growth continues, pollution generated by vehicles will increase. Road construction, reconstruction, maintenance, and use under all alternatives will contribute only a small amount of the road-related air pollution in the region. The cumulative road-related impacts vary little among the alternatives.

Cumulative effects of motorized travel on air resources are unique in that past impacts to air quality are not usually evident. The emissions associated with motorized travel would be cumulative only with local emission sources described in the affected environment. Since motorized emission sources on the forest are localized and transient, actual cumulative combinations of emissions are minor and do not result in significant effects.

Very small mineral operations occur on the BDNF with negligible air quality impacts. . The cumulative impacts of these operations would not differ between alternatives. Mineral operations with the potentially affect air quality are oil and gas development operations in the surrounding region.

Smoke from wildland and prescribed fires can adversely affect air quality. The Bureau of Land Management and the State of Montana manage lands in surrounding counties. Smoke from prescribed burning operations on these lands could individually, or in combination with other fires, affect air quality on the forest and in surrounding communities. The Montana/Idaho State

Airshed Group and Montana Department of Environmental Quality – Air Resources Management Bureau are contacted for coordination and approval of prescribed fires to help prevent the cumulative impact of these burns from creating unacceptable impacts to air quality. Under all alternatives, wildfires will continue to periodically cause temporary deviations from air quality standards.

For all alternatives, cumulative impacts on air quality from forest management would be small, and in general, temporary and localized. All areas of the Beaverhead-Deerlodge National Forest currently meet state and federal air quality standards and show no degradation to visibility or other air-quality-related values. Compliance with local, state, and federal air quality regulations will ensure that future forest management activities under any of the alternatives will continue to protect air resources on the BDNF and not contribute to air quality degradation to surrounding areas. The State of Montana has regulatory authority for controlling emissions including those with potential to adversely impact forest resources.

Legal and Administrative Framework

Laws and Executive Orders

The Federal Clean Air Act - Congress passed the Clean Air Act in 1963, and amended it in 1972, 1977, and 1990. The purpose of the act is to protect and enhance air quality while ensuring the protection of public health and welfare, through implementation of National Ambient Air Quality Standards (NAAQS). The CAA designates wilderness over 5,000 acres and in existence as of August 7, 1977 (including later expansions) as Class I areas. Class I areas have the highest level of protection for air pollutants, and very little deterioration of air quality is allowed in these areas. Moderate deterioration, associated with well managed growth, is allowed in Class II areas. Section 169(A) of the act requires “the prevention of any future and the remedying of any existing impairment of visibility in mandatory Class I areas ...” Within Class I areas, the act protects Air-Quality-Related Values (AQRVs) from adverse impacts due to air pollution. AQRVs are features or properties that can be changed by human-caused air pollution: plants; animals; water; visibility; odor; and cultural, archaeological, and paleontological resources. Under the Clean Air Act, the Forest Service is required to comply with all federal, state, and local air quality regulations and to ensure that all management actions conform to the State Implementation Plan (SIP). To comply with recently developed regulations under the Clean Air Act, the Forest Service must evaluate all management activities to ensure they will not:

- ◆ Cause or contribute to any violations of ambient air quality standards.
- ◆ Increase the frequency of existing violations.
- ◆ Impede a state’s progress in meeting their air quality goals.

The Clean Air Act, Section 169 (A), required the federal Environmental Protection Agency (EPA) to produce regulations to ensure reasonable progress toward meeting the national visibility goal for Class I areas where EPA determined that visibility was an important value. Section 109 gave the EPA the authority to establish national ambient air quality standards. The Montana Department of Environmental Quality, Air Resources Management Bureau is the state regulatory agency responsible for air quality and is primarily responsible for enforcing Montana and EPA air quality standards

The Wilderness Act of 1964 – this act, and the Code of Federal Regulations (CFR) developed to implement it, give the Forest Service the responsibility and direction to manage designated wilderness areas to preserve, protect, and restore, as necessary, natural wilderness condition.

The EPA’s Interim Air Quality Policy on Wildland and Prescribed Fires (April 23, 1998) provides guidance on mitigating air pollution impacts caused by wildland and prescribed fires while recognizing the current role of fire in wildland management.

Montana Air Quality Standards and Regulations – these standards and regulations are revised in an ongoing effort by the Montana Department of Environmental Quality, Air Resources Management Bureau to implement mandated Federal environmental programs in a manner that best meets the needs of the State of Montana.

AQUATIC RESOURCE MANAGEMENT

This section contains analysis of watersheds and riparian areas along with aquatic species. The topics are addressed together under Analysis Area, Effects and Environmental Consequences. Under Some sections discuss watersheds and riparian areas separately.

Analysis Area

Watersheds and Riparian Areas

The analysis area for the direct and indirect effects is temporally bounded by the planning period (usually about 15 years) and spatially bounded by those lands (within and downstream of the forest boundary) contained within all 6th level watersheds originating on the BDNF.

Aquatic Species

The analysis area includes the entire Clark Fork River drainage down to the mouth of Rock Creek on the east side of the forest and all streams, lakes ponds and wetlands within the forest boundary west of the Continental Divide.

Analysis Methods and Assumptions

Watersheds and Riparian Areas

The approach used in this analysis is to take a programmatic look at the forestwide scale of past, present, and reasonably foreseeable activities on the forest that may positively or negatively affect water resources. Since the forest plan makes no “on the ground” decisions, the most appropriate indicators for cumulative effects are reflected in the size and magnitude of different resource programs most likely to affect water resources either positively or negatively.

When water quality is affected, off site effects can occur. Yet, since the forest plan prescribes no specific activity in any specific area, potential spatial and temporal effects to water quality cannot be attributed to any specific watershed. Therefore, cumulative effects to water quality can only be described in terms of potential to generally affect trends on a forestwide scale. In other words, the cumulative effects of a program at the forest plan scale as opposed to the effects from a project at the project scale can only be discussed in terms of general programmatic tendencies either toward improved or declining water quality at no specific site. Consequently, there is no easily defined area that may experience cumulative effects beyond the forest boundary.

Therefore, the potential cumulative effects from forest programs to water quality will generally be discussed at the forest scale. The temporal scale for this analysis will be limited to the life of this plan, generally 10 to 15 years.

Watershed conservation practices and forest plan standards prescribe extensive measures to manage aquatic and riparian resources. If all applicable measures are implemented and if they are effective, adverse effects from any of the alternatives should be minimized. However, as levels of activity increase, the risk that conservation practices will not be properly implemented or will not be entirely effective increases. Therefore, alternatives that propose higher levels of activity for various resources pose greater inherent risks to aquatic and riparian resources.

This analysis did not directly model the effects on stream processes and water quality, because predictions of outcomes for delivery and routing of water, sediment, and woody debris and their effects on streams and river systems are not applicable at the broad scale. Therefore, broad-scale outcomes were qualitatively estimated for effects on hydrologic function and watershed processes for NFS lands within the project area.

Qualitative estimates of effects are inferred from predicted outcomes for certain landscape and aquatic variables that evaluated vegetation, disturbances, and varying activity levels with considerations to specific land allocations and analysis requirements. The rationale for using these outcomes is that they are key processes or activities that influence hydrologic systems and contribute to the protection and maintenance of ecological functions required for healthy watersheds.

Aquatic Species

Land management can positively or negatively affect aquatic resources. The magnitude of effect commonly relates to the scope (size of area) and intensity of an action; its proximity to aquatic resources, and the effectiveness of mitigation standards applied.

This analysis considers effects individual alternatives would have on 3 important elements of our aquatic resources. These are: 1) fisheries (trout populations that provide recreational angling); 2) Threatened, Endangered, and Sensitive (TES) fish; and 3) amphibians. Based on our data and public comment, these represent the aquatic resources of greatest concern. We believe aquatic species not discussed in this analysis would experience effects within the range of those presented. This is supportable, because: 1) This analysis focuses on effects to aquatic systems and the habitat they provide, and 2) species not discussed, occupy the same waters and habitats as those which are analyzed.

Two foundational assumptions for this analysis are: 1) Those species utilizing an aquatic ecosystem should benefit when it is functioning properly or when it is improving; and should be negatively impacted if aquatic habitats are degraded or in a downward trend; and 2) The most immediate potential for irreversible and irretrievable commitments of aquatic resources, are associated with Threatened and Sensitive aquatic species (there are no species listed as endangered on the BDNF).

Consideration of selected species and their habitat during viability analysis is well accepted in the literature (Haufler et al. 1996). Coarse filter analysis helps assess conservation at the community level. It assumes that by maintaining a set of ecological communities of sufficient size, composition, structure and distribution, the viability for most species is maintained. For species which need specific requirements to provide for viability, a fine filter analysis can identify shortfalls in meeting those needs. Species typically needing fine filter analysis include those that: 1) have undergone significant declines in abundance or distribution, 2) are known to use highly specialized or unique habitats, or 3) are isolated endemics. These species are typically at higher risk and concern is high for their continued existence. On the BDNF species identified for aquatic fine filter analysis include: bull trout, westslope cutthroat trout, fluvial arctic grayling, and boreal toad.

Effects Indicators

Watersheds and Riparian Areas

The effects on hydrologic function and watershed processes are qualitatively described as they are influenced by:

- ◆ Watersheds that trend toward providing favorable hydrologic function and watershed processes;
- ◆ Physical and biological processes within the project area are moving in an improving trend, characteristic of their geomorphic setting and natural disturbance and recovery regimes;
- ◆ Implementation of the “key watershed” strategy;
- ◆ Protection of riparian areas and aquatic habitats through designation of riparian conservation areas.

Aquatic Species

- ◆ Change in quality and/or quantity of fisheries resources
- ◆ Change in the potential to conserve and or restore westslope cutthroat trout, bull trout, and arctic grayling
- ◆ Change in the quality and/or quantity of amphibian habitat

Affected Environment

Watersheds

There are a variety of aquatic and riparian ecosystems on the BDNF: streams, rivers, ponds, reservoirs, wetlands, and riparian areas. These ecosystems support complex communities of vertebrate and invertebrate aquatic life along with an assortment of riparian and aquatic plants. Complex, species-rich communities of phytoplankton, zooplankton, macro-invertebrates, and fish can be found in many of these habitats. In addition, aquatic, riparian, and wetland habitats support a variety of submerged and emergent aquatic plants.

Historically, humans have used aquatic ecosystems for many purposes. Examples of the common utilitarian uses of aquatic ecosystems by humans include: water-development facilities for agricultural and municipal uses; mining, power generation, and, water-dependent recreational uses. Clearly, the human demand for forest water resources is increasing. Meeting public demands while maintaining a healthy aquatic ecosystem is a material challenge for forest resource managers.

Forest-management activities can affect the physical, chemical, and biological characteristics and functions of aquatic ecosystems. The challenge to forest resource managers is to implement multiple-use activities in a manner that protects, maintains, and restores aquatic biodiversity, watershed/stream health, and riparian/wetland condition.

Watersheds are natural divisions of the landscape and the basic functioning unit of hydrologic systems. Watersheds can be considered in a variety of scales ranging from large river basins, to individual streams. Commonly used terms referring to watershed scales are illustrated here.

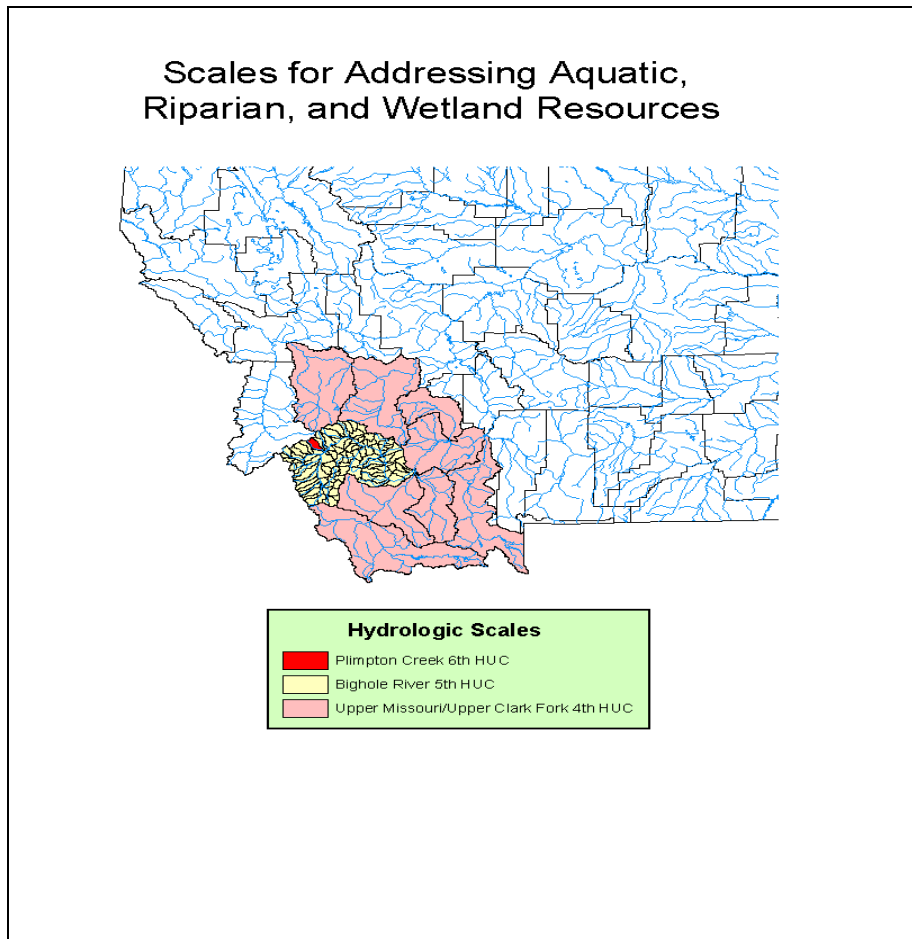


Figure 1. Scales for Addressing Aquatic, Riparian and Wetland Resources

Watersheds are natural divisions of the landscape and are the basic functioning unit of hydrologic processes. Watersheds are hierarchical (smaller ones are nested within larger ones) making them an appropriate context for considering many ecological processes. Physical processes such as rainfall, runoff, erosion, and sedimentation interact within the watershed boundaries to shape the landscape. Biological processes also occur within watershed boundaries. For example, most aquatic species do not cross over watershed divides. Environmental changes commonly culminate and appear at the watershed scale. Changes in soil, vegetation, topography, and chemicals change the quantity and quality of water, sediment, and organic material that flow through a watershed. Factors that govern how a watershed may respond to environmental change include the size and location of changes, the physical and biological characteristics of the watershed, and the history of natural and human disturbances.

Surface Water Quantity and Distribution

The BDNF is located in both the Upper Missouri and the Upper Columbia River ecosystems and lies within the Rocky Mountain physiographic province. Sitting astride the continental divide, the forest gives rise to both the Columbia and Missouri Rivers. The Upper Missouri River basin

and its tributaries (Madison and Jefferson Rivers) flow east to the Mississippi River, while the tributaries to the Upper Columbia River (Upper Clark Fork River) flow west into the Pacific Ocean. The Continental Divide separates these major watersheds.

There are approximately 10,779 miles of perennial streams within the BDNF. Along the southern mountains are the headwaters of several very well known rivers, the Big Hole, Beaverhead, Madison, Jefferson, Rock Creek, Boulder, Clark Fork, and Ruby all begin within the forest. Water generated in the high precipitation zones of the mountains becomes increasingly valuable as it flows into the low precipitation zones of the valleys. There are many competing demands for this water. Balancing the need for consumptive uses such as agriculture with instream values such as recreation and ecosystem health will continue to be a major challenge for resource managers in the future.

Table 3. Major Watershed Name, Number and Size

Watershed Name (4th level HUC*)	Watershed Number	Watershed Size (acres)	Watershed Size (square miles)
Beaverhead River	10020002	932,171	1,456.5
Big Hole River	10020004	1,794,273	2,803.6
Boulder River	10020006	486,450	760.1
Jefferson River	10020005	859,168	1,342.5
Madison River	10020007	1,243,019	1,942.2
Red Rock River	10020001	1,481,807	2,315.3
Rock Creek	17010202	1,145,411	1,789.7
Ruby River	10020003	625,214	976.9
Upper Clark Fork	17010201	1,218,871	1,904.5

**Hydrologic Unit Code*

In general, mountains receive more moisture throughout the year than is lost through evaporation and transpiration. This means that mountains are the primary source of water for lowland areas where less measurable precipitation falls. Most surface runoff from the mountains comes during the spring after snowmelt. Summer thunderstorms and may generate short-duration high-intensity rainfall. However, they generally do not contribute appreciably to basin-wide runoff amounts. The amount of surface water draining from a mountainous watershed depends on at least six factors: the water content of the snowpack; the nature of the vegetation; the water-holding capacity of the soil and sapwood of trees; climatic characteristics; the proportion of the water that percolates into the groundwater; the patchiness of the vegetation mosaic, including the potential for snowdrifts.

Changes in land use patterns can alter the amount or timing of water generated from the National Forest. Altered flow regimes can result from: diversions, flow impoundment (reservoirs), roads, and vegetation manipulation by changing the rates and timing of stream flow, sediment and organic-material transport. Timber harvest, fire suppression, and improper livestock grazing can all alter the timing and volume of stream flow by changing on-site hydrologic processes. Changes can be either short-or long-term depending on which hydrologic processes are altered or by the intensity of alteration.

People in the valleys depend on water generated in the mountains on national forest land. Therefore, the Agency, through special use permits, allows the construction of diversion structures on national forest system lands to facilitate water use on private lands. In some cases, these structures can alter the flow regimes of the watershed and change habitat conditions, especially for species with survival strategies that are adapted to natural flow patterns.

Surface Water Quality

Surface water quality is typical of other forested lands in Montana. Water quality is generally very good, however there are places where concentrated uses such as livestock grazing, recreation, or roads have created a detectable decrease in water quality.

A TMDL is a plan to establish the maximum amount of pollutant load that can flow into a water body from point sources, non-point sources, and natural background sources without exceeding state water quality standards. Montana law and federal regulations require DEQ to develop TMDLs for all waters that are not meeting water quality standards (these waters are collectively called water quality limited segments or WQLS). TMDLs are required by Section 303(d) of the federal Clean Water Act and by state law. The list of waters needing TMDLs is known as the “303(d) list.” The Montana DEQ updates the 303(d) list periodically and stream segments may be added or removed from the list based on credible data. See Figure 2 on the next page.

In 1996, the state of Montana identified 269 impaired stream reaches within the 4th level HUCs encompassing the BDNF in the semi-annual Montana 303(d) list. It is important to note that not all of the reaches are within the boundary of the BDNF.

Table 4. Number of Stream Segments in the Analysis Area on the 1996 State 303(d) report.

Fourth Level Watershed Name	Number of Impaired Stream Segments*
Beaverhead River	20
Big Hole River	61
Boulder River	19
Flint/Rock	40
Jefferson River	17
Madison River	24
Red Rock River	16
Ruby River	26
Upper Clark Fork	46
Total	269

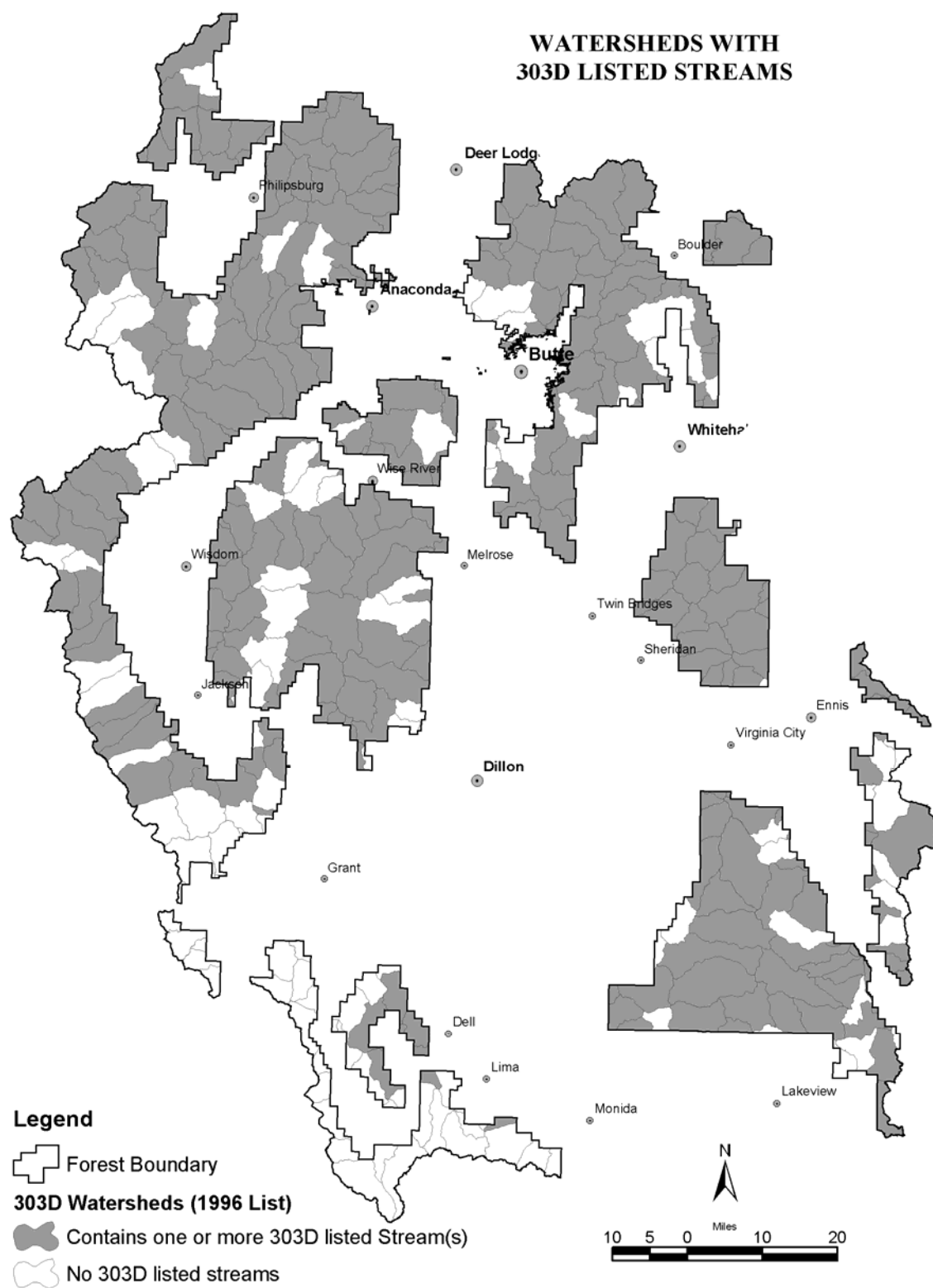


Figure 2. Watersheds with 303D Listed Streams

The Montana Department of Environmental Quality (DEQ) and the U.S. Environmental Protection Agency (EPA) have developed a proposed schedule to create Total Maximum Daily Loads (TMDLs) for waters on the State's 1996 list of impaired and threatened waters. The most current State of Montana 305(b) and 303(d) lists can be found on the internet at <http://www.deq.state.mt.us/wqinfo/tmdl/index.asp>.

The State found mining, timber harvest, and roads were the primary sources of impairment in the Boulder, Flint/Rock, and Upper Clark Fork watersheds. These watersheds have experienced considerable amounts of mining and timber harvest over the years, more so than watersheds in the southern half of the forest. Watersheds in the southern half of the forest were found to be impaired more frequently by agriculture, namely livestock grazing.

We work cooperatively with the DEQ to restore impaired waters in a manner that will also allow land management projects to continue. The Forest Service develops a plan, in consultation with the state, to address the pollutants of concern for those portions of a watershed on National Forest System (NFS) lands having impaired waters. The Forest Service has a process whereby State-listed 303(d) waters on NFS lands are assessed for verification and level of impairment. This process consists of the following steps:

1. Field surveys to verify impairment and identify pollutant sources, and work with the state to refine the list of impaired streams, if necessary;
2. Prioritize the pollutant sources, and estimate the percent of pollutant load caused by natural sources and each anthropogenic source, for each listed pollutant on every verified impaired stream;
3. Develop a TMDL plan for each watershed having impaired waters.

This plan includes preventative watershed conservation practices and curative restoration programs consisting of management changes and land treatments as needed. It also includes disconnecting pollutant sources from waters in priority order, monitoring effectiveness of any changes, treatments, programs, or practices, and reporting the progress to the state in 305(b) reports every two years.

The program that the USFS uses to control non-point sources of pollution works on the premise that non-point sources can be controlled by relying on state BMP programs, as intended by Congress in CWA Section 319. As applied by the USFS on National Forest System lands, the BMP program consists of:

1. Defining practices, based on the best information available, that are expected to protect water quality;
2. Monitoring to ensure the practices are applied;
3. Monitoring to determine the effectiveness of practices;
4. Mitigation to address unforeseen problems; and,
5. Adjustment of design specifications of BMPs for future activities, where appropriate.

Non-point sources of pollution are the primary cause of degraded water quality. A non-point source of pollution is water pollution, whose source(s) cannot be pinpointed, but that can be best controlled by proper soil, water, and land management practices. Examples of non-point sources of pollution include: roads, bank erosion, stream crossings, and cattle trails.

Uses of Surface Water

Surface water is used on and off-forest, both consumptively and non-consumptively. Non-consumptive uses of water include recreation, wildlife, fisheries, channel maintenance, and aesthetic and spiritual qualities of the resource. Consumptive uses meet administrative needs such as campgrounds, firefighting, and administrative sites. Other permitted activities on the BDNF include stock watering facilities, summer home wells, snowmaking at ski areas. Irrigation, municipal water supplies with permitted water diversion, transmission, and storage facilities, related to individuals exercising water rights, are also located on the BDNF.

Municipal Watersheds

Six cities adjacent to the forest rely on surface water that originates on the BDNF. The following watersheds have been identified by the State of Montana as being suitable for drinking water and have been identified by the Environmental Protection Agency as serving community water systems.

Table 5. Watersheds Identified by the State of Montana as Suitable for Drinking Water and by the EPA as Serving Community Water Systems

Watershed	State Surface Water Classification	Water Systems that Serve the Same People Year-Round
Big Hole River	A-1	Butte
Rattlesnake Creek	A-1	Dillon
Indian Creek	A-1	Sheridan
Warm Springs – Flint Creeks	A-1	Anaconda and Butte
South Boulder Creek	A-1	Philipsburg
Yankee Doodle Creek	A-Closed	Butte
Tincup Joe Creek	A-Closed	Deer Lodge
Fred Burr Lakes	A-Closed	Phillipsburg
Hearst Lake – Fifer Gulch	A-Closed	Anaconda
Basin Creek	A-Closed	Butte

The most up to date information regarding water quality management in the State of Montana can be found on the internet at <http://deq.state.mt.us/wqinfo/Index.asp>.

Stream Channels

Streams carry water, sediment, dissolved minerals, and organic material derived from hillsides and their vegetation cover. The shape and character of stream channels constantly and sensitively adjust to the flow of this material by adopting distinctive patterns such as pools-and-riffles, meanders, and step-pools. The vast array of physical channel characteristics combined with energy and material flow, provide diverse habitats for a wide array of aquatic organisms.

Varied topography coupled with the irregular occurrences of channel-affecting processes and disturbance events such as fire, debris flows, landslides, drought, and floods, result in a mosaic of river and stream conditions that are dynamic in space and time under natural conditions. The primary consequence of most disturbances is to directly or indirectly provide large pulses of

sediment and wood into stream systems. As a result, most streams and rivers undergo cycles of channel change on timescales ranging from years to hundreds-of-years in response to episodic inputs of wood and sediment. The types of disturbance, that affect the morphology of a particular channel depends on watershed characteristics, size, and position of the stream within the watershed. Many aquatic and riparian plant and animal species have evolved in concert with stream channels. They develop traits, life-history adaptations, and propagation strategies that allow persistence and success within dynamic landscapes.

Human uses, often through the exercise of water rights, have altered stream channels by varying degrees since the 1890s. Stream channels have changed as a result of channelization, wood removal, water diversion, dam building, and indirectly by altering the natural incidence, frequency, and magnitude of disturbance events such as wildfire. Initially, heavy livestock grazing impacted riparian areas and stream channels. Historic photographs show riparian areas heavily impacted by large numbers of livestock. After the turn of the 20th century, logging became common in some watersheds. Other indirect effects are the result of mining, road building and beaver trapping.

Aspects of channel morphology most affected by land management include the frequency and depth of large pools, the width-depth ratio of stream channels, and the amount of fine sediments stored in the channels. Low gradient stream channels show the most response to land management activities. Lower pool frequencies and higher fine sediment concentrations are most obvious in watersheds with higher road densities and where grazing has been a major management emphasis. These findings are consistent with observations that indicate improper road construction/maintenance, grazing, and timber harvest practices increase delivery of fine sediment leading to filling pools and causing stream aggradation.

Cumulative effects of land management have caused an overall change in the scale and frequency of landscape disturbances. The result is a distinctly different character of watersheds and their stream systems when viewed from a forestwide perspective. Rather than individual watersheds, riparian areas, and stream channels being periodically affected by large disturbances (i.e., floods, fire, and insect infestations) leaving the neighboring watersheds largely unaffected, land management practices have distributed those disturbances across more watersheds and at a higher frequency of occurrence. Consequently, more watersheds, stream channels, and aquatic habitats are now subject to continued cumulative effects of watershed disturbance. This contrasts with a more pulse-like pattern of disturbance under which most streams and associated species evolved. Consequently, most stream channels are in a somewhat “unnatural” condition. Habitat conditions are less than optimal for aquatic and riparian-dependant species, which evolved in environments that had many more high-quality habitat areas spread across the landscape.

In 1991, the Beaverhead Forest began to use stream surveys as the dominant inventory/monitoring tool to assess stream function. Following the consolidation of the two forests in 1996, the Deerlodge Forest initiated a similar program. By the end of 2002, roughly 700 non-randomly sampled stream monitoring reaches have been permanently established on the combined BDNF. The results of these surveys show that over half of the reaches surveyed are functioning properly as compared to reference conditions from similar valley bottoms. However, a quarter of the reaches are determined to be non-functional and lack the necessary components of a healthy stream. These reaches are important to track through time to see if management or

restoration techniques are effective. The following table displays the results of the forestwide stream surveys to date.

Table 6. Forestwide Stream Function Determinations

Functioning Reaches	Reaches Functioning at Risk	Reaches that are Non-Functional
380 or (56%)	129 or (19%)	166 or (25%)

Based on this non-random sample, there are several notable differences between watersheds in the northern half of the forest versus those in the south half of the BDNF:

- ◆ Levels of channel disturbance are greater on the northern half of the forest than in the south.
- ◆ Northern watersheds are more likely to be affected by a combination of land uses, with roads being identified as the major contributor of sediment.
- ◆ Watersheds in the northern half of the forest are composed of predominately sensitive land types making them at greater risk for increased erosion from land management activities.
- ◆ Southern watersheds are more likely to be affected by livestock grazing. Close to 40% of the reaches surveyed there are being notably affected by livestock.
- ◆ Water quality risks are greater in the northern half of the forest due to persistent chemical effects from mining.
- ◆ Long-term watershed restoration in the northern watersheds will likely involve mechanical treatments (i.e., road decommissioning, mining reclamation) designed to reduce sediment production and restore channel geometry. Improvement in livestock grazing should be the primary focus for watershed restoration in the southern half of the forest.

Groundwater

Ground water is an important resource in Montana and it will likely become more important in the future as the state's population and industries grow. For example, ground water provides 94 percent of Montana's rural domestic-water supply and 39 percent of the public-water supply. On average per day in Montana, approximately 90 million gallons of water are used for irrigation, 16 million gallons are used to supply water for livestock, and 20 million gallons are used to support industry. Water generated in the mountains of the forest is an important source of recharge for valley aquifers and is therefore an important forest product. The quantity, distribution, quality, and uses of groundwater resources on the forest are described below.

Groundwater Quantity and Distribution

Precambrian aquifers underlie most of the forest. Precambrian rocks are not a principal aquifer and therefore groundwater storage is localized and limited in most places. Development of groundwater resources tends to only occur in shallow alluvial aquifers.

Groundwater Quality

Groundwater quality information for the BDNF is minimal, although there is extensive off-Forest data available. The most frequently reported ground-water contamination sources off-forest are leaking underground storage tanks, septic tanks, landfills, agricultural activities, and abandoned hazardous waste sites.

Campground wells have been tested for baseline water quality. Results of those tests indicate that primary drinking water standards (e.g., iron) are rarely exceeded. Bacteriological and nitrate sampling is conducted periodically while the campgrounds are operating. Results of these tests generally meet state drinking water standards. However, since the wells are located in shallow alluvial aquifers, they can be contaminated by events such as storm runoff and standards can be exceeded for short periods of time. Based on this limited information, we believe the existing BDNF groundwater quality is good, though surface contamination and bacteriological and nitrate contamination can be a concern.

Past management has not had measurable adverse effects on groundwater. Activities such as oil and gas exploration and development have not impacted groundwater. Potential adverse effects from wastewater treatment and chemical spills, such as diesel fuel, have also been minimal. Groundwater contamination due to human waste has been reduced because modern pump-vault outhouses that better contain potential contaminants are replacing old, pit-type outhouses. Best Management Practices such as locating developed recreation sites away from riparian areas will help protect groundwater quality.

Groundwater Uses

Because of limited supply and lack of development opportunities, beneficial use of forest groundwater is generally low. Consumption is limited to stock-water facilities, special-use permits, and Forest Service campgrounds or administrative sites with domestic wells. Off-forest, groundwater is used extensively for pump irrigation and drinking water wells.

Lake Environments

There are many high mountain lakes on the BDNF representing one of the most pristine ecosystems. They range from less than an acre to large reservoirs. Unlike lower elevation lakes, mountain lakes are seldom affected by pollution, habitat alteration or unnatural water level fluctuations. However, some have been affected by recreation and livestock use. Activities such as backpacking, horse packing, recreational vehicle use, and road and trail development result in damage, particularly near-shore areas. Water transfers and diversions for drinking water or irrigation water supplies have and continue to affect many lakes throughout the forest, especially where drought and diversion of inflow caused very low lake levels. Dozens of lakes have shorelines influenced by modification and control of outlet streams. Regulation of lake levels for water supply purposes affects near-shore aquatic and wetland plant and animal communities, and the success of near-shore fish spawning.

Table 7. Lists of Lakes in Acres by Landscape

Landscape Name	Surface Acres of Lakes
Big Hole	1,954
Boulder River	852
Clark Fork-Flint	8,917
Gravelly	12,987
Jefferson River	2,215
Lima-Tendoy	313
Madison	3,947
Pioneer	1,386
Tobacco Root	779
Upper Clark Fork	1,280
Upper Rock Creek	1,112

Riparian Areas

Riparian areas are water-dependent systems along, adjacent to, or contiguous with streams, rivers, and wetland systems. Riparian ecosystems are the ecological links between uplands and streams, and between terrestrial and aquatic components of the landscape. Many riparian areas have wetlands associated with them. While riparian areas are defined primarily on the basis of their nearness to streams and rivers, wetlands occur wherever the water table is usually at or near the ground, or where the land is at least seasonally covered by shallow water. Wetlands include marshes, shallow swamps, lakeshores, sloughs, fens, and wet meadows. They are an important part of the overall landscape and provide major contributions to ecosystem productivity and biological diversity, particularly in arid southwest Montana. For the purposes of this analysis, riparian ecosystems, wetlands, lakeside zones, and floodplains will be referred to collectively as riparian ecosystems or riparian areas.

Quantity, Quality and Distribution

There is great variability in the size and vegetation complexity of riparian zones on the BDNF. Ecological drivers such as geology, climate, glaciation, and stream gradient all influence the type and complexity of riparian and wetland ecosystems. Most riparian and wetland areas in the project area stand out because of their unique vegetation. In drier parts of the forest, ribbons of dense vegetation flank streams and rivers, in distinct contrast to the surrounding uplands and valley bottoms. The forest has a broad-scale map of the riparian areas on the forest. The following table displays the approximate acres of riparian within each of the planning units on the BDNF.

Table 8. Acres of Riparian and Wetland Resources on the BDNF

Landscape Name	Acres of Riparian	Percent of Area in Riparian
Big Hole	28,143	3
Boulder River	8,069	2
Clark Fork-Flint	29,788	3
Gravelly	64,521	3
Jefferson River	10,181	1
Lima-Tendoy	28,385	3
Madison	8,215	3
Pioneer	17,024	2
Tobacco Root	8,241	2
Upper Clark Fork	7,284	3
Upper Rock Creek	7,279	2

Riparian Area Quality

Riparian conditions on the BDNF are highly variable. Overall, riparian areas on the forest are functioning at or near their potential or are considered to be improving. However, there are areas where they are functioning below their potential. Improper livestock grazing, mining, timber harvest, fire management, road development, and water diversions are the major factors leading to this condition. To a lesser degree, disturbances associated with recreational use have also impacted riparian area function. On grasslands, improper livestock grazing has been the most important factor leading to bank damage, species conversion, and sedimentation. On forested landscapes, silviculture, road building, and fire suppression have altered riparian conditions by changing flow regimes and altering channel morphology.

Riparian Area Uses

Although riparian zones occupy a small part of the forest, they are a critical source and support of diversity within western ecosystems. Healthy riparian areas, with an abundance of trees and other native vegetation, slow flood waters and reduce the likelihood of downstream flooding. Riparian areas improve water quality by filtering runoff, sediment, and nutrients from flood flows and adjacent upland slopes. Healthy riparian areas act like sponges; they absorb water readily during periods of excess. Water slowed by riparian area enters the groundwater where some is released later. This increases later summer and fall streamflow. Riparian areas produce stream cover and shade which keeps the water temperatures cool for fish and water-loving animals.

Benefits of riparian areas include food, cover, and nesting habitat for birds, small and large mammals, reptiles, and amphibians. Many animals visit or live in riparian areas. They come for water, food, and relief from temperature extremes. Riparian areas often provide sheltered upstream and downstream transportation corridors to other habitats. Fish depend on healthy riparian areas for stable channels, sustained water supplies, clean, cool water, food, and shelter. Riparian areas are attractive and inviting to forest visitors. People often seek water and riparian environments for recreation activities.

Aquatic Species

Fisheries on the BDNF provide a diversity of quality angling and recreation experiences. Opportunities range from scenic, remote high-mountain lakes and headwater streams to easily vehicle accessible mid-elevation waters like widely renowned Rock Creek and Georgetown Lake. A substantial portion of headwater streams and lakes are also important water sources for nationally renowned trout fisheries like the Madison, Big Hole, and Red Rock rivers.

Native westslope cutthroat, bull trout, grayling and lake trout and non-native rainbow, brown brook and Yellowstone cutthroat trout populations are interspersed across the landscape. The current pattern of species occurrence in the analysis area reflects a public preference for more diverse fishing opportunities than native trout alone provide. Between the late-1800s and the mid-1900s widespread non-native fish planting was very successful. This exemplifies the fact that the most popular fisheries in the analysis area are streams with rainbow and brown trout.

The most heavily fished populations are below the forest boundary in larger streams and rivers. Rainbow and brown trout fisheries represent only 26% and 13% of the stream miles they occupy within the analysis area. Brook trout are present in nearly twice the stream miles occupied by rainbows and browns. Brook trout are the most prolific species in the analysis area, occupying approximately 3,145 stream miles. They are found in 1,227 miles of stream inside the forest boundary (Table 8). Their extensive distribution seems associated with the fact brook trout seem better suited for mid-elevation streams common to the BDNF. They are popular with anglers, but enjoy diminished status among elite angling enthusiasts, because they tend to be smaller. They remain a favorite, however, for many local residents and are enjoyed by a high percentage of family groups during day trips and camping trips.

Success in establishing non-native fisheries has caused substantial reductions in the number of native trout populations. Competition and hybridization are the most significant causes of reductions in the range of WCT. These same factors continue to influence bull trout distribution. Concerns over the future of native trout have prompted changes in public perspectives and desires over the last 20 years. Many people express a desire for balance between ecological integrity and recreational opportunities. Except for a very limited number of native fish reintroductions planting fish in streams no longer occurs within the analysis area. It still occurs in lakes where planting is necessary to sustain angling opportunities. However, westslope cutthroat have replaced non-native Yellowstone cutthroat as the MTFWP species of choice for most of our mountain lakes. Twenty-five percent of the lake acres on the BDNF (1 acre or larger) are fishless (Table 9).

Westslope cutthroat is the most common native trout occupying 481 miles of stream. It is followed by bull trout (167 miles), and grayling (70 miles) and lake trout. Lake trout persist only in two native relict populations. They are not present in streams and so are not displayed in Table 45. Despite impacts that native trout fisheries have experienced through non-native management objectives, they remain a source of recreational angling in many places across the forest. Catch and release opportunities for bull trout remain, even though it has been listed as “threatened” under ESA. Cutthroat can still be harvested in certain lakes and streams. In others, protection through catch and release regulations are necessary to reduce impacts.

Arctic grayling have been introduced into the Ruby River and are present in a few other streams, but in low densities. Grayling also occur in a couple of mountain lakes. Despite low numbers in

streams, some anglers spend time fishing for, and enjoy catching, grayling, because they are unique, colorful and very catchable.

Burbot (also known as “ling”) is another species commonly sought by anglers in southwestern Montana. Its distribution is limited, as it only occupies about 174 miles of stream on the BDNF (Table 9). Burbot rarely reach a catchable size and densities are usually low in BDNF streams. This suggests environmental conditions along with the short growing season in our mid to high elevation streams are marginal. Thus, when anglers are targeting burbot they most commonly fish in lakes where “catchable” size fish are most common. Clark Canyon Reservoir is the most notable burbot fishery within the analysis area, but it is outside the forest boundary.

Table 9. Extent of Selected Sport Fish in the Analysis Area and Inside the Forest Boundary

Species	Miles Inside Analysis Area	Miles Inside Forest Boundary	Sub-watersheds within Analysis Area*	Sub-watersheds *Inside Forest Boundary
Brook Trout	3,145	1,227	319	196
Rainbow Trout	1,885	492	264	113
Brown Trout	1,362	173	205	59
Bull Trout	281	167	41	31
Westslope Cutthroat Trout	1280	481		139
Arctic Grayling	443	70	59	21
Burbot	738	174	91	35

* 6th field Hydrologic Unit Code

Introduction of diseases is a growing concern. Whirling disease made its first Montana appearance in the Madison River in the early 1990s. Fish populations dropped dramatically there and have never fully rebounded. This disease has subsequently been found in the Beaverhead, Big Hole, Ruby, Red Rock rivers, and Rock Creek with varying levels of impact. While no cases of whirling disease have been documented in streams on the BDNF, it may occur, because of the close proximity of the pathogen in neighboring streams.

The combination of native and non-native fisheries provides an attractive recreational resource. An estimated 166,900 forest visitors in 2001, indicated fishing was the primary purpose for their trip. BDNF fisheries also provide an economic boost to local communities, generating an estimated \$9,000,000 in expenditures by those visitors

Table 10. Acres of Lakes With or Without Fish by Drainage

Drainage	Lake Acres Fish	Lake Acres No Fish	Total Acres
Beaverhead River	59	141	200
Big Hole River	1,042	1,561	2,603
Boulder River	95	5	100
Jefferson River	1,371	155	1,526
Madison River	336	1,303	1,639
Red Rock River	542	360	902

Rock Creek	1,227	3,101	4,328
Ruby River	83	110	193
Upper Clark Fork	3,498	1,179	4,677

Status, Distribution and Life History Requirements of Selected Fish Species

Bull Trout

Bull trout are native to the Columbia River Basin, west of the continental divide. They were historically found throughout the northwestern United States and Canada. Distribution and abundance have been greatly reduced throughout its range. A status review in 1992 estimated that it inhabits approximately 42% of its historic range in Montana. An estimated 38% of populations are declining, 20% are stable to increasing, and the status of the remaining 42% is unknown.

In our analysis area bull trout are present in the upper Clark Fork River and Rock Creek drainages. Historically we estimate they occurred in about 650 miles of stream. The miles were split between drainages with 329 miles in Rock Creek and 323 miles in the upper Clark Fork. Bull trout remain in about 206 miles of stream in the Rock Creek drainage (63% of historic). In the Upper Clark Fork drainage they inhabit only about 75 miles of stream (23% of historic).

Both migratory and stream-resident bull trout move in response to developmental and seasonal habitat requirements. Migratory individuals can move great distances (up to 250 km) among lakes, rivers, and tributary streams in response to spawning, rearing, and adult habitat needs. Stream-resident bull trout migrate within tributary stream networks for spawning purposes, as well as in response to changes in seasonal habitat requirements and conditions. Open migratory corridors, both in and between tributary streams, larger rivers, and lake systems are critical for maintaining bull trout populations. Historically, the bull trout in Rock Creek were part of a more widely distributed population in the Clark Fork River drainage

Fragmentation into separate populations is primarily attributed to water pollution from mine tailings. Water quality conditions have largely eliminated the upper Clark Fork River as suitable habitat or as a migratory corridor. Bull trout in the upper Clark Fork are confined to Warm Springs Creek and its tributaries. It is a relatively small isolated population making it quite vulnerable to natural or human caused impacts.

Rock Creek supports one of the strongest population s of bull trout in Montana outside of the Flathead and Blackfoot river drainages (Thomas 1992). Fish live in the mainstem and migrate throughout its length to spawn in tributaries. The drainage is designated a “priority” watershed under INFISH. It contains several core areas in Montana’s restoration plan for bull trout; including the East, Middle, Ross and West Fork of Rock Creek (5th field HUCs).

Rock Creek provides habitat for all life stages of bull trout within the confines of the drainage. However when bull trout captured below Milltown Dam were moved above that barrier, they migrated to known spawning sites in tributaries of Rock Creek (Gerdes 2005). This suggests the Rock Creek subpopulation may not have vehicle access to its entire historic range.

Bull trout in Rock Creek likely constitute a single population with separate stocks spawning in specific tributary streams. Adult fish spend the winter throughout the main-stem and some of the lower ends of certain tributaries. They typically move to spawning areas in July and August. A segment of the population performs a more complex migration moving into tributaries prior to runoff, then back to Rock Creek before migrating further to their spawning tributaries.

Small populations persist in Kaiser, Moose and Mud Lakes. An isolated population inhabits the East Fork Reservoir. The Dam at East Fork Reservoir poses a barrier to bull trout in the East Fork of Rock Creek. An isolated population persists above the dam, but degraded channel conditions just above the reservoir limit spawning success and juvenile survival. The population in the reservoir uses the East Fork for spawning and rearing. The East Fork is primarily inside wilderness, except for about a mile of stream immediately above the reservoir.

Because of declines throughout its historic range, bull trout was listed by the United States Fish and Wildlife Service (USFWS) as a Threatened Species within the Columbia River Basin. Section 7(a)(2) of the Endangered Species Act (ESA) of 1973 as amended, requires all federal agencies to review actions authorized, funded, or carried out by them to ensure such actions do not jeopardize the continued existence of listed species. Critical habitat was designated for bull trout in October of 2005. In Montana the USFWS designated 1058 miles of stream and 31916 acres of lakes as critical habitat. No critical habitat is on BDNF lands. Currently there is a draft recovery Plan for bull trout.

Fluvial Arctic Grayling

Fluvial (permanently stream-dwelling) arctic grayling became a major concern in Montana in the late 1970's and early 1980's. Concerns escalated for over a decade until a conservation plan was adopted. While numerous lake-dwelling populations are present here and throughout the northern Rocky Mountains, the only confirmed self-sustaining fluvial population remaining outside of Canada and Alaska occurs in the Big Hole River. Historically, they were distributed throughout the upper Missouri River basin, with populations in the Big Hole, Red Rock, Beaverhead, Jefferson, Madison, Gallatin, Smith, and Sun Rivers providing most of the habitat (Kaya 1990). The species appeared to have been irregularly distributed, with the Sun and Smith Rivers providing the only habitat downstream from Three Forks.

Conservation efforts over the last 13 years resulted in grayling reintroduction in the North and South Forks of the Sun Rivers as well as the Ruby and Beaverhead Rivers. They have all been limited in their success. The most promising place to reestablish grayling seems to be the Ruby River, upstream of Ruby Reservoir. Limited reproduction has been documented. While adult numbers are quite low, individuals seem to be distributed over about 47 miles of stream. Stocking is ongoing in the Ruby in attempt to establish a naturally sustained population. Recovery of grayling on the BDNF is largely focused on assisting with recovery objectives and ensuring management actions don't impede recovery.

Westslope Cutthroat Trout

Westslope cutthroat trout, (WCT) inhabit streams on both sides of the continental divide. Its eastside distribution is largely in Montana in the Missouri River drainage. Historically, within the Missouri basin, the downstream distribution extended to Great Falls and included headwaters of the Judith, Milk, and Marias rivers. On the west side, the subspecies occurs in the upper

Kootenai, Clark Fork, Clearwater, and Salmon rivers. It also inhabits the Spokane River above Spokane Falls, and the Coeur d'Alene and St. Joe drainages.

Based on the most thorough evaluation to date, WCT historically occupied about 33,000 miles of stream in Montana. This represented about 59% of the range-wide distribution (Shepard et al. 2002). About 9,300 of those miles (28% of the statewide distribution) are in the BDNF analysis area. WCT were broadly distributed across the Beaverhead, Big Hole, Redrock, Madison, Ruby, Boulder, Jefferson, and Upper Clark Fork Rivers and Rock Creek drainages. Our best information suggests only 10 of 433 sub-watersheds (6th field HUCs) did not historically host westslope cutthroat trout.

Their distribution in the analysis area was fairly balanced between public and private lands. An estimated 48% of the stream miles were on Federal lands. Thirty-nine percent (3,630 miles) are assumed to have been on the BDNF. Streams on private lands constituted about 46% (4250 miles) of the total. State lands made up the remaining 6% (600 miles) of WCT occupied streams. Westslope cutthroat distribution and abundance has declined substantially.

Describing current WCT distribution is complicated by an abundance of populations with varied levels of genetic purity. The question that invariably surfaces is: "At what point has a WCT population become sufficiently hybridized that it fails to have conservation value, and its importance remains primarily as a recreational fishery? This has management implications, since the importance of individual populations must be defined to meet legal and regulatory requirements regarding species viability forestwide. Shepard et al. (2002) used specific criteria to designate conservation populations. Basically they are genetically unaltered; or those which are hybridized or the genetic status is unknown, but have ecological, genetic and behavioral attributes of significance. Populations that occupy habitat likely to become part of a WCT conservation focus were also included. These criteria have been used broadly by state and federal management agencies and seem reasonable. As such, they will be applied in this FEIS and the associated biological evaluation for WCT. Currently about 301 WCT populations live in streams in the analysis area. Fifty-seven percent, or 173 of these are conservation populations. The table below displays the distribution across river drainages. Conservation populations occupy about 1,280 stream miles, representing approximately 14% of historically occupied stream miles within the analysis area.

Table 11. Distribution of Conservation and Non-Conservation Populations by River Drainage

River Drainage (equal to 4th level HUC)	Conservation Populations	Approximate Non-conservation Populations*
Beaverhead	18	7
Big Hole	48	27
Boulder	6	1
Jefferson	7	2
Madison	9	20
Red Rock	40	22
Rock Creek	8	5
Ruby	16	19
Upper Clark Fork	21	25
Total	173	128

** Unlike conservation populations, beginning and end points of individual non-conservation populations were not defined in this analysis. Thus, an approximate number of populations could only be determined by counting stream segments WCT currently occupy. This method is fairly accurate east of the continental divide, but less accurate on the west side.*

Total stream *miles* occupied by conservation populations are nearly even east and west of the Continental Divide, 646 on the west side and 635 on the east side. However there are 29 conservation populations west of the divide, while there are 144 populations east of the divide. These data point to notable differences between populations separated by this geographic boundary. The average stream length occupied on the west side is 22.3 miles, while it is only 4.4 miles on the east side.

Influences from non-native trout and other factors have resulted in severely disjointed WCT distribution patterns east of the divide. While WCT conservation populations are present in a reasonable number of sub-watersheds/6th HUCs (Table 11), they have been eliminated from most mid-sized and larger streams and rivers. This leaves harsh, less productive headwater streams as their most common refuge. Even in headwaters, they are often restricted to relatively short, stream segments where fish passage barriers protect them against upstream invasion by non-native trout. Individual WCT are exposed to invasion by non-native trout and unnatural competition and hybridization risks when they move below barriers, and are essentially lost to the population. Consequently, selective pressures result in the strong tendency for east-side populations to be isolated, non-migratory residents lacking the characteristics and benefits of a metapopulation.

While non-native trout have influenced WCT populations west of the continental divide in the same manner described above, the extent and magnitude of effects are greater on the east side. The percentage of sub-watersheds containing conservation populations in Rock Creek and the Upper Clark Fork River are notably higher than those east of the divide (Table 12). Further, conservation populations persist in 36% of the historically occupied stream miles west of the divide and in only 8% of historic habitats east of the divide.

Table 12. Comparison of Sub-Watersheds* in the Analysis Area with the Number of Sub-Watersheds Containing WCT Conservation Populations

River Drainage	Sub-Watersheds in Analysis Area	Sub-Watersheds with One or More Conservation Populations	Percent of Sub-watersheds With One or More Conservation Populations
Beaverhead	39	13	33%
Big Hole	94	35	37%
Boulder	24	8	33%
Jefferson	31	4	13%
Madison	51	7	14%
Red rock	82	32	39%
Rock Creek	49	40	82%
Ruby	29	13	45%
Upper Clark Fork	34	19	56%
Total	433	172	39%

* Sub-watersheds are the common term for 6th Field Hydrologic Units or its common abbreviation "6th HUCs"

Current WCT distribution in the analysis area shows a shift from historic distribution, relative to land ownership. Approximately 66% of cutthroat conservation populations occur on Federal land versus 48% historically. The BDNF contains 760 (90%) of 841 stream miles on federal lands. Thirty percent of the stream miles are now on private land (46% historically). State lands currently contain about 4.5% of the WCT Conservation Population stream miles (6% historically). The shift in distribution away from private lands is largely a reflection of populations being more restricted to headwater streams, which are typically found on the forest or BLM.

Most of our WCT populations are now resident, but had some form of migratory tendency in the past. In most locations, we attribute the loss of the migratory component to non-native competition and hybridization impacts. Within the analysis area, resident life histories are present in 1,223 miles of stream. Migratory life histories are present in 413 miles. Notable differences in migratory tendencies exist between the east and west sides of the continental divide. Migrating individuals are found in 382 miles of stream on the west side compared to 31 miles of east-side streams.

The length of stream available for populations is important. The more stream available, the greater the chance all biological requirements can be consistently met over time. Also, as available stream length increases, so does potential for populations to interact. At the forestwide scale, 5% of conservation populations occupy 15 or more miles of connected stream. Sixty-nine percent have less than six miles of connected stream. Seventy-eight percent of populations with 15 or more miles are west side of the Continental Divide. Ninety-three percent with less than 6 miles are on the eastside. The isolated nature of populations east of the Divide and the short lengths of stream they occupy, suggest they are at higher risk. Risks to individual populations will vary with the quality of their habitat.

Cutthroat populations that have been tested and found to be genetically pure exist in 569 (44%) of the 1,281 stream miles that contain conservation populations. An additional 342 miles are occupied by populations suspected to be pure, but have not been tested.

Hybridization continues to be a risk for genetically pure populations. In 423 miles of stream, species with the potential to hybridize with WCT exist in the same stream segment, or nearby, with no barrier to separate them. This represents a third of the total miles occupied by conservation populations.

Eastern brook trout is the most influential non-native competitor for WCT in the analysis area. While the nature of the competitive advantage is not fully understood, the magnitude of the effects on WCT distribution is well known. Fish biologists are documenting that brook trout continue to invade new areas and displace cutthroat many decades after the original introduction.

East of the continental divide 57% of WCT Conservation Populations are competing with brook trout (Table 13). Because there is a mix of resident and migratory populations in a number of the same streams west of the divide, the numbers are a little less clear. However, in 49 of 66 west-side sub-watersheds (6th field HUCs), cutthroat populations live with competing brook trout. We do not fully understand why there has been a greater retention of the migratory life history in Rock Creek and Upper Clark Fork populations.

Table 13. Number of WCT Conservation Populations Compared to Populations that Compete with Brook Trout and Percentage in River Drainages East of the Continental Divide

River Drainage	Conservation Populations	Populations Competing with Brook Trout	Percent Competing with Brook Trout
Beaverhead	18	9	50%
Big Hole	48	36	75%
Boulder	6	5	83%
Jefferson	7	3	43%
Madison	9	1	11%
Red Rock	40	19	48%
Rock Creek	n/a	n/a	n/a
Ruby	16	9	56%
Upper Clark Fork	n/a	n/a	n/a
Total Forestwide	14	82	57%

Changes in WCT distribution from Historic conditions have not been driven as much by habitat conditions as by non-native trout influences. However, conditions in various streams across the analysis area are limited by effects from grazing, mining, roads, irrigation diversion and/or timber harvest. Where Conservation populations occur, streams range from properly functioning to non-functioning condition. Where they are limited to very short stream segments, habitat conditions become even more critical, since opportunities to move and find suitable conditions for biological and survival needs are restricted.

Shepard et al. (1998) assessed extinction risk for 144 known populations, on federally managed lands, east of the Continental Divide, using a ‘customized’ Bayesian viability assessment procedure. Results indicated 90% of the populations were at a high, to very high risk of extinction over the next 100 years. The viability analysis indicated the presence of non-native

fish, livestock grazing, mineral development, and angling had the greatest relationship to the probability of WCT population persistence. These are largely consistent with major factors suggested in other papers as causes for declines in cutthroat distribution (Liknes and Graham 1988). However, non-native fish influences are the greatest threat to many of the populations in this analysis area.

Westslope cutthroat was petitioned for listing throughout its historic range in 1997. In 2000, the USFWS found WCT “Not Warranted for Listing”. A recent lawsuit resulted in the determination being remanded to the USFWS for reevaluation. Following a new status assessment the August 2003 finding issued in response to the amended petition, again found WCT “Not Warranted for Listing”.

Lake Trout

The native range of Lake trout includes most of Canada and northern United States from Montana to New England. Relic native populations persist in only 4 lakes in Montana. Two of these are on the BDNF; Elk Lake in the Red Rock River Drainage and Twin Lakes in the Big Hole River Drainage.

Numerous authors describe the occurrence of native lake trout in Elk Lake in the late 1800's. The dates of documentation predates the period when this species was first introduced in the intermountain west in 1990. Currently, lake trout appear to be relatively stable and at low densities. From 1991 through 1999, the majority of fish captured ranged from 16.5 -19.5 inches in length. Sampling procedures didn't allow for determination of spawning and recruitment success.

In Twin Lakes, lake trout are less abundant than in Elk Lake and data from 1964 to present indicates there is extreme variation in recruitment success. The cause is not yet determined, but suggests this population is at high risk of extinction. Limited productivity and a short growing season may enhance predatory effects on this population from other species in the lake.

Burbot

Burbot are native to the headwaters of the Missouri River Drainage in southwestern Montana. They occur in the Red Rock, Beaverhead, Big Hole and Jefferson River drainages and reside in lakes, rivers and streams and can successfully spawn in all. In Montana they tend to live primarily in larger rivers and lakes downstream from the forest boundary. Burbot provide a relatively popular fishery in Clark Canyon Reservoir south of Dillon.

Paragamian and Willis (2001) report adult burbot in lakes spend most of their time on the bottom. Temperature seems to be important relative to their distribution in streams. Selected habitats in flowing systems have higher sediment loads. Burbot are common in northern rivers where stream temperatures tend to stay below 65 degrees Fahrenheit. They are uncommon in rivers at the southern edge of their range where temperatures often exceed 68 degrees.

Burbot exist on NFS lands in only a few streams in the Big Hole Drainage. Distribution is awkwardly fragmented, and indicates distribution in southwestern Montana has been reduced. However, little is known about this species in this area and its trend and status is speculative. Spawning usually happens in late winter or early spring. They typically spawn in lakes in shallow areas over cobble or gravel. In rivers, they use low velocity areas in the main channel

and in side channels behind deposition bars. Newly hatched larvae, drift passively in the water column, until their swimming performance improves and they become more mobile. Even as adults, however, they tend to have relatively low swimming performance. This suggests they are poorly suited for BDNF streams which are typically steep and fast-flowing (Paragamian & Willis 2001)

Adult burbot feed primarily on fish, although they will also eat some insects and macroinvertebrates. Juveniles rely more heavily on invertebrates. Additional research is necessary to fully understand status and trend of this species in southwestern Montana.

Amphibians

Amphibians native to southwestern Montana include the long-toed salamander, tiger salamander, plains spadefoot, boreal chorus frog, tailed frog, Columbia spotted frog, northern leopard frog and the western toad. Long-toed salamanders and spotted frogs are the most widely distributed and abundant amphibian species (Table 13). Northern leopard frogs and western toads are sensitive species on the BDNF.

Four amphibian species are limited in their distribution across sub-watersheds, or in the suitable habitats in the sub-watersheds they occupy. As shown in the table below, the tiger salamander was present in 38% of sampled drainages. The boreal chorus frog was more broadly distributed (58% of sub-watersheds), but were relatively rare (13% of suitable habitats).

Maxell (2000) lacked enough data to quantitatively assess occurrence of tailed and leopard frogs and the Plains spadefoot. As such, he provided a qualitative assessment of their occurrence. Tailed frogs are common west of the continental divide, but less common east of the divide. The Plains spadefoot is rare and the northern leopard frog may no longer be present.

The tiger salamander and the boreal chorus frog and Plains spadefoot are eastern great-plains species whose natural distribution tends to extend east of the divide, but does not cross over to the west. Similarly, tailed frogs are a pacific-northwest species that protracts slightly over the divide into the Big Hole drainage. This forest straddles the divide and so encompasses the outer edge of distribution for these species. Their pattern of occurrence likely reflects natural suitability limitations on the periphery of their range, rather than man caused influences.

Table 14. Percent Occurrence of Five Native Amphibian Species and Breeding Sites in 50 Randomly Selected Sub-watersheds (6th field HUCs) in the Analysis Area

Species	Detected Presence in Sampled Sub-watersheds	Detected Occurrence of Breeding in Sampled Sub-watersheds	Detected Occurrence in Suitable Habitats* when Present in Watershed	Detected Occurrence of Breeding in Suitable Habitats* when Present in Watershed
Long-toed salamander	68%	68%	88%	87%
Tiger salamander	38%	38%	21%	21%
Western toad	37%	26%	7%	7%
Boreal chorus frog	53%	53%	13%	11%
Columbia spotted frog	81%	71%	58%	32%

**non-flowing water sites*

Plains Spadefoot

The Plains spadefoot is an eastern great-plains species, whose distribution extends into our analysis area, but is relatively uncommon. Its presence on the BDNF is doubtful because preferable habitats are found in the valleys below the forest boundary.

Columbia Spotted Frog

Columbia spotted Frogs are highly aquatic and tend not to stray far from the water. Breeding occurs from March to June, depending on snowmelt and temperature. Eggs are deposited in along the edge of shallow water where there is emergent vegetation. Eggs hatch in 5-21 days and tadpoles metamorphose from mid-summer to late fall. Adults seem to prefer not to migrate during the year, however, movements of 6 to 7 kilometers has been documented (Maxell 2000).

Spotted frogs are the most common frog in the mountains and mountain valleys in western Montana. Similarly, they are the most common amphibian in the analysis area. Surveys in 2002-2003 detected them in 81% of the sub-watersheds that were inventoried. They were present in 58% of the suitable wetlands (Maxell 2004).

Long-toed Salamanders

Long-toed salamanders are the most common salamander in Montana. They are found in a variety of habitats ranging from sagebrush to alpine areas. They breed primarily in ponds or lakes, but very occasionally will use low gradient, slow flowing streams if fish are absent. Adults migrate to breeding ponds shortly after snowmelt and typically breed earlier than other amphibians in Montana. Eggs hatch in 3-6 weeks and metamorphosis occurs after 2-14 months. Egg masses are usually attached to underwater vegetation or submerged branches.

Larvae are found in ponds. Adults will also be in the water during the breeding season. During the rest of spring, summer and fall, adults may be found in and under logs on the forest floor. Surveys in the analysis area indicated they are present in 68% of the sub-watersheds, and occur in approximately 19% of the suitable habitats (Maxell 2004).

Tiger Salamanders

Tiger Salamanders occur in a wide range of habitats, so long as a water body is nearby and the ground is suitable for them to dig a burrow. Adults typically remain underground, except for the breeding season. Breeding may occur where predatory fish are absent, in a variety of conditions ranging from clear mountain ponds to seasonal manure-polluted pools in lowland areas (Maxell 2000). Adults will migrate up to several hundred meters between breeding sites and terrestrial burrows.

Eggs hatch in 2 to 5 weeks. Metamorphosis of larvae occurs at the end of the summer following hatching, or if the growing season is short, it may not occur until the second or third summer. In some locations larval salamanders never transform, but rather become sexually mature and breed while retaining gills (Reichel & Flath 1995). These salamanders are often called “axolotls”. Amphibian surveys within our analysis area, detected this species in 38% of the sub-watersheds, within its natural range.

Boreal Chorus Frog

Boreal chorus frogs are very small, reaching a maximum length of around 1.5 inches. They are found in water primarily during the spring breeding season. After mating they typically move into the uplands and are rarely seen. They use small ponds and lakes with shoreline vegetation that ranges from prairie to open forest. Eggs hatch in about 2 weeks and metamorphosis from the tadpole stage occurs after 2 months.

They are found only east of the continental divide and are more common in eastern Montana. Individuals have been identified in a number of locations in the Red Rock, Madison, Ruby and Beaverhead drainages (Maxell 2004). Surveys conducted in our analysis area (on and off NF lands) during 2002-2003 detected chorus frogs in 53% sub-watersheds inventoried and in 4% of the suitable sites (Table 13).

Tailed Frogs

Tailed Frogs are found in and along small, swift, cold mountain streams. It appears to be sensitive to siltation and has been noted to disappear downstream of clear-cuts and water diversions in some areas. This has not been noted in Montana, however. Eggs are laid in late summer and hatch after approximately 4 weeks. Tadpoles metamorphose into frogs after 1 to 4 years. They reach sexual maturity at 6 or 7 years old (Daugherty & Sheldon 1982).

Their distribution seems to be quite localized in Montana. However, data is limited and they may be more widespread than is currently known. They occur on both sides of the continental divide, but are more common on the west side. At this time they are considered relatively common (Maxell 2004), however our data doesn't lend itself to a quantitative assessment within the analysis area.

Northern Leopard Frog

The northern leopard frog and western toad were both assumed to be relatively abundant historically, but have declined in their natural range. Reductions in distribution are not specific to this forest, but have occurred larger scale (Maxell 2000). The cause of decline is largely speculative, but disease is being suggested as the cause for western toads. This seems plausible, since the geographic area where reductions have occurred is relatively large; and there seems to be no clear association between man-caused impacts and all critical habitats. This may also be the case with leopard frogs.

The northern leopard frog is found in or near water in non-forested habitats. They prefer dense vegetation like occurs in cattail marshes or dense sedge meadows. Breeding takes place in lakes, ponds, springs and sometimes beaver ponds or stream backwaters. Eggs hatch in 4-15 days and tadpoles metamorphose in 8-15 weeks.

Leopard frogs were historically widespread in Montana, on both sides of the continental divide extending across the eastern plains. They have been identified at elevations of up to 6000 feet (Maxell 2000). Currently, this species appears to be extinct throughout much of western portion of the state. Amphibian inventories in 50 sub-watersheds within our analysis area during 2002 and 2003 failed to detect any individuals of this species (Maxell 2004). They are currently presumed absent from BDNF lands. Disease may be the cause for the substantial decline in distribution of this amphibian.

Western Toad

The western toad is largely terrestrial and found in a variety of habitats from valley bottoms to high elevations. They breed in lakes, ponds and occasionally in slow flowing streams. They prefer shallow areas with muddy bottoms. Breeding typically occurs from May to July, and tadpoles will metamorphose when 2 to 3 months old (Reichel & Flath 1995). Juveniles can be found in dense aggregations adjacent to breeding grounds. They are susceptible to high mortality rates measurable disturbance occurs shortly after metamorphosis.

Adult and Juvenile toads are freeze intolerant and over-winter and shelter in underground caverns, or rodent burrows (Maxell 2000). Adults feed on a variety of ground dwelling invertebrates and are known to eat smaller individuals of their own species.

Within the last 25 years, western toads have undergone population crashes in Colorado, Utah, southeast Wyoming and New Mexico (Ross et al. 1995, Corn 1998). In the northern Rocky Mountains they have also undergone declines. Surveys in the late 1990's revealed they were absent from a number of areas they historically occupied. While they remain widespread across the landscape, they appear to be occupying only 5 –10%, or less, of the suitable habitat (Maxell 2000).

A systematic inventory of standing water bodies in 50 randomly chosen sub-watersheds within the analysis area (on and off forest) demonstrated similar findings (Maxell 2004). In the sub-watersheds they were found to be present, they were detected and breeding in only 7% of the suitable habitats (Table 13). What this represents with regard to historic distribution and abundance in this area is not known, since there is not baseline data to compare against. However, based on declines in other western states, it seems reasonable they are depressed and a primary cause is believed to be disease.

Human Influences on Aquatic Ecosystems

Human activities can directly or indirectly affect natural processes and the frequency, magnitude, and duration of catastrophic events.

Roads, water development, fire suppression, timber harvest, mining, grazing, and recreation have been the major human-caused agents of change for water resources.

Roads: Most roads on the forest were built to facilitate timber management and harvest, although these roads now support a variety of other uses. User-created trails and off-highway vehicle (OHV) roads are also common forestwide. Many roads and trails are adjacent to streams and segments are located in floodplains. Predictably, the impacts to water resources include sedimentation and alterations in streamflow volume and timing. Duration and intensity of these effects vary, depending on various site, climate, and management variables. In recent years, the amount of timber management activity, and associated road building, has decreased considerably. Conversely, recreation use has increased appreciably, with a corresponding increase in user-created roads and trails.

Table 15. Miles of Road on All Land Ownerships by Landscape (based on 2002 road information)

Landscape	Open Road Density	Stream Density	Road/Stream Crossing Density	Roads within 300 ft. Per Stream Mile
Big Hole	1.0	1.9	0.5	0.13
Boulder River	1.2	1.8	0.7	0.24

Landscape	Open Road Density	Stream Density	Road/Stream Crossing Density	Roads within 300 ft. Per Stream Mile
Gravelly	0.8	1.8	0.3	0.13
Jefferson River	0.9	1.7	0.4	0.13
Lima-Tendoy	0.8	1.8	0.4	0.11
Madison	0.1	1.8	0.4	0.13
Pioneer	1.0	1.6	0.5	0.17
Tobacco Root	1.4	1.8	0.6	0.25
Upper Clark Fork	1.5	1.6	0.6	0.24
Upper Rock Creek	0.9	2.0	0.4	0.13

Water development: Development and use of water resources can affect water quality and quantity. The removal of water from small headwater streams affects the annual water balance, temporal distribution, flood hydrology, minimum flows, and water quality much more than many impacts on the landscape. There are more instream diversions off forest than on forest. This is due to the lack of agricultural and municipal development within the forest boundary, as well as the physical difficulty and expense of transporting water to private lands that are off forest lands.

Water developments are mostly associated with agricultural and municipal uses. Stock watering facilities are common and are usually small wells or spring developments. Irrigation water diversions tend to be simple headgate designs and open, earthen canals to transmit water to private lands. Agricultural water uses tend to divert water only during the summer months. Municipal water diversions operate year-long and tend to be sophisticated, with multiple diversion structures feeding into larger and larger canals and pipelines. They also include reservoirs to store the water.

Fire Suppression: Fire suppression tactics may be affecting the characteristic fire regime in many western watersheds. With the advent of fire suppression, less forest is burned on an annual basis. As fuel loads increase, potential for larger, more intense fires increase. This change in fire intensity may produce different effects in aquatic and riparian ecosystems than what was previously experienced. Fire retardants, can have harmful effects on aquatic biota. Modern fire suppression beginning in the 1950's, may be changing the natural fire regime and the ecological processes it influences, but more scientific study is needed before conclusions can be drawn.

Fire retardants, an important tool in modern firefighting, can have harmful effects on aquatic biota. To reduce the corrosive effects of certain retardant formulations (e.g., Fintrol) on storage and dispersing equipment, ferro-cyanide compounds are sometimes added to the mix. If fire retardants containing cyanide compounds are inadvertently sprayed in to aquatic environments with a pH of 9.0 or less, free cyanide can be produced, a substance that is materially toxic to aquatic biota.

Timber harvest: Water resources have been influenced since the late 1800 by timber harvest. Timber harvest can produce water yield increases in local streams (Troendle et al. 2001). If 20-30% of the basal area is removed from a forested watershed, flow volume, peaks, and timing may increase. This is due to reduced interception loss from tree crowns and reduces transpiration loss from growing trees. Flow volume and peak flows tend to increase, and annual peak flows can be moved ahead several weeks. In extreme cases, peak flow increases and duration have

changed channel morphology. As vegetation grows back after harvest, water yield declines. This effect is generally only noticeable near the site where the timber harvest took place and makes it difficult to detect or confirm water yield increases downstream. Timber harvest can also increase the levels of fine sediments in streams, but the majority of sediment impacts are from the road construction associated with harvest activities.

Table 16. Timber Harvest and Burned Percentages by Landscape

Landscape Name	Area Harvested	Area Burned	BDNF portion with > 60% Crown Removal
Big Hole	5.3%	6.0%	11.8%
Boulder	4.1%	1.5%	6.3%
Gravelly	3.0%	0.5%	3.9%
Jefferson	0.7%	0.0%	1.5%
Lima-Tendoy	0.9%	0.0%	1.3%
Upper Clark Fork	4.0%	0.0%	4.8%
Madison	0.1%	0.0%	0.2%
Pioneer	1.9%	0.2%	2.6%
Upper Rock Creek	5.0%	4.2%	9.6%
Tobacco Root	2.6%	0.0%	3.3%

Mining: Mining has played an important role in the settlement of the area, particularly in the north half of the forest. Butte, MT began as a cluster of mining camps in the early 1870s following the discovery of silver and copper. Largely uncontrolled mining practices of the early 1900s led to wide spread environmental impacts that persist today. Before the area was declared a superfund site, it was not uncommon for the Clark Fork River (which begins just to the east of Butte) to literally run red during heavy rains because of the heavy metals leaching into streams and groundwater.

Mining generally has two effects on water resources. First, the physical changes produced in the riparian landscape vary with the type of mining operation. Second, there is the change in water quality resulting from the exposure of heavy metals to the atmosphere. Hand panning and shoveling may have minimal effects; hydraulic operations can dramatically alter landscapes. Almost any level of mining can impact fish and aquatic insect habitat, which changes aquatic communities. The forest has seen moderate amounts of in-stream mining; the heaviest activities occurred in the Boulder and Upper Clark Fork watersheds. While some areas have recovered substantially, others still have unnatural drainage patterns and poor channel conditions. At this time, commercial mining is limited whereas there are still active recreational mining operations.

Table 17. Number of Mines by Landscape

Landscape	Active Mines	Abandoned Mines
Big Hole	46	3
Boulder	209	73
Gravelly	71	0
Jefferson	133	18
Lima – Tendoy	33	1

Landscape	Active Mines	Abandoned Mines
Upper Clark Fork	417	64
Madison	7	0
Pioneer	193	33
Upper Rock	57	13
Tobacco Root	137	29

Grazing: Grazing impacts in the analysis area have varied with the timing, distribution, and numbers of animals. Before forest reserves were established in the early 1900s, animal numbers and grazing periods were essentially uncontrolled. This caused widespread riparian damage. Continued overgrazing generally causes changes in stream morphology, water temperatures, and water quality. With the establishment of allotments and the reduction in livestock numbers, riparian areas received less use and conditions generally improved. When forage in an allotment is concentrated in wet meadows, these areas receive the highest use and greatest grazing impact. Compared to pre-settlement periods, grazing management has had a variable effect, depending on watershed characteristics and specific rangeland management. Other allotments have long-term riparian problem spots caused by sustained heavy grazing. Yearly livestock-grazing trends suggest that the requisite and existing forestwide standards are being met on a more consistent basis.

Table 18. Grazing Density by Landscape.

Landscape	Grazing AUM Density (AUMs/square mile)
Big Hole	30
Boulder River	27
Gravelly	86
Jefferson River	64
Lima-Tendoy	58
Madison	12
Pioneer	40
Tobacco Root	50
Upper Clark Fork	25
Upper Rock Creek	17

In 2003, the 682 non-randomly selected stream survey sites on the Beaverhead were stratified by their condition status to assess the effects of livestock grazing on stream channels. Of the total, 251 (40%) were determined to be Non-Functioning (N-F) or Functioning-at-Risk (F-A-R). Virtually all of the 251 N-F and F-A-R reaches are affected to some degree by livestock. However, it is difficult to attribute all impacts to a single use. Most reaches have been altered to some degree by many things both natural and management related. These impacts are variable in both space and time. However, the forest has attempted to isolate the effects of just livestock on stream channels by eliminating all reaches where more than one disturbance variable existed. All reaches that may be appreciably affected by roads, recreation, mining, upstream sources of sediment, or natural instability were dropped from further analysis, leaving just those reaches

where the effects of livestock were responsible for the N-F and F-A-R status. This resulted in a dataset of 169 reaches (67% of the N-F and F-A-R reaches, 25% of all the reaches surveyed).

Recreation: Recreation impacts to water resources on the Forest are related to streamside recreation use, water-based recreation, and indirect effects from upland recreation activities. Motorized off-road recreation travel can cause riparian area degradation and adverse water quality impacts. Horse, bike, and foot traffic generally have less impact but can cause localized effects. Water-based recreation is increasing and degradation can occur if proper facilities are not in place and use is not managed. Streamside areas are often chosen for dispersed campsites. Dispersed- campsite use can cause removal of and damage to riparian vegetation, soil compaction in riparian zones, streambank erosion, and increased nutrient loading and pathogen levels due to human waste. Increasing recreational use, recreation impacts on aquatic and riparian ecology are concerns in some stream reaches, riparian areas, lakes, and reservoirs. Increased recreation use and impacts are predicted in the next 10 years.

Beavers: Historically, active beaver populations in valley bottoms throughout southwest Montana created a different hydrologic situation than exists today. Early trappers, as well as the Leis and Clark expedition, describe valley bottoms with abundant riparian vegetation, complex waterways and beaver ponds. Subsequent trapping and other development activities caused a measurable reduction in beaver populations, and a consequent alteration of stream systems. Generally, removal of beaver will cause stream systems to become more entrenched, export more sediment from the immediate stream reach, and dry out the valley bottom. Riparian species are replaced by dry land species.

Restoration of beaver populations could reverse this progression, restore water across valley bottoms and stabilize stream systems, increase water storage for later in the year, provide habitat for riparian dependent species, and arrest current downward trends in riparian vegetation due to moose browsing. A recent survey on the Madison and Dillon districts identified forty-seven valley segments with indications of previous beaver use. Only three of these segments currently contain beaver.

Range of Variability

There is limited scientific evidence to quantify the range of variability for aquatic resources. Vegetation characteristics and roads influence hydrologic processes within watersheds, but there is no evidence to suggest these upland watershed characteristics have modified hydrologic processes beyond the historic range of variability. In contrast several indicators of stream health suggest that stream health may be outside the historic range of variability in some streams. The extent and condition of riparian and wetland resources may also be beyond the historic range of variability. Introduced non-native fish species dominate aquatic ecosystems in most streams. This major change in aquatic ecosystem composition has resulted conditions beyond the historic range of variability. Direct impacts to streams and riparian resources and the introduction of non-native fish species may more meaningfully define current conditions of aquatic resources than indirect impacts to watersheds.

Watershed Conditions

Existing watershed condition varies depending on the magnitude and type of disturbance and the inherent resistance and resiliency of aquatic systems. Watershed condition includes physical,

chemical, and biotic factors. Cumulative effects from human disturbance and effects from variation in ecological processes were evaluated on physical, chemical, and biological watershed conditions, relative to their natural condition using the following definitions (FSM 2521.1):

Watershed condition is defined as “the state of a watershed based on physical and biological characteristics and processes affecting hydrologic and soil functions.” There are three possible condition classes.

Class I Condition - watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. The drainage network is generally stable. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems are predominantly functional in terms of supporting beneficial uses.

Class II Condition - watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. Portions of the watershed may have an unstable drainage network. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems are at risk and may not be able to support beneficial uses.

Class III Condition - watersheds exhibit low geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. The majority of the drainage network may be unstable. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems do not support beneficial uses.

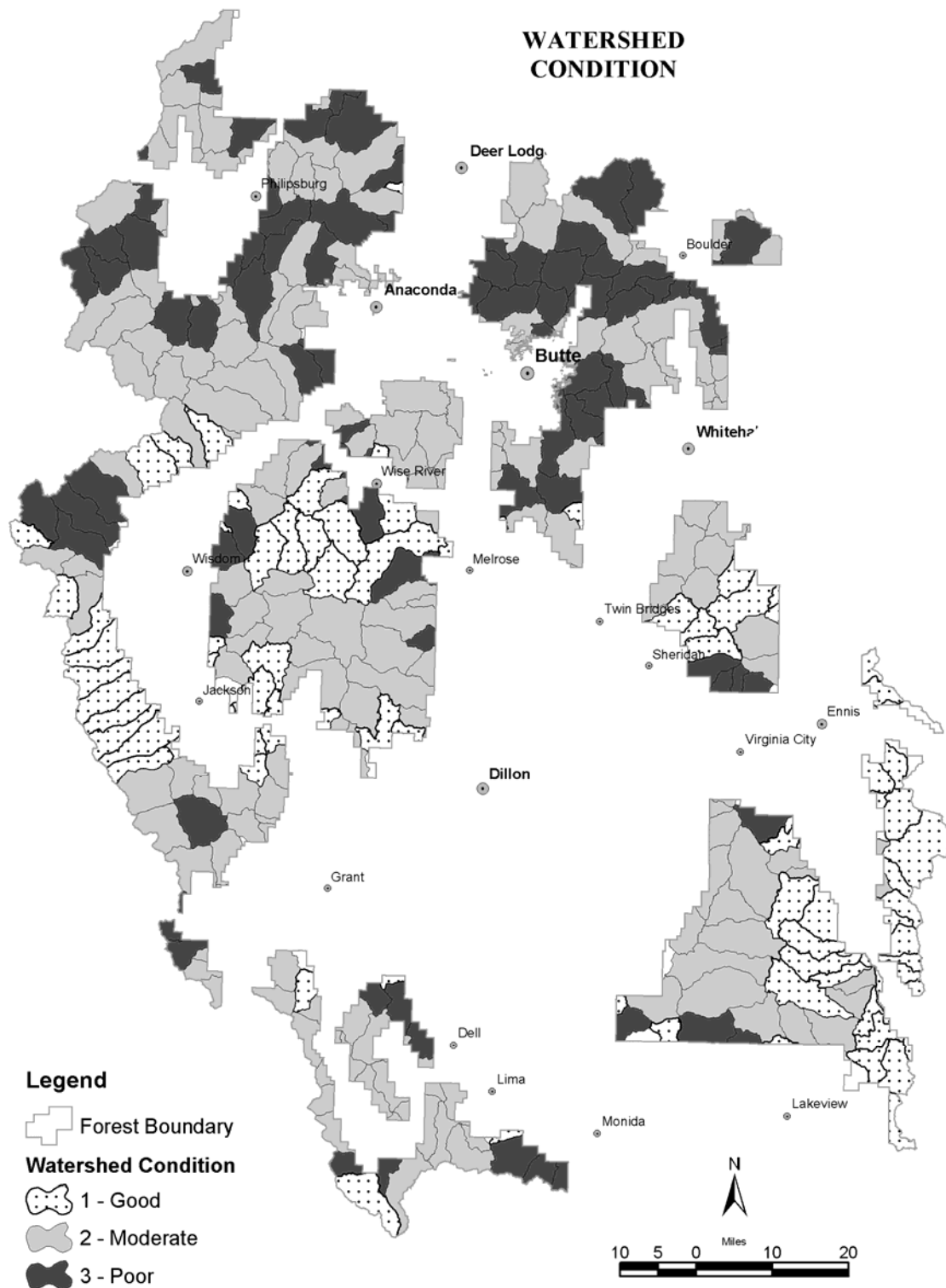


Figure 3. Watershed Conditions on the BDNF

The Inland West Watershed Initiative (IWWI) data was used to assess forestwide watershed conditions. The IWWI represents a nationwide effort to determine the condition of 6th level HUCs. Each watershed was rated by geomorphic integrity, water quality integrity, and watershed vulnerability and results were assigned values of high, moderate or low. The assessments were made by resource specialists using field data, on the ground knowledge, and professional experience. The IWWI is the only forestwide data set at the 6th level HUC scale.

The results of the IWWI analysis show that of the 297 6th level watersheds evaluated on the BDNF, 80 (27%) were rated Class I, 143 (48%) were rated Class II, and 74 (25%) were rated Class III. The results of this assessment suggest that the cumulative effects of human disturbances and ecological processes have measurably altered the physical, chemical, and/or biological conditions from their natural potential on the majority of the forest.

Table 19. Forestwide Watershed Condition Class Summary

Watershed Condition Class I	Watershed Condition Class II	Watershed Condition Class III
80 watersheds	143 watersheds	74 watersheds

Watersheds on the north end of the forest are inherently more sensitive to watershed disturbance because geology on the south end of the forest tends to be less sensitive to disturbance. The north end watersheds also show lower water quality than the south. The causes are determined to be timber harvest, mining, and associated roads. Causes for lower water quality in the south end watersheds are shown to be agriculture and livestock grazing. Both the north and south halves of the forest have had the geomorphic integrity lowered in over 50% of their 6th level watersheds with the north end having considerably more impacted watersheds.

Aquatic Restoration Priorities

Priority watersheds are defined in the Unified Federal Policy for a Watershed Approach to Federal Land Management publication thus:

“Priority watersheds: Watersheds selected for focusing of Federal funds and personnel for the purpose of accelerating improvements in water quality and watershed condition.” (65 CFR 62566, 10/18/00)

The Unified Federal Policy for a Watershed Approach to Federal Land Management suggests identifying watersheds that may have “significant human health, public use, or aquatic ecosystem values.” In addition, watersheds that are vulnerable to or currently have “water quality impairment, impacts to aquatic resources, and/or changes to flow regimes” should be considered for identification as a Priority Watershed. BDNF aquatic specialists used existing data sources and professional knowledge to identify watersheds where important aquatic values and opportunities to restore or improve water quality, aquatic habitat, and watershed conditions occur. This information was collected and analyzed as part of the Inland West Watershed Initiative (IWWI).

The BDNF has approximately 74 sixth level HUC watersheds that may have degraded watershed conditions (Table 19). These watersheds are in need of further evaluation to determine whether degraded conditions actually exist, and if so, what needs to be done to correct the problems.

Environmental Consequences

Watershed Summary of Effects by Alternatives

- Specific outcomes (such as water quantity, water quality, instream and riparian area habitat considerations) from the alternatives pertaining to lakes, streams, rivers, riparian areas, and wetlands are not predictable without site-specific NEPA analysis.
- Alternative 1 does not incorporate a watershed approach to the management of hydrology and watershed processes; there would not likely be watershed scale consideration and protection of hydrologic and riparian area/wetland processes and functions. This would likely result in the continued protection of areas currently in satisfactory condition and areas currently in unsatisfactory would remain unchanged.
- Alternatives 2, 3, 4, 5, and 6 would emphasize a watershed approach to the management of hydrology and watershed processes. These alternatives would facilitate management of multiple ecological goals and long term ecological sustainability on a landscape basis. Updated aquatic objectives and standards applied in a consistent manner across the forest would provide a mechanism to effectively prioritize activities and weigh multiple risks to various resources. Alternatives 3, 5, and 6 would more readily provide a mechanism to restore watersheds across the forest and would aid in overall improvement in lakes, streams, rivers and riparian areas and wetlands.
- Alternatives 1 and 4, with their higher activity levels, could pose greater short-term risks to aquatic ecosystems than would the lower activity rates and amounts of alternatives 2, 3, 5, and 6.
- Watershed restoration levels would be greatest for Alternatives 3, 5, and 6 and are expected to result in greater long- and short-term benefits to lakes, streams, rivers, riparian areas, and wetlands compared to the other alternatives.
- Alternative 1 does not have consistent forestwide direction for riparian area protection and is not predicted to adequately protect riparian area function.

Riparian Area Summary of Effects by Alternative

Alternatives vary by aquatic standards and objectives (Table 19). Alternative 1 contains current direction under the Beaverhead and Deerlodge Forest Plans and all amendments. The Inland Native Fish Strategy (USDA 1995), as it was amended to the Deerlodge Plan in 1995, is unchanged from its original wording in Alternatives 1 and 2. For Alternatives 3, 4, 5, and 6 a handful of changes were incorporated to improve consistency in riparian management and to address region-wide concerns. With incorporation of those changes the modified version is referred to as INFISH 2005. The Beaverhead-Deerlodge Aquatic Strategy includes changes incorporated in INFISH 2005 and expands protection beyond inland native fish to include all sensitive aquatic species.

Table 20. Aquatic Standards and Objectives displayed by Alternative

Standards and Objectives	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
West of Continental Divide	Deerlodge Forest Plan Including INFISH-1995 Amendment	INFISH-1995 Amendment	INFISH-2005 and Additional Forestwide Direction	BDNF Aquatic Strategy and Additional Forestwide Direction	INFISH - 2005 and Additional Forestwide Direction	INFISH-2005 and Additional Forestwide Direction
East of Continental Divide	Deerlodge Forest Plan East of the Continental Divide Beaverhead Forest Plan including Riparian Amendment 1997	WCT Strategy and Stream Reference Reach Approach	INFISH - 2005 and Additional Forestwide Direction	BDNF Aquatic Strategy and Additional Forestwide Direction	BDNF Aquatic Strategy and Additional Forestwide Direction	BDNF Aquatic Strategy and Additional Forestwide Direction

Comparison of Effects by Alternative on Water and Riparian Resources

The most significant change between Alternative 6 and the existing plans, Alternative 1, is the incorporation of forestwide standards that are specifically designed to protect aquatic resources. If all applicable measures are implemented and if they are effective, adverse effects from alternatives 3, 4, 5, and 6 are expected to be minimized, and watershed conditions would be expected to improve.

Activities that disturb the soil surface have the greatest potential to adversely affect these resources if they occur in proximity to stream channels. These effects are typically expressed as inputs of fine sediment where activities occur along stream channels and have an associated crossing or other surface disturbances. Watersheds whose physical, chemical, or biotic function is at risk may be near their capacity to assimilate further impacts, or may need remedial action to reverse a downward trend. As activity levels increase, BMPs may not be entirely effective. Therefore, alternatives that propose higher levels of land disturbing activities pose greater inherent risks to aquatic and riparian resources.

The following table provides a summary of the relative impacts of alternatives on aquatic resources. The land use categories are ranked in order of existing and potential impact to water and riparian resources. The top line indicates higher degrees of impact and the bottom line indicates lower degrees of impact.

Table 21 Alternative Ranking by Benefit or Risk to Watershed and Riparian Resources

Effects from Resource	Less	← RELATIVE SCALE→				More
Effects of Timber Management	3	5	6	2	4	1
Effects of Wildlife Management	No difference between alternatives					
Benefits of Watershed Restoration	(1, 2, and 4)			(5 and 6) 3		
Riparian Protection Afforded	1			(2, 3, 4, 5, and 6)		

Effects from Resource	← RELATIVE SCALE→					
Effects from Recreation and Travel Management	3	2	(5 and 6)		4	1
Effects from Fire Management	3	6	5	4	2	1
Effects from Livestock Management	6	(3 and 5)		(1, 2, and 4)		
Effects from Wilderness Designation	3	6	5	2	4	1

Watershed and Riparian Effects Common to All Action Alternatives

Management activities affecting watershed processes are described in terms of their potential to increase erosion and sediment yields, their ability to alter the physical, chemical, or biological properties of both soil and water, or by their influence on the timing or magnitude of surface water runoff. Management activities may directly, indirectly, or cumulatively impact riparian and wetland habitats, resulting in undesirable changes to channel stability, water quality and aquatic habitat quality.

Effects from Land Use Authorizations

Various laws prior to the Federal Land Policy and Management Act of 1976 (FLPMA) provide rights-of-way over public lands. The Forest Service has the responsibility for all existing grants and permits located on NFS lands, including their administration, amendment, and renewal when authorized and appropriate.

Water developments include irrigation diversions, and irrigation-storage reservoirs. Diversions reduce or eliminate downstream flows, which can affect channel size and limit habitat for aquatic and riparian management indicator species. Dams alter flow regimes by storing water during runoff to release later in the year. Both dams and diversions can impose barriers to migrations and can dewater streams during certain time periods, which fragments aquatic ecosystems. In some cases, altered flow regimes prolong periods of runoff and can enhance riparian vegetation communities.

Dams affect stream channels in different ways depending on their operation. Reservoirs store sediment and release sediment free water from the dam. As the released water seeks sediment carry it can downcut or widen the channel below the dam. On the other hand, if water storage reduces peak flows, the result can be the stabilization or reduction of channel capacity.

The original forest plans contained provisions to protect aquatic habitats and stream channels from the potential adverse effects of water development. Some water use permits were reviewed to ensure aquatic habitats and stream channels are protected and to assess whether the uses were meeting forest plan standards. Some permits contain resource protection flow conditions and conditions to prevent gully erosion. This forest plan revision includes standards to ensure flow in perennial streams and protect against gully erosion. Permits are authorized consistent with the forest plan and the Endangered Species Act. As permits are amended, renewed, or issued, environmental effects will be analyzed to ascertain if mitigation or additional terms and conditions are required to meet the proposed forest plan standards and guidelines. In some cases, analyses and terms will focus on single permits; in others, they will address all permits in the watershed. The degree of effects is currently unknown. While the effects of these projects can be

noteworthy, effects are not expected to vary between alternatives for two reasons. First, demand for water-use authorizations is driven by proponents of water development rather than forest programs or budgets. Second, many water facilities are operated under perpetual easements or other authorizations that are subject to limited environmental mitigation.

Effects from Water Developments

The hydrologic effects of water development include flow depletion, flow augmentation, and flow regulation downstream of dams and reservoirs. Flow depletions can result in lost riparian habitat and reductions in fish populations and aquatic habitats. In-channel structures fragment habitats by blocking fish migration or by dewatering sections of streams. Increased stream flow can result in altered channel form, channel widening, bed aggradation, or increased channel migration rates, all of which can lead to lost riparian vegetation and increased sediment loads. Numerous streams are diverted at or near the forest boundary for use in irrigation or for domestic water supplies.

The impacts to soil and water resources from existing permitted or authorized water developments will not vary by alternative. Under all alternatives, vehicle access and maintenances of these water development facilities will continue to be allowed.

The effects on soil and water resources from new water developments vary by alternative according to restrictions on the ability to develop the water. The main restrictions would be from no motorized vehicle access or ability to build roads in order to construct the water development. The potential for new future development of some water sources on the forest would be limited by recommended wilderness and or roadless areas because no motorized vehicle access is allowed in wilderness.

Watershed and Riparian Direct and Indirect Effects

There are three aquatic topics tracked through the effects analysis on riparian and water resources. They are riparian condition, water quality and water yield. These three topics will be addressed in each of the ten management categories.

Nearly all activities carried out on the forest and described in this analysis have the potential to adversely affect aquatic and riparian resources to some degree. Activities that alter the quantity, timing, or quality of water resources have the greatest potential for adverse effects, and the risk of adverse effects increases as the distance to streams or wetlands decreases.

Surface water, groundwater, floodplains, riparian areas, wetlands, aquatic habitats and other aquatic organisms are all closely related. Discussion of effects on these resources will be dealt with together since the pathways of effects that influence them are similar. When they are impacted differently, it will be specifically noted and described.

Watershed conservation practices Best Management Practices and forest plan standards prescribe extensive measures to protect soil, riparian, and aquatic resources. When applicable measures are implemented and effective, adverse effects to these resources from management activities will be minimized or eliminated. However, as the level of activity increases, the risk that conservation practices will not be implemented or will not be cumulatively effective also increases.

Consequently, alternatives that propose greater levels of activity for various resources generally pose greater risk to aquatic and riparian resources.

Implementation and effectiveness monitoring of Best Management Practices are typically carried out as an administrative review and does not involve water quality measurements.

Implementation and effectiveness monitoring of watershed conservation practices, and forest plan standards can be carried out by a variety of personnel including timber sale administrators, contract officer representatives, resource specialists, and line officers. Documentation of this monitoring can include field notes, memos, contract daily diaries or monitoring reports.

Systematic monitoring and adjustment of land management activities, where necessary, will ensure the highest possible level of Best Management practice implementation and effectiveness.

Individual activities generally do not, by themselves, result in watershed scale responses. However, the impacts of multiple management activities over long time periods can create such responses. All alternatives have objectives and standards pertaining to the maintenance and restoration of riparian areas and wetlands.

Effects on Restoration Key Watersheds and Riparian Areas from Aquatic Resource Management

Restoration key watersheds identified in Alternatives 3, 5, and 6 would provide a mechanism to prioritize activities that contribute to maintenance and restoration of integrated ecological processes at the watershed scale. Higher levels of landscape restoration would occur in high priority restoration watersheds. Restoration opportunities would be identified and prioritized during Ecosystem Analysis at the Watershed Scale (EAWS), with the expectation of higher success in restoration and reductions in short term risks.

Alternatives 1, 2, and 4 do not incorporate restoration key watersheds. However, Alternative 4 does have fish emphasis key watersheds and activities are expected to be implemented using a restoration emphasis. However, these activities would be distributed over a much larger landscape, and effectiveness in meeting broad-scale watershed improvement objectives would be limited. Alternatives 1 and 2 do not have either restoration or fish emphasis key watersheds. Activities in these alternatives focus on protection and restoration of hydrologic processes without considering an integrated, ecological strategy at the broad scale. These efforts are assumed to have little bearing on larger scale watershed and ecosystem processes that create and maintain water quality and aquatic habitats through time.

Table 22. Fish and Restoration Emphasis Key Watersheds by Alternative

Watershed Emphasis	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Fish Emphasis	0	0	27	57	57	56
Restoration Emphasis	0	0	78	0	15	15
Total	0	0	135	57	72	71

Riparian Habitat Protection and Management

Intact and functioning riparian areas are critical components on the landscape that integrate aquatic systems with uplands, forming the basic ecological system. All Alternatives have goals and objectives that would manage for the protection and restoration of riparian areas. The ecological functions of riparian areas occur at varying distances depending on the range and character of riparian and wetland vegetation. The extent of the areas under riparian consideration

and emphasis varies by alternative. Key differences among the alternatives include elements that provide flexibility in riparian area designation which determines the amount of area within the designated riparian area. However, these differences could generate local risks to ecological function of riparian and aquatic ecosystems.

Alternatives 2, 3, 4, 5, and 6 incorporate INFISH that requires specific criteria for delineating riparian areas with emphasis on the protection of riparian areas forestwide. Alternative 1 does not have forestwide criteria for delineating riparian areas. This alternative may not be as effective in maintaining watershed processes and hydrologic function as the other alternatives.

303(d) Streams

Alternatives 3, 5, and 6 propose to implement key restoration watersheds. The rate and effectiveness of active restoration combined with the overlap of key restoration watersheds and 303(d) listed segments could shorten the time for bringing 303(d) waters into compliance. In Alternative 3, the number of key restoration watersheds is higher than Alternatives 5 and 6. Therefore, it is likely that Alternative 3 would result in greater decreases in the sources of impairment and subsequent improvements in water quality.

Effects on Watersheds and Riparian Areas from IRAs and NWPS Additions

The additions of recommended wilderness areas are very likely to confer beneficial effects to water quality and aquatic biota. In addition, stream miles located within existing wilderness boundaries are increased over the existing condition. By altering wilderness boundaries to include hydrologic divides, aquatic habitats are expanded from the existing condition by increasing the amount of stream miles that are afforded additional protection under wilderness designation. Also, important headwater stream segments located upstream and outside of wilderness areas are afforded protection that is consistent with the protection afforded to stream segments located immediately downstream. Finally, by extending the downstream lengths of stream segments that are located within existing wilderness, aquatic biota, especially native cutthroat trout, benefit from habitat expansion and from the additional protection (e.g. MTDEQ Class I waters) afforded streams located within wilderness areas. Existing stream habitats protected for wild cutthroat trout and associated native fishes within their historic range are relatively small compared to the amount of stream habitats that support non-native fish.

Table 23. Relative Impacts between Alternatives for Recommended Wilderness

Category	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Acres of Recommended Wilderness	174,000	196,000	707,000	0	249,000	331,000

Alternative 3 would provide the protection afforded to aquatic systems through the acres recommended for wilderness. Alternatives 6, 5, and 2 would provide decreasing levels of protection. Alternative 4 would provide no additional protection as a result of wilderness recommendation.

Effects on Watersheds and Riparian Areas from Livestock Grazing

Livestock grazing can directly impact soil infiltration by trampling, soil compaction and loss of vegetation cover on both upland and riparian sites. Fecal wastes can increase bacterial concentrations in water through direct introductions into live water or riparian areas. Soil and water quality can be indirectly affected by the resulting increased soil runoff and erosion, and sediment delivery to adjacent riparian areas and streams. Impacts are often greater in riparian zones because they are preferred by livestock due to the availability of shade, water and more succulent vegetation. Over long time periods, grazing can result in increased fine sediment loads from stream bank erosion, loss of riparian habitats by stream channel widening or degradation, and lowering of water tables, though channel degradation.

Overgrazing can have detrimental effects to aquatic resources, particularly in allotments where much of the usable forage is found only in riparian areas. Grazing in riparian areas directly affects vegetation condition and habitat quality in a number of ways. Alternatively, proper livestock, wildlife, and rangeland management can mitigate the grazing impacts to riparian areas and wetlands and can be compatible with maintaining desired watershed conditions.

Long-term grazing has changed the vegetation composition of some riparian sites. Loss of willows and deep-rooted grasses makes streambanks in these sites more susceptible to natural erosive forces. Also, overgrazing by livestock and wild ungulate can reduce bank stability through vegetation removal and bank trampling, it can compact soil, increase sedimentation, cause stream widening or downcutting and often changes riparian vegetation, resulting in insufficient overhead cover for fish. Stream widening and sedimentation can reduce instream cover and habitat quality for fish though mechanisms similar to those described for vegetation removal through timber harvest or fire, but grazing impacts can be compounded by repeated yearly use of the same areas by livestock. Downcutting often leads to channel straightening and reduced stream sinuosity, which eliminates habitat for aquatic indicator species, associated with stream bends, such as lateral scour pools and undercut banks.

Watershed conservation practices and updated grazing standards designed to protect water quality and riparian areas, where needed, will be included in allotment-management plans as they are revised and updated.

For the purposes of this analysis, potential livestock grazing impacts are assumed to be proportional to the acres in active grazing allotments, as shown below. The number and type of animals permitted, as well as overall use, follows the same relative trend as the acres in active allotments.

The following table displays the range of the alternatives regarding the implementation of various grazing standards. All alternatives except Alternative 1 would provide elevated compliance standards then the existing condition. Alternatives 3, 4, 5 and 6 would provide the most protection for the key watersheds identified in each alternative.

Table 24. Comparison of Alternatives for Livestock Grazing.

Category	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Acres of Suitable Rangeland	846,000	846,000	804,000	846,000	810,000	802,000
Grazing Standards	Deerlodge NF/ Beaverhead NF /INFISH	INFISH	INFISH	INFISH Modified	INFISH/ INFISH Modified	INFISH/ INFISH Modified

Livestock grazing under any of the alternatives is assumed to have some potential for direct impact on riparian and aquatic resources. Alternative 6 has the least number of acres in active allotments followed by Alternatives 3 and 5. Alternatives 1, 2, and 4 maintain the existing number of acres in active allotments. Incorporation of Best Management practices into project level analysis will minimize the effects of grazing on aquatic resources in all alternatives. Monitoring has shown that the proper implementation of livestock grazing standards leads to improved stream conditions.

Effects on Watersheds and Riparian Areas from Minerals and Oil and Gas

Locatable Minerals

Locatable or hard rock minerals include deposits of gold, silver, copper, etc. There are approximately 1,900 active unpatented mining claims on the forest. This number represents a sharp decline since the late 1980's when there were over 10,000 such claims. Since the closure of the Beal Mountain mine in 1998, there has been very little serious mining activity on the forest. However, as a result of a long mining history on this forest, there are many abandoned mines. Abandoned mines pose a threat to watershed conditions through erosion, acid mine drainage, toxic metals, and chemical processing agents.

Existing mining operations on the BDNF are typically small and limited in number. At present, much of the mining is recreational. Recreational mining, like suction dredging, is regulated by federal mining laws and regulations, particularly when potential impacts are possible. Large increases in mining activity are not anticipated for the future, but cannot be ruled out. The 1872 mining law limits Forest Service authority over mining activities, but allows the setting of terms and conditions to minimize impacts to NFS lands. All alternatives will require remedial action and protection of soil and water resources.

Leasable Minerals (Oil and Gas)

The Bureau of Land Management (BLM) and the U.S. Geological Survey (USGS) provide oil and gas potential information for forest planning purposes. None of the lands within the BDNF has been classified as having high potential for oil and gas. There are areas with moderate potential however. Permits and leases have been issued to companies for oil and gas exploration.

All of the exploratory wells were found to be dry. Therefore, it is expected that there will be little if any new exploration in the foreseeable future.

The potential development potential for oil and gas is moderate to very low across most of the BDNF. Because of limited potential for oil and gas leasing, this issue has not been a primary concern for aquatic resources. However, protection measures for riparian and aquatic resources are important to ensure adequate protection exists in the areas that may be developed for oil and gas. Standard mitigation measures control surface erosion, protect groundwater, and ensure the safe use and storage of drilling fluids.

Risks from oil and gas well drilling include the potential for contamination by petroleum products, drilling mud, and other contaminants. Road and drill-pad construction also increases the risk of erosion and sedimentation. If exploration discovers economic quantities of oil or gas, a producing field can be developed. Effects from such a field would include more surface disturbance and potential contamination from water and oil brought to the surface.

Standard stipulations and procedures are used to protect riparian areas, stream channels, and water quality. The state of Montana and the Bureau of Land Management drilling regulations require isolation of water-producing zones as wells are drilled and before wells are abandoned. Stipulations more stringent than “standard stipulations”, such as no surface occupancy, can be applied to minimize the impacts of leasable mineral operations.

Table 25. Acres of Oil and Gas Potential within Key Restoration Watersheds by Alternative.

Alternative	1	2	3	4	5	6
Very Low Potential	NA	NA	434,000	0	139,000	150,910
Low Potential	NA	NA	284,500	0	41,000	30,030
Moderate Potential	NA	NA	67,000	0	20,000	7,190
High Potential	None	None	None	None	None	None

Effects on Watersheds and Riparian Areas from Recreation and Travel Management

Recreational impacts may include rutting, erosion, and loss of ground cover from user created roads and trails, trampling of vegetation, vegetation removal, and soil compaction of streamside and upland sites. They may be similar in type but of a different magnitude than the impacts associated with livestock grazing. Rutting may increase surface erosion associated with heavily used hiking or horse trails and off-road vehicles. High use campsites may cause root damage in trees resulting in reduced vigor and mortality. When snow packs do not provide adequate cover, over the snow vehicles can damage vegetation and cause ground disturbance.

In general, people who recreate in national forests participate in activities such as driving, horseback riding, hiking, and camping in the vicinity of lakes and streams. Protection of water quality, quantity and riparian habitat near these recreationally important water bodies is achieved through the implementation of Watershed Conservation Practices.

Recreational activities can degrade aquatic, riparian, and wetland environments. Because many existing roads, trails, developed and dispersed recreation sites in the BDNF are located adjacent to wetlands and riparian areas, or in some cases, within the flood prone areas of streams, these sites have been subjected to the following impacts: damage to and displacement of riparian

vegetation; soil compaction and soil erosion; increased rates of overland flow; sedimentation; and pathogenic contamination of potable and non-potable waters. Often, the aforementioned impacts tend to be localized, however, in areas that experience substantial recreational use, the cumulative impacts to aquatic and riparian ecosystems can be both observable and measurable.

Water quality conditions in national forest both affects and is affected by recreation activities. Recreationists are strongly advised to drink treated water only, because streams throughout the BDNF are assumed to contain the protozoan *Giardia* species and some streams may contain fecal coliform bacteria. Recreational use will almost certainly increase in the coming decades. Projected increases in recreational use are commensurate with all alternatives. Watershed conservation practices implemented to protect aquatic and riparian resources notwithstanding, impacts to these resources will likely increase given increased use because stream and lake environments will continue to disproportionately attract forest users.

Motorized and Non-Motorized Winter Recreation

These activities have relatively low potential to adversely affect aquatic and riparian resources. These categories of winter recreational use, however, are not environmentally benign. Non-motorized winter uses include cross country skiing and snowshoeing. Motorized winter uses include snowmobiling and snow cat use for research and maintenance. Clearly, damage to vegetation and soil erosion can occur if there is inadequate snowpack to protect these resources. Also, winter motorized activities can result in compacted snow which often form barriers that alter spring runoff patterns which can result in soil erosion and gullies.

Contamination by human waste and by petroleum products such as motor oil and gasoline can degrade water quality in waters adjacent to areas of concentrated use such as parking lots and snowmobile staging areas. The likelihood and magnitude of the aforementioned impacts due to these activities are dependent on site-specific factors such as average slope, aspect, elevation, vegetation, weather conditions, available facilities, and the amount of use. Because site conditions vary, and because these sites are relatively small in area and widely dispersed, it is reasonable to assume that cumulative impacts will not be measurable at the forestwide scale. Appropriately, winter activities that appear to be problematic will be identified and rectified during project-level analysis.

Improperly designed or poorly maintained roads can modify natural drainage networks and can accelerate erosion processes that result in increased stream sedimentation, degraded aquatic habitats and altered channel morphology. Road impacts generally increase as they become more connected, in terms of hydrology, to the natural channel network. Roads and their drainage systems typically act to intercept surface and subsurface runoff and route excess runoff into the channel system resulting in increased streamflow and sediment delivery to streams. In steep terrain, roads can increase the rate of hill slope failures and soil mass wasting. Fine sediments can be delivered to streams by erosion of road surfaces as well as from non-vegetated road cut and fill surfaces. Roads can impact aquatic habitats by restricting fish passage through culverts at road-stream crossings and by increasing fine sediments that can result in reduced salmonid spawning success.

Many of the aforementioned effects of roads can be mitigated by design changes that disperse, rather than concentrate road runoff and by gravel surfacing, seasonal road closures, or by designating undisturbed protective buffers along streams to allow for filtering of fine sediments.

The effectiveness of riparian buffers generally increases with increased width; however the effects of large-scale or chronic road impacts may still impact streams even when streams are protected by wide and intact buffers.

This section describes the effects on water resources from travel management. Roads associated with vegetation management and oil and gas activities are addressed in their respective discussion.

There are more than 6,100 miles of identified motorized roads and trail under BDNF management. In addition, there are numerous other roads managed by other entities within the forest boundary, including Highways and a variety of county roads. Of these motorized routes approximately 938 miles are located within 300 feet of streams. These routes provide a background level of disturbance that contributes to direct and indirect effects on aquatic and riparian resources. Trends in increased recreation are likely to continue and will accelerate these effects.

Compliance with forest plan standards including watershed conservation practices and improved road designs should minimize problems with new or reconstructed roads. However, bringing existing roads into compliance with new protection measures is a major challenge. Roads managed under other jurisdictions on private land or run across easements also contribute cumulatively, along with forest roads, to the alteration of watershed conditions.

Future road management should consider relocation or obliteration of existing roads and ways to reduce associated impacts, because road and trail effects can be greatly reduced by proper location and design. Good location keeps roads and trails away from stream channels, riparian areas, steep slopes, high-erosion-hazard areas and areas of high mass movement. Good design provides stable cut and fill slopes and adequate drainage that allows water to filter through vegetated buffers or sediment traps before entering the stream channel. Realignment of roads and trails so they traverse riparian areas and streams at perpendicular rather than parallel angles would improve the quality of riparian and aquatic habitats in presently impacted stream reaches by reducing chronic sediment sources. If relocation is not possible, seasonal restrictions would limit road damage and subsequent sedimentation.

There are both economic and ecological consequences from increased sediment derived from roads and other sources. Sediment does not dissipate and is carried through the stream system where it may affect diversion structures, reservoirs, and water supplies. It can shorten the usable life of structures or result in higher maintenance costs. Since channels are interconnected, sediment delivered to ephemeral channels moves on to perennial channels during spring runoff. High sediment loads impact stream health by reducing pool depths, filling interstitial spaces in the streambed used by macro-invertebrate life, adhering to gills of aquatic life, changing channel morphology, and damaging habitat.

Relative to the existing road network, the effects of proposed road construction under the various alternatives are minimal, because impacts are dominated by the existing transportation system. Maintenance, reconstruction and decommissioning all address the existing BDNF transportation system and are expected to influence aquatic resources more than road construction over the planning period.

The total miles of roads and motorized trails are expected to decrease under alternatives 2, 3, 4, 5, and 6. This which will benefit aquatic resources due to the decreased risk of road and trail

related sediment. Alternative 3 has the greatest potential to reduce adverse effects to aquatic resources from motorized routes, followed in order by Alternatives 5, 2, 6, 4, and 1.

Developed Winter Recreation

These sites may adversely affect aquatic and riparian resources. Maverick Mountain Ski Resort operates under a special use permit. Ski area development can lead to increased runoff and erosion through timber clearing for lifts, runs and other facilities. Ski areas and snow resorts typically remove forest vegetation from much of the area. Snowmelt runoff is increased, especially when cleared areas are compacted or snowmaking has artificially increased the snow depth. Substantial amounts of such disturbances can increase the size and duration of spring high flows. Stream channel damage can result. Ski areas and snow resorts also typically disturb soils throughout cleared areas. Erosion and sediment can result, especially from soils that are near streams, unstable, or highly erosive. Aquatic habitat can be damaged as a result. In addition, these uses can also degrade wetlands and riparian areas by draining or filling them or by altering their vegetation. Often, ski lift terminals are constructed in valley bottoms, which can cause long stretches of stream to be put in culverts, with a resultant increase in barriers to fish passage and loss of riparian and wetland habitat. These impacts often have adverse effects on aquatic and wildlife habitat. All alternatives would continue to permit the existing ski area.

Fishing

For some recreationists, fishing is the primary reason to visit the BDNF. For others, it is important, but subordinately tied to activities like backpacking, camping, and horseback riding. Streams, lakes and reservoirs on the forest provide a variety of angling opportunities in locales that range from developed sites with amenities to subalpine wilderness areas.

Hiking Trails

Hiking trails are popular among forest users in the BDNF, though trail networks and trail use can adversely impact aquatic, riparian, and wetlands environments. In addition, trail use can contribute to the propagation and distribution of pathogenic agents such as the Whirling disease protozoan, coliform bacteria, and Chitrid fungus in aquatic environments. Whirling disease has profoundly impacted trout fisheries in the western United States and chitrid fungus appears to be a causal agent in the decline of boreal toad populations in the Rocky Mountains. Other native amphibians may be impacted by the Chytrid fungus too. Finally, trails can provide relatively easy vehicle access and opportunities to those who would introduce exotic species into aquatic environments. Given the popularity of trail networks among forest users, it is reasonable to expect increasing demands by the public for additional hiking trails over the coming decades. If those demands are met, the expanded trail networks could result in the alteration and degradation of aquatic, riparian, and wetland resources.

Again, demand for a variety of recreational opportunities will continue to increase on the BDNF whether there are adequate recreational facilities to meet the increased demand, or not. If facilities are insufficient for developed recreation, then recreational use may be shifted to dispersed sites, the result of which could be additional and unregulated deleterious effects on soils, vegetation, and riparian values.

Recreational use is expected to increase in all alternatives. The direct impacts to fisheries and fishing experiences will be proportional rather than variable by alternative. Impacts on riparian and aquatic habitats from recreational travel are also discussed in the Recreation and Travel Management sections, earlier in this chapter. The magnitude and extent of motorized recreation trends have a greater effect on aquatic resources than non-motorized recreation. Therefore, recreation impacts on aquatic, riparian areas and fisheries are assumed to be proportional to the amount of area available to motorized recreation, as shown below. Using the percent of the forest available for summer motorized recreation as an indicator; Alternative 2 has the highest risk for potential adverse effects to aquatic resources from motorized recreation, followed in order by Alternatives 1, 4, 5, 6, and 3.

Table 26. Relative Impacts by Alternatives for Recreation.

Percent of motorized recreation	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Percent of the forest open to motorized recreation	75	78	46	69	60	60
Percent of the forest open to motorized winter recreation	84	78	54	84	63	61

Effects on Watersheds and Riparian Areas from Timber and Vegetation Management

Timber harvest can affect aquatic resources in a variety of ways. Harvest in riparian zones reduces streamside vegetation, which can increase annual and daily stream temperature fluctuations, reduce overhead cover, and decrease the supply of large woody material available for recruitment to streams. Conversely, logging slash and debris can choke streams and reduce dissolved oxygen levels as debris decays, creating anoxic conditions toxic to fish and other aquatic organisms. Major increases in erosion from harvested areas themselves are unusual, but the road and skid trail network associated with timber sales can increase the risk of erosion and sedimentation (see Effects from Travel Management below). Timber harvest can produce water yield increases in local streams. If 20 to 30% of the basal area is removed from a forested watershed, flow volume, peak flows, and timing may change. This is due to reduced interception loss from tree crowns and reduced transpiration loss from living trees. As trees reoccupy the site, changes to the water cycle begins to approach pre-harvest conditions.

Changes to natural flow regimes as a result of modifications to forest cover could alter stream channel morphology. Bankfull discharges have been found to mobilize and transport the majority of annual sediment loads over a period of years. Channel morphology changes as a result of forest canopy changes therefore might be expected to occur as a result of altered flow and sediment transport characteristics. Susceptibility to channel morphology changes is dependent on stream characteristics. The majority of streams on the BDNF are not highly susceptible to changes in channel morphology as a result of vegetation management since they are well armored. Harvest levels necessary to produce measurable increases in streamflow (i.e. greater than 20% of a watershed harvested) are uncommon. Forest plan standards provide a means to protect stream channels against increased flows as a result of vegetation management. Channel instability as a result of increased water yield from vegetation management is possible, but not expected to be a noteworthy issue in most areas due to the harvest levels in individual watersheds.

and the channel conditions present on most of the forest. Project specific analysis and mitigation should address channel instability as a result of increased water yield from vegetation management in the few cases where there may be concerns.

Increases in flows, changes in riparian vegetation, and impacts to streambanks from logging operations all have the potential to alter water quality, riparian health, and fish habitat in streams in watersheds where timber harvest occurs. Direct effects of vegetation removal are most likely to result in reduced overhead cover where fish can hide and rest. Indirect effects of streamside timber harvest to aquatic ecosystems could include changes to thermal buffering which could increase average summer stream temperatures or decrease average winter temperatures to sub-optimal levels.

Alterations of typical seasonal temperatures can cause material physiological stress in fish, especially during spawning and embryonic development. Other indirect effects of streamside timber harvest to aquatic ecosystems could be changes in community composition and relative abundance of aquatic biota and reductions in the abundance, distribution, and quality of spawning habitat and hiding cover due to sedimentation, embeddedness, and loss of streamside vegetation. Careful project planning and project implementation are required to ensure that vegetation management does not preclude achieving desired conditions for aquatic and riparian ecosystems or adversely affect viability of aquatic management indicator species. Extensive standards have been developed to minimize the impacts of timber harvest on aquatic resources. Implementation of effective watershed conservation practices will minimize the changes to aquatic ecosystems that could occur as a result of timber harvest.

This analysis assumes that the amount of harvest is proportional to the percentage of land suitable for timber production and there is equal risk and consequence of effects from timber harvest and related activities where allowed. In reality, risk and consequence depend on a variety of factors including the type of harvest and location relative to water resources.

A long term indirect effect of lower vegetation management levels is an increased risk of large wildfires that could consume large contiguous areas of the landscape since no harvest or vegetation treatments other than wildland fire would occur. Large wildfires could result in extensive areas with low ground cover that would be susceptible to erosion.

Table 27. Comparison of Potential for Aquatic Impacts by Alternatives, Based on Land Allocated to Vegetation Management Areas.

Aquatic Impacts	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Acres of suitable timber	676,000	346,000	0	484,000	216,000	299,000
Acres of aspen restoration	Not addressed	Emphasis	13,340 to 66,700	13,340 to 66,700	13,340 to 66,700	67,000
Riparian excluded from suitable acres (300' buffer on perennial, 150' buffer on intermittent)	No	Yes	No suitable timber	Yes	Yes	Yes
Suitable timber excluded from Key Watersheds	Not applicable	Not Applicable	No suitable timber	Yes	Yes	Yes

The risk of adverse consequences to watersheds and riparian areas increases with higher harvest levels. The potential for impacts to water resources is estimated to be proportional to the percentage of land allocated to timber management areas, and is shown below. Based on this, Alternative 1 has the highest risk of potential adverse effects to aquatic resources from timber harvesting followed in order by Alternatives 4, 2, 6, 5, and Alternative 3 would have the least risk.

Alternatives 3, 4, 5, and 6 have INFISH riparian area buffers and key watersheds that will allow less ground disturbing within the riparian area and will provide superior protection to water quality, stream channels, and riparian areas. However, effective implementation of watershed conservation practices is crucial to avoiding or minimizing impacts to aquatic species and potentially affected streams under any alternative.

Effects on Watersheds and Riparian Areas from Fire Management

Fire consumes vegetation and partially or completely removes ground cover that may or may not result in the formation of water repellant soil layers, depending upon soil temperatures during the burn and the characteristics of the local vegetation and soils. The magnitude of impact on watershed processes is dependent on physical and biologic attributes of individual watersheds and on the severity of the fire. Low severity fires have little long term effect on ecosystem functions, and in fact can be beneficial to soil and water quality by reducing fuels buildup and the potential for higher severity fires. High severity fires alter above ground vegetation, soil organic material, and litter to such an extent watershed properties, such as runoff, erosion, and sedimentation, may be outside the normal range of variability. In most of the forested areas across the forest, the natural role of fire in maintaining ecosystems has been altered by aggressive fire suppression efforts beginning in the early 1900s. This practice has provided short-term protection to local watersheds from the effects of severe fires, but it has also led to a buildup of fuels that makes the possibility of such fires more likely in the future.

Wildfire and prescribed fires and their associated suppression activities have the potential to improve or impact aquatic and riparian resources.

By burning vegetation and organic matter on the soil surface, wildfire can increase erosion rates and affect water quality. However, erosion and sedimentation following high severity wildfires is highly variable. Fire suppression efforts can increase erosion potential from fire lines constructed by heavy equipment in sensitive areas. The removal of vegetation can also increase the speed with which overland flow reaches the channel network and the amount of water added to the streamflow. In the most extreme cases, the combination of these effects can increase peak flows in burned watersheds and result in channel adjustment. When fires burn intensively through riparian areas, buffering vegetation is lost and effects on aquatic ecosystems can be severe. However, low intensity wildfire can stimulate riparian vegetation making it more vigorous over time.

Fire Management

The use of prescribed fire is a tool to treat or manipulate fuel loadings to result in desired fire behavior and effects. Prescribed fire, timber harvest, and mechanical treatments are all ways to manage fuel loads.

The effects of prescribed fire can be considerably less severe than wildfire. Because the location and severity of the fire are controlled to a greater degree, more ground cover remains and erosion potential is reduced. For example, sediment-trapping buffers can be left around stream channels to reduce the amount of sediment delivered to the stream. Entire watersheds are rarely burned by prescribed fires, which reduce the effects of changes in water yield and peak flow. Furthermore, the judicious use of prescribe fire can help to reduce the risk of uncontrolled high intensity wildfires that would otherwise burn through and damage watersheds and riparian areas.

Other fire management activities under AMR are tools to allow fire to occur within prescriptive criteria to achieve management objectives.

Frequency, size, and severity of wildfire are difficult to predict for the short timeframes. Smaller wildfires occur relatively frequently, while larger wildfires occur infrequently. Severe wildfire can have long-lasting consequences to aquatic ecosystems. Management response to wildfire does not vary between alternatives.

In addition, the area treated annually by fuel management (combination of prescribed fire and mechanical treatment) is expected to vary by alternative as shown below. Additional prescribed burning is intended primarily to improve wildlife habitat or reduce fuel loads. Increased fuel treatment may reduce the risk of severe wildfires and therefore have a positive long-term effect on aquatic conditions. In watersheds where the fuel conditions have been altered, the long-term benefits of fuel treatment to aquatic resources are estimated to outweigh the short-term adverse impacts.

Table 28. Relative Impacts Between Alternatives from Wildland Fire Use/AMR

Category	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Acres Available for Wildland Fire Use	219,000	2,251,000	3,355,000	2,385,000	2,841,000	3,355,000 (AMR)

Alternatives 3 and 6 have the greatest chance of reducing severe wildfire effects to aquatic resources followed in order by alternatives 5, 4, 2, 1. The effective implementation of Soil and Water Conservation Practices, particularly those that minimize severe burns, avoid heavy equipment in riparian areas, and distribute fire use/AMR both temporally and spatially, would be used to minimize potential effects from fire use/AMR. There would also be limited use of mechanized equipment and retardant near water in key watersheds.

Effects on Watersheds and Riparian Areas from Wildlife Habitat Management

Differences in management for wildlife habitat between alternatives are not expected to change effects to hydrology and watershed processes.

Cumulative Effects to Water and Riparian Resources

In some cases, activities on the forest can contribute to effects downstream and off-site, lists the past, present, and reasonably foreseeable future activities that were considered with regard to cumulative effects to watershed and riparian resources. An example of a cumulative effect would be the downstream contribution of sediment from activities occurring on the forest.

Unless specified differently, the cumulative effects analysis is for the period of expected plan implementation (roughly 10-15 years), and is bounded by the 5th level hydrologic unit code

watershed boundaries, which typically close within approximately 10 miles downstream from the forest boundary.

Another potential effect, not attributed to forest management, is the urbanization or development of intermixed and lands adjacent to the forest boundary. Continued development of these lands for residential purposes has the potential to affect aquatic and riparian resources. Increased runoff and sedimentation from roads, roofs, and driveways, increased use of surface and groundwater, increased use of herbicides, pesticides, and fertilizers; and increased recreation uses on adjacent NFS lands can all be attributed to urbanization. If activities on intermixed private lands approach tolerance limits for watershed disturbance, additional activities may be limited to avoid adverse and cumulative watershed effects.

The reconstruction or development of additional roads or highways within the forest boundary is another cumulative effect. There can be both short term and long term effects from this type of development. However, no new highways are currently planned within the forest boundary. As new roads are proposed, agency staff would work closely with the Montana Department of Transportation (MDOT) to minimize effects to watershed and riparian resources and implement best management practices whenever there are ground disturbing activities.

As development expands along the forest boundary, it is anticipated that the risk of noxious weed infestation will increase. The threat of noxious weeds may be one of the more significant watershed and riparian cumulative effects in the next planning period, altering riparian vegetation communities and biota with associated impacts to water quality and watershed health.

Looking past the forest boundary to consider how Beaverhead-Deerlodge National Forest management directly and indirectly affects downstream water quality, the most important considerations are the headwaters of streams and rivers. While the effects analysis showed activities on forest can affect downstream water quality, overall the water is considered 'good' where streams leave the forest. Impacts of subdivision development, roads, agriculture, and septic systems downstream from the forest boundary are considered to be more important contributors to water pollution than BDNF management activities.

Compliance with local, state, and federal water quality regulations will ensure that future management activities under any of the alternatives will continue to protect aquatic and riparian resources. High water quality will continue to be a valuable product of the Beaverhead-Deerlodge National Forest.

In conclusion, it is anticipated all Alternatives would at least maintain the status quo of riparian and watershed conditions within the cumulative effects boundary. Alternatives 3, 4, 5 and 6 would afford additional protection whereby recovery of degraded conditions could occur and thereby improve riparian and watershed conditions within the next planning period.

Aquatic Species Direct and Indirect Effects

Summary of Direct and Indirect Effects to Aquatic Species

Alternatives 3, 4, 5 and 6 provide substantially greater benefits to aquatic resources than Alternatives 1 and 2. All four provide high levels of protection and conservation direction for fisheries and aquatic TES species. This is founded in: 1) Extensive, prescriptive standards that are largely consistent forestwide; 2) Emphasizing watershed recovery and westslope cutthroat and bull trout conservation by having an adequate number and distribution of restoration and

fisheries Key Watersheds; 3) Providing protection for amphibians; and 4) Attempting to Address some of the risks posed by Aquatic Nuisance Species;

Alternative 1 is the least beneficial to aquatic species. It does the least to ensure protection of riparian areas east of the divide. It does a good job of protecting inland native fish west of the divide, and protective provisions for westslope cutthroat east of the divide are good. There is no restoration emphasis to increase the rate of attaining watershed health. The greatest long term risk to our aquatic populations is the risk of introducing aquatic nuisance species. Alternative 1 does not address this issue. Finally, it may not provide adequate direction for ensuring diversity of amphibian species across the BDNF.

Alternative 2 does a better job of protecting fisheries resources, and it recognizes the importance of amphibian breeding and larval rearing sites. Conservation of TES fish species is slightly improved over Alternative 1 although still marginal in terms of amphibian protection.

Alternatives 3, 4, 5 and 6 are all very similar with the only difference in the level of emphasis on watershed restoration. Alternative 3 provides the greatest emphasis with 78 Restoration Key Watersheds, followed by Alternatives 5 and 6 with 15. Because Alternative 4 does not identify any Restoration Key Watersheds, it would provide a slightly lower level of benefit than Alternatives 3 and 5. The reason that Alternative 6 ranks behind 5 is because it designates 1 less fisheries key watershed and there are some slight modifications to objectives and standards related to grazing and protection for amphibians.

Based on anticipated effects from multiple resource management Alternative 3 provides the greatest benefit for aquatic species followed, in order by Alternative 5, 6, 4, 2, and 1.

Effects on Aquatic Species from Aquatic Species Management

Fisheries and Aquatic Species Management

The standards and objectives in Alternative 1 are comprised of a mix of forest plan amendments and original direction from 2 separate forest plans. They provide inconsistent guidance depending on which standards apply. In addition, many of the existing standards are relatively general (non-prescriptive) and have had limited success in ensuring objectives were met.

Alternative 2 uses two different sets of standards. The Inland Native Fish Strategy implemented in 1995 would be used west of the Continental Divide. East of the Divide, a combination of the Short Term Strategy for Westslope Cutthroat from the Riparian Amendment and standards derived from reference stream conditions across the Beaverhead Unit would be used. These represent 2 fairly different management approaches that could lead to differences in the rate of accomplishing aquatic objectives. Standards east of the divide basically promote the attainment of reference conditions in streams. In theory, they are a step above “properly functioning conditions”. There are no Key Watersheds in Alternatives 1 and 2 and watershed restoration is not emphasized.

Alternatives 3, 4, 5 and 6 incorporate Key Watersheds and standards and objectives have been slightly modified from INFISH 1995 to better address current issues and concerns. The biggest differences between Alternatives 3, 4, 5 and 6 is the emphasis placed on watershed restoration. The numbers of Key Watersheds are 135, 57, 72 and 71 respectively for Alternatives 3, 4, 5 and 6. Benefits to recreational fisheries will increase or decrease with the number of Key Watersheds and the emphasis on watershed restoration. The decrease in key watersheds from 72 in

alternative 5 to 71 in alternative 6 occurred after reviewing how adequately certain watersheds met selection criteria in light of our best understanding of native fish populations. Several were dropped and others added that ultimately reduced the number by 1.

Direction in Alternative 1 is sufficient to maintain and slightly improve fisheries forestwide. Alternative 2 would increase the rate of improvement over what would occur in Alternative 1. East of the Divide desired conditions would tend more toward reference conditions than properly functioning and rate of improvement may be greater than what would occur west of the Divide. The primary weakness of Alternative 2 is the lack of a restoration program.

Alternatives 3, 4, 5 and 6 provide the most comprehensive strategy for fisheries and will provide the greatest rate of improvement, because they significantly elevate the emphasis on watershed restoration and fish conservation. The rate of improvement in these alternatives is related to the number of designated restoration watersheds, but also will be dictated by available budgets. Alternative 3 would provide the greatest benefit because it has 78 Restoration Key Watersheds. Alternatives 5 and 6 would follow because they have 15. Alternative 4 has no Restoration Key watersheds, so would follow Alternatives 5 and 6.

Based on anticipated benefits of aquatic direction on fisheries Alternative 3 provides the greatest benefit for aquatic species followed, in order by Alternative 5 and 6 are the same followed by 4, 2, and 1.

Conservation of TES Fish and Aquatic Species Management

The emphasis of aquatics management on watershed restoration and meeting viability requirements for westslope cutthroat, bull trout and provides points of difference for this analysis. Direction provided by Alternative 1 is the least beneficial, because it fails to specifically promote active restoration of cutthroat, bull trout or grayling. It does provide a fair level of protection, sufficient to encourage some rate of habitat recovery through passive means. Alternative 2 is similar in its approach, but sets a higher standard for stream and riparian (stream reference condition as opposed to proper functioning condition), where grayling and cutthroat are found east of the continental divide.

Alternatives 3, 4 and 5 all contain 57 Fish Conservation Key Watersheds. Alternative 6 has 56. This change occurred after reviewing how adequately certain watersheds met selection criteria in light of our best understanding of WCT fish populations. Several were dropped and couple others added that ultimately reduced the number by 1. This change is very small with regard to comparing alternatives. All these alternatives have management direction designed to ensure the persistence of bull trout, westslope cutthroat and grayling populations forestwide. These alternatives provide the greatest potential for meeting viability requirements of these species. The table below ranks alternatives based on the level of emphasis placed on TES fish conservation. Some Benefits to Grayling may be realized through restoration emphasis Key Watersheds.

Based on anticipated effects from aquatics management direction on conservation of TES species Alternative 3, 4, 5 and 6 provides the same amount of benefit. Alternative 2 and then 1 provide less.

Amphibians and Aquatic Species Management

The emphasis of aquatics management in alternatives 3, 4, 5 and 6 is on watershed restoration and conserving westslope cutthroat and bull trout. While direction was developed to meet the needs of native fish, there will be peripheral benefits to amphibians in those areas. Riparian and watershed health are consistent with amphibian habitat requirements.

Direction provided by Alternative 1 is the least beneficial to amphibians, because it fails to address their life history requirements directly. Alternatives 2, 3, 4 5 and 6 all include forestwide direction to help mitigate activities in breeding and juvenile rearing areas used by sensitive species, until dispersal occurs. This reduces the possibility of mass mortalities, when animals are concentrated in very small areas. Alternatives 3, 4 5 and 6 will provide indirect benefits that correlate with the number of Key Watersheds identified. Alternative 3 will provide the most benefit with 137, followed by the preferred Alternatives 5 and 6 with 72 and 71 respectively. Alternative 4 is next with 57 Key Watersheds. The difference in effects between alternatives 5 and 6 based on 1 key watershed is negligible.

Based on anticipated effects from aquatics management direction on amphibians Alternative 3 provides the greatest benefit for aquatic species followed by Alternative 5 and 6 equally. Alternatives 4, 2, and 1 provide less benefit.

Prescribed Fire

Prescribed fire treatments are only implemented when conditions are within “prescription”. This means they will occur only when environmental and fuel conditions allow accomplishment of objectives while minimizing risk of the fire escaping containment. Thus, the types and extent of effects seen with wildfire shouldn’t occur.

The environmental change from prescribed fire, most likely to negatively affect fisheries is the amount of vegetation remaining for cover. There could be confined areas where mineral soil is exposed until vegetation becomes reestablished. Because many burns are done in the spring, the time until re-vegetation occurs, tends to be short. Soil erosion and resultant deposition of sediment into streams and lakes are possible, but likely limited in scope and confined to short periods.

The extent that objectives and standards in each alternative shape project design and mitigate negative effects is the basis for this analysis. The magnitude of effect is associated with the proximity of treatments to streams and the size and intensity of the treatment. Alternatives requiring riparian vegetation buffers are the most likely to minimize effects, since most sediment will be filtered before it reaches the stream.

Table 29. Alternative Comparisons with Respect to Riparian Buffers.

Catatory	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Riparian Buffer Present	Yes	Yes	Yes	Yes	Yes	Yes
Where Buffers are Applied	West of Continental Divide	West of Continental Divide	East and West of Continental Divide	East and West of Continental Divide	East and West of Continental Divide	East and West of Continental Divide

All alternatives have the same riparian buffers, but Alternatives 1 and 2 apply them only west of the continental divide. Alternatives 3, 4, 5 and 6 are best in mitigating negative prescribed fire effects on fisheries, followed by Alternative 2, since it only has riparian buffers west of the

continental divide.

Timber Harvest

As discussed in the Effects on Watersheds and Riparian Areas (Page 222), timber harvest can negatively affect water resources by degrading water quality, changing the time and intensity of run-off, and changing the volume of in-stream flows. If harvest occurs in riparian areas, another effect is alteration of stream side vegetation characteristics. These translate to a myriad of possible negative effects on fisheries. Increased erosion from activities associated with harvest and log hauling can result in sediment deposition in streams and decreased spawning success. Channel destabilization from increased run-off intensity reduces fish habitat diversity. Excessive removal of vegetation cover along streams causes changes in daily and seasonal temperature regimes. Ultimately, any or all of these things reduce the carrying capacities of streams and result in fish population reductions.

Much of the timber harvest prior to the mid-1980s had greater impacts on aquatic systems because the methods used, the locations chosen, and mitigation implemented, gave less deference to aquatics and so, were less effective. Similar to prescribed burning, the magnitude of effect is associated with the proximity of harvest to streams and the size and intensity of the treatment. Alternatives with INFISH standards require riparian buffers, and are the most likely to minimize effects from sediment and restricts riparian harvest, unless it is beneficial to fisheries. Alternatives 3, 4, 5 and 6 are best in mitigating negative prescribed fire effects on fisheries, followed by Alternative 2, since it only has riparian buffers west of the continental divide.

Fisheries and Timber Management

Timber management is different from vegetation management in its primary objective, which is to produce commercial timber. Lands suitable for timber production are designated for growth and yield of timber. Table 1 displays differences in acres of land suitable for timber production between alternatives. Since 1987, 111,456 acres have been logged (greater than 60% canopy removal). Wisdom and Pintler ranger districts have been the largest timber producers, representing 69% of the total acres logged. The Upper Clark Fork, the Boulder and the Madison drainages contain 32% of historically logged acres. Timber harvest over the last planning cycle may have slowed recovery in some areas and caused some site-specific impacts. However, it has not reduced the quality or diversity of fisheries across the forest.

The potential to harvest the largest amount of wood from lands suitable for timber production is greatest under Alternative 1, the existing situation. While the largest number of suitable acres gives the impression that we can harvest more timber under existing plans, there is no correlation between acres of land suitable for timber production and the amount of commercial harvest that could actually occur.

In all alternatives, standards are sufficient to prevent timber harvest from occurring at an intensity and scope that would alter channel stability. Over the last planning period concerns centered on reduced trout spawning success from sedimentation and reduction in woody debris recruitment for diverse habitat.

Alternative 1 may protect fisheries if aquatic standards are interpreted literally and given deference over conflicting direction for other resources. This has sometimes been the case over the last 10 to 12 years. Unfortunately, consistent application isn't guaranteed and there remains

significant room for varied interpretations. The INFISH amendment to the Deerlodge Forest Plan in 1995 substantially improved aquatic habitat protection west of the continental divide. It didn't amend protection on the east side. Conflicts between the location of acres suitable for timber production and sensitive aquatic resources under Alternative would remain east of the Divide. Potential conflicts would continue to preclude efficiency in planning and implementation. For these reasons, Alternative 1 provides greater risk to fisheries than other alternatives.

Alternatives 2, 3, 4, 5, and 6 have no lands suitable for timber production within 300 feet of streams. This reduces the risk of measurable effects. However, aquatic standards in each of the alternatives should do well mitigating impacts. A standard in Alternative 2 requires that streams near new projects be in properly functioning condition. For projects to occur near impaired streams, no effect or beneficial effects to the fishery must be expected. If some level of impact is determined likely, the project must be deferred or redesigned to meet the standard for no effect or beneficial effect. Alternative 3 has no suitable acres, and so provides the least risk. .

Conservation of TES Fish and Vegetation/Timber Management

Risks to TES fish from vegetation and timber management follow those discussed for fisheries. However, subtle differences between protection provided in Alternatives 1 and 2, certain changes in INFISH standards and the implications of management direction for Key Watersheds warrant additional discussion.

Alternative 1 provides special protection for westslope cutthroat east of the continental divide but not west of the divide. This protection was provided through the Beaverhead Riparian Amendment (USDA 1997a) which incorporates a Short Term Strategy for Westslope Cutthroat Trout. Among other things, it requires all new timber and vegetation projects to be beneficial or have no impact on 90% or greater genetically pure WCT populations. Projects are to be moved or deferred if these conditions can not be met.

West of the divide, the original version of INFISH (USDA 1995b) was amended to the Deerlodge Forest Plan in 1995. It provides prescriptive direction through riparian objectives, standards and guidelines. These were intended to create an upward trend in habitat conditions for inland native fish. The specific nature of the standards improved protection for cutthroat and for bull trout.

Alternative 2 uses two sets of standards. INFISH would be implemented west of the continental divide. East of the divide standards similar to those from the Short Term Strategy for Westslope Cutthroat Trout would be used in combination with standards promoting reference stream conditions. These represent 2 fairly different management approaches east and west of the divide that could lead to differing rates of accomplishing aquatic desired conditions. Standards east of the continental divide basically encourage attainment of streams conditions that, in theory, are a step above "properly functioning conditions".

Alternatives 3, 4,5 and 6 provide the most comprehensive strategies for conserving westslope cutthroat, bull trout and fluvial arctic grayling, because of their comprehensive, prescriptive standards and because they identify Fisheries Key Watersheds.

In these three alternatives Standard RCA-1 was added and TM-1 was reworded. These changes may restrict certain riparian treatments that could occur under Alternative 1 using current INFISH standards. For timber or vegetation management projects to occur in Fish Conservation

Key Watersheds, they must be determined to likely have no measurable effect or a beneficial effect on cutthroat and/or bull trout populations. Suitable timber acres are excluded from these watersheds.

Alternatives 3, 5, and 6 also identify Restoration Key Watersheds which have direction emphasizing watershed restoration. Certain watersheds are both Fish Conservation and Restoration Key Watersheds. Increased emphasis on watershed restoration may result in greater conservation and restoration benefits to cutthroat and bull trout, than provided in Alternative 4.

Grayling are only found east of the continental divide. There are no special provisions for grayling in Alternative 1. In Alternative 2, where grayling are present and stream conditions do not meet stream objectives, new projects must have no impact or a beneficial impact on grayling to be implemented.

Alternative 1 may not provide adequate direction to meet long-term conservation requirements of WCT, bull trout and grayling. Management provides certain mitigation, but could maintain many habitats in varying stages of sub-optimal condition, because riparian areas are not protected at a level ensuring appropriate rates of woody debris recruitment and certain aspects of stream function.

Alternative 2 would conserve TES fish species better than Alternative 1, primarily because of the requirement (with any new project) to analyze of the potential for introducing disease or aquatic nuisance species.

Based on anticipated effects of timber harvest and vegetation management on conservation of WCT and bull trout. Alternative 3 provides the greatest benefit followed, in order by Alternative 5 and 6, the same followed by 4, 2, and 1.

Rank of anticipated effects of timber harvest and vegetation management on conservation of grayling. Alternatives 3, 4, 5, and 6 provide the same amount of benefit followed, in order by Alternatives 2, and 1.

Amphibians and Vegetation Management

Vegetation management will largely consist of reducing Douglas fir encroachment, restoring aspen and thinning lodgepole stands. Prescribed fire could impact amphibians more than other treatment methods. They are most active during moist periods in the spring and fall, when most prescribed burning is done. However, Douglas fir encroachment will occur in the uplands, thus much of the discussion above relative to upland timber harvest is applicable here. The scope, proximity and intensity of individual treatments are more important than the acres proposed for treatment forestwide.

Aspen restoration will most likely occur in wetter areas so the possibility of negative effects is higher. In alternatives with more acres proposed for restoration, there might be some increased risk to amphibians. The relationship, between effects and acres restored is complicated, since effects are likely detrimental in the short term, but beneficial over longer periods. If restoration projects aren't extensive and the intensity is moderate to low, short term effects will be low. As the number of acres treated increase and become more concentrated, impacts will likely increase. Over the long term, forest diversity provides greater benefits for amphibians. Since species like long toed salamanders depend on forested areas and use moist micro-habitats under organic litter

and downed wood for day time refuge, deciduous aspen patches may provide increased habitat availability.

Changes in species richness may be a more important measure of timber management impacts, indicating the addition or loss of representative species (Maxell 2000). We believe long term benefits from aspen restoration will often out-weigh the short term negative effects. Thus, some change in abundance may be an “acceptable consequence” of timber harvest, so long as population and species persistence is not jeopardized.

Considering all factors relative to timber and vegetation management, direction in Alternative 1, could place some amphibian populations at risk. Populations east of the divide would be most vulnerable, especially where TES fish are absent. Management direction in Alternatives 2 through 6, provide the most potential to prevent loss of populations.

In Alternatives 3, 4, 5 and 6 standards 1, 26, and 27, increase protection over Alternatives 1 and 2. The difference in direction would likely prevent implementation of some projects in RCAs, which are currently allowed and could have negative effects. Protection provided in the standards in Alternatives 3, 4, 5, and 6 are the most substantial. They seem to be the most comprehensive in addressing all aspects of amphibian habitat requirements and are nearly equal in the protection provided.

Amphibians and Timber Harvest

The effects of timber harvest on amphibians will vary depending on species requirements and the characteristics of timber harvest actions. With regard to species on the BDNF, timber harvest may have greater effects on tailed frogs and long-toed salamanders. Corn and Bury (1989) found density and biomass for tailed frogs and 3 species of salamanders were lower in streams flowing through forests harvested 14 to 40 years prior, as compared to uncut forests. Researchers in British Columbia found tailed frog densities declined with increases in fine sediment, and decreases in rubble, detritus and wood. Factors related to lower densities were more commonly associated with streams in clear-cuts than in streams with a vegetation buffer between the stream edge and clear-cuts.

Alterations in upland and riparian vegetation conditions are also important considerations. After timber harvest Demaynadier and Hunter (1997) found structural microhabitat seemed to be limiting amphibians near forest edges. They noted decreases in overall abundance and in the species of salamanders present in forests disturbed by even aged management practices. Important factors included changes in overhead canopy and ground litter cover along with availability of stumps snags and their root channels. Bury (1983) found tailed frogs were absent in areas logged 6 to 14 years prior. He also found greater amphibian numbers and biomass in old growth stands than in clearcuts.

Demaynadier and Hunter (1997) indicated most northern pool-breeding amphibians face a seasonal challenge because the period of emergence and initial emigration generally occurs during the warmest and driest time of the year. Most juveniles remain relatively close to their natal pond during their first few months following metamorphosis and emigrate significantly shorter distances than adults. Thus maintaining a relatively intact forested buffer around productive breeding pools may function as preferred cover during emigration and as primary nursery habitat for young individuals during 1st metamorphic season. It is also important to

sustain nearby complimentary habitats for dispersal and maintenance of meta-population dynamics.

Spotted frogs seem to be heavily dependent on riparian corridors for dispersal to other suitable habitats. This suggests continuity in riparian vegetation can be important for meeting life history requirements or for meta-population dynamics. Beyond riparian areas, upland corridors are also important. Dodd and Cade (1997) found movements of striped newts and narrow-mouthed toads between wetlands and uplands were non-random and suggest terrestrial buffers around pond breeding sites need both a distance and directional component to support adequate dispersal.

In certain instances, there may be benefits from timber harvest. Creation of forest openings might provide new basking or foraging sites. In certain instances, limited removal of trees adjacent to standing waters may enhance the length of time seasonal wetlands persist, by reducing evapotranspiration. It may also increase exposure to the sun, warming water temperatures and speeding the development and maturation of juveniles. This might help ensure metamorphosis from larva to adults occurs before ponds or wetlands dry up (Maxell 2000)

While salamanders and tailed frogs have experienced declines in clear-cut streams, boreal toads tend to be equally susceptible (Maxell 2000). Toads use forested areas, but their requirements are undoubtedly less dependent on specific microhabitats and microclimates provided by forested than other amphibian species.

Properly functioning aquatic systems, vegetation health and continuity in riparian areas are important for amphibians. Existing standards east of the divide prevent excessive sediment introduction into streams with high fishery values. Standards in the Deerlodge Plan are more limited in scope than the Beaverhead Plan since they only emphasize protection of bull trout and westslope cutthroat streams. Thus, protection is not afforded to all streams important to amphibians.

Acres of suitable timberland are the highest in Alternative 1 and riparian areas are included in the suitable base. Where the potential to manage for timber production in riparian areas exists, then risk is higher for sedimentation and for fragmenting riparian corridors. However, effective management decisions regarding timber harvest have largely protected the integrity of our stream and riparian systems over the last 10 to 15 years.

INFISH (USDA 1995b), as it was amended to the Deerlodge Forest Plan west of the Continental Divide, prescribes standards that preclude most timber management impacts related to sediment and riparian alteration. Direction in Alternative 2 west of the Divide is the same as it is in Alternative 1. However, Alternative 2 provides slightly more protection for amphibians, because there are no suitable timber acres in riparian areas. Alternatives 3, 4, and 5 have also excluded suitable timber acres from riparian areas.

East of the Continental Divide, Alternative 2 standards are directed at achieving “reference reach conditions” in streams. In other words, desired conditions would reflect characteristics of largely undisturbed streams and riparian areas; which, in many cases is a step above proper functioning condition. Timber harvest or vegetation management projects would not be allowed unless stream conditions were at reference condition, or unless the project would result in a beneficial effect or no measurable negative effects on aquatic habitat conditions. Direction in Alternative 2 could limit harvest activities (east of the Divide) to areas well removed from streams and allow

limited or no new road construction. It may also tend to direct activities to more pristine drainages where habitats are likely in the best condition.

Effects on amphibians from upland commercial timber harvest (i.e. outside riparian areas), could relate to the number of suitable timberland acres, but this is presumptuous. As distance from water and riparian areas increase, the potential for actions to impact individuals decrease. All of our species can travel distances that exceed riparian widths, but behavioral tendencies likely keep individuals within proposed buffers most of the time.

Boreal toads are the exception, but our current understanding is they are less affected by timber harvest than other species. Their mobility creates some risk upland harvest will negatively affect them. But it undoubtedly also provides some ability to cope with disturbance and changes to their environment, so long as the scope and intensity are not overwhelming. Some studies suggest desired habitats around breeding sites don't necessarily need to be adjoining, so long as the mobility of the species is sufficient to allow movement between them.

Project design and mitigating standards could reduce impacts to levels that are inconsequential to diversity and population integrity. For these reasons, it seems reasonable to believe the different alternatives could show no detectable difference in effects from upland timber harvest. The table below ranks alternatives based on their likely effectiveness of addressing factors that influence habitats required by amphibians.

Table 30. Comparison of Alternatives by Factors Related to Critical Habitat Requirements for Amphibians where 1 = best; 5 = worst

Factors		Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Minimizing sediment deposition in Streams	W. of Divide	3	2	1	1	1	1
	E. of Divide	3	2	1	1	1	1
Achieving/maintaining riparian integrity	W. of Divide	2	1	1	1	1	1
	E. of Divide	3	1	1	1	1	1
Achieving/maintaining desired upland vegetation conditions	W. of Divide	1	1	1	1	1	1
	E. of Divide	1	1	1	1	1	1
Maintaining upland movement corridors	W. of Divide	1	1	1	1	1	1
	E. of Divide	1	1	1	1	1	1
Overall rating		3	2	1	1	1	1

Effects on Aquatic Species from Fire Management

Alternatives were not developed around the level of Fire Suppression or prescribed burning. The level of each that will occur in any year will be dictated by seasonal conditions and available budgets. They can be considered consistent across all alternatives. Effects from fire suppression actions especially may cause some site-specific impacts to aquatic resources, but are not

expected to threaten TES aquatic species or the quality or diversity of other aquatic species or fisheries resources on a forestwide scale.

Fisheries and Fire Management

The effects on fisheries from fire use/AMR are considered comparable to those from wildfire. There is considerable discussion over whether wildfire is devastating to fisheries resources. The effects on fisheries from six large fires, which burned over 525,000 acres, between 1986 and 1994 on the Boise National Forest provide an interesting context for considering the variability of wild fire effects on fisheries.

Burton (2000) reported that all of these fires burned more severely and across larger areas than had been observed prior to 1986. Although large and hot, only 18%, on average, of a typical watershed area was burned at high intensity. Most watersheds exhibited predominantly low intensity burning, while nearly 33% of the area in an average watershed remained unburned.

Less than 5 %of the burn area experienced severe post fire floods and debris flow causing significant stream alterations. Effects tended to be relatively localized (an average of 5.5 miles in length) and non-uniform in distribution. Habitat and trout densities declined dramatically following debris flows, but typically rebounded strongly within 5 years. Post fire floods also rejuvenated habitats by delivering nutrients, transporting and redistributing sediments, and recruiting large amounts of woody debris and rock. Higher fish densities than were present before the fire, were documented.

Trout have evolved strategies to survive natural wildfire regimes at the frequency that it typically occurs (tens to hundreds of years). In many instances, even in the face of extensive high-intensity fires, extinctions of populations are spotty and re-colonization is relatively rapid.

The greatest concern over risks from fire management activities on fisheries is associated with isolated listed or sensitive fish populations. This includes westslope cutthroat, grayling and possibly bull trout in limited instances and - even though it is not sensitive - Lake trout. The majority of our fisheries have vehicle access to connected habitats and sufficient opportunities to find refuge. Declines in population densities and even extinctions have been documented from fire related effects on the aquatic environment. However, fish are also typically quick to rebound (Gresswell 1999, Burton 2000, Sestrich 2007).

The long term effects of diverse vegetation in an ecosystem produced by fire are considered beneficial for most fisheries. Current conditions may cause some fires to burn uncharacteristically because of fuel build-up, but the negative effects should typically be compensated for by the benefits of post fire processes that produce diverse vegetation.

The acres of wildland fire use vary by alternative. However, strict criteria will have to be met to allow wildfires to burn without being suppressed. The acres available are sufficiently large in Alternatives 2, 3, 4, 5 and 6 that opportunities can be considered equal. Thus, their effects should be similar. Alternative 1 allows considerably fewer acres to be available and so would be considered to have less short term impacts but be less beneficial than the others over the long term.

Conservation of TES

The effects of fire management activities on cutthroat, bull trout and grayling are the same as described for recreational fisheries above; with a couple of notable exceptions. Wildland fire use has the potential to cause extinctions in some of our WCT populations - primarily east of the continental divide. Wildland fire use may be discouraged in some watersheds, if fuel and weather conditions combine to threaten important populations. Species like migratory bull trout and fluvial arctic grayling are less susceptible to extirpation because they typically have the capability to move and avoid extreme conditions.

There is little chance that the differences in acres between alternatives are substantial enough to change the amount of wildland fire use implemented over this planning cycle. Fire management objectives and guidelines in Alternatives 2 through 6 are not requirements. However they may increase awareness of risks to aquatic resources sufficiently to provide a distinction of increased benefit over Alternative 1. On the other hand, differences between Alternatives 2 through 6 are inconsequential, when considering the number of acres that might burn forestwide.

Based on anticipated effects from wildland fire use and fuels management on conservation of WCT and bull trout Alternative 2, 3, 4, 5, and 6 effects are mitigated equally. Alternative 1 doesn't mitigate effects as well.

Amphibians and Fire Management

Wildfire has direct and indirect consequences for amphibians. Direct mortality of amphibians from fire has been documented in wetlands (Maxell 2000). Up to this point, however, there is no research on population-level effects of fire induced mortality. Species that spend the dry season in underground burrows or tunnels may be at less risk than those that use moist microhabitats under organic litter or woody debris on the forest floor. Depending on the characteristics of the fire and behavioral responses of individuals, wetlands and water bodies also might mitigate effects from temporary periods of extreme heat and changes in oxygen levels.

At greatest risk for direct mortality, might be species like the long-toed salamander. It is more likely to be associated with moist habitats above ground. Tiger salamanders and toads tend to more frequently use burrows as day time and seasonal refuges. Frogs are more often near water which might provide adequate protection.

Indirect effects of fire might be negative or beneficial. In the short-term fire might reduce overhead forest canopy, leaf litter, downed woody debris and other things that create moist microhabitats favorable for amphibians. Sediment introduction into streams and channel instability can alter or eliminate desired stream features. Creation of sterile soils can limit re-vegetation and associated insects and other foods that amphibians forage for.

The positive indirect effects of fire might include creation of openings that provide basking and foraging opportunities. Fire might open wetlands to an earlier successional stage, enhancing the life of the wetland. Removal of trees adjacent to wetlands might allow more sunlight which warms the water, accelerating maturation of tadpoles. Where ponds and wetlands are seasonal, this might ensure metamorphosis into adults occurs before the pond or wetland dries up (Maxell 2000).

The number of acres proposed for wildland fire use increase dramatically in all action alternatives, over what is currently available in Alternative 1. The only assumption that can be

drawn from the table is that there is greater likelihood that some wild fires will not be suppressed in Alternative 3 than in Alternative 5. The likelihood this would occur with any frequency is low. During the last 15 years, policies in BDNF wilderness areas have resulted in less than 100 acres burned under this management guidance.

This analysis presumes wildland fire use will promote patchiness in forested environments and vegetation which are closer to natural historic conditions. These conditions are likely beneficial for amphibians and should outweigh the short term negative impacts.

Alternative 1 has the least potential to provide vegetation conditions that promote healthy amphibian populations, because it continues to promote large-scale, intense fires that are likely to burn over large areas and have a greater chance of creating monotypic forested conditions. It increases the risk amphibian populations may become isolated or lost within drainages.

As noted above, the differences between Alternatives 2 through 6 are inconsequential, considering the number of acres that might burn forestwide, since the opportunities for wildland fire use are so narrowly confined.

Effects on Aquatic Species from IRAs and NWPS Additions

Wilderness recommendations will generally benefit fisheries, threatened, endangered and sensitive fish and amphibian species, since travel and many management actions will be restricted in proposed wilderness areas. Benefits generally coincide with the total acres recommended by alternative. Thus, Alternative 4 would have the fewest benefits, increasing in order by alternatives 1, 2, 5, 6 and 3.

There are no effects of wilderness recommendations on grayling because they are not present in any of the areas recommended. Potential benefits to TES fish will primarily occur with westslope cutthroat.

Effects on Aquatic Species from Livestock Grazing

Fisheries and Livestock Grazing

Suitable rangeland occurs over most of the forest and varies little between alternatives (Table 1). Thus differences in effects between alternatives are relegated to the management prescribed in objectives and standards and the effectiveness of implementation.

Over the last 8 years, the BDNF has been successful in promoting riparian recovery in many areas. However, challenges in achieving consistent recovery across the forest remain. The difficulties are at least partially founded in achieving the fine balance between promoting riparian and stream recovery while avoiding unnecessarily restrictive management. This causes managers to attempt to define that line where livestock use can be maximized and recovery still occurs.

Unfortunately managing cows can't often occur with the precision this line requires. Inherent expectations are that standards will always be met. This allows little room for problems created when a gate is left open, or a fence fails, or atypical movement patterns occur during drought.

Monitoring shows some streams are recovering, since the Beaverhead Riparian Amendment was implemented in 1997. Others appear not to be recovering. The data also indicates there is failure to meet standards about 20% of the time. Unfortunately, we don't know whether meeting

standards 5 out of 5 years is necessary on certain streams for recovery, or if we promote improvement for 4 years, whether 1 year of failure is acceptable. We haven't determined what it takes to lose the strides that are gained over several years of successful implementation.

The current standards (Alternative 1) are sufficient to promote recovery in riparian and stream systems. The similarity in grazing standards in all alternatives will promote about the same rates of recovery. The general trend of riparian conditions across the BDNF should be up. This analysis assumes there will be a rate of non-compliance similar to what has occurred over the last 10 years, unless budgets allow increases in range staff for monitoring. Based on this, there will be grazing impacts to fisheries across the forest, but they will tend to be localized.

Conservation of TES Fish and Livestock Grazing

The effects of livestock grazing on cutthroat and bull trout are the same as described for recreational fisheries above; with a couple of notable exceptions. Roberts and White (1992) demonstrated that humans walking on trout redds can cause substantial mortality to eggs and fry in spawning gravels. They suggested livestock would have similar effects if they walked on redds. Magee (1993) suggested cattle might be causing WCT mortality, when he noted an abundance of cow tracks in the stream bottom, while documenting redd distribution in the Cache Creek drainage in southwestern Montana. Bowersox (1998) confirmed redd trampling was occurring in the Cache Creek Drainage in 1994 and 1995. Biologists on the BDNF have also documented the probability livestock are trampling WCT redds. To help address this issue, guidance was added to Alternatives 3, 4, 5 and 6 to help protect redds where trampling might threaten important TES fish populations. Protection afforded in Alternative 6 is slightly less than in Alternatives 3, 4, and 5.

Alternatives 3 through 6 also have a standard in fish conservation key watersheds requiring action taken when non-compliance occurs with livestock grazing. Alternatives 1 and 2 are similar in the estimated effects from grazing.

The effects of livestock grazing on grayling are the same as described for recreational fisheries above. Grazing management in the Ruby River and the Big Hole River drainages are sufficient to promote stream and watershed recovery, to benefit grayling. The recovery rate will be commensurate with other fisheries on the forest.

Amphibians and Livestock grazing

The threat livestock grazing presents to amphibians varies and is site-specific. There is some indication western toads may seek disturbed areas. Maxell (2000) indicated some level of grazing disturbance, is potentially beneficial to toads, so long as it isn't excessive enough to alter water tables or important vegetation characteristics. Thus, a "managed level of disturbance" achieved through livestock grazing may be desirable.

Livestock grazing effects on amphibians largely depend on the extent of livestock use of forage and the level of change in riparian conditions. In certain areas, grazing may open up basking areas important for amphibians (Maxell 2000). Removing most of the ground cover necessary to maintain desired micro-habitat conditions and destabilizing stream channels can cause substantial impacts.

Grazing standards for all alternatives are generally equal in promoting stream and riparian recovery. Maxell (2004) indicated approximately 3% of habitats in and around the BDNF, had been impacted by ungulates to a level that would reduce suitability of the sites for amphibian use. Forage use levels may be less consistent in maintaining desired vegetation conditions for amphibians. However, rotation between allotment pastures and uneven patterns of use should allow amphibian movement between areas to reduce impacts of grazing on vegetation needed for cover.

Of greater concern are factors that create high levels of mortality while amphibians are concentrated at breeding and juvenile rearing sites. Livestock trampling can cause the deaths of thousands of juvenile boreal toads.

Alternatives 2, 3, 4, 5 and 6 have guidance which mitigates activities at known TES amphibian breeding sites until dispersal of metamorphosis occurs. Alternative 6 provides slightly less protection than Alternatives 2 through 5. Direction in all the action alternatives should help mitigate mortality from trampling where/when there are known areas with high concentrations of TES individuals.

Standards defined in all alternatives are adequate to recover streams and riparian areas. Alternative 3, 4, 5 and 6 all incorporate grazing standards similar to those currently used under Alternative 1. Alternative 2 grazing standards east of the divide are focused primarily on stream systems and lack emphasis on recovering riparian areas around lakes ponds and seasonal wetlands.

Alternative 1 is the least protective for amphibians and may sometimes impact TES amphibian breeding populations on the forest. Alternatives 2 through 6 are similar in their effects on amphibians.

Effects on Aquatic Species from Minerals and Oil and Gas

Fisheries and Oil and Gas Leasing

There are no special stipulations for Fisheries. Oil and gas leasing and development could result in site-specific impacts to fish populations, primarily due to vegetation changes and roads related to development sites. The level and extent of development will largely be determined by economic cost benefits, which cannot be predicted. Protection is adequate to prevent extensive impacts to aquatic systems. Effects should be localized and should not be realized forestwide.

Conservation of TES Fish Species and Oil and Gas Leasing

The Stipulations for oil and gas leasing apply only to WCT and fluvial arctic grayling populations on the Beaverhead portion of the forest. The stipulations displayed in Table 71, and described in detail in the stipulation package in Appendix B, are common to all action alternatives and are consistent with the intent of the Oil and Gas Record of Decision (USDA 1996a). Substantial improvements in our understanding of where WCT occur on the forest, their distributions in individual stream systems and genetic their genetic status have allowed us to establish a strategy to ensure viability will be maintained across the forest. This was accomplished through establishment of fisheries key watersheds and extending INFISH management direction to include FS lands east of the continental divide. Direction for Oil and Gas leasing should not prevent our ability to maintain viable populations, through direct or

cumulative effects. Direction is consistent with conservation requirements for WCT and grayling.

The decisions made for oil and gas leases in the 1996 Oil and Gas EIS Record of Decision (USDA 1996a) identified stipulations that would provide adequate protection for sensitive westslope cutthroat trout and arctic grayling. The stipulations listed in the table below represent the translation of management direction in the Oil and Gas Decision into alternatives 2, 3, 4, 5 and 6 in this FEIS.

We believe, the effects of management based on translation of these stipulations are consistent with the original findings and do not change the accuracy of the effects analysis in that Oil and Gas document.

Because a conservation plan for westslope cutthroat had not been developed when the decision was signed, protective stipulations were conservatively provided for all cutthroat populations greater than or equal to 90% genetically pure. Since then, populations which are the foundation of cutthroat conservation and restoration efforts on the BNDF have been identified as conservation populations through a range-wide status review. These populations are primarily 99-100% genetically pure populations. Thus, the protection afforded sensitive cutthroats in alternatives 2-6 apply only to conservation populations. Also since the oil and gas decision was made, grayling have been introduced into the upper Ruby River. The protection provided grayling have been expanded to include the portion of the River that is occupied by grayling.

Table 31. Beaverhead Unit Oil and Gas Stipulations for Fish Conservation Key Watersheds, WCT Conservation Populations, and Certain Streams Containing Fluvial Arctic Grayling

Oil and Gas Stipulation	Scale for application of Oil and Gas Stipulations	Location Where Special Oil and Gas Stipulations are applied
No Surface Occupancy (NSO)/Controlled Surface Use (CSU)	6th code HUCs; Stream Reach /	Fish Conservation Key watersheds, NSO; Conservation populations outside of Key Watersheds, CSU
Controlled Surface Use (CSU)	Stream Reach,	Buffer Ruby river, trail creek, etc, as per O&G EIS, pps II-13, II-14

Amphibians and Oil and Gas Leasing and Development

There are no special stipulations for amphibians. Oil and gas leasing and development could result in impacts to amphibian populations, primarily due to displacement and disruption of vegetation characteristics around development sites. The extent of impact will depend on the level and extent of oil and gas development. Since this is related to economic cost benefits this is not very predictable. Protection is adequate to prevent extensive site-specific impacts to aquatic systems. Effects should be localized and should not be realized forestwide.

Effects on Aquatic Species from Recreation and Travel Management

Fisheries and Recreation

Increased recreational use of the forest is expected. We assume laws and regulations are adequate to prevent over-exploitation of fish populations through angling. Habitat alteration from recreational camping and day use sites might cause some site-specific impacts, but should not be extensive enough to measurably limit populations.

Increases in recreational visitors increase risks to aquatic communities. The greatest threat from recreation is introduction of aquatic nuisance species. These species include any non-native plant or animal species and disease which threaten the diversity or abundance of native species, the ecological stability of infested waters, or commercial, agricultural, or recreational activities dependent on such waters.

The Montana Aquatic Nuisance Technical Committee (2002) identifies over 70 species in this category. Some, well known in Montana, include the New Zealand mudsnail, curly-leaf pondweed, whirling disease, and non-native fish. While non-native fish like brook, brown and rainbow trout are desirable in many locations, there are places where they are not. An environmental assessment by the MTFWP is now required before fish introductions can legally occur.

Most of the pathways of introduction and spread of aquatic nuisance species are related to human activities, both accidental and intentional. The New Zealand mudsnail and whirling disease can be accidentally transported and spread by way of recreational boats and wading boots. Currently whirling disease is been documented in over 95 bodies of water, with severe infections occurring in the Madison River and Rock Creek, among others. Often there are few if any acceptable controls available once they become established.

Many aquatic nuisance species fish introductions result from individuals releasing aquarium fish into streams and lakes, with little thought given to possible effects. At least 20 percent of illegal fish introductions documented by FWP have occurred in the past ten years. In total there have been more than 400 unauthorized fish introductions in waters across the state, involving 49 species of fish.

Alternatives that increase vehicle accessibility and use will be presumed to pose a greater risk to fisheries. Differences in motorized and non-motorized areas by alternative are discussed below.

Fisheries and Travel Management

Roads and trails are arguably the most widespread source of disturbance to streams and watersheds of the Beaverhead-Deerlodge NF. Impacts are generally related to their proximity to streams, the passage capabilities of stream crossings and road densities in watersheds.

There are around 6000 miles of classified system roads on the forest. About 19% are within 300 feet of a perennial stream. Impacts range from virtually none to substantial disruption of hydrologic processes necessary for maintenance of fish habitat. The total number of stream crossings has not been accurately counted. However data suggest a high percentage of culverts are functioning as barriers to fish passage. Out of three hundred and eighty crossings recently surveyed, three hundred and five appear restrict movement of juvenile and/or adult trout.

Road densities are mostly moderate to low, 44% of the forest has no roads. Twenty-four percent has a road density of less than 1 mile per square mile. Only 12% exceeds road densities of 2.0. Even though Alternative 1 provides the greatest latitude for increased motorized use, a net increase in roads and trails is not presumed for any of the alternatives. From 1992 through 1996, 18.1 miles of road were built. From 1999 through 2004, 2.1 miles were built. 1997 and 1998 data were not summarized in monitoring reports and so are not immediately available. However, the miles of constructed road would likely fall within the range established from 1992 to present - and tend toward the 2.1 miles built over the last 6 years.

Projected budgets and road building trends from the last 14 years suggest the amount of new road constructed will be minimal. Although the prescriptive standards in Alternatives 3, 4, 5 and 6 would tend to be most protective, standards and BMPs in all alternatives should minimize risk to aquatic systems from newly constructed roads.

All action alternatives propose non-motorized allocations of land that will likely result in more miles of road closed than can be constructed over the life of the Plan. The difference in effects between alternatives, then, is most closely aligned with reductions in road miles and the level of emphasis placed on watershed restoration (which would address watershed impacts from roads). Alternatives with greater reductions in roads have a higher likelihood of reducing stream impacts. Alternatives with the higher number of Key Watersheds represent the greatest emphasis on restoration.

Alternative 1 maintains the highest miles of motorized roads and trails and lacks direction that emphasizes restoration. Alternative 3 proposes the greatest reduction in summer motorized use of roads and trails (491 and 556 miles). Alternatives 2, 4, 5, and 6 reduce motorized use of roads in the summer by 106, 35,144, and 104 miles respectively. They reduce motorized trail use in the summer by 136, 42,193 and 200 miles.

Alternative 3 also has the highest restoration emphasis (135 Key Watersheds) of any alternative. It is followed, in order, by Alternatives 5 with 72, Alternative 6 with 71, Alternatives 4 with 56 and Alternative 1 with 0.

The restoration emphasis in Alternatives 3, 4, 5, and 6 will most effectively reduce impairments caused by roads and trails. They outline an evaluation and prioritization approach that should maximize benefits of watershed scale restoration efforts.

Conservation of TES fish and Recreation and Travel Management

The effects recreation and travel management can have on TES fish are the same as described for fisheries. The risk of aquatic nuisance species introduction in native fish populations has some correlation with vehicle accessibility. Vehicle access typically must be considered along with other factors like: 1) type of gear recreationists use that might lead to inadvertent transport and introduction (live-wells and water intakes in boat motors can sustain zebra mussels for some time; or felt soled waders that can transport and introduce spores of whirling disease); 2) Waters recently visited by recreational users that could contain species considered to be aquatic nuisance species; and 3) disagreement over management of specific waters for certain species. Individuals sometimes choose to illegally introduce a species.

Alternative 3 closed summer motorized vehicle access to about 20 miles of stream occupied by bull trout followed by Alternatives 2 and 5 and 6 (around 10 miles each) and Alternative 4 which closed about 6 miles. However, all populations of bull trout extend to areas with motorized vehicle access on and off the forest. Thus, benefits to bull trout from travel restrictions are more cosmetic than substantial.

Similar to bull trout, changes in vehicle accessibility to conservation populations of westslope cutthroat were evaluated. Alternative 2 reduced motorized vehicle access to part of the streams occupied by 33 conservation populations of WCT. This increased to 63 populations for Alternative 3, and then decreased to 36 populations for Alternative 5 and 6 and 25 populations for Alternative 4. Of 20 conservation populations that exist entirely on forest and in drainages

where motorized vehicle access would be reduced by one or more alternatives, 17 saw virtually no - or very limited- change in vehicle accessibility. Alternative 3 restricted motorized vehicle access to the entire lengths of stream occupied by 3 of the 20 populations. Thus, reduced risk of aquatic nuisance species introduction from decreasing motorized vehicle access in the action alternatives is slight.

Alternatives 3, 4, 5 and 6 contain an objective in Fish Conservation Key Watersheds that promotes completion of assessments to determine impacts to WCT and bull trout populations. From these assessments it directs development of a list of restoration actions along with anticipated completion dates. This should function as a catalyst for restoration activities.

Closed roads and trails in Key Watersheds should help clear the way for remediation to occur under the new plan. Alternative 3 would result in restricting summer travel over approximately 700 miles of motorized roads and trails in Fish Conservation Key Watersheds. This decreases to about 190 miles in Alternative 5, around 170 miles in Alternative 6 and 63 miles in Alternative 4. Where summer motorized travel restrictions occur, restoring fish passage should be much cheaper since some road crossing structures may not have to be replaced, and can simply be removed. Removing most of the financial limitations should lead to a faster rate of obtaining watershed and fisheries objectives there. Where sedimentation and other factors are influencing streams, the restoration emphasis of Alternatives 3, 4, 5 and 6 will help us more efficiently meet a broader range of restoration goals.

Alternatives 3, 4, 5 and 6 provide the greatest insurance for conservation of westslope cutthroat and bull trout. This is primarily because of the identification of Fisheries Conservation Key Watersheds, the added protection provided, and an increased emphasis on active restoration.

Alternative 3 through 6 provide the same amount of protection for grayling followed by Alternative 1.

In terms of aquatic nuisance species Alternatives 2 through 6 provide increased protection over Alternative 1 because of the standard that evaluates risk of undesirable introductions.

Amphibians and Recreation

Campground facilities and dispersed camp sites may alter an area's suitability for amphibian use or might fragment movement corridors which influence meta-population dynamics and/or population dispersal characteristics. Developed and dispersed recreation sites are abundant on the BDNF. Most are located in riparian areas, but are almost never of a size or frequency in one area to influence notable lengths of stream.

At most sites, sediment introduction into streams from exposed soil is not substantial, since sources usually consist of a foot trail or two leading to the stream. Roads to dispersed sites can pose sedimentation problems, but seem to be relatively uncommon. Thus, aquatic habitat alterations from recreation sites seem not to be a major issue for amphibians at this time.

Amphibian mortality may increase around campgrounds and recreation sites, since they are at increased risks from human handling and family pets (Maxell 2000). While some mortality undoubtedly occurs, it also seems reasonable many individuals would disperse to areas with fewer disturbances.

The level of migration corridor fragmentation from campgrounds and campsites should be limited. Movement and dispersal capabilities are not lost in most cases. Many sites are on only one side of a stream, leaving the opposite riparian area largely intact. Further, important habitats don't need to be adjoining, so long as the mobility of the species is sufficient to allow movement between them. The potential for population level impacts from recreation sites at their current abundance and distribution is not substantial.

A greater risk to amphibians from recreation is the introduction of aquatic nuisance species and diseases. The American bullfrog is considered a major competitor with some of our native amphibian species. They originated from mid-west and eastern states, but were introduced into the Bitterroot Valley sometime prior to 1968. They are now found through out a substantial portion of the Clark Fork River drainage (not necessarily on BDNF lands) and continue to be illegally introduced into new areas in Montana (Maxell 2000)

Chytrid fungus is suspected of being the cause of declines in boreal toads and northern leopard frogs (Maxell 2004). Tissue samples collected recently, documented the presence of chytrid fungus in Montana. Thirty-eight percent of samples representing 4 species were infected with the fungus. Interestingly, samples from 30 museum voucher specimens representing 3 species collected in the 1970's all tested negative.

While chytrid fungi are known to have always been present in the environment, they have not been known to be parasitic to animals. We are unsure how chytrid fungus persists in the environment or how it is transmitted. Concern regarding inadvertent spread of the fungus by humans is great enough that researchers are encouraging decontamination of clothes and gear when traveling between waters; and discouraging translocation of individual animals. Thus, risks would seem to increase with increased levels of water-related recreation.

Amphibians and Travel Management

Movement barriers can be a problem for amphibians which depend on annual migrations between breeding sites and upland home ranges. Research from DeMaynadier and Hunter (1995) suggests wide roads may limit upland home-range movements by salamanders, but were less likely to restrict frogs and toads. They concluded a 12 meter wide road could still allow adequate movement to prevent isolation of salamanders. Based on these findings, there are few, if any roads on the BDNF that would isolate amphibians. Effects are most likely cumulative based on direct mortality.

Vehicle related deaths are also a consideration. A study in Germany (Kuhn 1987 as cited in DeMaynadier and Hunter 1995) demonstrated that road use levels of 24 to 40 cars per hour was sufficient to kill a substantial number of migrating toads. Risks to toads and other amphibians will also increase with road density.

Recreational use levels on most roads are substantially less than reported in research done by DeMaynadier and Hunter (1995). Current road densities and dispersed recreation sites seem compatible with sustaining amphibian populations. However, alternatives that address summer motorized travel could reduce vehicle caused mortalities in proportion to the miles of road and trail with restrictions. Total miles restricted are highest in Alternative 3, followed by Alternatives 5, 6, 2, and 4 respectively. No alternative directly promotes substantial road development.

Mitigation that addresses recreation varies between alternatives. Alternative 1 does not address amphibians directly and so provides the least protection. Amphibian populations could be threatened under this Alternative, depending on growth and recreational site development over the next planning cycle.

Mitigation in Alternative 4 may most effectively limit negative effects from recreation. It protects individuals at breeding sites until dispersal has occurred. It contains a standard requiring evaluation of the potential for aquatic nuisance species introduction from new projects. It also requires that recreation facilities - including trails and dispersed sites, avoid adverse effects on sensitive aquatic species (which currently includes boreal toads). Alternative 5 provides the same protection east of the Continental Divide as Alternative 4. But west of the Divide standard RM-1 only requires that recreation facilities avoid adverse effects on inland native fish. It does not extend protection to sensitive aquatic species. This establishes slightly less protection for sensitive boreal toads and creates slight inconsistencies.

Alternative 3 is consistent in its direction forestwide, but again, standard RM-1, fails to extend protection to sensitive aquatic species. This provides slightly less protection for sensitive boreal toads than Alternative 4.

Alternative 2, under INFISH standards establishes RCA widths west of the Divide which will ensure recruitment of woody debris on the ground for terrestrial habitats. Formal RCAs are not established east of the divide, which could result in habitat reductions in certain areas. Forestwide protection is provided at breeding sites until dispersal occurs.

Where motorized travel is restricted the risk of vehicle related mortality is lower and is presumed beneficial for amphibians. Travel restrictions will likely also reduce the level of use in an area and reduce risks of introducing aquatic nuisance species or disease. Winter travel restrictions do nothing to reduce negative effects on amphibians. Thus, relative to motorized travel, Alternative 3 would be most beneficial; followed in order by Alternatives 5, 2, 4, and 1.

Summarized Comparison of Recreation and Roads Effects on Amphibians by Alternative

Table 75 below summarizes comparisons of Alternatives, based on effects that Recreation and Roads could have on Amphibians

Alternatives 3, 4, 5 and 6 are similar in the projected effects they will have on amphibians. Alternative 4 may be slightly better than the others even though there were not substantial reductions in summer motorized travel. This difference and others between 3, 5, and 6 may be minor. Broader protection offered through Alternative 4 standards and objectives tend to outweigh risks presented through the level of allowed motorized travel. These same considerations were used in ranking Alternative 5 slightly higher than Alternative 3.

Table 32. Ranking of Alternatives, East and West of the Continental Divide, based on protection provided against recreation and road related effects on amphibians (1 = best; 5 = worst).

ALTERNATIVE		1	2	3	4	5	6
Protection from Introduced species and Disease	E. of Divide	None	None	1 tied	1 tied	1 tied	1 tied
	W. of Divide	None	None	1 tied	1 tied	1 tied	1 tied
Protection from Developed	E. of Divide	5	3	2 tied	1	2 tied	2 tied

ALTERNATIVE		1	2	3	4	5	6
and Dispersed Camping	W. of Divide	5	3	2	1 tied	1 tied	1 tied
Road related effects		6	4	1	5	2	3
Overall Rating		6	5	4	1	3	2

Effects on Aquatic Species from Timber and Vegetation Management

Vegetation management consists of actions that promote desired vegetation and ecological conditions. Common actions include reducing conifer encroachment reduction, and aspen restoration. Tools to meet resource objectives may include prescribed fire, and timber harvest. Commercial timber products may be a result of vegetation management, but will not provide the impetus for projects.

Stream systems are inextricably linked to landforms and vegetation. There may be long term benefits to fisheries from increased diversity of vegetation, like stream productivity, and more sustainable ecological conditions. However, it is unlikely these effects can be evaluated within the life of this plan. Whether vegetation management projects have more immediate beneficial or negative effects will most likely depend on issues driving them.

If protecting urban interface is the primary purpose for a project, benefits to fisheries wouldn't be a design consideration, and mitigation would be required to minimize impacts. Mitigation would likely be limited to aquatic direction in the forest plan. On the other hand, if conifers are replacing willows or aspen in a riparian when aspen or a willow-shrub community is desired to maintain fish habitat characteristics, the project would be designed around benefits to fisheries. In this case, options for design and implementation would be driven by improvements for fisheries. Additional mitigation, beyond forest plan direction, may well be incorporated.

Since mitigation is more important for projects driven by other resource needs, alternative comparison is based on their potential to minimize negative effects to aquatics.

Effects on Aquatic Species from Wildlife Habitat Management

The effects of wildlife management effects on aquatic species, is primarily related to management of road densities. Alternatives that encourage lower road densities are generally considered beneficial for watershed health and stream condition. Alternative 3 offers the lowest average road densities at 1.0 mile per square mile. They increase to 1.5 in Alternative 2, and 2.5 in Alternative 4. Road densities vary by area in Alternatives 5 and 6, and so the benefit to fisheries would be determined more site-specifically by area.

The effects of wildlife management effects on TES fish species, is primarily related to management of road densities. Effects would be the same as those described above for aquatic species.

The effects of wildlife management effects on amphibians, is primarily related to management of road densities. The effects are associated with both stream health, and vehicle related mortalities. Alternatives that encourage lower road densities will generally be of greater benefit for amphibians. Alternative 3 offers the lowest average road densities at 1.0 mile per square mile. They increase to 1.5 in Alternative 2, and 2.5 in Alternative 4. Road densities vary by area in Alternatives 5 and 6, and so the benefits to amphibians would be determined more specifically by area.

Watershed and Riparian Area Cumulative Effects

Precipitation falls on all parts of a watershed and water flows over and through the soil mantle throughout the watershed on its path to stream channels. Consequently, aquatic resources are influenced by all the activities in the watershed and are an excellent indicator of cumulative effects.

Nearly all activities proposed have the potential to affect water resources and indicator species that rely on aquatic and riparian habitats. Activities that disturb the soil surface have the greatest potential, and the risk of adverse effects increases, as the disturbance is located nearer stream channels. Watersheds whose physical, chemical or biotic function is at risk were discussed previously (Affected Environment, Current Aquatic Conditions). These watersheds may be near their capacity to assimilate further impacts, or may need remedial action to reverse downward trends in watershed condition.

In some cases, events can contribute to measurable effects far downstream. An example is the effect of water depletions from water development on the forest. The urbanization of intermixed private lands is one example. Continued development of these lands for residential purposes has the potential to affect aquatic and riparian resources. Increased runoff and sedimentation from roads, roofs, and driveways, increased use of surface and groundwater, increased use of herbicides, pesticides, and fertilizers; and increased recreation uses on lands adjacent to the BDNF can all be attributed to urbanization. If activities on intermixed private lands approach tolerance limits for watershed disturbance, additional activities on the forest may be limited to avoid adverse and cumulative watershed effects.

Cumulative effects to aquatic and riparian resources will be managed through a three-pronged approach:

1. Apply appropriate watershed conservation practices to all activities and monitor their implementation and effectiveness.
2. Limit surface disturbance in watersheds and controlling the location of those disturbances so that the ability of the watershed to assimilate effects is not exceeded, riparian values are protected and enhanced, and the viability of aquatic populations is ensured.
3. Schedule and implement watershed and aquatic ecosystem rehabilitation measures in those watersheds that may be near or over tolerance levels.

This approach will be used to manage direct effects of existing and proposed management activities so that the overall physical integrity of aquatic and riparian ecosystems and habitats they provide is not compromised in a cumulative way. The same approach will presumably also reduce the indirect effects of management activities on the biological integrity of these ecosystems.

Past, Present, and Reasonably Foreseeable Actions

This section describes the past, present, and reasonably foreseeable actions that may have an affect on water quality. These actions include forest management actions, land use and water management in areas adjacent to the forest, and land use development, population, and recreation trends, and state and local government environmental protection programs.

The management activities on the forest that may affect water quality are: roads and vehicle access management, timber harvest/vegetation management, recreation, livestock grazing, hardrock mineral development, oil and gas activities, fire management/fuels treatments, and water developments.

Several activities have improved soil and water conditions through road and travel management. Most forest roads maintained on an annual basis are main vehicle access roads and those that have the most use. Several roads have been moved out of riparian areas or decommissioned, and culverts installed in several stream channels where ford crossing are causing sedimentation. During the last several years, many roads that are graded have had new surfacing such as gravel or oil put on them to reduce the rate of road deterioration and has reduced the rate of erosion from the road surface. The maintenance and decommissioning of roads are expected to be at similar or slightly increased levels based on experienced budget levels. Travel plans identify roads to remain open, roads to be close and decommissioned. A variety of timber harvest treatments have been used in the past and most harvest units are fully stocked. Since the 1940's, a variety of treatments have been used and include clearcut, partial cut, selection cut, shelterwood, and aspen release. Although there are some small areas, such as stream crossing, where small amounts of sedimentation occurs, at present, overall water quality has not been seriously impacted from past harvest activities.

Many recreation projects have been completed to improve water quality and protect or rehabilitate soils. During the last planning period, many developed recreation sites have been improved by placing asphalt over gravel roads, putting cement pads in campsites, moving restrooms away from streams, and installing new restrooms. Hiking and biking trails have been relocated away from streams and wet areas, and bridges have been constructed across streams to protect water quality and aquatic resources. During developed recreation site reconstruction and maintenance in the last planning period, the location of campsites and restroom facilities have been adjusted for the protection of wet areas, improvement of soil productivity and water quality. These soil and water conservation measure are expected to continue in the future.

During the last planning period, off highway vehicle (OHV) and all terrain vehicles (ATV) use has increased greatly on the BDNF. OHV use is expected to increase along with improper use of designated trails that may adversely affect soil and water resources. Unauthorized OHV use commonly occurs in areas alongside designated roads and trails because of immediate vehicle access to the areas.

Although livestock acres have not changed much during the last planning period, the actual animal numbers have dropped dramatically. New grazing standards were implemented to manage livestock and improve soil and water quality conditions within allotments. Many exclosures have been built along riparian areas that have kept livestock from trampling stream banks and have increased the overhanging vegetation along the streams. In the future, it is expected that additional guidelines will address effects such as stream bank trampling and will reduce adverse effects to soils along stream channels and improve water quality.

Abandoned mine clean up activities have improved soil and water conditions in specific areas on the forest and future activities have the potential to further improve water quality.

Past oil and gas exploration and development activities have had a very small impact on soil productivity and water quality. Soil and water conservation practices that were applied to these activities have been very effective in controlling erosion and sedimentation.

The BDNF has approximately 1,000 miles of streams on the 1996 303(d) list. For those streams not currently meeting water quality standards, specialists are working with state specialists to determine the causes of water quality impairment.

Lands within forest watersheds host a variety of land use activities. This area is diverse in terms of naturally occurring landscapes and land use practices. High mountain areas are used extensively for a broad variety of outdoor recreational purposes and the production of agricultural crops, livestock and timber. Irrigated agriculture generally includes varieties of pasture grasses, alfalfa, and small grains. Agriculture is the single largest land use off Forest. This includes irrigated and dry cropland, rangeland, and timber production.

Private land development is occurring adjacent to the forest boundary in many places. This development brings more people in close proximity and is reflected in increased road use, recreation activity, and firewood cutting. Motorized recreation is the fastest growing concern. Technology is continuing to make improvements to ATVs, snowmobiles, and mountain bikes. ATVs are more powerful, have better suspension, and better traction than ever before. With the advent of improved technology, people continue to push the limits where vehicles can go.

Several state and local programs control or improve water conditions on lands on or adjacent to the BDNF. The state identifies water development needs, and the drinking water source protection programs control water pollution, coordinate statewide watershed activities, develop source protection guidelines, assesses water quality, enforces water quality standard compliance, and prides funding for watershed improvement projects and monitoring.

Cumulative Effects of Alternatives

This section describes the past, present, and future cumulative effects between alternatives on water quality. The analysis takes a programmatic look at activities and management on and adjacent to the forest and considers general trends, levels of outputs, management controls on activities, standards, practices that minimizes adverse effects of activities. The specific effects of activities on soil and water resources have been described previously. The analysis looks at short and long term cumulative effects and irretrievable commitments of water resources.

The short term effects to water quality may include some impacts from projects that require ground disturbance. Alternatives 1 and 4 have the greatest potential to affect water quality because they propose the highest amount of timber and vegetation treatment. Alternative 3 has the least short and long term cumulative effects on water quality because of the small amount of project activities and outputs; it also has the largest amount of land allocated to recommended wilderness and roadless protection.

In the long term, this forest plan proposes changes in management that will ultimately lead to improved watershed and riparian conditions compared to the existing condition. Important improvements proposed in Alternatives 3, 4, 5, and 6 are the implementation of key watersheds with the expressed intent of improving and maintaining high quality watershed, fisheries, and riparian health. Alternatives 2, 3, 4, 5, and 6 also incorporate state-of-the-knowledge standards for managing watersheds to prevent adverse effects and to sustain healthy conditions for aquatic and riparian dependent species.

Therefore, no irretrievable or commitment of water resources have been identified in any of the action alternatives.

Aquatic Species Cumulative Effects

The analysis area for cumulative effects on recreational fisheries includes lands within the Madison, Ruby, Jefferson, Red Rock, Beaverhead, Big Hole, Boulder, Upper Clark Fork river drainages, plus the Rock Creek drainage as depicted in Figure 4.

Analysis areas for cumulative effects on bull trout, grayling, lake trout, and westslope cutthroat vary by individual species and are represented in Figures 5-8. The areas are contained in the Big Hole, Beaverhead, Red Rock, Ruby, Madison, Jefferson, and Boulder River drainages, in addition to portions of the Rock Creek, and the Upper Clark Fork River drainages.

The cumulative effects analysis area varies by amphibian species because of differences in distribution. Cumulative effects boundaries are depicted in Figures 9-15.

Cumulative Effects to Fisheries

Many cumulative factors will influence fisheries in and around the BDNF. The Bureau of Land Management recently completed a Record of Decision and Approved Dillon Resource Management Plan for the Dillon Field Office. A Proposed Planning Scenario and Draft Analysis of the Management Situation for the Butte Resource Area has been published. Multiple use management will influence riparian and stream systems through most of the same avenues described in this analysis. The projection is that fish habitat should improve over the next 10 to 15 years.

Montana Fish Wildlife and Parks (MTFWP) is the responsible agency for managing fish populations. Regulations will most likely continue to allow angling and harvest of fish, with variations on fishing limits and times when angling can occur and some gear restrictions. Populations should remain relatively stable, but may fluctuate based on seasonal weather and patterns of precipitation.

State owned school trust lands managed by the Montana Department of Natural Resources, will continue to support a variety of uses from livestock grazing to mining, timber harvest and recreational fishing and hunting. Montana law requires that school trust lands be managed to maximize income for the school trust. Management impacts may be greater on these lands than on other state or federal lands, but may not result in loss of fish populations.

A host of activities will occur on private lands within the cumulative effects analysis area. These include, water diversion; irrigation; livestock grazing; farming with varied cash crops; Timber harvest, water based hunting, outfitted and non-outfitted angling, mining, establishment of subdivisions, housing and commercial development, building and stocking of private fish ponds, chemical treatment of aquatic vegetation in ditches, and noxious weeds, flood control and stream channel manipulation, hydropower management and mine tailings clean-up. The impacts to fisheries may range from being entirely extirpated in some stream segments to strong increases in abundance in others.

The potential for introduction of disease and aquatic nuisance species exists on all lands within the cumulative effects analysis area. The extent of influence exerted by disease or exotic species is often determined by an area's suitability. If conditions are favorable enough to promote and perpetuate them, then effects are determined by the fishery's susceptibility to be influenced. The effects of these introductions could range from extreme to negligible, based on past observations.

The cumulative effect of these uses will continue to be expressed in varying abundance in fish populations; ranging from total absence in some stream segments on private land, to healthy and abundant in others. Fish populations within BDNF boundaries will be maintained and likely increase in abundance as stream and riparian conditions improve; providing disease or aquatic nuisance species don't artificially depress them. Management actions will not contribute to an irretrievable or irreversible loss of fisheries resources within the cumulative effects analysis area.

Cumulative Effects on Conservation of TES Fish Species

The type of effects land management will have on westslope cutthroat, bull trout, and grayling are virtually the same as described in the effects on recreational fisheries. The primary difference in this part of the analysis is amount of additional protection and benefits each alternative provides for these species.

BLM management practices for the Dillon Resource Area, should lead to improved conditions for westslope cutthroat trout and arctic grayling. Healthier cutthroat populations would be encouraged, allowing them to better withstand extreme environmental conditions like drought or severe winters. Bull trout are only present in the Garnet Range, under management by the Missoula Field Office. Management direction is found in the BLM Resource Management Plan.

Recreational angling will continue to be allowed and may result in some incidental mortality in TES fish species. Angling mortality on cutthroat should be limited, because fishing pressure on most streams with WCT conservation populations is light. In situations where total population size is very small, mortality caused by angling could depress populations. Incidental mortality for and bull trout and grayling may have less effect, because they often have longer stream segments available to them, are typically less isolated and have larger population sizes. Montana Fish Wildlife and Parks, the USFS, BLM and other agencies and private organizations have been implementing conservation and restoration measures for WCT and grayling. Efforts are considered fairly aggressive, but have met with varied success. They have been extremely beneficial in furthering our knowledge of successful approaches. Conservation and restoration efforts may succeed in securing some of populations of most concern.

State owned school trust lands managed by the Montana Department of Natural Resources, will continue to support a variety of uses from livestock grazing to mining, timber harvest and recreational fishing and hunting. Montana law requires that school trust lands be managed to maximize income for the school trust. Conservation of fish species within school trust lands may occur at a slower rate, because of legal direction that over-rides other resource values.

A host of activities will occur on private lands within the cumulative effects analysis area. These include, water diversion; irrigation; livestock grazing; farming with varied cash crops; Timber harvest, water based hunting, outfitted and non-outfitted angling, mining, establishment of subdivisions, housing and commercial development, building and stocking of private fish ponds, chemical treatment of aquatic vegetation in ditches, and noxious weeds, flood control and stream channel manipulation, hydropower management and mine tailings clean-up.

Fish conservation efforts on private lands may range from none in some areas to intensive in others with broadly beneficial results. Many private landowners in the Big Hole drainage are participating in a Candidate Conservation Agreement that should provide substantial benefits for grayling. Private landowners are also participating in cutthroat trout restoration efforts. They have been willing partners and advocates for land management practices that benefit these

species. The status of grayling, cutthroat and bull trout could improve over this planning cycle because of the desire of private landowners and concerned citizens to promote restoration efforts.

The potential for introduction of disease and aquatic nuisance species exists on all lands within the cumulative effects analysis area. The extent of influence exerted by disease or exotic species is often determined by suitability. If conditions are favorable, enough to promote and perpetuate them, effects are determined by the fishery's susceptibility. The effects of introductions range from extreme to negligible based on past observations.

Hydropower management and Mine tailings Clean-up will continue in the Upper Clark Fork drainage. Mill Town Dam will be removed. These efforts will increase the likelihood migratory bull trout will have better vehicle access to habitats that completely meet their natural life history requirements.

Management actions on the BDNF will not result in any irreversible or irretrievable effects to westslope cutthroat, bull trout or fluvial arctic grayling. Non-the-less, a continued decline in cutthroat distribution east of the continental divide is likely. Their persistence there depends less on habitat management than on impacts from non-native species. Unless FWP is capable of removing threats from brook, rainbow and Yellowstone cutthroat trout, improvements in habitat condition will have a limited bearing on their abundance and distribution.

Cumulative Effects on Amphibians

Cumulative effects on Amphibians include all of the items listed in the cumulative effects section on fisheries, plus predation by introduced trout, competition with bull frogs, Chytrid fungus and possibly other diseases or pathogens.

The Bureau of Land Management's Resource Management Plan for the Dillon Resource Area should generally improve stream and riparian conditions, benefiting amphibians.

Montana Fish wildlife and Parks is responsible for managing fish populations. They will continue to stock lakes on a 4 or 5 year rotation. Additional waters may be stocked with fish, but not without an environmental analysis. Fish stocking in the analysis area resulted in reduced occurrence and abundance of amphibians from historic populations. Fish stocking over the life of this plan will not sufficiently change so habitat use and distribution in mountain lake areas could remain relatively stable, unless disease or climate change substantially influences them.

State owned school trust lands will continue to support a variety of uses from livestock grazing to mining, timber harvest and recreational fishing and hunting. Management impacts on amphibians may be greater on these lands than on other state or federal lands, and could result in loss or displacement of amphibian populations.

A host of activities will occur on private lands within the cumulative effects analysis area. These include, water diversion; irrigation; livestock grazing; farming with varied cash crops; Timber harvest, water based hunting, outfitted and non-outfitted angling, mining, establishment of subdivisions, housing and commercial development, building and stocking of private fish ponds, chemical treatment of aquatic vegetation in ditches, and noxious weeds, flood control and stream channel manipulation, hydropower management and mine tailings clean-up, and stock pond development. Effects on amphibians range from loss of populations to reestablishment of populations, depending on specific actions taken.

The potential for introduction of disease and aquatic nuisance species exists on all lands within the cumulative effects analysis area. Chytrid fungus may continue to influence several species of amphibians on the BDNF. Illegal bull frog introductions may continue at some rate, causing isolated declines in native species and possibly even population loss.

The cumulative effect of these uses will likely result in patterns in amphibian abundance and distribution similar to what we see today. Amphibian populations within the BDNF boundaries will be largely maintained and may increase in abundance as stream, riparian and upland vegetation conditions are restored. The introduction of disease or aquatic nuisance species may artificially depress certain populations. Management actions on the BDNF should not contribute to an irretrievable or irreversible loss of fisheries resources within the cumulative effects analysis area.

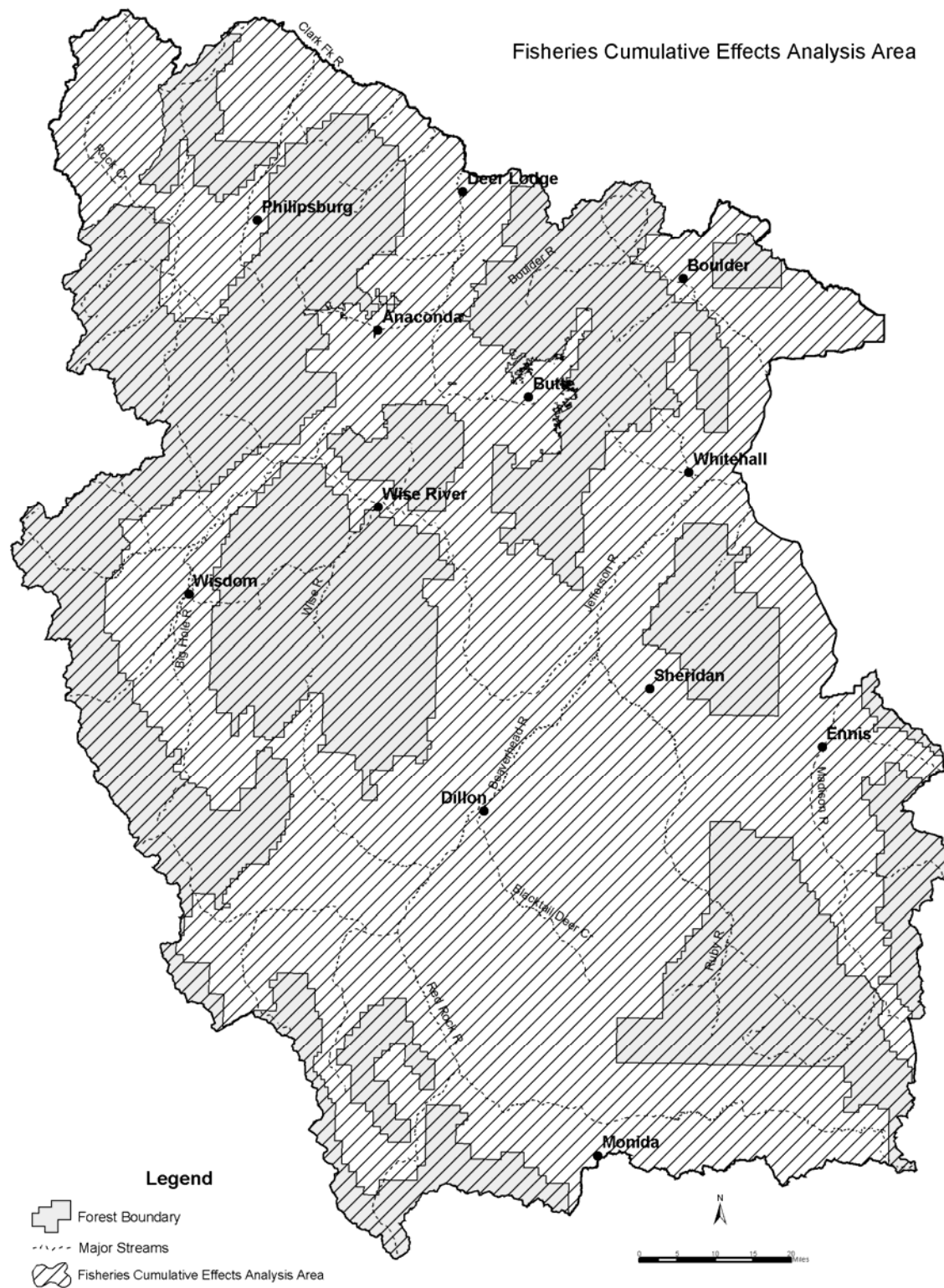


Figure 4. Fisheries Cumulative Effects Analysis Area

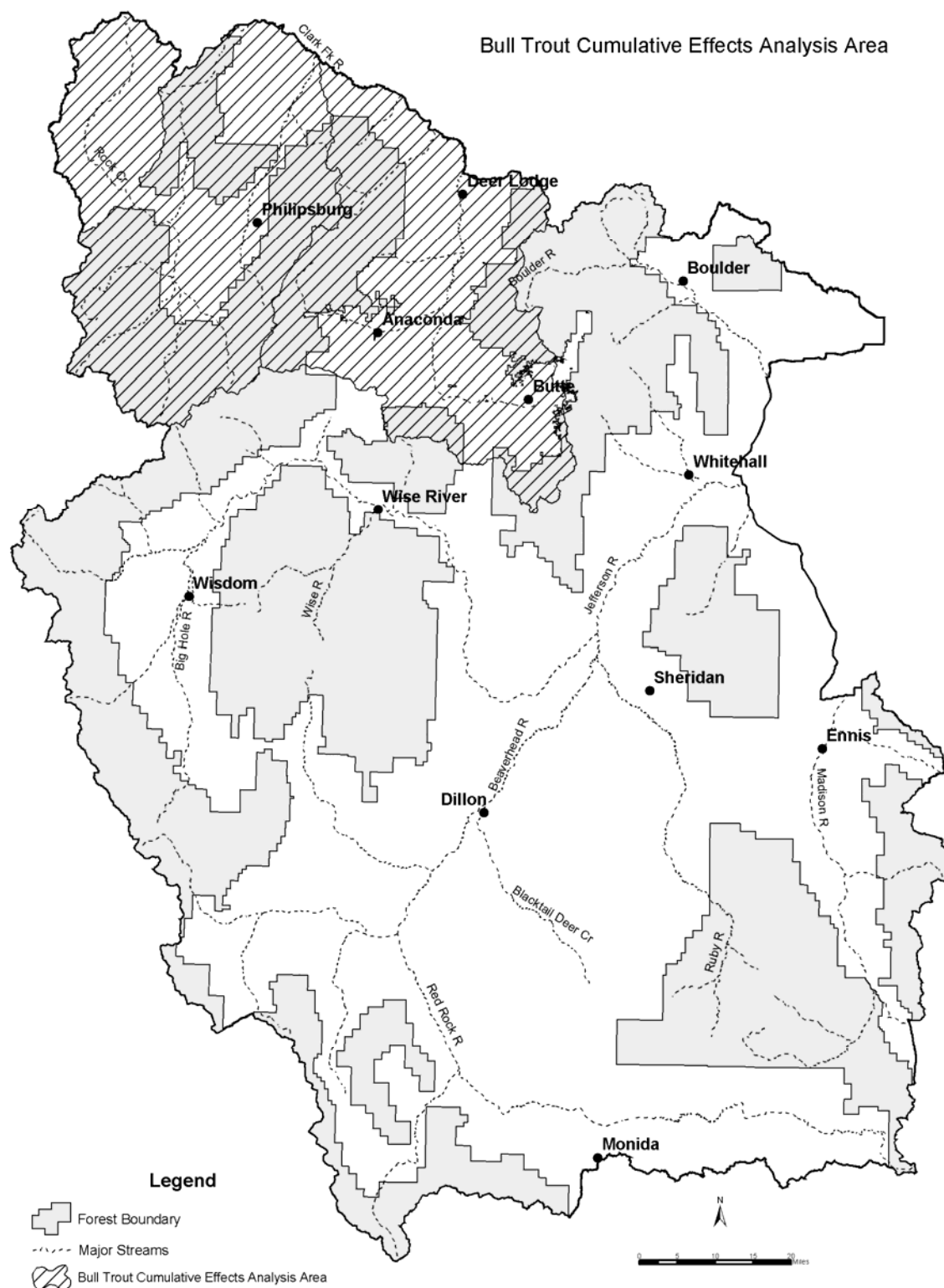


Figure 5. Bull Trout Cumulative Effects Analysis Area

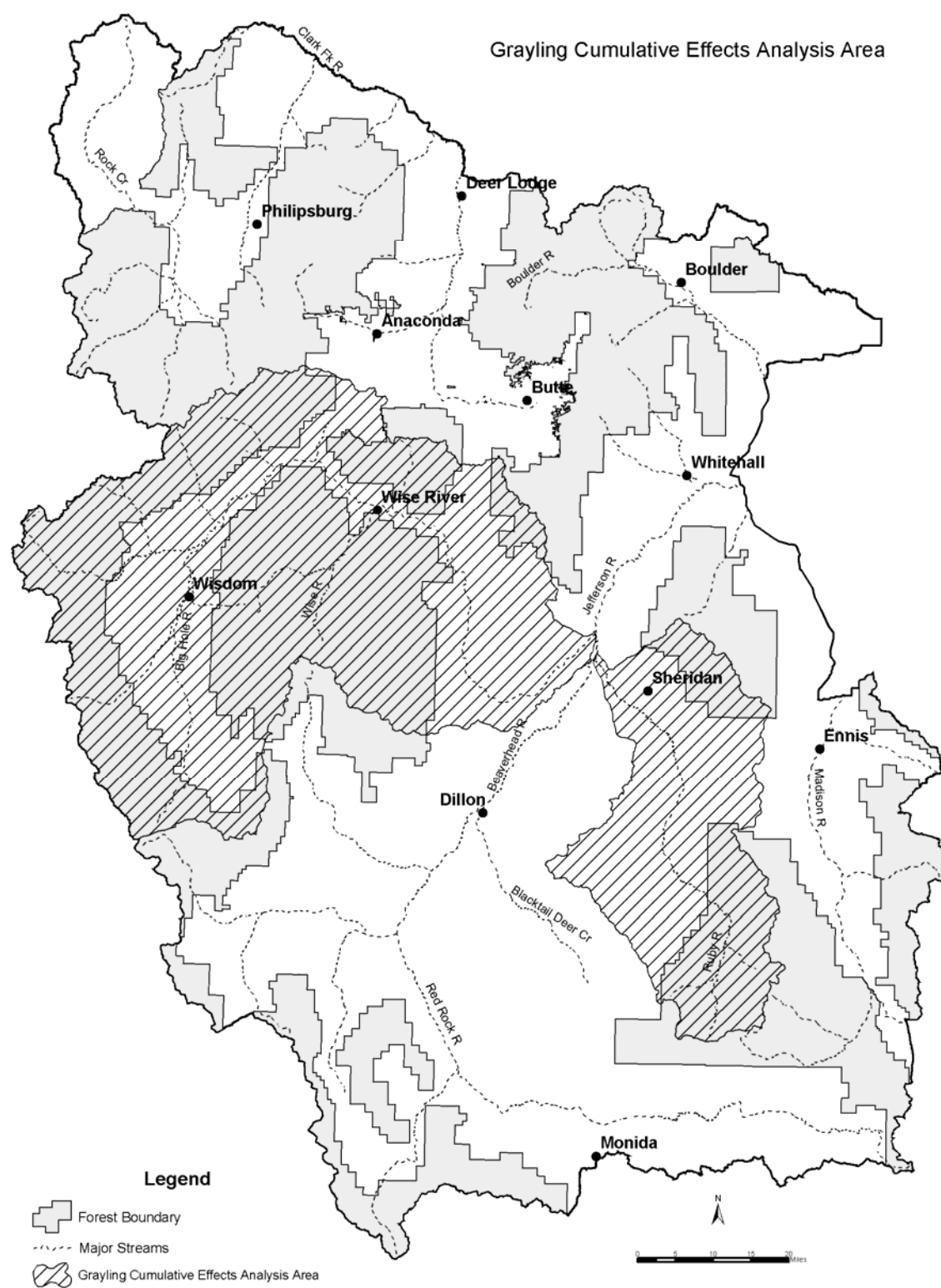


Figure 6. Grayling Cumulative Effects Analysis Area

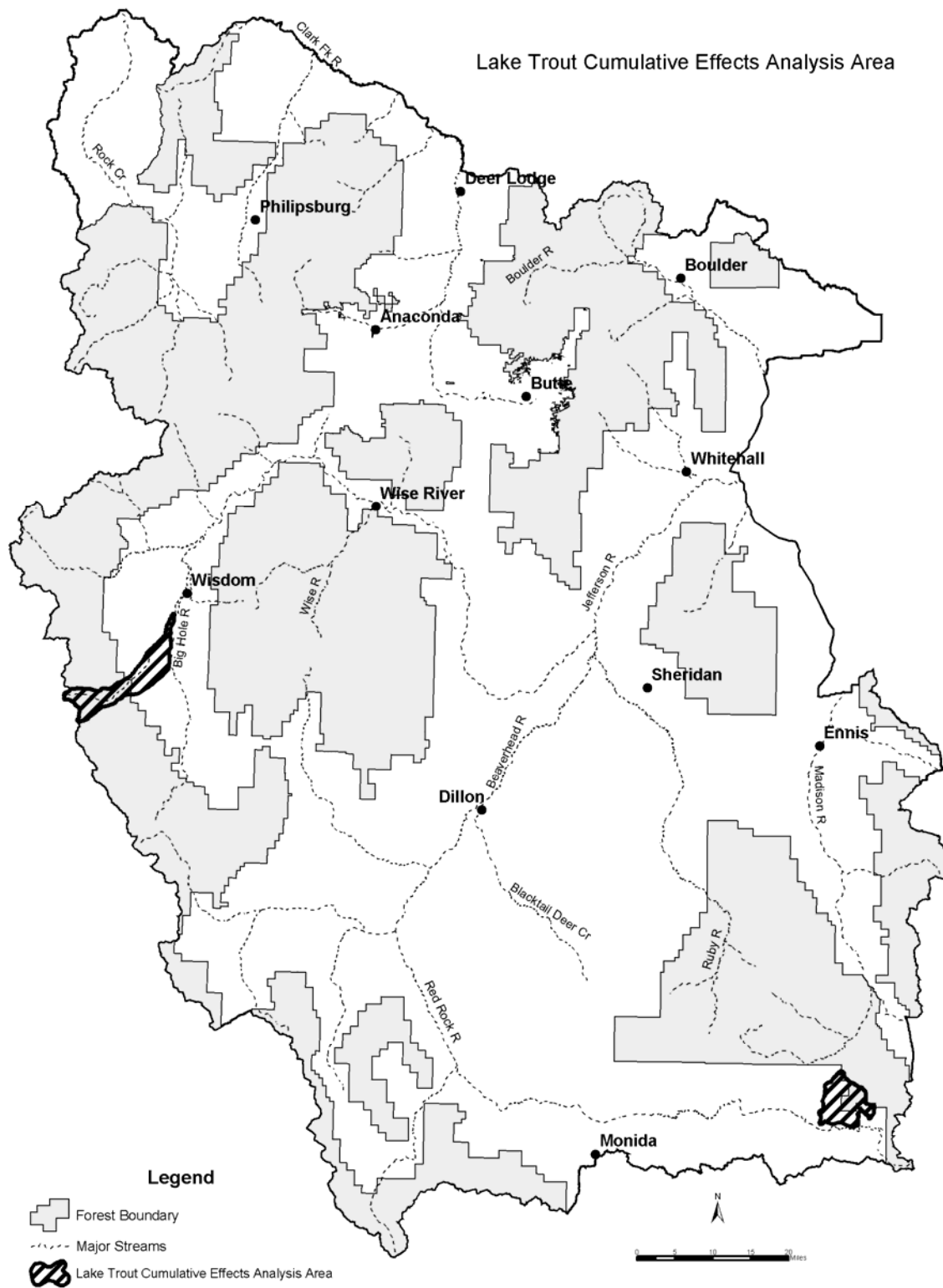


Figure 7. Lake Trout Cumulative Effects Analysis Area

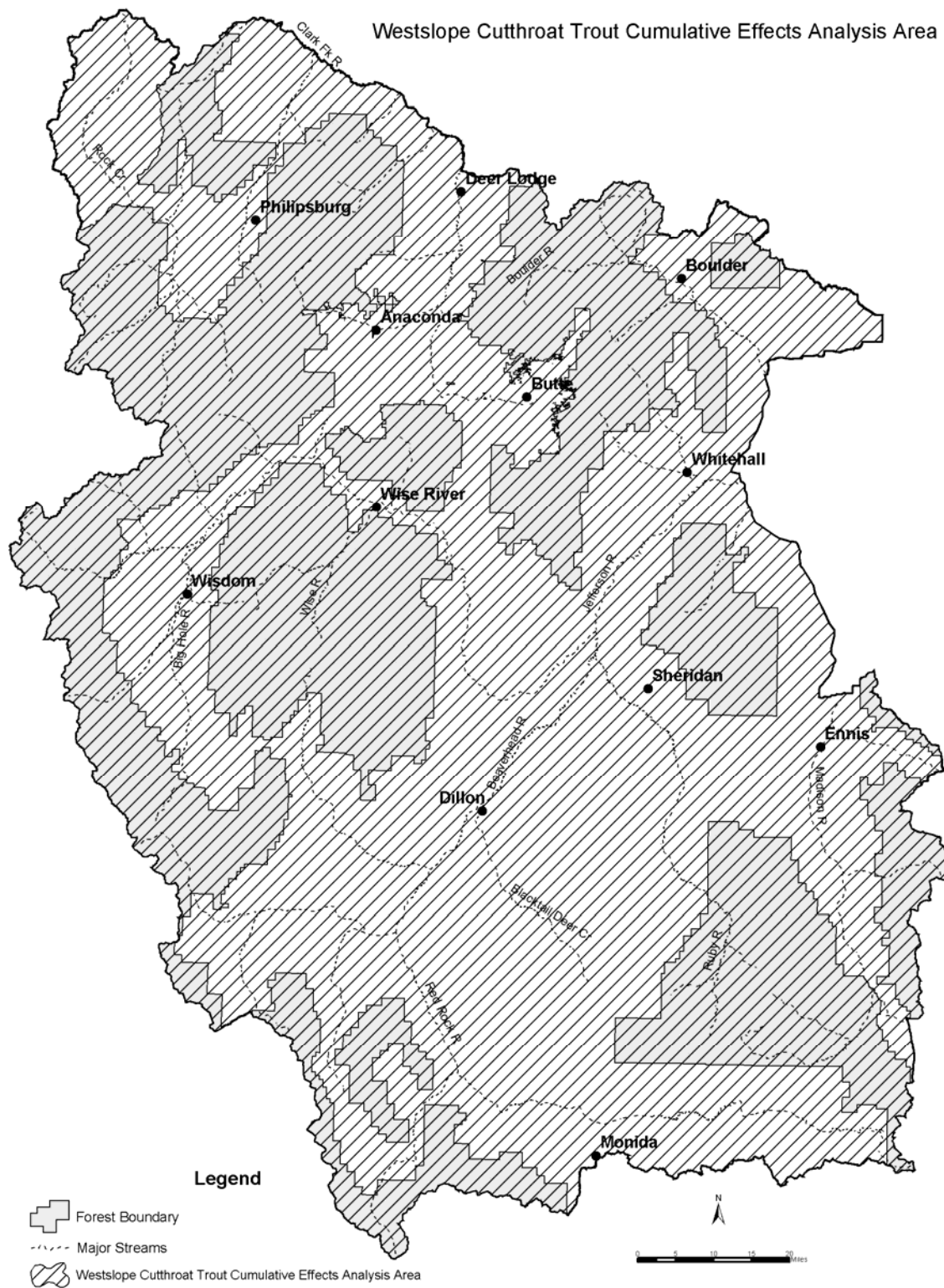


Figure 8. Westslope Cutthroat Trout Cumulative Effects Analysis Area

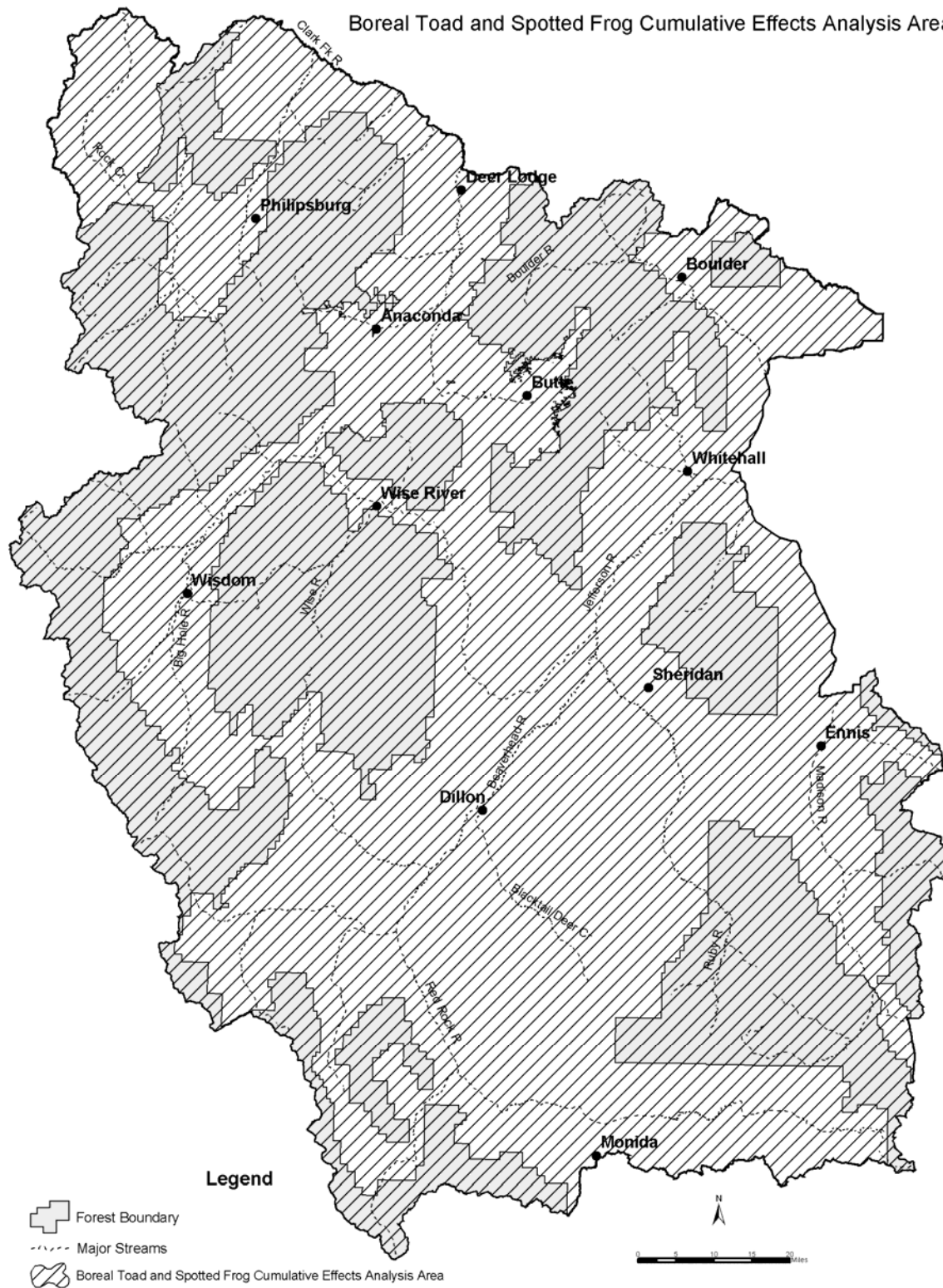


Figure 9. Boreal Toad and Spotted Frog Cumulative Effects Analysis Area

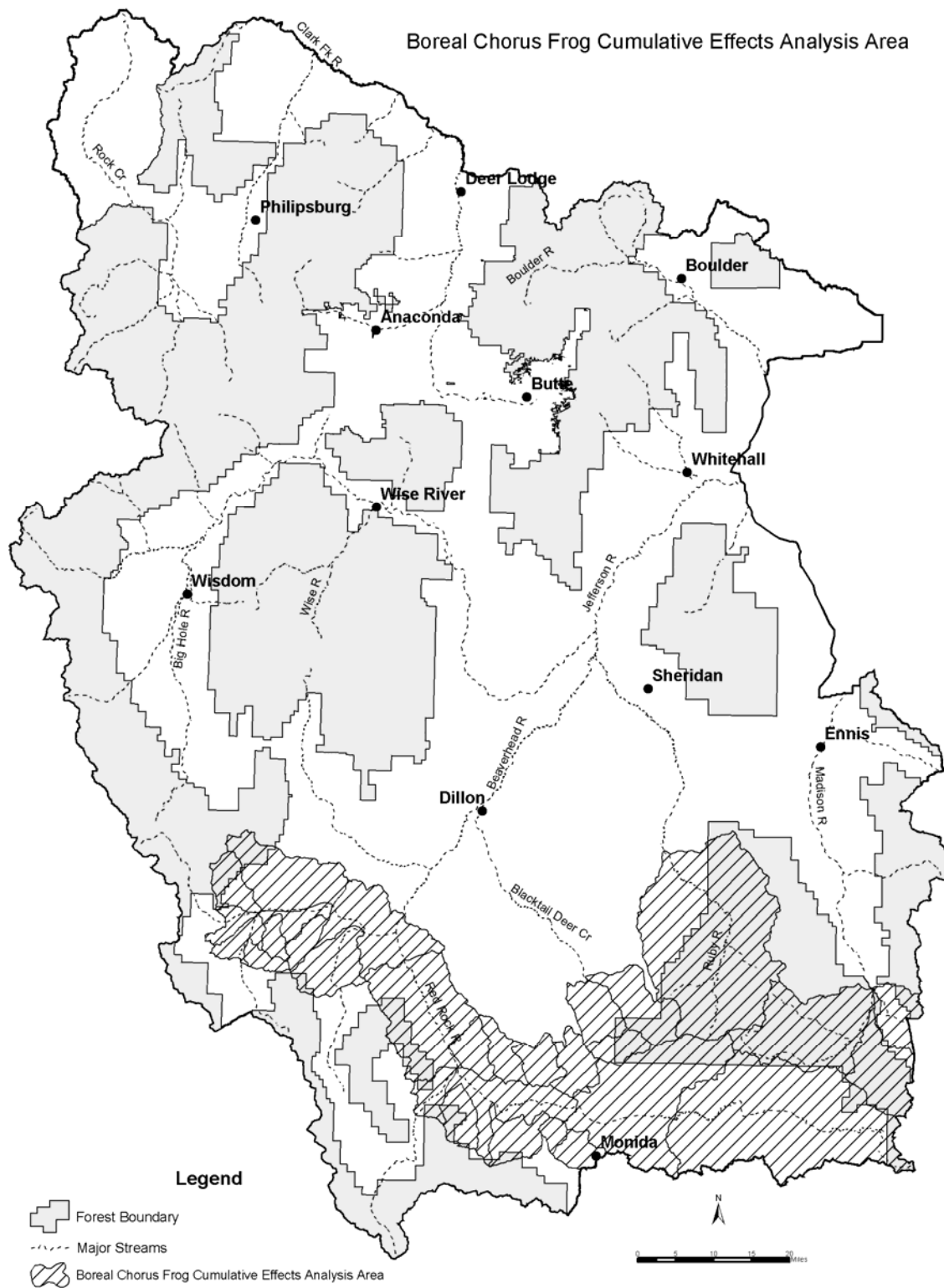


Figure 10. Boreal Chorus Frog Cumulative Effects Analysis Area

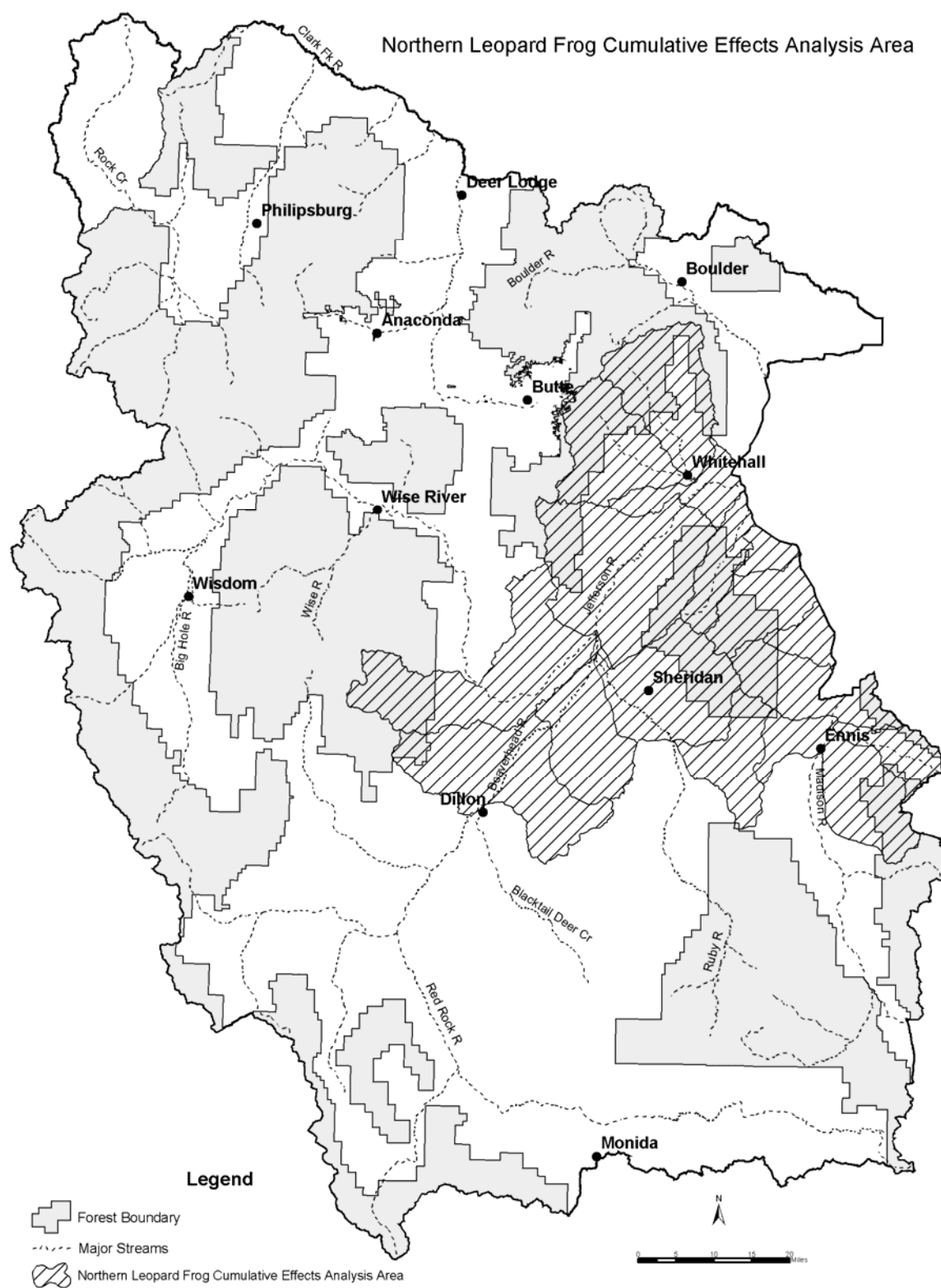


Figure 11. Northern Leopard Frog Cumulative Effects Analysis Area

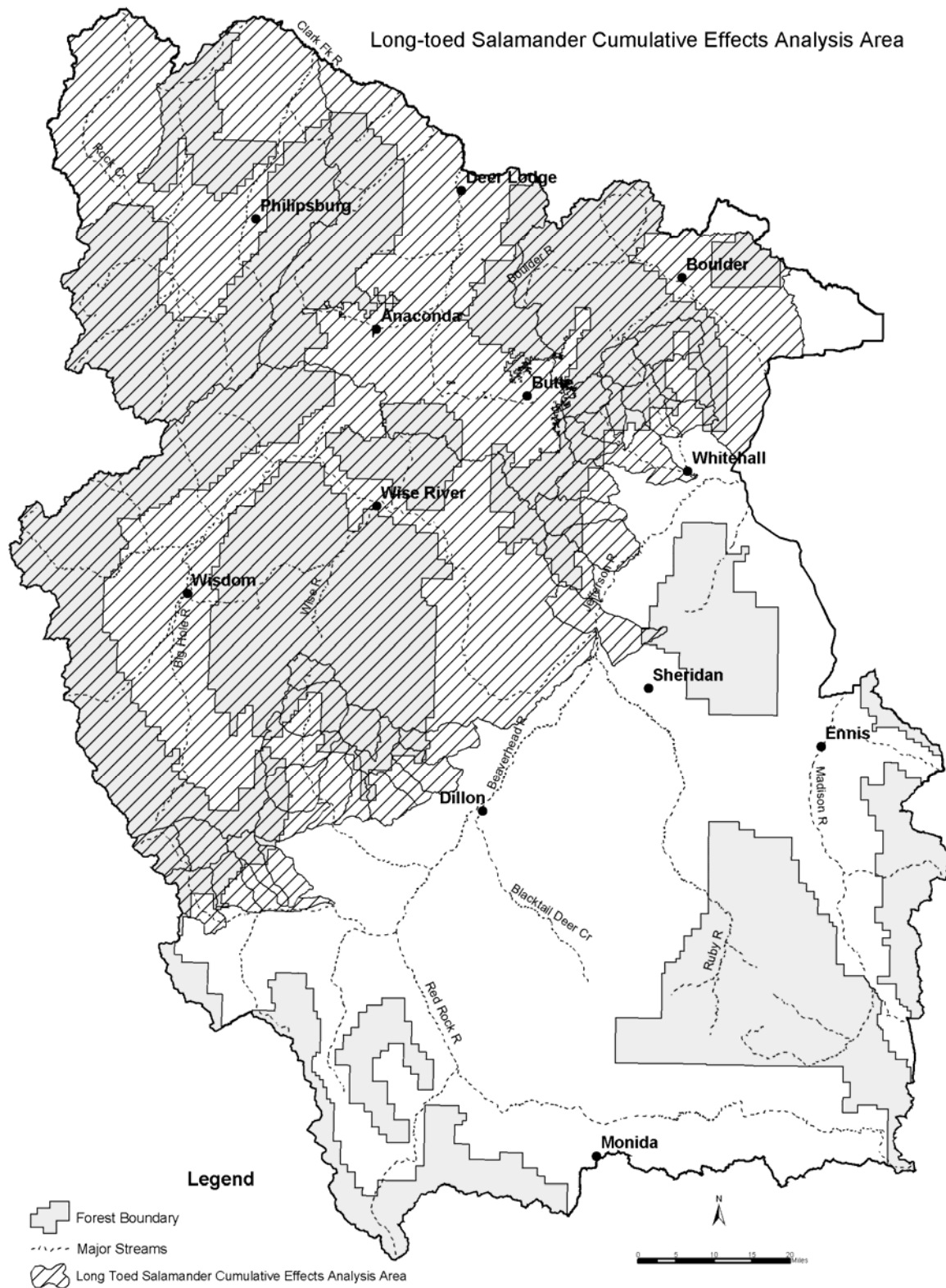


Figure 12. Long-toed Salamander Cumulative Effects Analysis Area

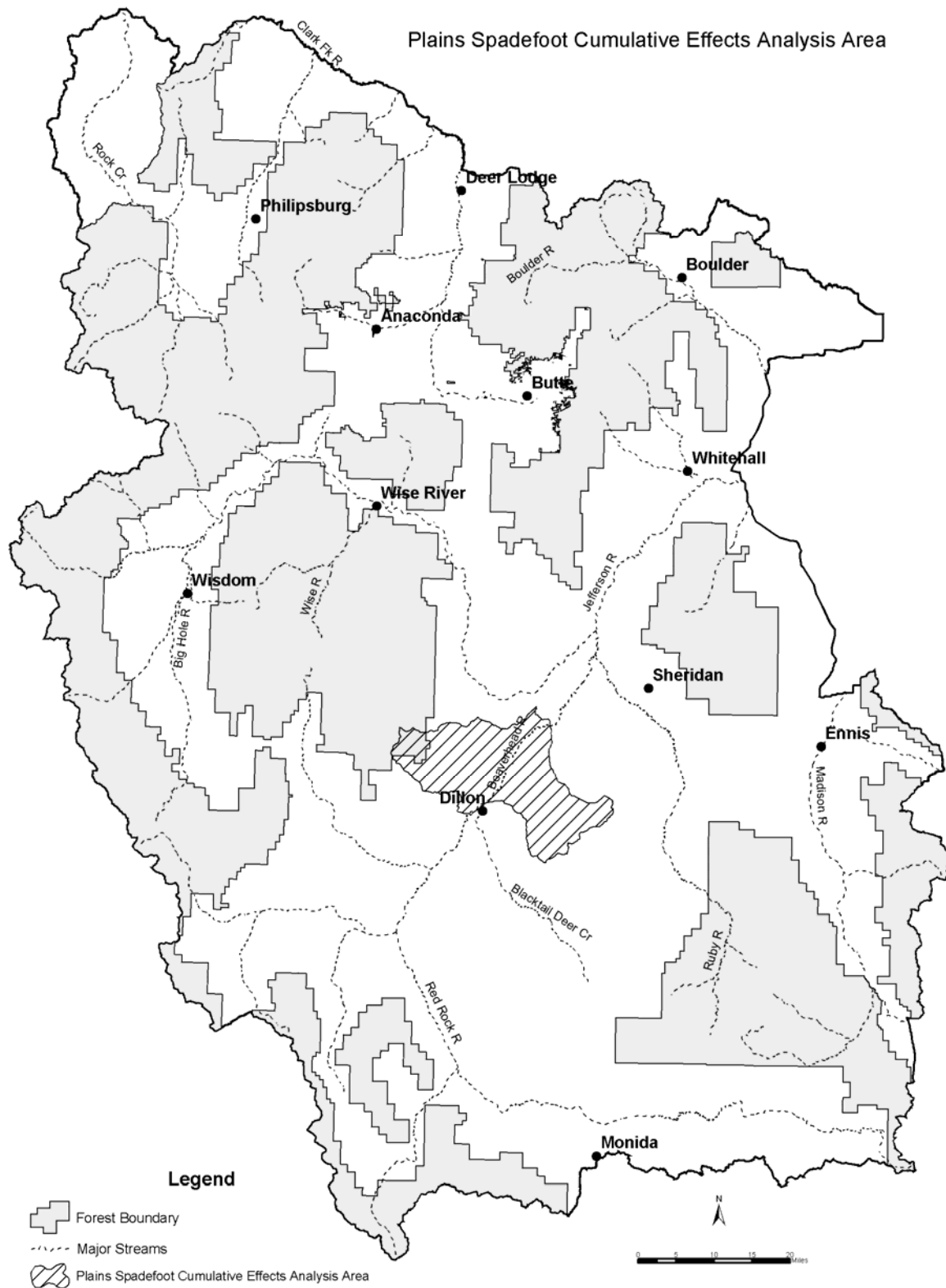


Figure 13. Plains Spadefoot Cumulative Effects Analysis Area

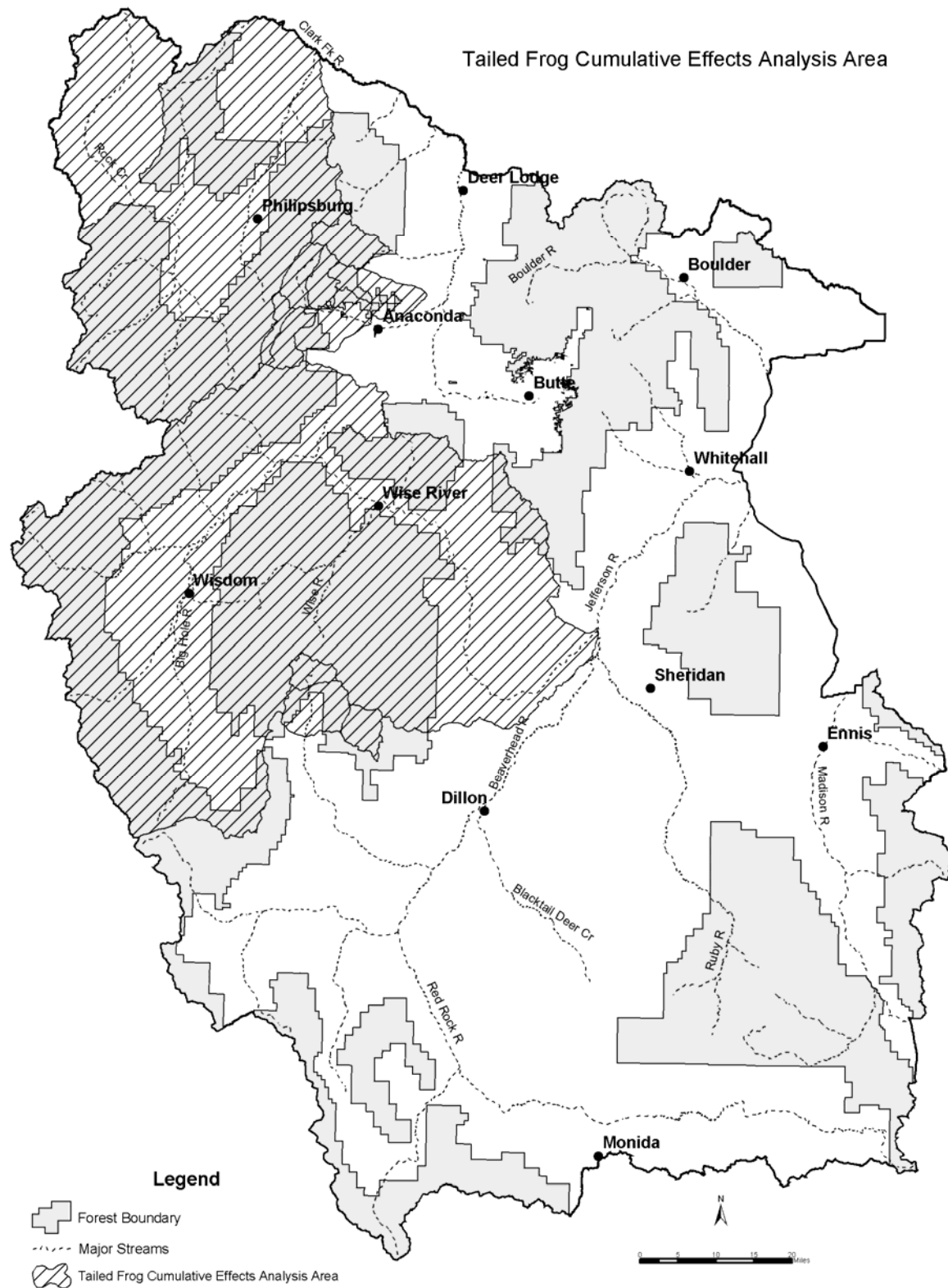


Figure 14. Tailed Frog Cumulative Effects Analysis Area

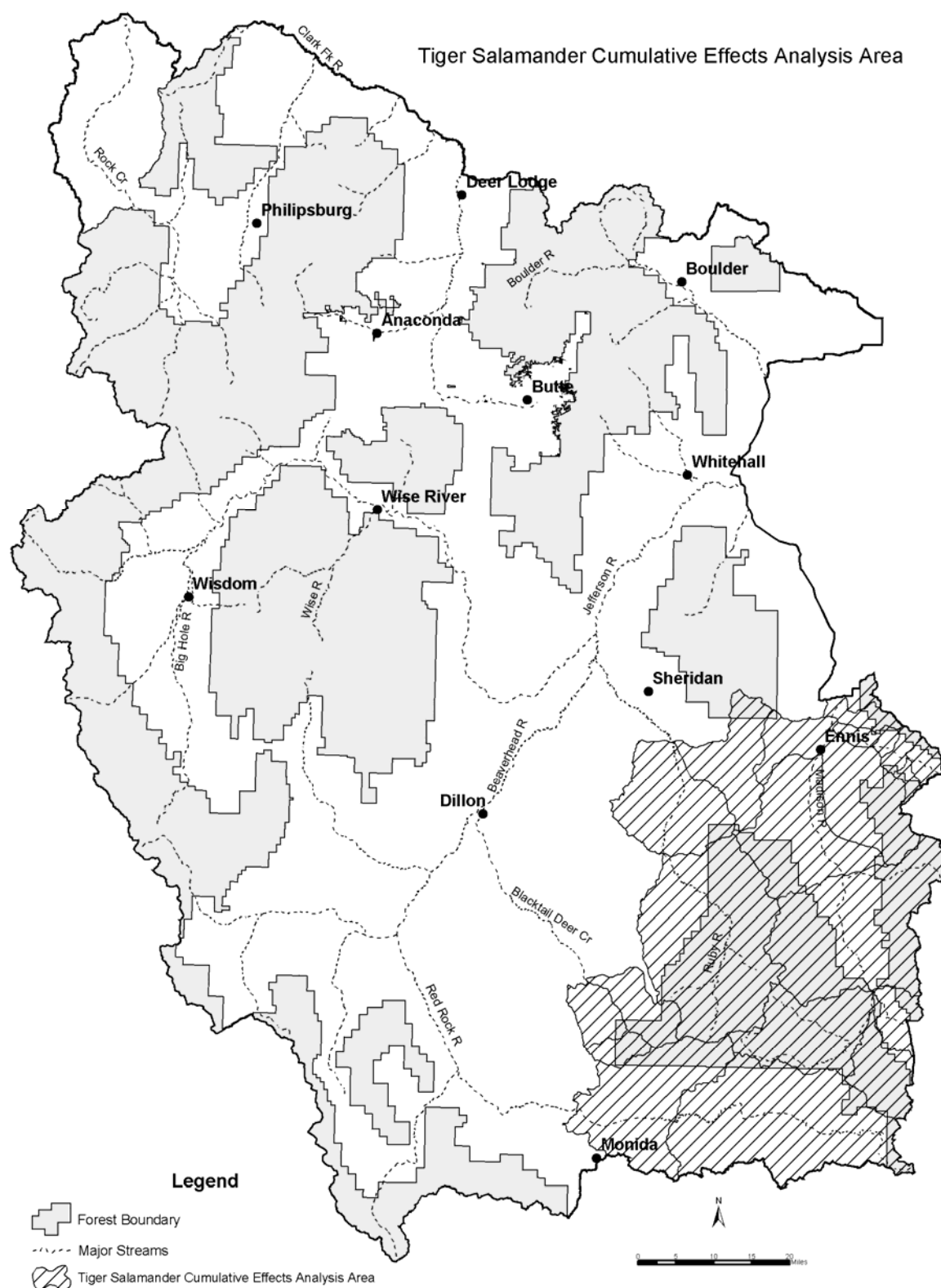


Figure 15. Tiger Salamander Cumulative Effects Analysis Area

Legal and Administrative Framework

Laws and Executive Orders

The Organic Administration Act of 1897 - Recognizes watersheds as systems to be managed with care to sustain their hydrologic function.

The Federal Water Pollution Control Act, as amended – Direction intended to restore and maintain the chemical, physical, and biological integrity of the nation’s waters. Sections 303, 319, and 404 apply to forest management activities. Section 208 of the 1972 amendments specifically mandates identification and control of non-point source pollution resulting from silvicultural activities. There are five required elements:

Compliance with state and other federal pollution control rules.

No degradation of instream water quality needed to support designated uses.

Control of non-point source water pollution using conservation or “best management practices.”

Federal agency leadership in controlling non-point sources pollution from managed lands.

Rigorous criteria for controlling discharge of pollutants into the nation’s waters.

The Sustained Yield Forest Management Act of 1944 and Multiple Use Sustained Yield Act of 1960 - Allows for the production of multiple quality goods and resources at sustained levels over time, including maintenance of water supply.

The Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974, as amended - Requires an assessment of present and potential productivity of the land. This act contains many references to suitability and capability of specific land areas, to maintenance of land productivity, and the need to protect and, where appropriate, improve the quality of soil and water resources. The act specifies that substantial and permanent impairment of productivity must be avoided and has far-reaching implications for watershed management (including monitoring, inventories, condition, and trends, and support services) on national forests.

The National Forest Management Act of 1976 - Prevents watershed conditions from being irreversibly damaged and protects streams and wetlands from detrimental impacts. Land productivity must be preserved. Fish habitat must support a minimum number of reproductive individuals and be well distributed to allow interaction between populations.

Endangered Species Act of December 28, 1973, (87 Stat. 884 as amended; 16 U.S.C 1531, 1532, 1533, 1536, 1540) - Declares that “...all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.”

Sikes Act of September 16, 1960, (16 U.S.C. 670a) - Provides for carrying out wildlife and fish conservation programs on Federal lands including authority for cooperative State-Federal plans and authority to enter into agreements with States to collect fees to fund the programs identified in those plans.

The Safe Drinking Water Act Amendments of 1996 - Provides states with more resources and authority to enact the Safe Drinking Water Act of 1977. This amendment directs the state to identify source areas for public water supplies that serve at least 25 people or 15 connections at least 60 days a year.

Executive Order 11988 - Directs federal agencies to provide leadership and take action on federal lands to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains. Agencies are required to avoid the direct or indirect support of development on floodplains whenever there are reasonable alternatives and evaluate the potential effects of any proposed action on floodplains.

Executive Order 11990, as amended - Requires federal agencies exercising statutory authority and leadership over federal lands to avoid to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands. Where practicable, direct or indirect support of new construction in wetlands must be avoided. Federal agencies are required to preserve and enhance the natural and beneficial values of wetlands. Other laws pertinent to watershed management of NFS lands can be found in Forest Service Manual (FSM) 2501.1.

Executive Order 13112 - Directs federal agencies whose actions may affect the status of invasive species to (1) prevent the introduction of invasive species, (2) detect and respond rapidly to and control populations of such species in a cost effective and environmentally sound manner, as appropriations allow.

Regulations and Policies

Forest Service Manual 2500 and Forest Service Handbooks 2500 - state policy and direction regarding watershed management.

Forest Service Handbook 2509.22, Soil and Water Conservation Handbook: - provides a non-point Source Management Strategy to develop site-specific conservation practices for activities on National Forest System lands to minimize effects on soil and water resources and protect water-related beneficial uses.

Other

Montana ARM 16.20.603 - This states that Best Management Practices (BMPs) are the foundation of water quality standards for the State of Montana. The Forest Service has agreed to follow BMPs in a Memorandum of Understanding with the state. Many BMPs are applied directly as mitigation at the project level. Implementing and effectiveness monitoring for BMPs are routinely conducted by contract administrators and during other implementation and annual monitoring events.

Montana ARM 17.30, sub-chapter 6 - Details water quality standards for the State of Montana. The Forest Service has primary responsibility to maintain these standards on lands under their jurisdiction in the state.

The Montana Natural Streambed and Land Preservation Act, also known as the 310 Law - Requires any person planning on working in or near a perennial stream on public or private lands to first obtain a permit from the state.

Changes from Draft to Final

Discussion

- Updated descriptions of the affected environment where 2005 Census data or more recent research reports were available. This includes the 2005 National Visitor Use Monitoring Survey.
- Corrected the description of the timber industry in Granite County to include the lumber mill
- Added a discussion of potential economic and social impacts to the Island Park community and Fremont County caused by changes in snowmobile use by alternative.
- Dropped the program by program estimation of Present Value and Present Costs in Table 122. The IMPLAN model (FEAST spreadsheet) no longer provides that calculation. Accurate program costs can not be separated out because of all the shared costs/benefits.
- Addressed comments from motorized groups in the social impacts of recreation changes.
- Addressed comments from mountain bikers about economic effects of closing trails

Estimated Outputs

- Corrected an error in animal unit month conversions to head months for all alternatives.
- Updated estimated timber outputs for all alternatives using data from Fiscal Year 03 to 05. Adjusted predicted timber outputs for each alternative upward from the Draft EIS based on 2003-2005 BDNF statistics for timber offered. The adjustment reflects an increase in the proportion of forest budget for fuel reduction and forest health projects.
- Adjusted model estimates for Snowmobile and OHV user visits as a result of corrections to road and trail GIS map layers based on public and internal comments.
- Adjusted model estimates of recreation visitation based on the 2005 NVUM survey. The scientific basis of the survey and statistical confidence level improved since the first round of surveys.
- Corrected oils and gas wells drilled predicted by alternative, based on Reasonably Foreseeable Development Scenario, in output table and model to include dry confirmation wells.

IMPLAN and FEAST

- Replaced the 2000 IMPLAN data with 2003 IMPLAN data. The 2003 IMPLAN model updates regional business data using more current census data. It also switches from the Standard Industrial Classification of business data to the North America Industrial Classification. This changes how businesses are grouped and does affect the estimated effects on employment and labor income when sorted by either industry for forest resource program. It does not change the relative effect between alternatives.
- Updated data where available:

Present Net Value

- Updated Forest Service revenue and expenditure information through 2005
- Corrected use of decadal data by using average annual data for timber revenues. The correction did not change the relative comparison of alternatives.
- Dropped the program by program estimation of Present Value and Present Costs in Table 122. They can't be accurately separated because of joint costs/benefits.

Analysis Area

The analysis area for social impacts is the seven counties that contain lands administered by the Beaverhead-Deerlodge National Forest: **Deer Lodge, Silver Bow, Beaverhead, Granite, Jefferson, Madison, and Powell counties**. Management decisions on National Forest System lands have a likelihood of affecting individuals residing in these counties by changing either the setting and lifestyle, or jobs and income. Each of these counties has a unique set of social and economic conditions that influence its social and cultural character and contribute to public response to natural resource issues. The differences and similarities among counties also affect differences in community resiliency within the study area. Cumulative effects will be described for a larger area including adjacent urban centers like Missoula and Bozeman.

The analysis area for economic effects adds **Broadwater County** to the seven county social impact area described above. Other counties around the perimeter of the BDNF are a source of recreation visitors (Gallatin, Missoula, and Ravalli counties) or product consumption, such as timber processing, (Missoula County). These counties have large urban centers and diverse economies where the direct effect of BDNF management is barely measurable. Broadwater County was included because much of the timber harvested on the BDNF goes to a timber mill there. The timber industry accounts for 14 percent of the employment in rural Broadwater County.

Fremont County, Idaho has been added to the discussion of social and economic impacts from changing winter recreation by alternative. While the BDNF administers no lands in Fremont County, a number of recreation visitors from the Island Park area snowmobile in the highest elevations of the Hellroaring drainage of the BDNF in the Centennial Mountains. Fremont County is not considered part of the analysis area for any other resource analysis.

Analysis Methods and Assumptions

Data and information about the socio-economic environment of the analysis area comes from two comprehensive reports: Eastern Montana National Forest Economic Assessment, USDA FS, Northern Region, F. J. Stewart and K.D Stockmann, 2002, Chapter 2 "Beaverhead-Deerlodge NF Economic Area" and Social Assessment of the Beaverhead-Deerlodge National Forest, Northern Economics, Inc., 2002. A wealth of data is available from other sources for specific aspects of the socio-economic environment. Comparable data between counties, years, and activities was used for the analysis. Because of the time that has elapsed between the Draft EIS and the Final EIS, we reviewed more current regional social and economic reports to see if numbers or trends had changed and concluded that while the magnitude of growth or declines for certain counties

or industries may have changed, our assumptions about the general trends remain valid. Some of the more recent data is included to clarify the analysis.

The Regional Economic Model – The IMPLAN Pro 2.0 input-output model was used to estimate the employment and labor income economic impacts of alternatives as well as payments to counties. The IMPLAN modeling system constructs a model that allows the user to estimate direct, indirect and induced effects stemming from National Forest activities. The analysis began by geographically defining the functional economic area where the BDNF is located. Once the functional economy was defined, an IMPLAN model was constructed for the area. The resulting IMPLAN model consists of a wide variety of data (i.e. value of production, “output”, employment and income by sector) and predictive tools (multipliers). The IMPLAN data and multipliers are used together with BDNF resource outputs, financial and economic data to estimate the economic effects (direct, indirect and induced) related to BDNF activities.

The Draft EIS applied the 2000 IMPLAN data to model impacts. The analysis has been updated with 2003 IMPLAN data based on more current census data. It also switches from the Standard Industrial Classification of business data to the North America Industrial Classification. This changes how businesses are grouped and changes the estimated effects on employment and labor income when sorted by industry or by forest resource program. Because of this and a number of other updates to model inputs, employment and income figures generated by the IMPLAN model for the DEIS are not comparable to numbers generated for the FEIS. This does not change the relative effect between alternatives.

The estimation of impacts is based on the assumption that alternatives are fully implemented. Actual changes in the economy would depend on individuals taking advantage of resource-related opportunities supported by each alternative. If market conditions or trends in resource use are not conducive to developing some opportunities, the impact on the economy would be different than estimated here. This model only accounts for jobs and income related to Forest Service outputs.

The economic impact considers expenditures on goods and services, and processing raw materials from BDNF lands. More specifically, the analysis considers possible economic impacts of activities stemming from livestock grazing, timber processing, oil and gas leasing and recreation activities. Oil and gas production was analyzed separately in Effects on the Economic Environment from Minerals and Oil and Gas Leasing.

Average annual resource outputs were projected for alternatives based on the assumption Forest Service budgets will remain fairly static over the 10-year planning period. Resource specialists provided estimates using the best available information and professional judgment. **The most important use of the results is to compare relative economic effects among the six alternatives analyzed in detail.** The results should *not* be viewed as absolute economic values that accurately portray the infinitely complex economic interactions of the regional economy.

Amenities of open space, wildlife populations, and the like are not part of the economic impact analysis. These values are described and evaluated in the effects to the social environment and other resource analyses in this Chapter. Economic benefits of weed management and costs (reduced agricultural output and recreation use, more soil loss) associated with weed spread were evaluated in the 2002 BDNF Noxious Weed FEIS (USDA 2002b) which is still in effect and is not being revised. Economic benefits from soil and water management and costs of reduced soil productivity and water pollution associated with resource use at the strategic forest planning

level are unknown and not included. The resource and social impacts of these activities are discussed under other resource sections.

Complete information about the limitations of the model, assumptions and processes used to conduct the economic analysis for each resource are documented in the project file.

Effects Indicators

Economic Indicators

- ◆ Changes in employment and labor income for eight counties within the impact area. Estimate impacts from production of wood (CCF), grazing (AUMs), oil and gas drilling (barrels and MCF gas), recreation visits and Forest Service expenditures.
- ◆ Effects on economic diversity and dependency
- ◆ Changes in Payments to Counties including PILT and 25 % fund.
- ◆ Comparison of financial efficiency of agency activities using present net value.

Social Environment Indicators

- ◆ Changes to lifestyle, attitudes and values based on: 1) Changes in traditional uses (grazing, wood products, minerals, recreation and vehicle access); 2) Health of forest resources (wildlife, fish, clean water, fuel hazards); and 3) Changes to natural amenities (open vistas, wildlife populations, and protected lands).
- ◆ Changes to resident's and users special places (measured by changes to management area allocations and effects to the Greater Yellowstone Area portion of the Forest).
- ◆ Changes to land tenure and ownership patterns.
- ◆ Changes in traditions rights such as water and property rights, roads and vehicle access.
- ◆ Changes in governmental relations, interagency cooperation, agency effectiveness and trust.

Affected Environment

The BDNF administers land in all 7 counties in the social impact study area. The acres are displayed as a percent of the total county acres in Table 33. Other federal lands such as Bureau of Land Management, US Fish and Wildlife Service, National Park Service and Bureau of Reclamation, also comprise a substantial portion of Beaverhead County. Forest offices are located in each of the county seats except for Anaconda and Virginia City.

Table 33. Acres of Beaverhead-Deerlodge National Forest by County

County	BDNF Acreage (as of 2004)	Percent of the County in the Beaverhead-Deerlodge NF
Beaverhead	1,372,841	38%
Deer Lodge	207,503	44%
Gallatin	21	< 1%
Granite	472,204	43%
Jefferson	361,066	34%
Madison	694,806	30%
Powell	84,469	6%
Silver Bow	187,090	41%
Total	3,380,000	

Source: USDA FS, BDNF, GIS Land Ownership map

BDNF lands account for approximately 32 % of the lands within the seven counties excluding a small portion of Gallatin County. BLM lands account for another 11 %.

The West is the fastest growing area of the nation. In Montana alone, the population grew 13 % between 1990 and 2000, most in western Montana. Growth focused around vibrant urban centers and rural communities offering recreation on public lands and transportation infrastructure like airports and interstate highways. Population growth and loss are issues for southwester Montana communities. The amount, rate, and patterns of population growth affect infrastructure, economy, and social institutions, and have profound impacts on the natural environment.

Populations in project counties have always been unstable in part because of their ties to natural resources (Northern Economics 2002). The aggregated population in this region peaked in 1920. During the 1990s, population increased in six of the seven counties after a lull with little growth through the middle of the century. During the last 10 years the population dropped in Deer Lodge County. Jefferson County had the fastest growth rate. Projections from 2000 to 2020 show an overall increase of 28.5 % in the Rocky Mountain States. Southwest Montana counties are projected to grow from 0 to 12.7 % (Cordell et al. 2004). A 2005 US Census “Quickfacts” website indicates that Deer Lodge County continues to have the greatest population decrease in the area (5%) and Jefferson County continues to have the fastest growth rate (11.2%).

Table 34 shows the population distribution. Silver Bow County contains 6% of the BDNF and 42% of the population. In contrast, Beaverhead County contains 40% of the forest and 11% of the study population.

Important factors that influence in and out-migration include employment, the physical environment, state and local tax policies, labor markets, and cost of living. The BDNF is a major employer and landholder and Forest Service policies impact employment opportunities, the physical environment, and other amenities in the region like open space.

Table 34. Census 2000 Population, Density, and Land Area for Montana and Study Area Counties

County	Total Population	Population in impact area	Area in Square Miles	People per Square Mile	Land Area Rank in State
Montana	902,195		145,552	6.2	-0-
Beaverhead	9,202	11%	5,542	1.7	1
Deer Lodge	9,417	12%	737	12.8	55
Granite	2,830	4%	1,727	1.6	40
Jefferson	10,049	13%	1,657	6.1	42
Madison	6,851	9%	3,587	1.9	13
Powell	7,180	9%	2,326	3.1	30
Silver Bow	34,606	42%	718	48.2	56
Broadwater	4,385		1,191	3.7	51

Source: U.S. Census Bureau, Released March 21, 2001. Compiled by: Census and Economic Information Center, Montana Dept. of Commerce.

Small populations and a limited amount of taxable private land make it difficult for communities to provide basic infrastructure. The large amount of public lands in study area counties limits the amount of land available for private development, which along with geography, concentrates population and development more than indicated by the countywide density figure.

One of the most notable population characteristics for both the state and analysis area is the aging population. For example, the median age for Montana in 2000, is 37.5 compared to a median age of 35.3 for the United States. The median ages in the study area ranged from a low of 37.6 in Beaverhead County to a high of 43.4 years in Jefferson County. The median age was over 40 in Deer Lodge, Granite, Jefferson, and Madison counties which show a higher proportion of population in the 65 plus, or retirement age group. The disparity between the average age statewide and the average in places like Madison County can be partially attributed to the immigration of retirees. This is supported by the higher than state average proportion of personal income made up by transfer payments, dividends and interest rather than labor income.

Economy

Natural resources are an important economic asset in the eight counties involved in the analysis area. In the recent past, resources (e.g., minerals, timber, grazing lands) were a foundation of the economic base in each county. Historically, mineral production has been the largest contributor. By far the largest production has come from the world famous Butte mining district, with well over \$6 billion worth of metals produced. In the late 1980s, a high of 46 million board feet of timber was harvested from BDNF lands. Recent changes in national and international economic and socio-political conditions have reduced the role of both mining and timber industries in the study area. Livestock grazing however remains an integral base activity in several county economies.

Since the last forest plans were written, public land management emphasis has been changing from wildland grazing, timber extraction, and mining toward recreation and tourism. This part of Montana is marketed aggressively for fishing and hunting opportunities and services. The unique mix of ranching and recreation is hard to miss while driving through these counties. Horse

trailers and boat trailers occupy the same parking lots in most small towns. Increased government, retail and service sector employment along with other non-extractive industry jobs are also indicators of this changing economy.

A number of studies and research papers published since the late 1980s addressed the economic role of environmental quality and natural amenities in the West. Recently, a summary of a Center for the Study of Rural America report (2006) concludes both employment and income growth are directly related to wild open spaces and high quality of life, including health care and entertainment.

In Montana, this effect is strongest in counties near the zone of influence from Glacier and Yellowstone national parks, Reports by the Sonoran Institute and Yellowstone Business Partnership (Rasker & Alexander al. 2003), link healthy economies in Montana, Idaho and Wyoming with the natural capital of mountains, scenery, wildlife, clean water, and wilderness, the intellectual capital of its residents, and a friendly small-town atmosphere. In a related study, Rasker (1994) makes the point that the rapid growth of the service sector in many communities surrounded by public lands is partly attributed to growth in “knowledge based” services (engineering, communications, research) attracted here by the environmental amenities on public lands and the slower pace of life.

While the Forest Service recognizes the economic value of natural amenities, they are extremely difficult to accurately measure in a way to make a comparison among the alternatives. Methods to quantify them in an economic analysis are not readily available or agreed upon. These values are described and evaluated in the effects to the Social Environment and in the other resource sections of this Chapter, particularly Wildlife, Scenery, Aquatics, Inventoried Roadless Areas.

Employment and Labor Income

Several different measures are used in gauging changes in area economic well-being. This analysis uses employment as a whole and by industry, and labor income. Labor income is one facet of total personal income. Table 35 below, provides the average per capita income and the proportion made up by labor income for the state and study area counties. Labor income growth and per capita personal income growth in Montana has not kept pace with the U.S. economy, and shows a steady downward trend relative to the national economy. Per capita personal income is approximately 23 % below the national average (Northern Economics 2002). Updated information from the Bureau of Economic Analysis site shows that in 2005, the State per capita income grew to \$29,387, the difference between Montana and national income shrank from 23 to 15 %.

Table 35. Per Capita Personal Income

Per Capita Income		Components of Total Personal Income		
Location	Annual Income	Earnings or Labor Income	Dividends, Interest, and Rent	Transfer Payments
Statewide	\$22,518	61%	23%	16%
Beaverhead	\$21,069	57%	25%	18%
Broadwater	\$19,317	56%	23%	21%
Deerlodge	19,406	51%	22%	27%
Granite	\$18,322	54%	26%	20%
Jefferson	\$25,120	70%	18%	12%
Madison	\$19,615	51%	31%	18%
Powell	\$18,159	59%	22%	19%
Silver Bow	\$22,456	59%	21%	20%

Source: *Regional Economic Information System, Bureau of Economic Analysis, Bearfacts.*

See Table 37 for a breakout of employment and labor income contributed by current BDNF management.

Economic Diversity and Dependency

Diverse economies are those with a large number of economic sectors. They are more resilient and less vulnerable to downturns in any one sector. The size and vitality of these economic sectors and linkages to other sectors in the economy are also important. If a county economy is heavily dependent on only one sector, it may be vulnerable to declining prosperity if business conditions for that industry deteriorate.

Economic diversity can be described a number of ways. The method presented here is the Shannon Weaver Diversity Index (USDA 2005d). Indices are based on the number of industries and the distribution of employment, as displayed in the table below. An index of 1.0 represents perfect distribution across all economic sectors. A higher index means a more diverse economy. While data in table suggests modestly diverse economies, in the smallest counties a sector may be composed of relatively few businesses. For example, adding or subtracting 10 or 15 businesses could have an impact on the index in Granite County, which according to 1999 REIS data had only 89 business establishments.

Of 56 counties in Montana, Flathead County is has the highest diversity index at .667. Carter County is lowest with a diversity index of .506. The most diverse in the analysis area are Beaverhead and Silver Bow, because of Dillon and Butte. All c have become more diverse since 1977. Again, Silver Bow and Beaverhead counties show the greatest increase in diversity. Powell County shows the only decrease between 1996 and 2000.

Table 36. Shannon Weaver Diversity Indices (4 digits) from 1977 to 2002 (USDA 2005d)

County	1977	1985	1991	1996	2000	State Ranking 2002
Silver Bow	.508	.569	.623	.625	.641	8
Beaverhead	.476	.469	.554	.607	.621	11
Madison	.452	.557	.571	.595	.593	25
Broadwater	.474	.530	.574	.582	.583	27
Jefferson	.454	.511	.534	.558	.577	29
Granite	.461	.484	.579	.589	.576	30
Deerlodge	.445	.498	.546	.555	.567	34
Powell	.484	.477	.547	.550	.540	49

The table below describes the Forest Service contribution to employment and labor income in sectors that rely on public land related industries. Forest Service related activities contribute 3.4 % of area jobs and 3.1 % of labor income. The Forest Service contributes no more than 7.6% of jobs to any industry. The highest contributions are in manufacturing, from activities like timber harvest and road construction, and in retail and wholesale trade, from activities like recreation and government expenditures on salaries, facilities, and utilities.

Table 37. Forest Service-Related Contributions to the Area Economy

Industry	Labor Income (\$ thousands)			
	Area Job Total	Jobs Related to FS Activity	Area Labor Income Totals	Labor Income Related to FS Activity
Agriculture	3,485	235	\$43,548	\$4,446
Mining	771	19	\$50,428	\$18
Utilities	612	4	\$65,701	\$388
Construction	2,737	17	\$79,833	\$504
Manufacturing (including forest products)	1,430	91	\$52,714	\$2,802
Wholesale Trade	775	54	\$26,140	\$1832
Transportation, Warehousing	939	23	\$35,105	\$829
Retail trade	4,765	118	\$107,269	\$2,806
Information	683	7	\$42,808	\$388
Finance, Insurance,	1,113	14	\$33,651	\$400
Real estate, rental	1,145	35	\$30,876	\$897
Prof, scientific, tech	2,994	33	\$92,049	\$864
Mgt of companies	243	3	\$10,981	\$146
Admin, Waste Mgt	1,315	16	\$23,707	\$273
Educational	300	6	\$3,150	\$54
Health Care	5,049	59	\$139,443	\$1,699

Industry	Labor Income (\$ thousands)			
	Area Job Total	Jobs Related to FS Activity	Area Labor Income Totals	Labor Income Related to FS Activity
Arts, Entertainment, Rec.	1,147	48	\$17,193	\$789
Accommodations, food	4,570	260	\$51,202	\$3,079
Other services	4,019	51	\$51,283	\$663
Government (Federal, State, & Local)	7,744	458	\$308,255	\$15,792
Total	45,836	1,553	\$1,265,342	\$38,813
Percent of Total	100.0%	3.4%	100.0%	3.1%

Source: 2003 IMPLAN Data

The Social Assessment (Northern Economics 2002) identified the following national and regional trends in the industry sectors that influence the ability of communities to adapt to changing circumstances. Data supporting these trends can be found in county sections in the assessment.

- Employment in extractive industries such as timber and mining is declining in western Montana as it is throughout the west.
- Wage jobs and self-employment in ranching and agriculture show an overall decline since 1986 and projections indicate expected declines in employment in these occupations.
- Local economies in southwest Montana are small and potentially subject to large impacts from relatively small changes in industries.
- The government sector is a large source of employment in all project counties accounting for about 16 % of employment in Silver Bow County and more than 41 % in Jefferson County.

Forest Resource Related Industries and Services

This section focuses on industries and services that use forest or wildland-related resources: mining, wood products, rangeland grazing, recreation, and tourism. These industries or services are the most likely to be impacted by forest management decisions. Production takes place in and outside forest boundaries. In many cases, the BDNF is not the only provider of raw materials or settings.

Data for the affected environment and effects analysis is generated from the IMPLAN Pro model. IMPLAN is a computerized input-output economic modeling program originally developed by the Forest Service, Federal Emergency Management Agency and the Bureau of Land Management. IMPLAN has since been privatized and is now provided by Minnesota IMPLAN Group (MIG). IMPLAN uses a database of basic economic statistics obtained from major government sources such as the Regional Economic Information System (REIS), Bureau of Economic Analysis, Bureau of Labor Statistics and US Census Bureau. This database reports economic information for 528 industry sectors and includes information not available from other

state or federal data sources. Specifics on how the model was built and applied with assumptions made for the analysis are available in the project file.

Wood Products

Today's national forest timber sale program differs in both volume and objectives from the program only a decade ago. Timber harvest levels on NFS lands declined over the past 15 years, but were relatively stable between 2000 and 2003 and increased slightly between 2003 and 2005. See Timber Management Affected Environment for specific analysis of timber harvest trends). In general, trends in timber offered on the BDNF follow national trends. Reports may be obtained in the project file or on the web at <http://www.fs.fed.us/forestmanagement/reports/tspirs/1997/index.shtml> 6/25/98, USDA Forest Service. These differences have changed the role that timber production from National Forest System lands plays in national and regional economies.

Timber industry outputs (total sales for an industry) in southwestern Montana comprise 2.1% of total industry output within the impact area economy (USDA 2002e). However, logging and related activities have existed for a long time and are integral to local communities and individuals directly employed by them. Current timber contributions to county economies vary from one to 27 % (Northern Economics 2002). On the southern end of the BDNF especially, there are few direct timber-related jobs reflected as a percentage of total employment. The timber output amounts to only 1 % of industry outputs in Beaverhead, Deerlodge, Jefferson, Madison, and Silver Bow counties. On the north end the communities of Deerlodge (Sun Mountain Sawmill) and Townsend (RY sawmill) still rely heavily on timber processing for employment. Twenty seven percent of the industry output for Powell, Granite and Broadwater counties came from the timber industry. Granite County has a small stud mill as well as several small logging related businesses. These counties rely heavily on private sources of timber products. In 1998, only 18 % of timber delivered to mills came from National Forest and 73 % came from private land. In Powell and Broadwater counties, 22 % came from NFS land and 69 % came from private land (Keegan et al. 2001).

The BDNF timber sale accounting system produces reports based on information supplied to the reporting system. An average 8.9 million board feet of timber per year were sold fiscal year 1997 through 2004. With increased national funding for fuel reduction projects, the 2003 to 2005 average rose to 14 million board feet. This commercial activity contributed roughly 318 full-time and part-time jobs and \$8 million in labor income annually within the forest products sectors in the study area (IMPLAN model, BDNF FEIS-NAICS, 2003 IMPLAN data, in Project File).

Livestock Grazing

The livestock industry, similar to the wood products industry, contributes only a small portion to the regional economy by providing 3.1 % of the jobs (USFS 2002e). However, percentages vary greatly between counties. In Beaverhead and Madison counties, the grazing industry contributes 27.4 and 15.7 %, respectively (Northern Economics 2002). Of 56 Montana counties, Beaverhead County is the largest livestock producer, while Madison County is in the top ten. The January 2002 inventory from the National Agricultural Statistical Service (<http://www.nass.usda.gov/mt/>) indicated the eight-county area produced 472,740 head of cattle and 33,600 sheep and lambs. Very few grain-fed cattle were produced. The focus was on calves and feeder steers along with beef cows or breeding stock. This type of ranching requires large expanses of grazing land.

Across the impact area, grazing is important to specific ranchers operating under BDNF permits. To them, the continued opportunity to graze on public lands is important and can be vital to year round operations. Currently, 315 livestock operators graze stock on 257 separate BDNF allotments. The permitted level of Animal Unit Months (AUMs) is 233,499 or 87 % of 1987 levels when the current Forest Plans were authorized. Actual use averaged 177,278 AUMs from 2001 through 2003.

According to the National Agricultural Statistical Service (<http://www.nass.usda.gov/mt/>), overall cattle production in Montana has been relatively stable since 1986. The January inventories in 1986 and 2002 reported 2.45 million head with a peak of 2.75 million during 1996. Sheep production, on the other hand, showed a general decline across the state, reflecting a broader national pattern.

Several economic factors have changed since the early 1980s which might have affected ranching operations in southwest Montana, including rising real estate values, volatile commodity price fluctuations and rising overhead costs for agriculture. These factors along with state and national politics and changing livestock market conditions have affected the livestock industry over the last twenty years. Social factors include the rising popularity of southwest Montana as a place to live, work and play accompanied by related population growth and change.

Changes in forest management are responsible for a large part of the shift in permitted and actual use by cattle on the BDNF. The Beaverhead Riparian Amendment in 1997 and implementation of INFISH grazing standards west of the Continental Divide measurably affected allotment use. Livestock numbers have slowly declined since the current forest plans were written. Permitted use today is 87 % of what it was in 1987. Under this financial stress, grazing permits on federal land are particularly valuable. Fees are calculated using the formula required by 36 CFR 222.51 and are considerably less than those charged by private landowners.

In 2003, the average fee in Montana for grazing on private land was \$16 per AUM based on Montana Agricultural Statistics Service, National Agricultural Statistics Service figures, and the minimum fee charged on Montana State Lands was \$5.48 per AUM (USDI 2006). The Forest Service and BLM used the same formula to derive a \$1.43 fee in 2004, which makes federal land the least expensive grazing available to area ranchers. Federal grazing permits are desirable for area cattle producers as a source of inexpensive forage, even though additional management costs are usually incurred. Grazing receipts for the BDNF amounted to \$208,623 in Fiscal Year 2003.

Recreation and Tourism

There are a wide variety of recreation and tourism activities on the BDNF. Recreation economic contributions typically appear in the retail and service sectors. The National Visitor Use Monitoring (NVUM) Survey on the BDNF in 2000 was the source of recreation participation numbers for the DEIS. This is a new nationally designed survey conducted individually on all National Forests at 5 year intervals. The same survey was repeated in 2005. Visitor numbers and participation rates for the FEIS come from the 2005 survey (USFS 2006c). The NVUM survey gives us, for the first time, some definitive recreation user numbers to work with. The NVUM methodology and analysis is available in the project file. Subsequent work by the USDA Forest Service Inventory and Monitoring Institute and Michigan State University produced a report on

“Spending Profiles of National Forest Visitors, NVUM Four Year Report” (Stynes & White 2005). The results of four years of NFS visitor surveys, nation-wide, were used to develop profiles of how various categories of visitors spend their money in local economies. The study was used to predict the impact on employment and income from recreation and tourism activities.

The survey results and subsequent reports indicate economic impacts were influenced most by an overnight stay and the distance between residences and recreation sites than by type of activity. For example, overnight visitors spend \$125 more on lodging, gas, meals, etc., than local day users according to the NVUM survey, which produces a larger economic impact. The survey also found visitors whose primary activity requires a vehicle, whether it is a car, snowmobile or OHV; spend greater amounts on gas and oil.

An estimated one million visits to the BDNF were attributed to 28 different recreational activities in 2005. Participation by activity is shown in the table below. Sightseeing, relaxing, hunting and fishing were the dominant activities. Many visitors reported overlapping participation. The 3rd column, which reports visits for a specific purpose, will be used to analyze effects of alternatives.

Table 38. Primary Recreation Activities on the BDNF and Participation Rates

Activity	Participation in types of activities (allows overlap)	Visits attributed as a primary activity*
Camping in developed sites (family or group)	10%	2%
Primitive camping	4%	<1%
Backpacking, camping in unroaded areas	1%	<1%
Resorts, cabins and other accommodations on Forest Service managed lands (private or FS)	3%	1%
Picnicking and family day gatherings in developed sites (family or group)	11%	4%
Gathering mushrooms, berries, firewood, or other natural products	8%	5%
Viewing natural features such as scenery, flowers, etc on national forest system lands	57%	19%
Visiting historic and prehistoric sites/area	11%	<1%
Visiting nature centers, nature trails or visitor information services	1%	0 %
Nature Study	12%	< 1%
General/other- relaxing, hanging out, escaping noise and heat, etc,	42%	5%
Bicycling, including mountain bikes	3%	1%
Downhill skiing or snowboarding	3%	3%
Cross-country skiing, snow shoeing	5%	5%
Hiking or walking	52%	8%
Horseback riding	2%	<1%
Non-motorized water travel (canoe, raft, etc.)	9%	1%
Other non-motorized activities (swimming, etc.)	7%	<1%

Activity	Participation in types of activities (allows overlap)	Visits attributed as a primary activity*
Motorized water travel (boats, ski sleds, etc)	5%	<1%
Other motorized land/air activities (airplanes)	0%	0%
Snowmobile travel	2%	1%
Off-highway vehicle travel (4-wheelers, dirt bikes, etc)	6%	<1%
Motorized trail activity	15%	3%
Driving for pleasure on roads	49%	8%
Hunting- all types	31%	27%
Fishing- all types	22%	14
Viewing wildlife, birds, fish, etc on national forest system lands	65%	5%

Source: USDA FS, National Visitor Use Monitoring Results, Beaverhead-Deerlodge NF, 2006.

**adds up to more than 100% due to the way some participants reported primary activity (this is adjusted in the IMPLAN model))*

The effects are compared by alternatives in four visitor categories reporting their primary activity as:

1. General developed and dispersed recreation, which includes the first 20 activities listed below
2. Snowmobile travel
3. OHV and motorized trail travel and pleasure driving
4. Hunting, fishing and wildlife viewing

Winter recreation in Island Park

Island Park, Fremont County, Idaho was not analyzed as part of the BDNF economic impact area. A number of comments on the DEIS concerned economic impacts to Island Park from closing the Montana portion of the Mount Jefferson area to snowmobiles. Snowmobile riders who use Hellroaring Basin and Mt Jefferson in Montana, arrive from the Caribou-Targhee National Forest or public roads in Fremont County, Idaho.

Fremont County was considered initially as an addition to the regional economic impact model to analyze effects to employment and income. However, Fremont County is fairly diverse for a small county with a population of 12,242 (US Census website). Island Park is also a very small part (2%) of the Fremont County population. Of 5,710 jobs and \$273.3 million in labor income, about 500 jobs, tied to food service, lodging, gas stations, sporting goods and other retailers, might be directly affected by the loss of snowmobile opportunities on the BDNF.

The IMPLAN model cannot distinguish Island Park data from Fremont County data in order to determine impacts to Island Park specifically. The high level of snowmobile use and large number of snowmobile opportunities throughout the county further dilute the effects on Island Park in terms of data. In order to address comments on potential impacts to Island Park businesses, without specific data, the narrative analysis is included below.

Snowmobiling is undoubtedly important to the economy of Island Park. Approximately 38 local businesses (Keller 2006) profit to some degree from snowmobile riders, including snowmobile sales and service, lodging, meals, fuel, groceries and real estate sales.

Various commercial websites in Fremont County advertise the largest trail grooming program in the nation with over 600 miles of groomed trails and vehicle access to an additional 400 miles of groomed trails in Montana and Wyoming as well. The bulk of the snowmobiling activity is focused around Island Park. Fremont County supports the grooming program with over \$100,000 for trails with money from snowmobile registration. Fremont County registered 10,934 resident and non-resident snowmobiles in 2005, the highest in the State by almost 4 times (Cook 2005). Sixty five percent were non-resident or rental machines (Cicaitoga, 2006.).

Winter lodging tax collections is one indicator of winter recreation trends in Fremont County. The State of Idaho collects a 2% tax on winter lodging. Tax collections in Fremont County more than doubled from \$372,994 in the winter of 2001-02 to \$830,997 in the winter of 2005-06 (Idaho State Tax Commission, Project File). The 2001 to 2005 average tax revenue of \$601,995 represents the total revenue of \$30,099,775 annually for winter lodging in Fremont County. Using a lodging expense for non-local forest users of \$65 per party trip or \$31 per person (Stynes & White 2005), lodging revenue could represent roughly 970,960 winter overnight visits in Fremont County for snowmobiling and other activities.

The Ashton-Island Park District of the Caribou-Targhee National Forest (CTNF) is entirely open to snowmobiles. Opportunities are limited only by terrain and forest vegetation. The Caribou-Targhee National Visitor Use Monitoring survey (USDA 2006f) describes snowmobiling as the main activity for 8 % of forest visitors as opposed to only 1.5 % on the BDNF. Snowmobile use in 2005 on the Ashton-Island Park District was estimated to account for about half of the total CTNF snowmobile visitation. Notes in project file. project file.

The snowmobile destination on the Montana side of the Centennial Divide is approximately 2,000 acres, only a portion of which can be ridden. Geographically speaking, the area can be described as a “thumb” projecting into Idaho which includes the south face of Mt Jefferson, the north face of Reas Peak and the Hellroaring Creek basin in between. The north face of Mt Jefferson and south face of Reas Peak are in Idaho. There are no groomed or marked trails leading to Mt Jefferson, nor is a route into the area indicated on Fremont County Snowmobile Maps, but the routes are generally used enough to be visible. Mt Jefferson is promoted by magazines and commercial websites as an experienced rider challenge. Riders performance test their machines mostly on the Idaho side and climb chutes on both sides of the mountain. Experienced riders reach the Idaho side by taking the Rock Creek or “Waterfall” trail up from the Henry’s Lake road. Less experienced riders can achieve the views and backcountry experience of the Centennial Mountain ride from Reas Peak or other destinations without approaching Mt Jefferson’s slopes and chutes.

Island Park District personnel have not conducted counts specific to Mt Jefferson trails or trailheads, but estimate an average of 30 sleds per day on weekdays and 150 sleds per day on weekends as of the 2005/2006 winter. Of these, they estimate maybe 30% to 60% reach the top (Keller 2006). The Greater Yellowstone Wolverine Study winter rec flight results for February 22, 2005 (Project File) show high (tracks cover >33%) and moderate (tracks cover 11-33%) use in this area. That date is Presidents Day Weekend which usually has high use.

Cross country ski use is currently very low on the Idaho trails leading up to Mt Jefferson and did not show up at all on the WCS aerial flight. Ski use is higher on the Montana side from the Centennial Valley and a few tracks show up (<11%) on the aerial track surveys described in the paragraph above. Unlike snowmobile riders, cross country skiers tend to follow the same track, so it is difficult to gauge the number of visitors from aerial surveys.

Minerals, Gas and Oil

Mining has a long history in the analysis area, particularly hard rock mining for gold, silver, and copper. The industry peaked during the 1970s and is currently modest (USFS 2002e). Less than 3 % of employment and 6 % of labor income in the analysis area is currently generated by mining activity. Nearly all the activity takes place on private land or on patented claims inside the Forest boundary. Very little hard rock mineral production takes place on BDNF lands in the study area, however, the BDNF has a number of active unpatented mining claims, and there are numerous plans of operation for prospecting and exploration activities.

Federal lands are open to locatable mineral entry under the Mining Law of 1872 unless withdrawn through formal action to protect specific resources, such as withdrawals for developed campgrounds, research natural areas, or Wilderness protection. Lands withdrawn from mineral entry will not change by alternative. The economic analysis assumes economic activity related to hard rock mining is affected more by national and global economics than forest management decisions and will not change notably between alternatives.

Mineral materials, like sand, gravel, and rip-rap, are considered saleable minerals. These materials are of relatively low unit value and have not accounted for much of the mineral revenues on the BDNF. There is very little variation in sale or availability of mineral materials between alternatives.

Fueled by a jump in oil prices in 2004 and new technology, the oil and gas industry has generated a flurry of activity in Montana with renewed interest in oil and gas leases on moderate potential areas in southwest Montana. There are no high potential areas in the BDNF. Oil and gas leases have varied since 1985 from 1,005,277 acres to none in 2002. As of April, 2007, twelve parcels have been leased on 25,000 acres for ten years. Currently, there are 216,150 acres of moderate potential lands administratively available for leasing

While there are no oil and gas wells in production and there has been very little exploration, or drilling, the effects of oil and gas development are analyzed under the Reasonably Foreseeable Development Scenario developed for the Beaverhead National Forest Oil and Gas Leasing Record of Decision, (USFS 1996a; see Minerals section for details). Economic effects are generated from (1) exploration activity and related expenditures in the community (2) oil or gas production with subsequent expenditures in the community and royalties to the state and federal governments, and (3) leasing and associated payments to the federal government.

Payments to Counties

Counties receive two types of payments when federal lands are located within their boundaries. The first of these is Payment in Lieu of Taxes (PILT). These payments are affected by changes in federally owned acreage.

The second payment is paid under either the Twenty Five Percent Fund or the Secure Rural Schools and Communities Self-Determination Act of 2000 (P.L. 106-393). Under the Twenty

Five Percent Fund, the Forest Service makes payments to counties of 25 % of receipts from revenue producing activities on NFS lands to compensate for loss of property tax revenue. The Act was passed to sever resource extraction from revenue sharing payments. The Act gave Counties the option of continuing to receive payments under the Twenty Five Percent Fund Act or electing to receive their share of the average of the three highest payments made to the state from 1986 to 1999 (full payment amount). All seven counties elected to take the stable payment option. Even though payment to these counties is now fixed until 2006, this analysis will project what the 25 % Fund will be should counties return to variable payments after 2006. The table below displays the stable payment amount available to the counties for fiscal year 2002.

Table 39. The Twenty Five Percent Fund, Low, High and Full Payment Amount derived from an average of three highest years for P.L. 106-393

County	Lowest Payment	Highest Payment	Average Payment	Stable Payment in 2002 based on high 3 years.
Deer Lodge	\$19,100 (1991)	\$43,800 (1994)	\$30,900	\$44,010 BDNF
Beaverhead	\$66,800 (1989)	\$237,300 (1996)	\$145,500	\$206,978 BDNG
Silver Bow	\$24,000 (1986)	\$69,500 (1996)	\$44,600	\$63,513 BDNF
Granite	\$134,400 (1986)	\$608,700 (1994)	\$290,200	\$276,653 BDNF \$136,383 Lolo National Forest
Jefferson	\$63,400 (1986)	\$203,500 (1994)	\$127,800	\$142,381 BDNF \$ 39,477 Helena National Forest
Madison	\$68,500 (1993)	\$144,600 (1996)	\$100,100	\$122,652 BDNF
Powell	\$185,900 (1999)	\$460,600 (1994)	\$322,800	\$ 61,095 BDNF \$398,300 Flathead, Helena and Lolo National Forests

Source: http://fsweb.ftcol.wo.fs.fed.us/pub/staff/imi/implan/implan/spatial/Payments_table.pdf

Social Environment

The social environment for this analysis is defined as the people living in the seven counties with BDNF lands. It includes their lifestyles and attitudes toward forest resources and the way these resources are used. The Executive Summary of the Social Assessment of BDNF (Northern Economics 2002) makes the following statement.

The importance and extent of social impacts, and the very closely related economic impacts, of Forest management vary based on the perspective of the individual. On one extreme, there are those who would make social and economic needs of the local community, or an even smaller segment of society, of paramount importance. Others would advocate that social and economic factors should be disregarded in favor of environmental concerns. The challenge is to find an acceptable balance.

Lifestyles, Attitudes and Values

The history of southwest Montana is based on the use of natural resources and lifestyles “close to the land.” Native Americans moved through southwest Montana following buffalo and other game that provided subsistence resources for their survival. Among the first long-term settlers to the region were miners brought by gold and silver. Nearby forests were plentiful sources of wood, and the valleys and mountain meadows were ideal grazing grounds for beef cattle and good habitat for game. These important resources allowed early settlers to develop the infrastructure for emerging communities such as Virginia City.

The resources that attracted Native Americans and early settlers to the region remain important today: timber, minerals, grazing, and game habitat. Yet, as American culture develops technological advancements, greater levels of wealth, and more leisure time, National Forests and other public lands have become important recreational, aesthetic, and symbolic resources.

Long-time residents and others often have strong historical and emotional ties to the forest. Their lifestyles include activities requiring vehicle access to and use of the forest. They want assurances that resources will be protected, traditional uses will continue, favored areas will be protected, and changes in management will not have unacceptable impacts on their lifestyle and customs.

Additionally, many residents are concerned about what kind of impact changes in management will have on their economic well-being. Headwaters and tributaries on National Forest System lands serve agricultural, industrial, business, recreational and residential uses. Outfitters and guides rely on National Forests for all or part of their living. Many local communities rely on employment and income generated as a result of the existence and use of forest resources.

A review of literature and primary data collection indicate several different lifestyle groups that exist in the seven project counties. The lifestyle categories are:

- ◆ Ranching
- ◆ Timber and Logging
- ◆ Urban and Suburban
- ◆ Rural Town
- ◆ Recreation

Ranching and timber harvest are present to some degree in each county, and represent natural resource based lifestyles. In other words, their work takes place in the natural environment and relies on a product from that environment. These are considered traditional uses of the Forest.

Urban and suburban lifestyles are not present in all counties, but they contribute to the current cultural mix of area lifestyles. Butte is the only large urban area within the seven counties. However, these urban and suburban lifestyles are found in many visitors from nearby Missoula, Hamilton, Bozeman, Helena and Idaho Falls areas.

Rural town lifestyles are found in every county. Natural resources and national forests are important assets associated with rural town living in southwest Montana. Living close to public lands is an asset that enhances the quality of life and, in some instances, mitigates the economic disadvantages associated with a rural town.

Recreation represents an important component of most southwest Montana lifestyles though recreation visitors aren't identified as a lifestyle group in the same way as ranchers or suburban residents. Rather recreation is reflected more as a component of values and beliefs that enhance the quality of life for most community residents. Recreational activities can be identified as resource dependent and non-resource dependent activities. Examples of resource dependent activities are hunting, fishing, horseback riding, ORV riding, bird watching, firewood gathering. These activities are important to a range of individuals such as ranchers, miners, bankers, and many other people who are long-term residents, as well as newcomers to the region.

In addition to recreation use, the BDNF provides aesthetic and symbolic resources such as beauty, solitude, and quiet. Wilderness and protected lands are important to many residents simply for their existence. They appreciate just knowing those lands are there whether they intend to use them or not.

Values and beliefs based in the lifestyles described above affect the identification and response to natural resource management issues. Community culture, lifestyles, local economies, and social structures are changing at different rates in communities around the BDNF. The result is often an experience of discontinuity between community culture and social realities. The experience of the discontinuity of lifestyles and social realities can result in social disruption or tensions about new residents, new economic activities, or changes in forest management policies. This social disruption can also amplify disagreements within communities or groups or it can migrate to conflicts about forest management issues.

Special Places

Special places in outdoor settings have attractions and features identified as unique, different, distinctive, and extraordinary to people. Special places may range from a small area, such as a particular fallen log to an entire mountain range.

Before the Beaverhead and Deerlodge national forests existed, American Indians and early settlers used these lands and identified strongly with specific places on the landscape. Many places on the forest were named after early settlers and miners or the prevalent activities. There are half a dozen "Mill Creeks" on the BDNF.

Today, residents of southwest Montana and repeat visitors still develop special attachments to places they use or visit. Comments from the public on the Proposed Action (2003) were frequently about the management of favorite or familiar places. Many people submitted favorable comments about the Management Areas (MAs) suggested in the Proposed Action. These MAs were intentionally "placed-based", meaning they reflect logical topographic and geographic subsections of the landscape that relate well to the people who use them. It is important that management proposals are understandable, so people can anticipate management changes to particular portions of the forest.

Places can be regarded as special at a much larger scale. The Big Hole Valley, Rock Creek and the Greater Yellowstone Ecosystem, as examples, have significance to large numbers of people. We received many comments from the public about protecting the special resources of these well-known areas; scenery, wildlife, fisheries and recreational opportunities.

Trends

National and local socioeconomic trends influence the ability of communities to adapt to changing circumstances. Contemporary trends affecting lifestyle, attitudes and values were identified in the Social Assessment (Northern Economics 2002). The trends in population growth, aging of the population, shifts in land use from agricultural to residential, and shifts in local industries will have effects above and well beyond those created by changes in forest management. These will have effects regardless of alternative management. Data supporting these trend discussions are displayed in the county-by-county sections in the assessment.

Public Concerns about Forest Management

Scoping for the Proposed Action (2003) highlighted three specific issues related to lifestyle, attitudes and values:

1. Maintaining traditional uses like grazing, timber harvest, and recreational activities;
2. Maintaining the health of forest resources for the health of the community (clean water, fish, wildlife, fuel hazards, roadless management); and
3. Protecting amenities like open space and wilderness.

Concerns Expressed by County Commissions

In addition to broader public concerns identified through scoping, county commissioners highlighted concerns that directly affect their constituents:

Land tenure and ownership patterns

Forest Service budget and economic efficiency

Community resiliency (economic diversity and responsiveness)

Governmental relations (agency effectiveness, interagency cooperation, trust)

Traditional rights (water, property, roads and vehicle access)

Traditional uses (grazing, logging, mining, motorized recreation, vehicle access)

Concerns expressed by tribal governments can be found in the Tribal and Other Governments Section.

Environmental Justice

As required by Executive Order 12898, all Federal agencies shall “identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

Environmental justice refers to the fair treatment and meaningful involvement of people of all races, cultures and incomes with respect to the development, implementation and enforcement of environmental laws, regulations, programs and policies. It focuses on the consideration of environmental hazards and human health to avoid disproportionately high and adverse human health or environmental effects on minority and/or low-income populations. Minority populations are defined by the Interagency Working Group convened under the auspices of the Executive Order as Black/African American, Hispanic, Asian and Pacific Islander, American Indian, Eskimo, Aleut, and other non-white persons. This definition does not include individuals

defined by the activity they participate in or their means of making a living, such as motorized recreationists or ranchers. Low-income populations are defined as persons living below the poverty level based on total income of \$13,359 for a family household of four based on the 2000 U.S. census standard.

Minorities: Both the state of Montana and the seven-county study area show a relatively homogenous racial composition when compared to the United States. In the U.S., 75 % of the population is white. In 1980, approximately 93 % of the Montana population was white. That number dropped to 90 % in the 2000 Census. However, while 6 % of the Montana population is American Indian, the percentage of American Indians for the study area ranges from 0.5 % in Madison County to 2 % in Silver Bow County. Hispanics/Latinos make up almost 3 % of the population of Beaverhead and Silver Bow Counties and approximately 2 % of Madison and Powell Counties.

There are no Indian Reservations located in or in close proximity to the planning area. Members of the Shoshone-Bannock Tribes of the Fort Hall Reservation (approximately 110 miles to the south) and the Confederated Salish and Kootenai Tribes of the Flathead Reservation (approximately 120 miles north) are known to use resources in the planning area for cultural and, to a lesser extent, subsistence purposes. In 2000 the Fort Hall Reservation in Idaho had an American Indian population of 3,648 and the Flathead Reservation had 6,999.

Low income: The poverty rate is a commonly used indicator of the level of economic need in a community. Poverty rates are estimated for local areas periodically. The number of individuals living in households with incomes below the level necessary for basic sustenance is estimated, but these estimates do not consider wide variations in area cost of living. In 1989, The U.S. Census Bureau indicates 14.6 % of the Montana's families were considered below the poverty level. By the 2000 Census, this percentage had dropped to 10.5. In 1989, Jefferson County had the lowest rate of poverty for families in the analysis area at 5.6 %. The highest level of poverty for families was in Granite County with a rate of 17.2 %. By the 2000 Census, the poverty rate for families had decreased for all counties except Jefferson, which showed a small increase to 6.7 %. The average per capita personal income for the state of Montana in 2000 was \$22,518, 47th out of 50 states. This compares to a low of \$18,159 in Powell County and a high of \$25,120 in Jefferson County (U.S. Bureau of the Census, 2000 Census and 1999 Census).

Persistent poverty status requires a county to have experienced an individual poverty rate in excess of 20 % for several Census years. Based on the 1990 and 2000 Census' the persistent poverty characteristic does not apply to any of the counties in the study area.

Tribal and Other Governments

This section highlights the traditional and contemporary connection between American Indian tribes and the Beaverhead-Deerlodge National Forest. It provides a general understanding of the American Indians affiliated with the Beaverhead-Deerlodge National Forest who regard the forest as an indigenous peoples' landscape.

No American Indian reservations are located within or adjacent to the Beaverhead-Deerlodge National Forest. Forest managers are aware of tribal interests as they relate to tribal treaty rights. Several federally recognized Indian Tribes maintain aboriginal territories and treaty rights within the confines of the BDNF, even though the federal government didn't reserve Indian lands within forest boundaries. Coordination and consultation is maintained with treaty tribes in

accordance with Forest Service required mandates affecting federally recognized Indian Tribes. The Hellgate Treaty of 1855, specifically established National Forest System lands west of the Continental Divide as Salish and Kootenai Ceded Territory.

A primary concern of these tribes is the availability and sustainability of plants animals, and fish traditionally hunted or gathered on what are now BDNF lands. At issue is the availability of these resources in sufficient quantities to allow harvest to satisfy the ceremonial, subsistence, and traditional needs of the tribes, while still providing for conservation needs of the species.

Basic Elements of Federal Indian Law

The Trust Relationship: Indian tribes are “distinct political” communities “that are domestic dependent nations: whose “relation to the United States resembles that of ward to his guardian.” The United States has an obligation to American Indians. The obligation is a federal trust responsibility.

The federal trust responsibility is the United States government’s permanent legal obligation to exercise statutory and other legal authorities to protect tribal lands, assets, resources, and treaty rights, and the duty to carry out the mandates of federal law with respect to American Indian and Alaska native tribes. Federal Indian policy and “trust responsibilities” have developed from court decisions, congressional laws, and policies articulated by the President of the United States.

For the Forest Service, trust responsibilities are essentially those duties that relate to the reserved rights and privileges of federally recognized Indian Tribes. Those duties are found in treaties, executive orders, laws, and court decisions that apply to the national forests and grasslands (USDA 1997d).

Tribal Sovereignty: American Indian nations have the inherent authority and power of self-governance. These powers existed prior to the existence of the United States government.

As distinct independent political communities, tribal nations possess the right to:

- 1) Establish form of government,
- 2) Determine membership of the tribe,
- 3) Make laws and enforce such laws,
- 4) Provide membership with maintenance of law and order,
- 5) Exclude persons from the reservation,
- 6) Charter business organization for the purpose of managing tribal assets, and
- 7) Waive sovereign immunity, or in other words, the tribe cannot be sued.

The Reserved Rights Doctrine: Another fundamental element of Indian law is the understanding a treaty is “not a grant of rights to the Indians, but a grant of rights from them”. Additionally, those rights not expressly given up in the treaty or federal statute are reserved for the tribe. The principal is firmly established in *Winters v. United States*, a prominent water case in 1908. From the Supreme Court’s decision, the concept of reserved rights, generally known as the Winters Doctrine, became established. The Winters Doctrine established a right to water existed for an Indian Tribe without the right being specifically mentioned during negotiations or written into documents forming its reservation.

Tribal Consultation: Consultation is defined in the Forest Service National Resource Book on American Indian and Alaska Native Relations (USDA 1997d). Consultation must take place if a decision is to be made that will affect Indian Tribes. The American Indian Rights and Interests will be addressed through the consultation process.

Environmental Consequences

Summary of Alternatives

Economic Environment: Overall, Forest Service activity does not make up a large part of most county economies. To put the projected increases and reductions in jobs in context, see Table 39 above. Without including the economic activity of oil and gas development, employment and labor income are slightly lower than the no action alternative in Alternatives 2, 5, and the preferred Alternative 6, less than 1%. From an economic standpoint, there is little difference between these three alternatives. Timber outputs are fairly static in these alternatives. Snowmobile, ATV and driving visits vary between alternatives, but not enough to generate large differences in jobs and labor income. It takes a larger change in recreation visits than we predict to stimulate more measurable changes in the service and retail industries.

Alternative 4 produces the strongest positive effect on employment and labor income, a 7 % increase over current levels. This is due to increased timber outputs. While timber is not the largest program on the Forest, the wood products industry generates more measurable changes in jobs and labor income than programs like recreation or grazing.

Alternative 3 generates the greatest estimated loss in employment, from 3.4 % to 2.8 % or 252 jobs. This is because Alternative 3 reduces outputs the most for the three major programs: timber, recreation (snowmobile, ATV and driving visits) and grazing.

Recreation, including wildlife and fish related visits, is the largest contributor to employment and income, regardless of alternative. Variations in road and trail closures between alternatives are not great enough to reduce the role of recreation as the largest contributor.

Contributions to the economy from Forest Service Expenditures (salaries, rent, contracts), remain substantial regardless of alternative and don't vary much. This is because budget expenditures were held fairly static under each scenario. The recreation and Forest Service expenditure aspects of management provide the base of economic contributions. Outlooks of declining Forest Service budgets may become a concern for local communities.

Livestock grazing on the BDNF contributes the least to the economy in this analysis even though the grazing program is substantial. Variations between alternatives were small and the ranching industry is not as labor intensive or high paying as, for example, the wood products industry.

Increases or decreases in employment and labor income from any alternative would have less effect if distributed evenly across the 8-county impact area. If concentrated in one or two counties, the effects could have a stronger impact on individuals or businesses. Timber-related activities affect employment and income the most. This effect may be concentrated in those counties with mills or logging-related businesses (Powell, Granite and Broadwater). Powell and Granite counties already have the lowest per capita personal income in the impact area and Alternative 3 could potentially exacerbate those low numbers. Changes in recreation and

agricultural related employment stemming from changes in snowmobile and OHV opportunities or livestock AUMs will be distributed across most counties.

This analysis was not able to quantify the potential economic benefits of environmental quality or contribution protected lands make to healthy economies. The economic value of these lands is described in the Effects to the Economic Environment from Inventoried Roadless Areas and Wilderness in this section. See other resource sections, Wildlife, Aquatics and Soils for qualitative effects of alternative strategies for Inventoried Roadless Areas and Wilderness.

Social Environment: Alternatives 2, 5 and 6, the preferred alternative, generally have similar effects to current management (Alternative 1). Management under these alternatives would present little radical change for most individuals because acres of protected lands, timber harvest opportunities and grazing opportunities show small variations. Alternatives 5 and 6 resolve some social conflicts present in current plans by segregating travel opportunities and creating new allocations. Closing recommended wilderness to ATVs, snowmobiles and bicycles will be a concern to some users (Mt Jefferson especially) while non-motorized opportunities are delineated for a different group of users. Alternative 6 addresses comments to the DEIS about the social environment by dropping wilderness recommendations for two favored snowmobiling areas, Electric Peak and Mount Jefferson, adding other recommendations, and increasing areas where timber harvest is allowed. Alternatives 2, 5 and 6 also address concerns from those attached to special places by clearly describing future management of those areas.

Alternatives 3 and 4 produce strong positive and negative impacts, widening the gap between conservation and extractive lifestyles. Alternative 3 benefits those interested in amenities and protection of resources but negatively impacts those tied to traditional uses. The higher level of protected lands in Alternative 3 could provide additional “natural capital” for attracting business growth (Raskar & Alexander 2003) but may negatively affect those who prefer vehicle access. Alternative 4 benefits those tied to traditional uses of resources but may negatively impact those who want to see more protected lands.

Effects Common to All Alternatives

Forest Service budgets have been held constant over the planning horizon. Forest Service budgets and employment are expected to follow trends over the last five years and remain stable over the planning period. There may be some decline in the immediate years with federal funding strained by war and natural disasters. While the budget ceiling will remain close to \$20 million, shifts will take place within resource programs depending on alternative design, resulting in changes in estimated outputs by alternative.

The economic contribution from exploration and development of locatable minerals, such as gold or talc, on the BDNF is not expected to change by alternative. Demand and availability of mineral materials like gravel and riprap, would not vary by alternative, nor would their economic contribution.

Direct and Indirect Effects to the Economic Environment

Direct effects are those economic effects associated with economic activity (e.g., increase in demand for saw timber or recreation) that occurs in industries tied to the processing of forest resources. Examples of direct industries are 1) the local hotel, which provides lodging to

recreationists, and 2) the local sawmill that processes National Forest timber. **Indirect effects** are economic effects associated with spending by industries that provide goods and services to the direct industries. An example is the utility company that provides electricity to the local hotel or sawmill. **Induced effects** are economic effects associated with household spending caused by changes in activity in the direct and indirect industries. Examples are the local grocery stores and restaurants that supply goods and services to the local economy.

Outputs of each Alternative

The table below shows estimated outputs for the grazing, timber, minerals, recreation and vegetation/fuels management programs used to estimate economic impacts. Outputs for the current situation are based on actual Forest Service resource outputs, revenues, and expenditures averaged between Fiscal Year 2003 and 2005 to account for annual variability.

Figures vary between Draft and Final based on: changes in estimated timber outputs, corrections to the AUM to head month conversion for livestock, changes in snowmobile and driving visits reflect corrected road and trail miles, and updated NVUM visitor use data. Predicted timber outputs for each alternative were adjusted upward based on 2003-2005 BDNF statistics for timber offered. This increase reflects the proportion of forest funding going to fuel reduction and forest health projects to meet national initiatives. While prescribed burning and fire suppression are also large programs in southwest Montana, most of the economic impact is in salaries for Forest Service employees (built into the model separately from resource outputs). It also comes from or contracting services to individuals or businesses that were displaced from other Forest Service work by wildfire (i.e. road maintenance or logging equipment). Most contract fire crews and caterers come from outside the analysis area and spend their pay elsewhere.

Table 40. Estimated Outputs by Alternative

Output	Current	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Actual Use Cattle (head month)	128,688	128,688	128,688	121,414	125,585	124,068	123,823
Actual Use Sheep (head month)	24,697	24,697	24,697	24,697	24,697	24,697	24,697
Estimated Timber Output (MMBF)	14	14	14	6	19.2	14	14
Thinning/slashing/chipping costs	\$31,600	\$31,600	\$44,240	\$37,920	\$37,920	\$41,080	\$41,080
Road Obliteration Contract Costs	\$239,417	\$239,417	\$335,184	\$430,950	\$287,300	\$311,242	\$311,242
Oil or Gas Wells Drilled	1 Dry Capped	11 Dry / 4 Producing	11 Dry / 4 Producing	5 Dry / 0 Producing	11 Dry / 4 Producing	10 Dry / 4 Producing	7 Dry / 4 Producing
Acres Leased for Oil and Gas	640 Suspended	211,662	211,662	89,014	211,662	190,937	168,927
General Recreation Visits	432,217	432,217	432,217	432,217	432,217	432,217	432,217
Snowmobile Visits	11,724	11,724	11,044	8,992	11,490	10,317	10,434
Pleasure Driving Visits	61,745	61,745	60,819	57,423	61,437	60,510	60,819

Output	Current	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Motorized trail Visits	21,103	21,103	20,048	16,671	20,786	19,520	19,520
Fish and Wildlife Visits	354,058	354,058	354,058	354,058	354,058	354,058	354,058

These expenditures in the community are accounted for as part of "Forest Service Expenditures" in the table below.

Employment and Labor Income

The following discussions are based on the results of the regional economic model described under Analysis Methods above. **The most important use of the results is to compare relative economic effects among the six alternatives analyzed in detail. The results should *not* be viewed as absolute economic values** that accurately portray the infinitely complex economic interactions of the regional economy, ***but as an estimate of potential relative effects.***

Impacts to economic well-being are measured by changes in employment and labor income in the eight-county economic analysis area. Estimates of potential employment and labor income generated by alternative and by resource program are displayed below. Note that in the IMPLAN model, jobs are part-time, full-time, or seasonal. Only the portion of the impacts related to BDNF outputs were described in the analysis.

Economic effects were predicted with and without oil and gas production or leasing. The tables below display effects ***without*** oil and gas leasing or development potential estimates. Oil and Gas Leasing is also discussed in Effects on the Economic Environment from Minerals.

Although the difference between the alternatives in many cases, are relatively small, the impacts may be considerable to individuals, families, or businesses. In very small communities, the loss of a single job may be very important, yet negligible across the analysis area.

The figures in the table below vary between Draft and Final based on: changes in predicted outputs, converting grouping of industries within the IMPLAN model from the Standard Industrial Classification to the North America Industrial Classification. Figures also changed from updates to regional business data from 2000 to 2003, Forest Service budget, revenue, employment data, oil and gas prices, census data, and county payments

Table 41. Average Annual Employment by Program by Alternative (Full and Part-time Jobs) attributed to Forest Service Management

Resource	Current	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recreation	317	317	315	306	317	314	315
Wildlife and Fish	285	285	285	285	285	285	285
Grazing	96	96	96	91	94	93	93
Timber	318	318	318	80	437	318	318
Minerals	0	0	0	0	0	0	0
Payments to States/Counties	21	21	21	21	21	21	21
Forest Service Expenditures	520	520	520	520	520	520	520
Total Forest Management	1,557	1,557	1,554	1,301	1,672	1,550	1,550
Percent Change from Current	-	0.0%	-0.2%	-16.4%	7.4%	-0.4%	-0.4%

The table below displays the estimated annual average labor income within the analysis area by program. Note that because of higher wages in the timber industry and government employment, labor income for those two programs is actually higher than recreation or wildlife and fish for some alternatives.

Table 42. Average Annual Labor Income in Millions, Estimated by Program by Alternative

Resource	Current	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recreation	\$7,297	\$7,297	\$7,235	\$7,050	\$7,287	\$7,231	\$7,237
Wildlife and Fish	\$6,824	\$6,824	\$6,824	\$6,824	\$6,824	\$6,824	\$6,824
Grazing	\$1,176	\$1,176	\$1,176	\$1,114	\$1,150	\$1,137	\$1,135
Timber	\$8,085	\$8,085	\$8,085	\$2,021	\$11,087	\$8,085	\$8,085
Minerals	0	0	0	0	0	0	0
Payments to States/Counties	\$609	\$609	\$609	\$609	\$609	\$609	\$609
Forest Service Expenditures	\$14,962	\$14,962	\$14,962	\$14,962	\$14,962	\$14,962	\$14,962
Total Forest Management	\$38,956	\$38,956	\$38,919	\$32,673	\$41,921	\$38,856	\$38,860
Percent Change from Current	-	0.0%	-0.1%	-16.1%	7.6%	-0.3%	-0.2%

Employment and labor income can also be displayed for major industry sectors of the area economy. These tables are available in the project file. For all alternatives, manufacturing, agriculture, and transportation are the sectors most affected by changes in Forest Service programs and expenditures. Recreation, wildlife and fish programs primarily affect the service and retail trade sectors. Because those sectors are large to begin with, they show a smaller percent change by alternative.

Economic Diversity and Dependency

Economic diversity as indicated by the number of economic sectors represented would remain unchanged between the alternatives proposed. Although a shift in employment across the sectors could occur (employment may increase or decrease within the sector). No sector or industry would be eliminated. As Table 36 displays using the Shannon Weaver Diversity Indices, Powell County is the only area in the analysis area not trending toward diversity. Shifts in the wood products industry under Alternative 3 may be felt in Powell County, further addressed under “Effects from Timber Management” below.

Economic Efficiency

Present net value, defined as the value of discounted benefits or revenues minus discounted costs, is the primary criteria used to measure economic efficiency. The Forest Service is required by regulation (36 CFR Part 219.12, g, 3) to evaluate expected real-dollar costs and values of all outputs which could be attributed to each alternative and the impacts of the alternatives on present net value. The analyzed benefits include market values, where the Forest Service receives money for timber, range, special uses, etc, and non-market values. Non-market values were assigned for activities such as wildlife viewing and recreation using values from Resource Pricing and Valuation Procedures for the 1990 Resource Planning Act (RPA) program.

The following table shows estimated benefits, costs, and cumulative PNV by alternative. *Figures in this table changed between Draft and Final based on updated Forest Service revenue and*

*expenditure information through 2005, corrections from decadal data to average annual data for timber revenues, and updated recreation visits based on the 2005 NVUM. This did not affect the relative comparison of alternatives. All figures are presented in 2004 dollars. **Forest Service budgets have held constant over the planning horizon.** Differences, in specific allocations, are the result of the resource emphasis in each alternative. Forest Service revenues change by alternative based on estimated resource outputs.*

Table 43. Economic Efficiency--Present Net Value Estimate by Alternative (in thousands of dollars, 2004)

Value	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Cumulative Present Net Value	\$544,328	\$545,965	\$489,365	\$565,307	\$546,113	\$546,407
Present Value Benefits by Program						
Range	\$41,524	\$41,524	\$39,514	\$41,693	\$40,933	\$40,933
Timber	\$56,999	\$56,643	\$24,251	\$78,302	\$58,369	\$58,369
Minerals	\$16,944	\$16,944	\$0	\$16,944	\$16,944	\$16,944
Recreation	\$255,054	\$253,246	\$247,760	\$254,660	\$251,799	\$252,093
Fish and Wildlife	\$590,239	\$590,239	\$590,239	\$590,239	\$590,239	\$590,239
PV of Benefits	\$960,760	\$958,596	\$901,764	\$981,739	\$958,284	\$958,578
Present Value Costs by Program						
Range	\$25,392	\$25,392	\$25,392	\$23,208	\$24,962	\$24,962
Timber	\$43,201	\$43,201	\$14,565	\$60,150	\$44,812	\$44,812
Roads/Engineering	\$36,498	\$32,697	\$14,629	\$42,964	\$32,310	\$32,210
Minerals	\$30,612	\$30,612	\$26,466	\$30,913	\$30,075	\$30,075
Recreation	\$49,194	\$49,194	\$42,964	\$32,223	\$47,261	\$47,261
Wildlife	\$11,729	\$11,729	\$28,114	\$10,870	\$11,729	\$11,729
Soil, Water, and Air	\$27,025	\$27,025	\$27,025	\$27,025	\$27,025	\$27,025
Protection, Forest Health	\$99,871	\$99,871	\$120,300	\$83,995	\$99,871	\$99,871
Lands	\$4,296	\$4,296	\$12,610	\$12,610	\$8,297	\$8,297
Planning, Inventory, Monitoring	\$88,614	\$88,614	\$88,614	\$92,373	\$85,929	\$85,929
Present Value Costs	\$416,432	\$412,631	\$412,399	\$416,432	\$412,171	\$412,171

Alternative 4 has the highest cumulative PNV as a result of high timber outputs and only small reductions in grazing or recreation benefits. Alternative 3 has the lowest PNV from the high costs of potential road obliteration and watershed restoration activities. In addition, it has the lowest benefit based on elimination of suitable timber and reduced timber harvest.

The preferred Alternative 6 has a similar PNV to Alternatives 1, 2, and 5, attributed to similar timber harvest, grazing, and recreation benefits. (Timber values vary for these four alternatives based on variations in location and productivity of suitable base lands, even though outputs are equal.)

The economic opportunity cost (theoretical loss in employment and income from not pursuing a course of action) of constraining timber harvest to current budgets can be displayed by

comparing the timber value and cost for alternatives 1, 2, 5, or 6 to those for Alternative 4. Alternative 4 assumes a \$2.2 million timber budget rather than the constrained \$1.7 million. The opportunity cost is approximately 18 million dollars.

The economic opportunity cost for maximizing wilderness and roadless protection compared to maximizing timber harvest is displayed by comparing Alternative 3 to the Maximum Present Net Value for timber. Alternative 3 provides the highest amount of wilderness and roadless protection. Maximum Present Net Value represents the Present Net Value of maximizing the suitable timber base and scheduling harvest from those lands. Maximum PNV, using the SPECTRUM model, is \$90,626,000, with a decadal harvest of 715 million board feet. Alternative 3 PNV for timber alone is 10% of that. The opportunity cost of not maximizing present net value through timber harvest is approximately \$8 million per year.

These evaluations do not include the intangible or qualitative costs and benefits for which we have no monetary values, clean water, scenery, and productive soils for example. Economic efficiency is only one part of determining net public benefit. Net public benefit is defined as the overall value to the nation of all outputs and positive effects (benefits) minus all the associated Forest Service inputs and negative effects (costs) for producing those primary benefits, whether they can be quantitatively valued or not. Net public benefits conceptually are the sum of economic impacts, economic efficiency and the value of non-priced outputs and costs. The effects discussions of other resource address qualitative costs and benefits.

Payments to States and Local Governments

Payment in Lieu of Taxes - None of the alternatives would result in many changes in federal land ownership. Any future land exchanges or sales would be assessed to determine specific impacts, but in general, actions proposed within the Forest Plan Revision would not change payments to counties under the PILT program.

The Twenty Five Percent Fund or the Secure Rural Schools and Communities Self-Determination Act of 2000 (SRSCS) - All seven counties that receive payments for revenues on the BDNF elected to take their payments under the Act. Under SRSCS payments to these counties would not change as a result of changes in the Forest Plan.

The table below displays estimated payments under the Twenty Five Percent Fund simply for comparison. Alternatives that allow a higher level of revenue generating activities on the Forest result in higher payments. As timber revenues have the greatest impact, Alternative 4 produces the highest revenues for counties. Alternatives 1, 2, 5 and 6 produce slightly higher revenues than counties would currently receive under the Act, (\$350,000); Alternative 3 results in the lowest revenues. Oil and gas production revenues would be in addition to those in the table below.

Table 44. Forest Service Revenues and Payments to Counties under the Twenty Five Percent Fund (Annual Avg. Decade 1: \$1 in thousands)

Revenue Source	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
All Programs	\$1,714	\$1,714	\$541	\$2,135	\$1,695	\$1,684
Estimated Payment to States/Counties	\$428	\$428	\$135	\$534	\$424	\$421
Stable payment under SRSCS	\$944	\$944	\$944	\$944	\$944	\$944

Effects to the Economic Environment from Aquatic Resource Management

Aquatic management can affect the economic environment by changing opportunities for fishing related recreation, and changing the way the forest budget is expended.

Levels of fishing related recreation on the BDNF are projected to grow about the same as other recreation activities. The rate is, estimated at 1 % a year or 10 % across the decade, for all alternatives (derived from data provided by USDA Southeast Research Experiment Station, <http://www.srs.fs.fed.us/trends>). Little variation is predicted by alternative.

Restoration of key watersheds under Alternatives 3, 4, 5 and 6 will likely create economic opportunities through road obliteration or restoration activities. Alternative 1 expends the fewest dollars for road obliteration and restoration activities (Table 40). Alternative 3 has the highest expenditures for road obliteration, tied directly to restoration of key watersheds. This would not compensate for the job and labor income losses from other features of Alternative 3. Alternatives 2, 4, 5 and 6 fall in between.

Effects to the Economic Environment from Fire Management

Economic benefits and potential costs (in terms of property loss, lost revenues from wildland fires, and increased suppression costs) from fire management associated with hazardous fuels buildup are generally unknown.

Effects to the Economic Environment from IRA and NWPS Additions

Open spaces, scenery, and protected lands are considered “natural capital” by residents of the Rocky Mountain West and may contribute to healthy economies and healthy lifestyles (Rasker et al. 2003). Protected natural environments are now recognized attractions for job-creating entrepreneurs and retirees who bring their incomes into the community. Research on wilderness or other protected land valuation has been developing over the last 30 years at institutions like Colorado State University and the University of Montana. John Loomis and Robert Richardson, Colorado State University, determined that natural environments such as wilderness pay primarily in three ways: direct income from recreational use and as a quality-of-life benefit to lure new businesses and residents, passive-use value (what it’s worth to maintain the opportunity to visit wilderness, or to pass that opportunity to future generations); and ecosystem services which are natural processes like the air and water purification functions of undisturbed forest (Loomis and Richardson 2001). While Loomis and Richardson (2001) calculated annual national values for preserving national forest roadless areas in 2000, values have not been calculated for areas the size of the BDNF.

The economic impact analysis accounts for the effects of wilderness recommendations by measuring changes in recreation visitation, motorized travel in particular, described in Effects to the Economic Environment from Recreation and Travel Management. This analysis does not quantify the more theoretical effects to passive-use values or ecosystem services described above. We do not have comparable values for other forest management activities to compare tradeoffs between alternatives; therefore the Loomis and Richardson (2001) approach can not be applied. Based strictly on acres in recommended wilderness and protection offered by inventoried roadless areas, Alternative 3 might contribute the highest economic values from wilderness and protected lands. In the same sense, Alternative 4 contributes the least economic value from wilderness and protected lands, Alternatives 1, 2, 5 and 6 fall in between. These

values are discussed qualitatively under Effects to the Social Environment below and in the Recommended Wilderness and Inventoried Roadless Area Section.

Effects to the Economic Environment from Livestock Grazing

Impacts to the agriculture industry were derived from changes in the range program applied to the portion of grazing in the study area attributable to the Forest Service allotments. This same proportion is used to calculate a percentage of total annual cattle sales in the state.

The primary driver for livestock reduction would be implementation of compliance standards in key watersheds. The number and location of key watersheds varies by alternative. Grazing use varies from 100 % of current actual use in Alt 1 and 2, to a 6 % reduction in Alt 3. Estimates of employment vary by 6 % (5 jobs) with the highest in Alternatives 1 and 2, the lowest in 3, 5 and 6. Estimates of labor income vary by 5 % or \$64,000.

The grazing program contributes the least to area economics. This is because ranching tends to be a lower wage and less intensive industry than either timber or recreation. While the economic effects of these alternatives on the agriculture industry may be small, they may greatly affect an individual operator. The impact would vary from one producer to the next depending upon their relative dependence on BDNF allotments for meeting and effectively managing their grazing needs. Permittees required to reduce numbers would likely respond by restructuring their existing operations. For example, they might lease other private pasture, feed the livestock, reduce their herd size, or lease their base property to other livestock operators. The impact analysis does not project the economic effects on individuals or the community if one rancher goes out of business. We have no data to predict if and when loss of public land grazing precipitates a ranch sale. As discussed in the affected environment, at least four factors contribute to a rancher's decision to sell; uncertainty about grazing on federal lands is only one.

Effects to the Economic Environment from Minerals, Oil and Gas

The economic impacts of oil and gas leasing and development are not evaluated with other resource programs for several reasons. (1) During revision the 1995 Oil and Gas Leasing Decision was reviewed to examine any effects the alternatives may have on the 1995 Decision. The potential for oil and gas drilling and production is based on the 1995 Reasonably Foreseeable Development (RFD) Scenario as modified by specific alternative. The primary difference between alternatives is the change in availability for leasing, drilling and production when the No Surface Occupancy stipulation applies to Recommended Wilderness; (2) Company decisions to lease, explore, or drill for oil are related to world wide supplies and pricing than to constraints applied through Forest Plans. (3) Modeled, oil and gas drilling and production show fairly substantial numbers of jobs and labor income in counties of this size but the effects are short lived in the short time span of a Forest Plan. The results can mask the economic impacts of activities the Forest Service has more control over, like timber harvest and livestock grazing. Forest Service decision makers and county commissioners have asked to see the information presented separately.

The next two tables show estimated employment and labor income for all resource programs, including oil and gas exploration and production. Additional data by industry is available in the project file. Economic impacts are derived from: 1) acres of moderate potential available for leasing, and 2) drilling and production from the two gas fields described in the RFD (USFS 1996a). The impact analysis shows some variation between alternatives in jobs and income for

the mining industry. This variation can be attributed to changes in availability for leasing and predicted drill sites based mostly on location and size of recommended wilderness.

Table 45. Average Annual Employment by Program by Alternative (Jobs) with Oil and Gas Drilling

Forest Service Program	Current	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recreation	317	317	315	306	317	314	315
Wildlife and Fish	285	285	285	285	285	285	285
Grazing	95	95	95	90	93	92	91
Timber	318	318	318	80	437	318	318
Minerals	0	428	428	41	428	428	453
Payments to States/Counties	21	23	23	21	23	22	22
Forest Service Expenditures	520	520	520	520	520	520	520
Total Forest Management	1,557	1,987	1,984	1,343	2,103	1,985	2,006
Percent Change from Current	-	27.6%	27.5%	-13.7%	35%	27.6%	28.9%

Table 46. Average Annual Labor Income in \$Thousands by Program by Alternative with Oil and Gas Drilling

Forest Service Program	Current	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	ALT 6
Recreation	\$7,297	\$7,297	\$7,235	\$7,050	\$7,287	\$7,331	\$7,237
Wildlife and Fish	\$6,824	\$6,824	\$6,824	\$6,824	\$6,824	\$6,824	\$6,824
Grazing	\$1,178	\$1,178	\$1,178	\$1,114	\$1,153	\$1,137	\$1,135
Timber	\$8,085	\$8,085	\$8,085	\$2,021	\$11,087	\$8,085	\$8,085
Minerals	0	\$2,295	\$2,295	\$926	\$2,295	\$2,295	\$2,860
Payments to States/Counties	\$609	\$609	\$609	\$609	\$609	\$609	\$609
Forest Service Expenditures	\$14,962	\$14,962	\$14,962	\$14,962	\$14,962	\$14,962	\$14,962
Total Forest Management	\$38,956	\$41,317	\$41,255	\$33,534	\$44,285	\$41,330	\$41,765
Percent Change from Current	-	6.1%	6.0%	-13.7%	13.7%	6.1%	7.2%

The limited scale of development projected over the life of the plan, up to four producing wells, would generate temporary increases estimated to range from 428 to 453 additional jobs in the area for all but Alternative 3. Because of limitations on both drilling and leasing scenarios in Alternative 3, only 41 jobs may be provided. Production royalties and lease revenues in the area could contribute about \$235,000 under Alternatives 1, 2, 4, 5 and 6 if the Twenty Five Percent Fund remained intact

Effects to the Economic Environment from Recreation and Travel Management

Recreation as a whole, including wildlife and fish related activities, provides more economic benefit to the impact area than any other single Forest program. Recreation accounts for 39 % of jobs and 36 % of the labor income attributed to BDNF management.

The economic impacts of recreation and travel management were derived from predictions of visitor use and spending in the local economy. Recreation visits to the BDNF are projected to grow by 1 % a year or 10 % for the next decade for all alternatives. The data was derived from

data provided by USDA Southeast Research Experiment Station, (USDA 2001). Changes in recreation visits by three specific user groups were anticipated as a result of recreation allocations made by Alternatives. Recommended wilderness areas and summer or winter non-motorized allocations result in travel closures for different groups of users. These groups of users are: snowmobile, OHV, and full size vehicle drivers who primarily visit the Forest to drive on trails and roads.

The number of OHV visits, motorized trail visits and pleasure driving visits used in the analysis came directly from the number of visitors who reported their participation as a “primary activity” in the 2005 NVUM survey. This does not account for the possible overlap between numbers of activities on a single visit, but allows estimates of the impacts of modifying specific recreation opportunities. For example, if a hunter using an OHV reports a primary purpose for the visit is using the OHV, that visit is included in the analysis of impacts to OHV use estimated by alternative. If the hunter reports a primary purpose for the visit is hunting, even if an OHV was used, the analysis assumes the visitor is likely to return to the Forest and adjust the area they hunt or their mode of transportation. Because demand for hunting opportunities in southwest Montana is high, it is likely that any decline in hunters on OHVs would be replaced by individuals on foot or horseback.

Changes to the number of snowmobile visits were calculated using potential groomed and marked trail closures rather than acres of area closures. Groomed and marked trails provide an opportunity that is more limited than open snowmobile play areas. The BDNF currently provides large areas open to snowmobiles which are unused due to snow levels, terrain, or conifer cover.

The percent of potential road, trail and snowmobile closures in each alternative were directly applied to the number of visits reported by OHV users, pleasure drivers and snowmobilers (USFS 2006c). Percentages closed were derived by reviewing each individual non-motorized unit or recommended wilderness area closed to motorized use by alternative. Potential closures were projected for each alternative using summary figures displayed in Chapter 2, Table 1. This methodology exaggerates the effect of closures on visits by snowmobilers or OHV riders because many visitors will simply move to another area on the forest which provides the opportunity they seek, rather than ceasing the activity. It also doesn’t account for another type of visit, such as hiking or cross country skiing, filling the void left by motorized use visitors. This scenario, however, will give us a worst case comparison of the effects of alternatives and provide a more distinct comparison between alternatives.

Alternatives 1, 2, 4, 5 and 6 show small shifts in recreation based employment and labor income resulting from variations in recreation allocations. Changes in recreation-based employment are estimated to vary by 11 jobs and \$247,000 in labor income between the high (Alternatives 1, 2, and 4) and low (Alt 3) alternatives. This is small compared to the variation of 357 jobs and \$9 million dollars between alternatives based on shifts in the timber program. Forest Service revenues and payments to counties won’t change based on recreation or travel changes. Recreation revenue comes from campground and special use fees including those for resorts, outfitter/guides, ski areas, ditches and cabins. These revenues are not predicted to vary by alternative.

What the numbers don’t indicate is that the loss of those seven jobs and \$155,000 in labor income estimated for Alternative 3 may not be well distributed across counties or businesses. It

may affect a few individuals and one or two businesses in a very small community like Jackson. To those affected, Alternative 3 would be a very unpalatable choice.

Effects specific to Island Park-Alternatives 1 and 4 and 6 would result in no change to the Island Park economy from management of the Mt Jefferson area. The following discussion applies to Alternatives 2, 3, and 5. All three recommend the entire Montana portion of Hellroaring drainage and Mt Jefferson for Wilderness, closing that area to snowmobiles.

Assuming a 90 day snowmobile season with favorable weather two thirds of the time, an average of 30 weekday visits and 150 weekend visits, with 45% Montana side trail users, a maximum of 1,500 annual snowmobile visits could be made to the Montana portion of the Mt Jefferson area. This is 1.5 % of the estimated 95,000 snowmobile visits to the Caribou-Targhee National Forest (USDA 2006f) or 3 % of the estimated 48,000 snowmobile visits to Ashton-Island Park District.

The IMPLAN model for the eight county impact area reflects one recreation related job tied to every 1,662 recreation visits and \$23,000 of labor income tied to the same number of visits. These figures combine the effect of local and non-local visits and the multiplier effect as those dollars are recycled in the local economy. If closures actually reduced by 1,500 all snowmobile visits, it may result in the loss of about one job in the Island Park area; equivalent to \$23,000 in labor income. This is in the context of 5,710 jobs in the County and \$273.3 million in labor income.

However, it is highly unlikely that all 1,500 of the estimated visits to Island Park for the purpose of riding into the Montana side of Mount Jefferson would be lost to the Island Park area. Many visitors will continue to go to Reas Peak, Rock Creek, the Idaho side of Mt. Jefferson, or similar backcountry areas in the vicinity. With 100% of the Island Park District open to snowmobile use, 600 plus miles of immediate groomed trail opportunities, and a network of unmarked trails, the play area in upper Hellroaring Basin appears to be a small part of the total snowmobiling opportunity; hence the effect may be small. However, even if one job or a portion of a businesses winter income were lost as a result of closing the Montana side, the economic impact to those individuals affected would be negative.

Island Park business owners are concerned snowmobile closures in the Mount Jefferson area may add to the effects of recent restrictions in Yellowstone National Park (YNP). To the extent that alternatives 2, 3, and 5 reduce Mt Jefferson snowmobile visitation, negative impacts are offset by a positive regional economic growth trend related to wildlife and natural environment (Duffield & Neher 2006). As winter visitation to YNP significantly decreased from the winter 2002 through spring of 2006, winter lodging tax collections in Fremont County, Idaho increased. The 2005-06 Fremont County winter lodging tax collections were more than double taxes received from winter lodging four years prior to 2002 management changes for the YNP winter season (Duffield & Neher 2006).

A misperception about how much area would be closed on Mt Jefferson in Alternatives 2, 3, and 5 may add to the direct effects of a closure. Trails to the Continental Divide, Reas Peak and the Idaho portion of Mt Jefferson are not affected. However, the misperception opportunities in the general area around Mt Jefferson would ALL be lost with the proposed closure, may impact visitation more than the actual closure itself. Numerous letters from the public revealed many non-resident snowmobile riders believe the Forest Service intends to close the entire area, including the Idaho side. Because of this misconception, it is possible non-residents, learning of

a closure on the BDNF side of Mt Jefferson, might choose a different destination even if their preferred type of snowmobiling is still available on the mountain.

Effects on Mountain Biking. People who commented on the DEIS asked why changes to mountain bike visits between alternatives were not included in the economic model. Regardless of alternative, *all* roads and trails on the Forest are open to mountain biking with the exception of trails in wilderness and recommended wilderness areas. The NVUM survey in 2005 showed about 1% of 8,700 visits were for the purpose of mountain biking. Roads and trails closed to mountain bikes range from 762 miles (6% of 12,000 miles of open roads and trails) in Alternative 3 to no closures in Alternatives 1 and 4. Assuming a trail closure would result in no visitation, rather than visitors traveling to a different trail, Alternative 3 (the most restrictive) would affect a maximum of 522 visits. Alternatives 2, 5 and 6 affect less than 2% of the trails or about 135 visits. This small change would not show up in the analysis of employment and labor income impacts. The effects on mountain biking from recommended wilderness is addressed in the Recreation and Travel Management Section.

Effects to the Economic Environment from Timber Management

The timber program varies most between alternatives. Alternative 4, with the highest estimated timber harvest, creates the strongest positive economic impact with the potential for 119 jobs. The wood products industry is more labor intensive than other forest related industries and wages are fairly high. The sale of wood products directly affects several sectors of the manufacturing industry, including logging camps, sawmills, post and pole manufacturers, and log home manufacturers. These jobs tend to be higher paying and more labor intensive than, for example, the livestock industry.

Acres available for timber production vary widely by alternative. However, reasonably foreseeable budgets constrain projected outputs for Alternatives 1, 2, 5, and 6 to 14 million board feet. This figure was updated after publication of the DEIS. The budget constraint varies only for Alternative 4 because it was designed assuming a 25 % higher timber budget to emphasize commodity production. The total budget does not vary, instead, other forest programs decline. Even though Alternative 3 allocates no land suitable for timber production, a minimal budget and output was assigned in that alternative to provide firewood, post and poles, remove safety hazard trees, fuel reduction, and some salvage.

Alternative 4 has the potential to generate the most employment and labor income for the timber industry. Alternative 3 generates the least – a potential loss of 238 jobs, compared to Alternative 1, the current situation. The employment loss would be substantial even spread across eight counties. However, it is most likely to be concentrated in Powell, Granite, and Broadwater counties with mills and numerous logging related businesses. These counties are already ranked the least economically diverse in the impact area (Table 36). The total timber industry outputs, based on wood fiber from private, state and federal lands, currently accounts for 27 % of Powell and Granite county economies. Counties, heavily dependent on fewer industries, are more vulnerable to declines in overall prosperity if business conditions deteriorate. While most local mills have adapted to decreasing or intermittent supply from federal lands by increasing purchase from other suppliers, further adaptation would be required under Alternative 3 with very little commercial harvest opportunities.

Alternatives 1, 2, 5 and 6 may generate the same employment and labor income from timber products as the current situation. None of these alternatives would alter economic diversity or wildland dependency in any county, as measured by changes in the number of industry sectors represented.

Effects to the Economic Environment from Vegetation Management

The primary effect to the economic environment from vegetation management occurs when timber is harvested. All alternatives provide some opportunities to use harvest to meet vegetation objectives for aspen restoration, Douglas fir restoration, and fuel reduction. The DEIS predicted opportunities under Alternative 3 would be constrained to 0.5 million board feet for products such as posts and poles and firewood. In response to comments, the estimate was adjusted to include some harvest for forest health and public safety (6 million board feet). See the section titled Timber Production for a discussion of impacts of timber harvest by alternative.

New science and national initiatives such as the National Fire Plan and Healthy Forest Initiative have prompted consideration of tools other than timber harvest for vegetation management. Thinning, slashing, and prescribed fire are among the tools which have potential to generate economic effects in the analysis area. Table 40 lists the estimated outputs by alternative for one category of activities related to restoration work: thinning, slashing, and chipping contracts. Variation in cost for these activities, about \$12,000, is not high enough to show an impact under “Forest Service Expenditures.” As a result, there is little difference between alternatives in the economic effects of vegetation restoration activities outside of timber harvest.

Effects to the Economic Environment from Wildlife Habitat Management

Levels of wildlife related recreation (viewing, photographing, hunting) on the BDNF are projected to grow at about the same rate as other recreation activities, 1 % a year or 10 % across the decade, for all alternatives (derived from data provided by USDA Southeast Research Experiment Station, <http://www.srs.fs.fed.us/trends>). Little variation is predicted by alternative.

Wildlife management has the potential to affect economic values by changing the number of visitors who enjoy wildlife related activities, especially hunters. This can happen by changing vehicle access to these activities or by changing wildlife habitats and populations. Measures are incorporated in all alternatives to protect and enhance wildlife habitats. To a large degree, these protective measures, primarily road density objectives, would enhance opportunities for wildlife viewing and hunting.

Wildlife objectives for open motorized road and trail densities by landscape or hunting unit, could lead to reduced vehicle access in Alternatives 2, 3, 5 and 6 over the next 10 to 15 years which may add to the negative effects of non-motorized recreation allocations in selected hunting units. Road density objectives could increase the economic impacts of potential road and trail closures in Alternatives 2 by 1 job, which correlates to about \$25,000 labor income, in Alternative 3 by 4 jobs, and Alternatives 5 and 6 by 1/3 of a job or less. This is based on running the IMPLAN model with and without road and trail closures, which may result from applying road density objectives. The remaining job and labor income effects in Tables 41 and 42 result from recreation allocations by alternative.

Hunters may shift from vehicles to hunting on foot or horseback, depending on vehicle access and travel management, but demand for and the popularity of hunting in southwest Montana

would likely override shifts in hunter numbers from vehicle access changes. The number of hunters would likely vary more because of Montana FWP regulations and weather patterns.

Direct and Indirect Effects to the Social Environment

The first part of this section will address potential effects to issues unique to the social environment referred to as special places, or expressed as concerns by local governments in terms of land ownership patterns, traditional rights, and government relations.

The second section will address potential effects on lifestyles, attitudes and values as measured by changes in traditional uses of the Forest, changes in the health of Forest resources, and changes in amenity values.

To help readers compare this section to other effects analysis on the economic environment, it is organized as follows:

- ◆ Traditional uses are addressed under Effects of Vegetation and Timber Management, Livestock Grazing, and Oil and Gas Leasing.
- ◆ Health of Forest resources are addressed under Effects of Wildlife Habitat Management, Fire Management, Aquatic Resource Management, Recreation and Travel Management.
- ◆ Amenity Values are addressed under Effects of Wilderness Recommendation and Inventoried Roadless Areas.

Special Places

Comments on the Proposed Action (2003) from area residents and repeat visitors frequently focus on management of familiar places they care about. These “places” are the link between how they experience the land and the physical and biological components of that land. The importance of the places can tie to current use and traditional uses, traditional cultural properties (TCPs) of Indian Tribes, or areas of historic significance. It can be important to just a few individuals, a tribe, or a nation (USDA 1997e).

Effects will be discussed in terms of how well alternatives address (1) individual concerns about place-based management areas, (2) tribal concerns about traditional cultural properties, (3) regional and national concerns about well-known and highly visited areas like Rock Creek and the Greater Yellowstone Ecosystem.

Place-based management areas: Alternative 1 allocates land uses using small fragmented management areas, averaging 2,000 acres and labeled numerically, 16, 30, A4, and E5 for example. These management areas mean the same thing regardless of location. The size, design, and spatial arrangement of management areas in Alternative 1 have created problems for consistent management of larger scale features like roads, trails and wildlife security cover among other things. Forest users and managers alike have said these areas make it difficult to anticipate how a piece of land they are familiar with would appear in the future.

Alternatives 2 through 6 are based on larger geographic areas, averaging 30,000 acres, which relate to well-known local landmarks and have boundaries that make sense on the ground. Each management area has unique direction although they can be lumped into categories such as Recommended Wilderness or Concentrated Recreation areas. Public comment on the Proposed

Action (2003) was favorable toward this place based management area approach for two reasons. Users and visitors understood the area being addressed without scrutinizing a series of maps. The management area direction integrated allocations like suitable timber with recreation settings to paint a picture of future management.

Traditional Cultural Properties: TCPs were identified in consultation with affected Indian Tribes. These properties, from camas gathering to vision quest sites, do not vary between alternatives 2 through 6. The BDNF Archaeologist consulted tribes to design management area objectives and standards to protect large scale sites common to all alternatives. Forestwide objectives and standards for Heritage Resources, which protect smaller cultural properties, are also common to all action alternatives.

Greater Yellowstone Ecosystem: Approximately 700,000 acres of the Madison Ranger District are recognized as part of the Greater Yellowstone Ecosystem (GYE). Many people wrote comments asking how management direction might protect or enhance the qualities of the BDNF portion of the GYE. Alternative 3 offers the best protections for the GYE. All action alternatives recognize the travel corridors important for movement of fauna between the GYE and other lands, with a reference in management areas with potential corridors. Alternatives 2, 3, 5 and 6 recommend more areas for Wilderness protection within these 700,000 acres than the current forest plans, or Alternative 1, although Alternative 6 drops the recommendation for the upper Hellroaring Basin on Mt Jefferson. Alternatives 2, 3, 4, 5 and 6 add protection to Inventoried Roadless Areas (IRAs) by removing lands suitable for timber production. Alternative 3 provides even more protection for IRAs by prohibiting summer motorized use in those areas. Alternatives 2, 3, 5 and 6 do not allocate lands suitable for timber production in the Gravelly Range in valuable wildlife habitat.

Rock Creek: Rock Creek has a national reputation as a blue ribbon trout stream. Because of this and its largely natural setting close to the urban center of Missoula, management of the Rock Creek sub-basin has attracted public interest since the 1940s. The BDNF administers the upper end of this watershed while the Lolo National Forest administers the lower end. The current Deerlodge Forest Plan has a separate chapter for Rock Creek management. This same chapter is included in the Lolo Forest Plan. In the 1970s the Rock Creek Advisory Committee was formed by the Forest Service to provide advice on future management. In 1990, the issue of cumulative effects of National Forest timber harvesting was raised by the public. Planning for timber sales was suspended in 1991. The Deerlodge and Lolo forest supervisors decided in 1993 to continue suspension of planned timber sales until a review or revision of forest plan direction for Rock Creek based on the principles of ecosystem health.

Individuals interested in increased protection for Rock Creek would favor Alternatives 3, 4, 5, and 6. They all provide additional protection by designating most of the sub-basin as a key watershed for fish species conservation and by removing land suitable for timber production. Individuals interested in seeing more allocations of land suitable for timber production or continuation of current levels of grazing may support Alternative 1 or 2. Neither of these alternatives implement a key watershed concept to restore or protect watersheds. The Inland Native Fish Strategy would continue to apply at the project level for all alternatives.

Mt Jefferson: Over the last 3-5 years, Mt Jefferson has been promoted by snowmobile magazines and snowmobile organizations as the “crown jewel” of Island Park. Challenging climbs on the face of the mountain are featured in national magazines and advertising for

performance machines. Letters commenting on the DEIS came from snowmobile riders who were familiar with the ride, those who hope to ride the area someday and are concerned about possible closures there.

Mt Jefferson seems to hold allure for snowmobile riders who have never been there, similar to the allure Wilderness areas hold for some who may never visit. Closures on the Montana side of Mt Jefferson in Alternatives 2, 3, and 5 would have a detrimental social effect for those individuals who perceive Mt Jefferson as a symbol of a certain type of snowmobiling opportunity; whether they would actually ride their snowmobile there or not. Alternatives 1, 4 and 6 leave vehicle access to Mt Jefferson and the upper Hellroaring Basin open for those who want to see spectacular views from the top of the Centennials, try backcountry sledding on ungroomed routes, or join experts challenging their vehicles on the rugged slopes. For those to whom Mt Jefferson rides have been a meaningful family tradition and a way of sharing the beauty of wilderness and backcountry areas with their children, vehicle access across the top is still possible.

Environmental groups around the Greater Yellowstone Ecosystem promote Mt Jefferson for its unique beauty and for link it provides between the Greater Yellowstone and the Salmon-Selway Ecosystems. They support the added protection it would contribute as recommended wilderness, to the larger BLM Centennial Wilderness. Were it not recommended for wilderness, as in Alternatives 1 and 4, the result would be a detrimental social effect for those individuals to whom Mt Jefferson symbolizes wilderness, whether they actual ski/hike there or not. Alternative 6 leaves the area as it is now, open to snowmobiles at the higher elevations and closed at the lower elevations. This will not be satisfactory to those who value the challenge of backcountry skiing without the sight and sounds of machines and those concerned about improving wildlife linkages and connectivity around the Greater Yellowstone area.

Land Ownership Patterns

Changes in land ownership patterns are a concern for County governments. Federal ownership of land limits a county's property tax base, the amount of land available for development, and the control residents have over the types of land use. With 42% of the study area in the National Forest System, federal ownership also concentrates populations in particular locations.

None of the alternatives propose to increase National Forest System ownership. However, all four action alternatives provide guidance regarding the exchange or acquisition of lands designed to enhance and protect resources or increase or improve efficient forest management. Issues around exchanging or acquiring lands are directed at private holdings within forest boundaries or mixed ownerships.

Decisions about land exchanges are normally opportunistic. Any future land exchange or sale would be assessed to determine specific impacts, but in general, actions proposed in the FEIS would not change payments to counties made under the PILT program according to established formulas.

Management of Traditional Rights

Vehicle access: People expressed concern about loss of exterior vehicle access points to the forest through private development on its boundaries. Individuals were upset at the prospect of private landowners adjacent to the BNDF, effectively retaining exclusive vehicle access to

National Forest by closing existing routes to the public. All alternatives provide for the acquisition of public right of ways and vehicle access.

Roads: The availability of vehicle access once users are inside the forest boundary is also a concern. Some groups and individuals indicated they oppose any reductions in the levels of motorized vehicle access and use historically available, particularly on county roads. No alternative proposes closures of high-standard forest roads which are classified as level 3, 4, or 5 roads or currently recognized county roads.

Water rights: No changes are proposed in the way the Forest Service handles water rights by any alternative

Governmental Relations

Local county governments have a strong interest in management of federal lands within their jurisdiction. Beaverhead, Madison and Granite counties have resource use plans which outline the desires of their constituents for the future of these lands. As the Madison and Beaverhead County Resource Use Plans indicates, their constituents are interested in a balance of healthy resources, a healthy economy and as few limitations on use of federal lands as possible. In addition, most county governments have some level of ongoing coordination with the federal agencies on common issues like road maintenance, noxious weed treatment, fire suppression and emergency preparedness, etc.

The BDNF entered into a Memorandum of Understanding with Beaverhead and Madison Counties to improve the effectiveness of communication about issues of interest to their constituencies. The counties were given representation on the Interdisciplinary Revision Team to provide social and economic expertise. In written comments, Beaverhead and Madison County requested that “the Revised Forest Plan produce no net loss in AUMs of livestock grazing, no net loss in timber harvest, mining, recreation, travel trails and roads, etc from future management actions.”

Because of strong concerns county governments have in economic health of their communities, they would likely favor alternatives that produce positive economic benefits and productive resources. Alternative 4 has the potential to produce the most positive economic effects on employment and labor income but may have tradeoffs in fewer protected land values, such as Wilderness and IRAs. Alternative 1 maintains the existing economic effect. Alternatives 2, 5 and 6 have a slightly negative economic effect. At the same time, Alternatives 5 and 6 increase the acres of protected lands like recommended wilderness, which may enhance the counties natural capital and attract new residents and businesses. Alternative 3 produces the least economic benefit. However, it is difficult to rank alternatives in terms of protecting functioning resources other than the measure of protected lands. See other Wildlife Management and Aquatic Resources sections for this information.

By design, no direction or emphasis in any alternatives should prevent or inhibit future cooperation with local governments.

Effects to the Social Environment from Aquatics Management

The National Visitor Use Monitoring Survey (USFS 2006c) indicated 12 % of BDNF visits were for the purpose of fishing and 5 % of visitors surveyed participated in viewing wildlife, birds and fish. As with wildlife management, measures are incorporated in all alternatives to protect and

enhance water quality and fish habitat. To a large degree, enhancing water quality and habitats would also enhance a visitor's opportunity to view wildlife, hunt and fish.

Those individuals who favor enhancing water quality and fish habitats while providing vehicle access for fishing may favor any of the action alternatives other than Alternative 3. Individuals who advocate protecting more lands for the sake of water quality and fish by reducing recreation vehicle access may prefer Alternative 3. Alternative 3 recommends the highest percentage of Wilderness and closes IRAs to motorized use.

Effects to the Social Environment from IRAs and NWPS Additions

Inventoried Roadless Areas Management

How inventoried roadless areas should be managed in the future has been a key public issue since the initial proposals made in the 2001 Roadless Area Conservation Rule. See the Recommended Wilderness and Inventoried Roadless Area sections of this document for more detailed information on the status and implications of this rule.

Individuals and groups experience solitude, serenity, spiritual renewal and a variety of other positive emotions in different ways. Wildland settings and personal or group experiences that provide positive fulfillment to some users are not fulfilling for others. People have different traditions for how they recreate, use or otherwise see value in public lands. They are fervent about their desires to preserve those values they see shrinking or threatened. This section is intended to disclose how the alternatives may affect, or be perceived by, groups with differing personal/social values.

Advocates of protecting more lands hope to preserve the natural landscape for its own sake, for ecosystem functioning, for business attraction and for future generations. They are generally concerned this is a declining national resource and the quality of life would decline with it. Alternative 3 most fully protects roadless values by eliminating summer motorized use from all inventoried roadless areas and by recommending 40 % of these areas for wilderness. The roadless areas recommended for wilderness would have motorized use excluded year-long. This alternative would appeal to those individuals who support maximum protection of roadless values.

Advocates of forest resource use see protection of Wilderness or IRAs by administratively restricting uses as "locking up" lands. They tend to believe forests would stay healthier if they are used and maintained. Vehicle access to all public lands is important to many and they feel the quality of their life is reduced to the degree these lands are unavailable for vehicle access by motorized vehicles. Alternative 4 does not provide the additional protection of recommended wilderness status to any additional inventoried roadless areas. This alternative would likely appeal the most to individuals who feel that the BDNF is protected best through use and management.

Because both of these beliefs affect the quality of life these individuals perceive, it is very difficult for managers to find solutions that please both sides. Alternatives 2, 5, and 6 protect inventoried roadless areas to the extent that no suitable timberland is allocated nor is any commercial harvest requiring road building scheduled in these areas, although both are available outside of IRAs. These alternatives may provide managers with middle ground on this issue.

National Wilderness Preservation System Additions

Open spaces, scenery, and protected lands are “natural capital” for residents of the Rocky Mountain West (Rasker et al., 2003) and may contribute to healthy economies and healthy lifestyles. These settings are important to long-time residents and new residents alike, regardless of which lifestyle category they fall into. Ideas of how best to protect these values, however, vary between individuals.

Wilderness offers opportunities for the public to seek solitude, experience primitive recreation, test their outdoor skills and explore their spirituality and connections with the natural world. Adding to the wilderness system also may increase public awareness of the values associated with wilderness and increase their recognition that the forest contains special places that some people value for their spiritual or natural qualities.

In Montana, as in much of the West, the issue of whether to have more wilderness or not is often polarizing. The greatest number of comments to the Proposed Action, by far, came in support of or opposition to recommended wilderness and the subsequent closing to motorized use. The actual physical merit of an area (its “capability”) is often not the major question. Rather, it is the historical context in which former battles over wilderness have been waged and the positions of key groups and individuals. Any wilderness recommendation is perceived as too much by some, while smaller recommendations are thought to be environmentally irresponsible by others. Even those who advocate protection of areas that may be candidates for wilderness recommendation may be reluctant to see Congressional Wilderness designation because of the implications for increased National attention, increased use, and loss of “local” control.

Attempts to find some middle ground are difficult. None of the alternatives is satisfactory to those who oppose all Wilderness recommendations. Removing motorized use from recommended wilderness in all action alternatives has fueled most of the controversy over recommendations – at least for users who had become accustomed to vehicle access for recreation in these areas.

Wilderness advocates would likely prefer Alternative 3 with the largest Wilderness recommendations (40 % of all acres of inventoried roadless areas). Many who liked the selection of areas and acreage recommended in Alternative 3 also expressed a desire to see more active forest management included. Conversely, those opposed to recommending more Wilderness because it limits vehicle access, timber harvest, or oil and gas development, would be opposed to recommendations in Alternative 3 and prefer Alternative 4, which recommends no acres of wilderness. Advocates for more recommended wilderness were opposed to Alternative 4. In between these extremes are Alternatives 2, 5 and 6, in terms of recommended wilderness. Alternative 6 responds to comments on the DEIS from those interested in increasing wilderness recommendations and more active forest management by increasing acres available for both.

Each of these alternatives is more or less acceptable to opposing segments of society depending not just on the number of acres but on the location of areas recommended. That is, Alternative 2 has fewer acres recommended than Alternative 5 or 6, but it includes the West Big Hole, so it may garner more support from wilderness advocates than Alternative 5 or 6. Alternative 5 and 6 recommendations include the Snowcrest area but drop the West Big Hole as recommended wilderness. Instead, they allocate those same lands to a summer non-motorized prescription to protect the undeveloped character of the area, allowing snowmobile use in the winter.

Effects to the Social Environment from Livestock Grazing

Social setting and lifestyle effects on livestock producers resulting from alternatives are of considerable interest because of the long tradition of grazing on the BDNF and relatively large numbers of grazing permit holders. The principle effect alternatives could have on traditions of livestock grazing will come from changes in grazing levels (AUMs) and number of allotments available. Several factors besides forest management have changed since the early 1980s which also affect ranching operations in southwest Montana and the ability of ranchers to adapt to change. Social factors include the rising popularity of southwest Montana as a place to live, work and play, the ensuing population growth and change in demographics.

Riparian standards in key watersheds may reduce grazing in key watersheds and permittees may have to restructure their existing operations. Permittees, who operate on the margin of profitability, may find their operations economically unfeasible. The preferred lifestyle of these individuals may be adversely impacted. Forest users whose lifestyle and personal economics are tied to grazing on the BDNF would most likely favor Alternatives 1, 2 or 4. Under these alternatives livestock grazing on the BDNF would be affected the least. Alternative 3 would garner less favor. Alternative 5 and 6 would appear slightly better.

Alternatives 3, 5 and 6 would formally close some allotments that have been vacant and close unsuitable pastures on others. Because these allotments are already vacant and there has been no demand for them, current grazing permittees would not be immediately affected. In the long-term, closed allotments would provide places for those who enjoy recreating in areas unaffected by livestock grazing. Vacant allotments would also be available to relieve permittees in times of drought or should the allotment burn in a wildfire. Alternatives 1, 2 and 4 retain the current status of allotments and suitable acres. These alternatives would also have no effect on current grazing permittees.

Some members of the public expressed a desire to reduce grazing on the BDNF. Some of these individuals consider grazing to be damaging to the environment through overgrazing of forbs and grasses, introduction of noxious weeds, soil compaction, erosion and degradation of water quality. Others feel that domesticated livestock are an unnecessary source of competition for native wildlife and grazing on public lands is an unwarranted subsidy of the livestock industry. For some, encountering livestock, their droppings or trampling on public lands detracts from the sense of the wild. None of the alternatives are likely to satisfy people who desire the end of grazing on the forest. However, Alternative 3 is more likely to be supported than Alternatives 1, 2, 4, 5, or 6. Alternatives 3, 4, 5, and 6 offer varying levels of additional protection for aquatic species in impaired watersheds and would be favored by those concerned about livestock grazing competing with or damaging resources.

A concern that continues to surface in discussions of public lands and livestock grazing is the link between ranching and open space. This link is important to the setting and lifestyles of people who live and recreate in southwest Montana. Forest Service grazing permits contribute to the success of many of the smaller ranching operations which contribute to open space. Other considerations also contribute to decisions to sell ranch land to real estate developers. A University of Wyoming report (Taylor 2003) cited four factors for loss of open space (ranchland) to development:

- ◆ Aging agricultural operators and the effects of estate taxes;

- ◆ Limited profitability of agriculture currently, and the availability of higher profits from other uses, especially development;
- ◆ Increased agricultural land prices despite the limited profitability of agriculture; and
- ◆ Continued uncertainty about livestock grazing on federal lands.

It is apparent ranchers in southwest Montana are offered the opportunity to subdivide their land. , Gallatin, Beaverhead and Madison counties were identified as the top three counties in the Rocky Mountain West at risk of losing strategic ranchlands (American Farmland Trust (2002). Jefferson County ranked number 11. The risk of ranchland converting to residential and commercial development was based on proximity to public land, presence of major road corridors and transportation, variety of vegetation, water availability, and current rural development housing densities.

It is difficult to predict if shifts in management between alternatives might affect a rancher's choices to subdivide. However, Alternatives 1, 2 or 4 might induce the least change from the current situation.

Effects to the Social Environment from Minerals, Oil and Gas

Social impacts can result from oil and gas development if it changes customary use of BDNF lands. Sometimes development can lead to “boom and bust” activity in local communities. Forest plan standards are designed to minimize the impacts of mineral activities on the forest environment and are common to all alternatives. The greatest variation between alternatives is in the acres administratively withdrawn from oil and gas leasing through wilderness recommendation. Alternatives 3, 6 and 5 withdraw the greatest number of acres from leasing, in that order. Alternative 4 withdraws the least.

Because the BDNF has only low and moderate oil and gas potential lands, activity is most likely to be the drilling of exploratory wells. Drilling activity typically lasts a few months, is reclaimed, and the production crews are gone (Bump 1995). Boom and bust activity in local communities which could change social settings is unlikely.

Members of the public who consider mineral extraction activities to be an important element of the area economy and lifestyle would likely support Alternative 4. Visitors, who find any form of mineral exploration or extraction activity unacceptable, would likely favor Alternatives 3, 5 or 6.

Effects to the Social Environment from Recreation and Travel Management

Individual lifestyles can be affected when opportunities to participate in favored recreational opportunities are diminished. The greatest difference in recreation opportunities between alternatives is the shift between motorized and non-motorized vehicle access. Dispersed camping and picnicking opportunities would be available forestwide under all alternatives. Developed camping opportunities would remain the same as the existing situation, Alternative 1.

Visitors are often concerned with changes to their favorite places on the forest to recreate. Many develop favorite areas which may vary for specific activities. It matters less if opportunities open up elsewhere, if their favorite area is closed. Comments to the 2002 Proposed Action (2003) indicated prohibiting winter motorized use in the West Big Hole was the greatest area of concern to snowmobile groups. They would likely favor Alternatives 4, 5 and 6 which allow snowmobiling because these alternatives do not recommend the West Big Hole for wilderness. Alternatives 1 and 2 close the West Big Hole Recommended Wilderness to snowmobiles, but

allow use through the Ajax Mine corridor. Alternative 3 excludes snowmobile use from most of the West Big Hole area.

Snowmobilers were also concerned, after publication of the DEIS, about closing winter motorized vehicle access in the Mt Jefferson area. Many expressed a concern that trips to this area have been meaningful family traditions and a way of educating their children about the beauty of wilderness and backcountry areas. Vehicle access through Idaho to the Continental Divide and Reas Peak for the views from the top will be unaffected by any alternative.

Other snowmobile riders expressed a concern that extremely challenging climbs like those on Mt Jefferson are uncommon in the Island Park area, regardless of the abundance of trail and off-trail riding. Those unable to make the climb enjoy watching others test their skill and the performance of their machines. Extreme hill-climbing will still be available on the Idaho side of Mt. Jefferson, but under Alternatives 2, 3, and 5, less skilled riders may not be able to vehicle access the Idaho side to watch. These individuals favor Alternative 1, 4 or 6 because they do not recommend wilderness for the portion of Mount Jefferson Roadless Area favored by snowmobilers. Alternatives 2, 3 and 5 recommend the area for Wilderness, closing it to snowmobiles. .

Conversely, closing snowmobile vehicle access into Hellroaring Canyon on the Montana side of Mt Jefferson translates into an increase in opportunity for backcountry skiers. Currently, the high quality of backcountry skiing in the upper Hellroaring Canyon is often reduced by hardened snowmobile tracks across much of the area. Skiers, hikers and horseback riders who visit the basin have strong feelings about the uniqueness and beauty of the area and expressed strong support for Alternative 2, 3, and 5 recommendations of the entire IRA for wilderness. Alternative 6 preserves the present recreation experiences in the area.

In addition to concerns about recreating in specific favorite places, snowmobiling groups and individuals who engage in this sport expressed considerable concern that the quantity of recreational opportunities would be reduced, thereby adversely affecting their lifestyle. Opportunities for snowmobiling would remain unchanged from the current condition under Alternatives 1 and 4. Alternative 2 reduces snowmobile opportunities only in recommended wilderness areas and generally allows unrestricted use elsewhere on the forest. Alternative 3 reduces snowmobiling on groomed and marked trails by 23 % due to the large acres of recommended wilderness. Alternative 6 reduces it by 11 % but retains most of the areas popular with current users, including the West Big Hole and Mount Jefferson. Even with some reductions in groomed and marked trails, there is no evidence that the revised plan will not meet demands for snowmobiling over the planning period under all alternatives.

As described in the Recreation and Travel Management section, summer motorized and non-motorized vehicle access changes very little between Alternatives 1, 2, and 4 therefore existing conflicts between users may continue. Alternative 3 decreases summer motorized vehicle vehicle access the most. Alternative 3 may be the only alternative which may not meet demand for OHV use over the planning period. Alternatives 5 and 6 separate use by designating specific motorized and non-motorized areas. The miles of open motorized road and trail opportunities are reduced from current levels, but the quality of experience may improve. Separating use in Alternative 5 has the benefit of reducing conflicts between user groups.

In comments on the DEIS, many motorized users expressed frustration and anxiety at what they perceived as constant erosion of their opportunities. This appeared to be triggered by several forests and the BLM field offices all making travel management decisions at the same time with

all indications that motorized trail miles will decline (see Cumulative Effects – Social Impacts). Elimination of cross country travel in all action alternatives likely adds to this sense of limitation. This sense of frustration from potential impacts to the lifestyle of individuals engaged in motorized recreation would be felt worst under Alternative 3. Alternatives 1, 2, and 4 would be favored. Alternative 5 and 6 would add to concerns because it reduces opportunities, but it may address concerns about continued erosion of opportunities. Non-motorized and backcountry allocation demonstrate to both non-motorized and motorized users which areas they can be assured of having vehicle access to over the life of the plan.

Non-motorized users express the same frustration and sense of loss over the current travel situation. They perceive that motorized users are encroaching on many of the areas they have previously experienced quiet and solitude and soon, their lifestyle will be affected. Non-motorized users (hikers and skiers) would most likely favor Alternatives 3, 5, and 6 which increase the acres and trails of non-motorized opportunities. Although Alternative 5 and 6 offer fewer total acres of non-motorized opportunities than Alternative 3, these are located in carefully planned areas where winter vehicle access might be possible and use is separated. The quality of the quiet experience should be highest in this alternative. Alternative 3 closes all inventoried roadless areas to motorized use. Because the quality of setting in these inventoried roadless areas varies widely, the quality of non-motorized experience would as well.

Road and trail management will also affect recreational hunting experiences. Hunters who prefer hunting in motorized use areas may favor Alternatives 1, 2 or 4. Those who prefer to hunt in non-motorized areas may favor Alternative 3, 5 or 6. Hunting will not change by alternatives but the method of transportation will.

Effects to the Social Environment from Timber Management

This section is combined with Effects to the Social Environment from Vegetation Management.

Effects to the Social Environment from Vegetation and Timber Management

Effects on the social environment of southwest Montana communities and effects on individuals employed in the wood products industry relate closely to effects on employment and labor income as described under Economic Effects. These effects will vary greatly between counties and communities. As pointed out in earlier discussions, timber contributions to county economies vary from one to 27 %.

As described in the effects on the economic environment section, decreased harvest projections equate to employment and labor income effects on people employed by logging or wood processing. Alternative 3 might produce minor effects on related social patterns through unemployment, declines in income, and community prosperity.

Alternatives 1, 2, 5 or 6 will likely maintain or slightly increase employment opportunities in the wood products industry. There would be no effect on the social environment or individual lifestyles from the alternatives. Alternative 4 has the greatest impact on employment in the wood products industry. By creating more opportunities for individuals and contributing to higher average labor incomes in communities, Alternative 4 would likely have a positive effect on both individual lifestyles and the social environment.

Groups or individuals who do not believe the BDNF should be open for commercial timber harvesting and feel management of National Forests has a negative effect on their lifestyle, might

be more satisfied with Alternative 3. This alternative limits harvest to minor amounts of restoration related activities outside of inventoried roadless areas.

Effects to the Social Environment from Wildlife Habitat Management

The National Visitor Use Monitoring survey indicated 27 % of forest visitors participated in hunting (USFS 2006c). This is much higher than national hunting percentages. Additionally, 5 % of forest visitors participated in wildlife viewing and fishing. Measures are incorporated in all alternatives to protect and enhance wildlife habitat. To a large degree, measures improving wildlife habitat would also enhance opportunities for visitors to view wildlife viewing and hunt.

Those individuals who favor enhancing wildlife habitats while providing vehicle access for viewing, photographing and hunting may favor any of the action alternatives other than Alternative 3. Individuals who advocate protecting more lands for the sake of wildlife by reducing recreation vehicle access may prefer Alternative 3. Alternative 3 recommends the highest percentage of wilderness and closes inventoried roadless areas to motorized use.

Effects to the Social Environment from Fire Management

As the population grows, more and more people recreate on the BDNF. In addition, many people seek homes in a forested environment. The BDNF is bordered in many places by subdivisions with both year-long and summer residences. Recreation residences under permits and private inholdings with houses are situated inside the forest boundary.

All appropriate management responses to wildfire, especially large wildfires, have the potential to impact social conditions. Many residents surrounding the forest chose the location because of scenic and remote qualities. During wildfire events, their peaceful setting is disrupted by fire suppression activity or smoke and the ensuing anxiety about personal safety and property damage. Following a large wildfire, perceived scenic quality is greatly reduced in the short term. Additionally, risks of erosion may be increased. This could affect home and property values, and may be costly or devastating to homeowners should their home burn.

All alternatives allow both protection and enhancement of resources through fuel treatment and appropriate management response to all wildland fire ignitions. It is difficult to determine which alternatives may have more risk to property or smoke. In all alternatives, risk reduction and fire suppression actions may also benefit small local communities through procuring equipment rentals, temporary drivers, caterers, etc.

Environmental Justice

The risk of disproportionate effects on minority or low-income populations was evaluated by looking at whether alternatives decrease employment or labor income as a whole or in particular sectors of the economy. All alternatives, other than Alternative 3, are estimated to add to employment and labor income in the area. Alternative 3 is estimated to reduce employment and income as compared to Alternative 1, the current condition, by dropping labor income contributions from the current 3.9 % to 2.9 %. The agriculture industry, which includes ranching and many forestry related jobs, could experience a potential loss of 112 jobs out of 3,485 jobs available in the study area.

There is no evidence the level of economic or environmental risk would be disproportionately placed on low income or minority populations in communities where employment opportunities and workers are located, under any alternative.

The second part of the Environmental Justice Executive Order refers to the fair treatment and meaningful involvement of people of all races, cultures and incomes with respect to the development, implementation and enforcement of environmental laws, regulations, programs and policies. Public involvement efforts, beginning with publication of the AMS in 2002 through publication of the Proposed Action, DEIS and FEIS have been inclusive. Over 163 meetings were held with over 100 different groups prior to publication of the FEIS. Meetings have targeted groups most likely to be affected: motorized users, loggers, ranchers and wilderness advocates. The agency considered all input from people or groups regardless of race, income status, or other social and economic characteristics. A detailed analysis of effects to potentially affected social groups or lifestyles, such as ranching or logging, can be found in other portions of the *Effects to the Social Environment* section above.

Tribal and Other Governments

In terms of alternatives presented in this environmental impact statement, all action alternatives positively address American Indian rights and interests. Alternative 1, the current situation, does not positively address some traditional activities such as gathering forest products. Alternatives 2 through 6 provide protection for known traditional cultural properties and heritage sites through forestwide and specific management area direction. Alternatives 2 through 6 also protect known areas where gathering of traditional forest products, such as camas, have been site-specifically requested by tribes.

Generally, all alternatives address availability and sustainability of all currently present species which may be traditionally hunted or gathered by tribal members. Alternative 3, because of its low level of development opportunities and its high level of allocation to recommended wilderness, best addresses these issues from a tribal perspective.

Cumulative Effects

Economic Impacts

The analysis area for cumulative economic impacts includes the seven counties which contain the BDNF. Broadwater County is included because of a lumber mill and recreation effects include the Island Park area of Fremont County. A number of past and reasonably foreseeable actions would add to the economic effects created by alternatives, are described in this section.

A number of decisions and policy changes took place between 1986 and 2007 which may contribute to the cumulative economic effects of alternatives. Timber outputs fell from a high of 46.5 million board feet in 1988 to an average of 14 million board feet for the last 5 years. The AMS attributes this to Roadless Area policy changes, protection of threatened and endangered species habitat, policy changes for clearcutting, shifts to managing vegetation for other resource objectives (like fuel reduction), and the increasing cost and time involved to complete environmental analysis for projects. Local mills appear to adapt to decreasing or intermittent supplies from federal lands by increasing purchase from other suppliers. From 1981 to 1998, as

the National Forest portion of wood processed by Montana's mills dropped from 41% to 22%, private land contributions increased from 54% to 69% (Keegan et al. 2001).

Further adaptation to other sources of wood might be required under Alternative 3 as commercial harvest opportunities drop further. Alternative 3, which does not allocate any suitable timber, is the only alternative which results in a potential decrease to jobs and employment in the timber industry as compared to the current situation.

Livestock grazing outputs fell from 241,363 AUMs of actual grazing in 1987 to 177,278 AUMs in 2003. There are a number of extenuating factors. Past actions which contributed to some reductions include listing of bull trout and subsequent protection through Inland Native Fish Strategy (USDA 1995b), implementation of the Riparian Grazing Amendment in 1997 and decades of fire suppression.

Off highway vehicle travel opportunities were reduced by the 2001 OHV Plan Amendment for Montana, North and South Dakota which confined travel to designated routes.

A number of other agency decisions or actions are ongoing or reasonably foreseeable. The Bureau of Land Management (BLM), Dillon Field Office, released a Record of Decision for their Resource Management Plan. The Resource Management Plan allocates land uses on public lands adjacent to or intermingled with Forest Service lands in portions Beaverhead and Madison Counties. Over the next 2 years, the Butte Field Office will also be revising their Resource Management Plan, affecting additional parts of the same counties. The economic effects of BLM decisions would add to the economic effects of decisions made on Forest Service lands.

The Dillon Field Office Record of Decision reduces permitted livestock and offers fewer designated routes for motorized vehicles. These same types of reductions would occur in Alternatives 3, 5, and 6 of this analysis, the effects are additive. The BLM FEIS estimates increased timber volume produced from Beaverhead and Madison County with a result of 33 jobs and \$910,000 in labor income. The increase adds to jobs and income produced from estimated harvest on the BDNF in all alternatives except Alternative 3 which projects no allowable sale quantity and minimal post, pole and house log removal.

The Montana State Land Board increased the sustained yield on State Trust Lands in October of 2004. This decision could increase timber harvest within the eight counties involved in the analysis area. The increase could add positive effects to the timber industry for Alternatives 1, 2, and 4, ameliorate the negative effects of Alternative 3, or improve the neutral effects in Alternative 5 and 6.

We do not know what cumulative impacts may occur from upcoming plans for the Butte Field Office, the Gallatin National Forest's Travel Plan, the Bitterroot and Lolo Revised Forest Plans, or the Helena Travel Plan. It would be safe to anticipate OHV opportunities and grazing opportunities, at least, would not be increased. While impacts to employment and labor income from the BDNF travel decisions do not vary by more than 3 % between alternatives, the cumulative effect of these restrictions could affect individuals or businesses who serve motorized recreationists exclusively, especially those in small communities.

Yellowstone National Park has reduced snowmobile use within park boundaries. This action reduced snowmobile visitation to communities bordering the Park, with impacts extending as far as Island Park in Idaho. Business owners who cater to snowmobilers in Island Park are sensitive to any further reductions in snowmobile opportunities in their area because of the economic

impact they've already experienced. While business originating in West Yellowstone may have dropped since 2000, Fremont County has experienced a 200% increase in winter lodging receipts between 2001 and 2005. Any reductions as a result of Park visitation take place on top of a growing winter economy. Park restrictions may have the potential to increase interest in winter opportunities in the BDNF, the Gravelly Range in particular.

The regional economic analysis for this project estimated the potential economic effects of alternatives over the long term for the eight counties in the impact area. The analysis used growth estimates of employment and labor income from the Montana State University website: <http://www.msubillings.edu/caer/realestate.htm>. MSU used the data year 2003 to base growth estimates on for state of Montana. The IMPLAN model used 2003 data to estimate effects of alternatives on employment and labor income in earlier tables. Employment and Income in this table are not directly comparable to earlier tables.

Table 47. Cumulative Economic Impacts in 2014

Economic Indicator	2004		2014						
	Area Total	Forest Portion	Area Total	Forest Portion					
				Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Employment									
Total jobs	45,540	1,557	50,880	1,557	1,554	1,301	1,672	1,550	1,550
Area Total	100%	3.4%	100%	3.1%	3.1%	2.6%	3.3%	3.0%	3.0%
Change from Alt 1	---	---	---	0.0%	-0.2%	-16.4%	7.4%	-0.4%	-0.4%
Labor Income									
Total in millions	\$1,287	\$39	\$1,766	\$39	\$39	\$33	\$42	\$38.8	\$38.9
Percent of Base	%100	%3.0	%100	%2.2	%2.2	%1.8	%2.4	%2.2	%2.2
Change from Alt 1	---	---	---	0.0	-0.2	-16.4	7.6	-0.3	-0.3

The statewide economy is predicted to continue growing while ***Forest Service budgets and expenditures are assumed to remain static***. Even though overall employment and income increase from the current situation or remain stable under Alternatives 1, 2, 4, 5 and 6, the Forest Service contribution isn't growing as fast as other sectors of the local economy. Forest Service contributions ***as a proportion*** of the area employment are expected to shrink less than 1% under alternatives 2, 5 and 6 by 2014. An increase in contribution to the area economy is estimated under Alternative 4. Forest Service contributions will likely decline by 16% over the 10 year planning period.

Social Impacts

The cumulative effects analysis area for social impacts includes all communities within 50 miles of the BDNF. This is somewhat larger than the seven county area considered for direct and indirect effects.

Population and Demography: The West is now the fastest growing region in the country, although this growth is unevenly distributed across counties (Cordell et al., 2004). Continued urbanization and development of open space will occur over the next decade in the valleys of southwest Montana (American Farmland Trust 2002). While local urban, county, and regional planners and the public are making progress in defining desirable development and recognizing the inherent costs and effects associated with subdivision sprawl, growth will continue in some form and overall density will increase. This development would likely add pressure on adjacent Forest Service lands. Pressure would include increased demand for potentially conflicting recreation opportunities, services such as road maintenance, demand for undeveloped and semi-primitive settings, and increased fire management problems.

The increase of primary homes or seasonal residences near or inside the BDNF in sparsely populated areas would become more common. This development and filling in of open space may reduce universal vehicle access to these public lands. In addition, the development of private homes in wildland areas (the urban interface) would create new threats from wild fires and demand for protection of lives and property. Development of open space can also reduce available wildlife habitat, potentially reducing wildlife populations. This in turn could have a negative impact on other residents who moved to the area because of the wildlife.

Traditional Lifestyles: See the discussion under Cumulative Economic Effects in the paragraphs above. These potential changes in livestock grazing and timber harvest described above will affect those individuals tied to a ranching or wood products based lifestyle.

Recreation Lifestyles: As recreation use increases, and uses on limited space are constrained, it would become increasingly difficult to provide the same wide range of recreation opportunities that have been available in the past. As noted under cumulative economic impacts, a number of ongoing travel management efforts may exacerbate reductions in motorized opportunities. The frustrations of individuals who prefer opportunities such as snowmobiling or OHV use are likely to grow as the opportunities they seek become more limited and regulated. While it is unlikely any given recreation activity will be eliminated in the future, opportunities may become more widely dispersed, requiring more time and expense to participate. Some users may perceive increased crowding, additional travel time, higher costs, or being displaced from their favorite area as unacceptable changes in their lifestyle.

Wilderness: All but one alternative currently under consideration would recommend additions to the two wilderness areas on the Forest and new wilderness areas. Other forests in Montana and Idaho will complete forest plan revisions in the coming years. Each will need to address recommendations for Wilderness. Congressionally designated Wilderness has been among the most difficult decisions to make regarding public lands. Political forces, emotions, and values are strong on either side of the issue, and no clear outcome is on the horizon. It seems likely that the status of Recommended Wilderness will stay in place through the entire planning period rather than be a step towards actual designation.

Legal and Administrative Framework

Laws and Executive Orders

American Indian Religious Freedom Act (AIRFA) of 1978 directs that American Indians shall have reasonable vehicle access to federal lands for the purpose of conducting traditional religious ceremonies and collecting traditional ceremonial and medicinal plants and materials. It also requires federal agencies to consult with American Indian tribes regarding proposed undertakings in areas that may be of cultural or spiritual interest to them

Executive Order 12898, “Environmental Justice,” of 1994 established the requirements to address environmental justice concerns within the context to agency operations. As part of the National Environmental Policy Act process, agencies are required to identify and address disproportionately high and adverse human health or environmental effects on minority and low-income communities

Executive Order 13007, “Sacred Sites,” of 1996 directed federal agencies to protect and preserve Indian religious practices through accommodating vehicle access to and ceremonial use of Indian sacred sites by practitioners and avoid adversely affecting the physical integrity of such sacred sites. Agencies shall maintain confidentiality of appropriate sites.

Executive Order 13175, “Consultation and Coordination with Indian Tribal Governments,” of 2000 establishes regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications. It also strengthens government to government relationships with the U.S. Government and Indian tribes and reduces the imposition of unfunded mandates upon Indian tribes.

Executive Order No. 12898 on Environmental Justice, February 11, 1994 - Requires each federal agency to make achievement of environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976 - Establishes the requirement to consider economic effects in the land management planning process.

Multiple-Use Sustained Yield Act of 1960 - Identifies guiding principles for managing the resources of the National Forest System. The direction to manage these resources for the greatest good over time necessitates the use of economic and social analysis in determining management of the National Forest System.

National Environmental Policy Act of 1969 - Requires any agency of the federal government, before taking actions significantly affecting the quality of the human environment, to examine not only the potential impacts of that action on physical and biological resources, but also the socioeconomic consequences (40 CFR 1508.14).

Office of Management and Budget Circular A-116 - Requires executive branch agencies to conduct urban and community impact analysis of major initiatives and to conduct long-range planning.

Public Rangelands Improvement Act of 1978 - Requires economic analysis of grazing use on Forest Service administered lands, fee formulas, and funding of rangeland programs and identification of associated economic impacts on the livestock industry.

Secure Rural Schools and Community Self-Determination Act of 2000 - Designed to stabilize annual payments to state and counties containing National Forest System lands and public domain lands managed by the Bureau of Land Management for the benefit of public schools, roads, and other purposes.

Changes Draft to Final

Alternative 1 represents the current forest plans for which the DEIS lists 219,000 acres available for wildland fire use for resource benefits. This was incorrect. There are currently 2,768,000 acres available for fire use on the BDNF. Although the forest plan identifies areas available for Appropriate Management Response, it is not until a fire plan is written for the forest, that implementation can take place. This FEIS reflects that update.

Since the Draft EIS Federal Wildland and Prescribed Fire Policy has changed. Wildfires are now managed under Appropriate Management Response (AMR). Fire use is a part of AMR. Alternatives 1 through 5 will remain the same as displayed in the DEIS. Alternative 6 uses AMR rather than fire use.

Analysis Area

The analysis area for fire is all lands on and within the BDNF.

Analysis Methods and Assumptions

Coarse scale fire regime condition class (FRCC) data.

Wildland-urban interface (WUI) areas mapped nationally.

Landscape assessments completed during the 1990s.

Effects Indicators

- Percent of available acres burned compared to HRV acres burn.
- Number of acres available where fire can be managed for resource benefit.
- Percent of change in FRCC.

Affected Environment

Fire Policy

Historic natural fire regimes were influenced by climate variability (Whitlock 2004). As the northern Rocky Mountain climate varied in the past, the extent and range of dominant vegetation also changed. This combination of climate and vegetation variability contributed to fire regime patterns on landscapes of the BDNF, where there were likely periods of widespread burning and large fires as well as periods when fire burned less area and occurred infrequently. Historically, fire season weather patterns and associated lightning ignitions dominated fire location, while Native Americans and early settlers used fire to manipulate the environment but played a lesser role in fire occurrence than people have since western settlement. Studies based on fire scars and even-aged stand age re-constructions show a consistent pattern of fire frequency from at least

1600 to 1900 (Barrett 1997, Heyerdahl et al. 2006). The BDNF is currently characterized by five fire regime groups based on dominant vegetation and are described below under the Fire Regime Condition Class heading..

Several fire seasons from 1910 through 1934 were characterized by large and widespread fires that led to the adoption of the 10 AM Policy in 1935 for fire control and suppression activities. This policy resulted in fire exclusion from most ecosystems on the BDNF and marked the beginning of changes in vegetation and fire regimes associated with fire exclusion. From 1935 through the 1960's, national legislation and research in fire ecology supported the beneficial effects of fire in native plant communities. With the signing of the Wilderness Act of 1964, fire managers became increasingly aware of the natural role of fire in the environment. Fire fighting strategies began to change from those of control to strategies of fire management. In 1977 the policy of fire control and containment by 10 a.m. the next day was replaced with policy allowing for a suite of fire management options. These options included initial attack, fire suppression alternatives if initial attack fails, prescribed fire, and wildfire use. Following the 1988 Yellowstone Fires, risk and liability of wild+ contributed to policy evolution. Large fatality fires in 1994 and 2000 prompted establishment and revision of a National Fire Plan that recognized fire as a natural process and increased emphasis on collaboration for fire management across resource disciplines and land management boundaries (Pyne 1982).

Fire Management

Prescribed Fire and Mechanical Fuel Treatments

The potential for wildland fire is measured in terms of fire hazard and resistance to control. Wildland fire hazard can be defined by vegetation structure, vegetation density, vegetation amount, time since last disturbance, and the proximity to high value areas. The relative degree of fire hazard is also related to the ability to use treatments to manipulate fuel loading to achieve desired fire behavior and effects. Planned ignitions (prescribed fire), unplanned ignitions (human and lightning), timber harvest and mechanical treatments are all ways to manage and reduce hazardous fuels.

From 1998 through 2003, the BDNF completed fuels treatments on an average of 7,300 acres per year. Prior to 1998 larger prescribed fires were completed in sage and grasslands than in recent years. Treatments in more recent years have focused on hazardous fuels reduction, timber harvest and subsequent burning, prescribed fires for wildlife habitat improvement, and mechanical treatments. The trend over the period has been down with fewer landscape type burns in sage/grass. The trend is expected to change with an increase in acres through emphasis on treating areas in wildland/urban interface and in areas considered outside historical conditions compared to current conditions (fire frequency and severity referred to as Fire Regime Condition Class [FRCC]).

Appropriate Management Response

Escalating cost of fire suppression and the state of vegetation (fuel) resulting from fire exclusion prompted current Federal Wildland and Prescribed Fire Policy that directs fire managers to select the Appropriate Management Responses (AMR) for wildfire management identifies three responses to fire on the BDNF: Unconditional Suppression Response; Conditional Suppression Response; and Wildland Fire Use Management Option Response. Unconditional Suppression

Response is characterized by aggressive initial attack with the intent of minimizing acres burned. Conditional Suppression Response allows management of human and naturally ignited fires by constructing fire line where necessary and monitoring in order to reduce suppression costs provide resource benefits and reduce firefighter hazards. Wildland Fire Use Management Option is intended for management of naturally ignited fires. The National Fire Plan and AMR direct management of wildfire events and allow for continuation and expansion of prescribed fire programs. The 1986/1987 Land and Resource Management Plans for the Beaverhead and Deerlodge National Forests provide direction for fire management; however, these Plans do not reflect current Federal Wildland Fire Policy. The current Forest Plans still use appropriate suppression response using confine, contain and control as strategies for addressing wildfires; whereas current national and regional fire management policy directs fire events to be managed using the AMR to provide human safety, cost effectiveness, and resource benefit.

Under current Forest Plan direction, unplanned lightning ignitions can be managed to meet resource benefits, although direction is inconsistent between the two plans. Currently, wildfire use implementation plans have only been completed for the Anaconda-Pintler Wilderness Area and the Lee Metcalf Wilderness Area where implementation plans have been completed. Since those plans were approved only 95 were allowed to burn (in 1998) in the Anaconda-Pintler Wilderness Area.

The Wildland Fire Use Management Response Option would be allowed in areas designated in the selected alternative. Implementation plans would have to be completed with prescriptive criteria to guide the decision maker.

Approximately 65 fires per year occur on the BDNF. Between 1970 and 2001 the annual occurrence varied from 10 fires (7 acres) in 1993 to 133 fires (59,239 acres) in 2000. Over this period, a total of 2,093 fires burned 115,503 acres of various vegetation types in a range of elevations. During this 31-year period, the size and number of fires has increased, similar to other forests surrounding the BDNF and east of the Continental Divide.

On the BDNF wildfires typically occur as early as April and as late as October. Due to cold, dry winter conditions, fires can occur any month of the year. Of fires occurring on this forest, 55% are lightning caused, 23% are escaped/abandoned campfires (mostly September through October) and the remaining 22% are other types of human caused fires. Historically, 62% occurred during July and August, and from 1971 to 2001, 92% were less than ten acres, Class A or B fires.

Suppression resources consist primarily of ground personnel (engines, IA modules), most effective where there is road vehicle access. They can be flown in if necessary when aviation support is available. Smokejumpers have been used on fires when ground resources are unavailable or the area is invehicle accessible.

Fire Risk

Wildland-Urban Interface

WUI is the line, area, or zone where structures and other human developments meet or intermingle with wildland or vegetative fuel. Population growth, particularly in the West, has led to an increased interface. In and adjacent to the BDNF there has been an increase in homes. New developments adjacent to Forest Service land increase the values at risk. Because of this

relatively new issue, Congress passed the Healthy Forest Restoration Act in 2003 to expedite the preparation and implementation of hazardous fuels projects on federal land and assist rural communities, states, and private landowners with restoring healthy forest conditions on state and private lands.

Fire Regime Condition Class (FRCC)

A natural fire regime is a general classification of the role fire would play in natural plant communities in the absence of modern human mechanical intervention, including the influence of aboriginal burning (Agee 1993). Fire regimes are defined by frequency, extent, intensity and severity or magnitude, and timing of fire events over time. Five FRCC groups (Barrett 1997) characterized the BDNF as follows.

I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75% of the dominant overstory vegetation replaced)

II – 0-35 year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced)

III – 35-100+ year frequency and mixed severity (less than 75% of the dominant overstory vegetation replaced)

IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replace)

V – 200+ year frequency and high (stand replacement) severity

In 2003, FRCC assessments were made nationally, to assess vegetation conditions and degree of departure from historic conditions (Hann et al. 2003). This tool allows natural resource managers to compare historical natural vegetation, the disturbance regimes associated with them, and current vegetation, to inventory the degree of departure from historic conditions. There are three condition classes for each fire regime and each classification is based on a relative degree of departure from the historical natural fire regime (Hann et al. 2003), Schmidt et al. 2002). This departure results from changes in one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g. insect and diseased mortality, invasive species, grazing, and drought).

The BDNF uses the coarse and rapid national FRCC assessment to classify FRCC for BDNF lands (Schmidt et al. 2002). Fire is assumed to be the major historical disturbance process for BDNF lands. Historic fire regimes associated with vegetation present and the degree of departure from these conditions was used to assess FRCC for landscapes of the BDNF (Barrett 1997), This resulted in a quantitative assessment of vegetation within historic range of variability (FRCC 1), slightly beyond historic range of variability (FRCC 2), and far departure from historic range of variability (FRCC 3). Since FRCC is derived from fire history and compares current to historic vegetation, this metric can be used to assess areas for prescribed fire treatment, hazard, behavior, and the appropriate management response for fire events.

Table 48. A Simplified Description of the Fire Regime Condition Classes and Associated Risk

Fire Regime Condition Class	Description	Risk
Condition Class 1	Within the natural (historical range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern: and other associated disturbances.	Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion *suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics.
		Composition and structure of vegetation and fuels are similar to the natural (historical) regime.
		Risk of loss of key ecosystem components (e.g. native species, large trees, and soil) is low.
Condition Class 2	Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe).
		Composition and structure of vegetation and fuel are highly altered.
		Uncharacteristic conditions range from low to moderate.
Condition Class 3	High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Risk of loss of key ecosystem components is moderate.
		Fire behavior, effects, and other associated disturbances are highly departed (more or less severe).
		Composition and structure of vegetation and fuel are highly altered.
		Uncharacteristic conditions range from moderate to high.
		Risk of loss of key ecosystem components is high.

Table 49. NF Condition Class Acres and Percentage by Fire Regime Group

Fire Regime Group	Acres	Condition Class	Acres	Percent of Forest
I	672,500	1	294,000	9%
		2	173,000	5%
		3	197,500	6%
		Shrub/Grass	8,000	0%
II	933,500	1	135,000	4%
		2	40,000	1%
		3	23,500	1%
		Shrub/Grass	735,000	22%
III	1,332,000	1	1,094,500	32%
		2	189,000	6%
		3	21,000	1%
		Shrub/Grass	27,500	1%
IV	248,500	1	234,500	7%
		2	7,000	0%
		3	2,000	0%
		Shrub/Grass	5,000	0%
V	12,500	1	12,500	0%
		2	0	0%
		3	0	0%
		Shrub/Grass	500	0%
Non-Vegetated	180,500	Non-Vegetated	180,500	5%
Total	3,380,000		3,380,000	100%

Environmental Consequences

Direct and Indirect Effects

Effects are discussed in terms of three aspects of the fire management program: 1) fuel treatments including prescribed fire to reduce hazardous fuels and for resource benefit; 2) Appropriate Management Response 3) fire risk. Effects on the fire management program by other resource areas may be referred to as a whole or individually if necessary by alternative.

Effects Common to All Alternatives

For all alternatives, fire contributes to a host of functions and processes in ecosystems. Effects can vary depending on fire intensity, severity, and frequency, the defining factors of a fire regime.

For all alternatives, limitations to landscape-level fire management activities may include: funding uncertainty, species at risk, wildland/urban interface issues, sensitive watershed concerns, and lack of experience and personnel for fire management project planning and implementation. Fuel treatments, including prescribed fire, are allowed in all alternatives.

Effects on management related to unplanned ignitions do not vary widely among alternatives. For all alternatives, the appropriate management response will be taken where life or values are at risk and are cost effective.

Allowing fire at a landscape level would be beneficial in areas of conifer encroachment increasing the grass and shrublands. Landscape level burns would benefit whitebark pine systems creating areas where the Clark's nutcrackers and other animals like to cache seeds which in turn may allow selection of blister rust resistant whitebark pine stands. Burning larger areas of fire dependent species such as the Lemhi penstemon and aspen would mitigate impacts by large ungulates that browse heavily on smaller burned areas.

Wildland/Urban Interface Issues would be the same across all alternatives. The trend is for continued development adjacent to or near National Forest system lands. Wildland/Urban Interface has been defined and identified through national efforts and additional WUI will be identified through completion of community wildland fire assistance plans.

Treatments in high risk fire regime condition class (FRCC) will occur in all alternatives. The amount may vary by alternative with road closures, road densities related to wildlife issues, the need for grazing allotment closures to treat areas, and watersheds at risk, potentially limiting some opportunities.

Summary of Effects by Alternative

Compared to the no action alternative, all alternatives allow the same acres for management of unplanned ignitions for resource benefit Alternative 6 provides the most opportunities to manage natural ignitions and more area to allow fires to burn. For maximum benefit to the fire management program, Alternative 6 would provide the most potential.

Effects to Fire Management from Aquatic Resources Management

Key watersheds affect the use of wildland fire and methods of fire suppression. In Alternatives 1 and 2, key watersheds are not identified so there are no additional affects to fire management as a result.

Table 50. Number of Key Watersheds by Alternative

Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
None Identified	None Identified	135	57	72	71

Alternative 3 designates 135 key watersheds. From a fire management standpoint wildland fire use may be precluded in watersheds that are outside historical FRCC. Alteration of the FRCC by management action would be dictated by restrictions on treatment types in key watersheds. Suppression tactics could also be affected by limiting use of mechanical equipment, placement of hand lines, and restricting retardant in or near waterways. Fuels treatments may not be affected other than potential limitations of mechanical treatments that result in unacceptable ground disturbance.

Alternative 4 designates 57 key watersheds and may allow more wildland fire use without restrictions tied to key watersheds. More mechanical fuels treatments would be allowed in key watersheds than in Alternative 3 or 5. There may be fewer limitations on fire suppression methods such as placement of handlines, use of mechanized equipment and retardant.

Alternatives 5 and 6 designate 72 and 71 key watersheds respectively, resulting in an intermediate effect on fire management. These alternatives allow a larger number of wildland fire use or AMR acres and are similar to Alternative 3 in terms of restrictions on wildland fire use and some fuels treatments in key watersheds.

Effects on Fire Management from Fire Management

Management of unplanned ignitions (wildland fire) and prescribed fire is permitted forestwide (3,335,000 acres). Federal Wildland and Prescribed Fire Policy changed between publication of the Draft and Final EIS. The new policy requires an Appropriate Management Response for all wildfires based on risk, resources, and safety. Wildland fire use is one of the options available as a response to wildfire. In addition, fire management plans will be developed for the BDNF to site-specifically guide wildland fire AMR under any alternative.

Effects to Fire Management from IRAs and NWPS Additions

The allocation of recommended wilderness areas is conducive to managing natural fuels by Appropriate Management Response. However, management areas must be large enough for naturally occurring fires to fulfill their role in the ecosystem and reduce the risk of fire burning in areas where it may not be desirable (private property, developed recreation sites, sensitive watersheds). In Wilderness, mechanical treatments and timber harvest are not allowed which may increase risk of high-intensity unwanted wildland fires. Some suppression actions in recommended wilderness would be restricted. These effects would be directly related to the acres of recommended wilderness for each alternative.

Alternative 4 proposes the least amount of Wilderness while Alternative 3 proposes the most, which provides the most opportunity for Appropriate Management Response.

Table 51. Acres of Recommended Wilderness by Alternative

Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
174,000	195,000	706,000	0	248,000	331,000

Effects on Fire Management from Livestock Grazing

Suitable rangeland varies slightly by alternative in number of suitable acres and acres in grazing allotments. Livestock grazing affects the amount of available fuel for a wildland or prescribed fire. Intensive grazing reduces the amount of fine fuels available to carry a surface fire and could result in more successful fire suppression efforts. This can be a disadvantage during prescribed burning when the fine fuels necessary to carry a lower-intensity fire are not available.

Table 52. Acres of Allotments and Suitable Range by Alternative

Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Grazing Allotment acres 2,723,000	2,723,000	2,508,000	2,723,000	2,555,000	2,499,000
Suitable Rangeland acres 846,000	846,000	804,000	846,000	810,000	802,000

Most allotments contain grasslands, shrublands and open forest. Impacts from grazing would be the greatest in Alternatives 2 through 6 which allow the most opportunities for aspen restoration and reduction of conifer encroachment. Grazing may need to be deferred one or more years to allow fine fuels to grow enough to carry a fire. Grazing would then be deferred for two more years to allow aspen to re-establish and regeneration of native grasses and forbs.

Effects on Fire Management from Minerals and Oil and Gas

There are no effects identified on fire management from minerals or oil and gas leasing and development. In the event of a mining claim or oil & gas development these areas may become points of protection in a wildland fire event. To evaluate any development at this time would be speculative.

Effects on Fire Management from Recreation and Travel Management

The greatest impact to fire management would result from the percentage of year long vehicle closures. Closures under Alternatives 2-6 would benefit fire management activities by limiting forest user's exposure to fire hazards but may limit other management actions. The effect on fire suppression should be limited since motorized vehicle access for emergency purposes is allowed in summer non-motorized allocations. Some suppression action in wilderness, recommended wilderness, and portions of some wilderness study areas would be restricted. The effect would be directly related to the acres allocated to summer non-motorized use and recommended wilderness for each alternative.

Cross-country, wheeled, motorized travel is prohibited year round in all alternatives. Winter closures would have negligible effects on fire management activity.

Table 53. Percent of Forest Closed to Motorized Use by Alternative

Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
29% of BDNF is closed yearlong to wheeled, motorized vehicles	39% closed yearlong	59% closed yearlong	36% closed yearlong	45% closed yearlong	45% closed yearlong

Alternative 1 has a yearlong motorized vehicle closure on 29% of the BDNF but closes no roads or trails. This alternative has the least amount of year-long road closures. Fuel treatments and fire suppression would continue with better vehicle access for mechanical equipment than all action alternatives.

Alternative 2 has a year long wheeled motorized vehicle closure of 39%. This may limit vehicle access to wildfires by ground resources and limit some mechanical treatments more so than under the current condition.

Alternative 3 closes 59% of the forest to year long motorized vehicle use. This could pose the most problems for vehicle access for mechanized fuels treatments and suppression of unwanted wildfire as an appropriate management response through ground resources.

Alternative 4 closes 36% of the forest to year long motorized vehicle use. Effects would be very similar to Alternative 2.

Alternative 5 closes 45% of the forest to year long motorized vehicles. This could pose similar effects as identified in Alternative 3. There could be vehicle access problems for mechanized

equipment and fuels treatments as well as vehicle access to wildfires by ground crews and engines.

Alternative 6 closes 45% of the forest to year long motorized vehicles. This could pose similar effects as identified in Alternative 3. There could be vehicle vehicle access problems for mechanized equipment and fuels treatments as well as transporting ground crews and equipment to wildfires.

Effects on Fire Management from Timber Management

Alternatives 1 through 5 vary by the acres designated as suitable timberland where growth and yield of forest products is the primary objective. Harvesting timber creates diversity in stand structure, and contributes to forest health by providing opportunities to influence FRCC as a benefit to fire management. Wildland fire use is not allowed in suitable timberlands in Alternatives 4 and 5.

Table 54. Acres of Suitable Timberland by Alternative

Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
676,000 acres	346,000	0	484,000 acres	216,000 acres	299,000 acres
20%	10.3%	0%	14.4%	6.4%	8.8%

Alternative 1 designates the maximum number of suitable acres at 676,000. Current management allows use of tools including timber harvest to create stand structure, openings and stand thinning to reduce hazardous fuels, mitigate large fires, and move areas of FRCC IV and V toward a more historical range of FRCC I and II. Timber harvest can also create additional concentrations of activity, fuels, and increase the risk of ignition potential.

Alternative 2 designates 346,000 acres of suitable timberlands. This could reduce age class diversity, compared to Alternative 1, allowing larger stand replacement fires. Since more fire use is allowed in this alternative this could increase the use of fire based on stand replacement conditions. This would also decrease the amount of activity fuels associated with timber activities, thereby mitigating the ignition potential created by those activities.

Alternative 3 designates no lands suitable for timber production. This would allow the most opportunity for fire management activities. Under this alternative, diversity in stand structure would not be created by timber harvest. Fuel treatment projects would be designed for aspen restoration, conifer encroachment, hazardous fuels reduction projects or other habitat improvement projects. The appropriate management response to wildfires would continue under this alternative.

Alternative 4 designates 484,000 acres of lands suitable for timber production. Effects on fire management would be similar to Alternative 1. Management under this alternative may allow use of tools including timber harvest to create stand structure, openings and stand thinning to reduce hazardous fuels, mitigate large fires, and move areas of FRCC IV and V toward a more historical range of FRCC I and II. Timber harvest can create additional concentrations of activity fuels and increase the risk of ignition potential from the increased activity associated with timber harvest and production.

Alternative 5 designates 216,000 acres of suitable timberlands. This could potentially reduce age class diversity, allowing larger stand replacement fires. Since more fire use is allowed in this

alternative, it could affect the use of fire based on stand replacement conditions. This would also decrease the amount of activity fuels associated with timber harvest and production, thereby mitigating the ignition potential related to those activities.

There are no effects for Alternative 6 because AMR is allowed in suitable timberlands

Effects on Fire Management from Vegetation Management

Aspen restoration and Douglas-fir encroachment treatment are a focus of vegetation management in all action alternatives as shown in the table below. Returning lodgepole pine stands to aspen and reducing conifer encroachment in grassland/shrublands, for example, have potential to affect fire management. Prescribed fire, mechanical treatment, and fire management activities serve as tools to achieve these priorities. In all alternatives, prescribed fire and mechanical treatments are proposed to reduce hazardous fuels, particularly in high risk FRCCs and in WUI.

Alternative 1 and 2 address aspen restoration and reduction of conifer encroachment but the amount of acres treated is not quantified in Alternative 1. It is emphasized and allowed in Alternative 2 but not quantified. Alternatives 3, 4, and 5 identify a range of acres aspen restoration. Alternatives 3, 4, and 5 also identify a range of conifer encroachment treatment with more acres emphasized in Alternative 5.

Under Alternative 1 old growth retention stays the same with 10% retained for all species on the Beaverhead National Forest and 5% retained on the Deerlodge National Forest. Old growth standards are highest under Alternative 2; Alternatives 3, 4, and 5 are lower.

Given that current old growth levels are higher than levels identified in all alternatives it is unlikely fire management activities would be impacted by these standards. In Alternative 1, where fire use is allowed on 2,768,000 acres, but only implemented on 219,000 acres. Less than 100 acres have been managed with fire in the last 10 years.

Although the size of Wilderness areas has constrained the number of fires that can be managed without exceeding Wilderness boundaries.

Alternative 6 has the most acres available for fire management activities at 3,352,000 acres, therefore more contiguous areas would be available

Table 55. Vegetation Treatments by Alternative

Alternative 1		Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Aspen restoration not measured		Emphasized, no acres specified	13,340 to 66,700 range of acres	13,340 to 66,700 range of acres	13,340 to 66,700 range of acres	67,000 acre
Douglas-fir encroachment treatment not measured		Allowed	0-74,000 acres	30,000 to 74,000 range of acres	30,000 to 74,000 range of acres	74,000 acret
Old Growth	Beaverhead-10% DF/ES retained by compartment. Deerlodge: 5% all species retained by compartment.					
DF/PP/PF		8 to 10%	15%	10%	10%	10%
LP		10 to 15%	14%	10%	10%	10%
ES/SAF		Existing	15%	10%	10%	10%
WBP		Existing	15%	10%	10%	10%
Other		Existing	15%	10%	10%	10%

Effects on Fire Management from Wildlife Habitat Management

The principle effect on Fire Management from changes in wildlife direction between alternatives are related to road density objectives. Roads serve as the primary means to vehicle access wildfires and increase opportunities for mechanical treatments for fuels.

Table 56. Road Densities by Alternative

Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Variable, not consistent in 1986 & 1987 plans	1.5 miles/sq. mi. w/ ½ nuke buffer at the hunting district scale. 30% of hunting district in forested security blocks \geq 250 acres	1.0 miles/sq. mile w/ 1/3 mi. buffer for secure areas	2.5 miles/sq. mi. w/ 1/3 mi. buffer for secure areas	Variable road density objectives at the hunting district and landscape scale w/ 1/3 mi. buffer for secure areas.	Variable road density objectives at the hunting district and landscape scale w/ 1/3 mi. buffer for secure areas.

Alternative 1 does not identify objectives or standards for road densities. Effects on fuels treatments would be similar to the current condition with treatments focusing on hazardous fuels reduction, wildlife habitat improvement projects, grassland/shrubland treatments and reduction of fuels related to timber activities.

Alternative 2 sets a road density objective of 1.5 miles/square mile. In summer this allows some vehicle vehicle access to wildfires but would likely be less than under Alternative 1. Use of mechanical treatment may also be more limited under Alternative 1. With lower road densities there may be fewer conflicts with people who use those roads and Appropriate Management Response.

Alternative 3 proposes the lowest road density objective of 1 mile per square mile. This alternative has the least vehicle vehicle access to apply mechanized fuels treatments and may limit opportunities to use prescribed fire as well. This alternative would have the least impact on Appropriate Management Response with fewer conflicts related to roads and public use. Although these road density objectives do no apply to fire suppression vehicle access, there would be some reduction in road vehicle access for ground resources (engines, fire crews) to get equipment to wildland fires.

Alternative 4 has the highest road density objective at 2.5 mile per square mile and affords the most vehicle accessibility for wildfires, and fuels reduction treatments including mechanical treatments.

Alternatives 5 and 6 have variable road density objective of 0 to 2 miles per square mile and thus a variable probability of vehicle vehicle access for wildfires and fuel treatments. Appropriate Management Response would also be variable.

Cumulative Effects

As discussed in this chapter, most of the habitats and communities on the BDNF have evolved with fire. The frequency and intensity varies by vegetation type. Historically, vast acres of shrub and timber burned each year. There is evidence that Native Americans used fire to herd game and provide feed for stock. According to fire records, in the first half of the 20th century an

average of 30 million acres burned each decade in the west (http://www.nifc.gov/fire_info.html). Before that, settlers report seeing vast acreages of blackened land (Arno and Gruell 1986). With the settlement of the west, came the notion that these fires were bad. Following the fires of 1910, the Forest Service began its campaign to suppress wildfires.

Instead of fire, settlers employed plows, railroads, saw blades, sluice boxes, cattle, sheep, and other accoutrements as “disturbance agents”. Settlers converted many acres of rangelands to farm ground, primarily in the lower elevations while ranchers grazed horses, cattle and sheep on less productive sites. At the turn of the last century, livestock grazing occurred throughout the forest, introducing a new disturbance on what would later become the National Forest System Lands. High levels of livestock grazing reduced the fine fuels to carry wildfires.

Together, these actions reduced the wildfire disturbances on NFS lands. Timber harvest replaced fire as the major disturbance on the Forest but it did not affect an equivalent number of acres. This has led to an increase in older age classes of timber, higher density sagebrush stands, and the other vegetation conditions described in this chapter. The forest is generally more mature, less diverse and carries a higher fire risk. Rangelands generally have denser shrublands and are being encroached upon by Douglas-fir.

Despite the changes, wildfires are on the rise. In the past decade, throughout the west, 10,000 to 20,000 lightning caused wildfires occurred each year. Human caused fires, range between 80,000 to 140,000 fires caused each year. More fires are occurring adjacent to residential areas as people build more subdivisions and structures along public land boundaries. Again these changes occur across the west (http://www.nifc.gov/fire_info.html).

Fuel Treatments including Prescribed Fire

Adjacent ownerships and in holdings of private property can influence management options for fuel treatments and prescribed fire. This applies to larger landscapes to be treated or wildland/urban interface areas that go untreated. Community assistance plans that identify additional wildland/urban interface and opportunities for fuels treatments in urban interface areas adjacent to BDNF would enhance the forest service’s ability to treat areas adjacent to urban interface and in protecting high risk, high value areas. The ability to treat acres across agency boundaries and on private ownership contributes to long-term forest health, mitigation of large fires, reduction of suppression costs and greater firefighter and public safety.

The amount treated annually is difficult to predict due to a number of factors. The inexperience of forest personnel, undertaking large-scale, stand replacement prescribed fires in forested cover types, and unreliable prescription windows during the late summer/early fall, and the availability of adequate resources to complete these projects may influence the activities completed over the next several years. In all alternatives, the intent is to build prescribed burning experience over the planning period and acres treated will increase along with prescribed fire management skills in later years.

Appropriate Management Response

Other ownerships adjacent to or surrounded by lands administered by the Forest Service affect opportunities to use fire, and therefore to emulate historical fire effects, over large landscapes. In general, private landowners use timber harvest rather than fire to manage their vegetation. Fire may be used to treat activity fuels, but treatments are often limited in extent and effect. The

proximity or inclusion of private lands affects, in particular the use of wildland fire for resource benefits, because these fires can burn over large areas for long time periods depending on the vegetation, fuels, weather, and other factors. However, fire management activities can be coordinated with adjacent federal landowners such as the BLM, the National Park Service and adjacent Forest such as the Caribou-Targhee, Salmon-Challis, Bitterroot, Lolo, Helena and the Gallatin National Forests. In this case, effects could extend beyond lands administered by the Forest Service.

Prior to implementing Appropriate Management Response, a site-specific, prescriptive plan must be in place – this is included in the Fire Management Plan. Appropriate Management Response does not mean every natural ignition will be managed as wildland fire use. For each ignition, a decision will be made whether to suppress or manage a fire.

Under all alternatives, all ignitions will be managed under Appropriate Management Response based on safety and values at risk. Responses can range from monitoring from a distance to confine, contain and control strategies. All human caused fires will be managed as unwanted wildland fire, unless policy changes.

Agreements are currently in place with the BLM and the State of Montana on protection responsibilities. Those agreements would stay in place and the Appropriate Management Response would apply as per jurisdictional direction including use of mechanized equipment, assigned agency resource advisors and multi-agency coordination of the selected management response.

Wildland/Urban Interface

Wildland/Urban Interface will continue to change over the life of the forest plan. As community assistance plans are completed, additional WUI area can and will be added beyond what is currently identified. The trend indicates that people will continue to move to western states and build houses adjacent to National Forest lands. This will have an effect on fire and fuels projects with input by the public in support or not of those projects. It will also affect Appropriate Management Response by limiting fire in some areas because of social and political concerns of “no fire in my backyard”.

Fire Regime Condition Class

The emphasis on treatments of FRCC areas out of historical range will continue. This is applicable to Bureau of Land Management, National Park Service, and National Forest System lands.

Legal and Administrative Framework

Laws and Executive Orders

Organic Administration Act, of June 4 1897 (16 U.S.C. 551) - Authorizes the Secretary of Agriculture to make provisions for the protection of National Forests against destruction by fire.

Bankhead-Jones Farm Tenant Act, of July 22, 1937 (7 U.S.C. 1010, 1011) - Authorizes and directs the Secretary of Agriculture to develop a program of land conservation and land utilization to protect public lands.

Wilderness Act, of September 3, 1964 (16 U.S.C. 1131, 1132) - Authorizes the Secretary of Agriculture to take such measures as may be necessary in the control of fire with designated wilderness.

National Forest Management Act, of October 22, 1976 (16 U.S.C. 1600 et seq.) - Directs the Secretary of Agriculture to specify guidelines for land management plans to ensure protection of forest resources. Implementing regulations at Title 36, Part 219 of the Code of Federal Regulations (36 CFR 219.27) specify that consistent with the relative resource values involved, management prescriptions in forest plans must minimize serious or long-lasting hazards from wildfire.

Clean Air Act, as amended (42 U.S.C. 7401 et seq.) - Provides for the protection and enhancement of the nation's resources and applies to the application and management of prescribed fire.

Economy Act of 1932, June 30, 1932 (41 U.S.C. 686) - Provides for procurement of materials, supplies, equipment, work, or services from other federal agencies.

Granger-Thye Act, of April 24, 1950 (16 U.S.C. 572) - Authorizes expenditure of Forest Service funds to erect buildings, lookout towers, and other structures on land owned by states. It provides for the procurement and operation of aerial facilities and services for the protection and management of the national forests and other lands administered by the Forest Service.

Reciprocal Fire Protection Act, of May 27, 1955 (42 U.S.C. 1856) - Authorizes reciprocal agreements with federal, state, and other wildland fire protection organizations.

Wildfire Suppression Assistance Act, of April 7, 1989 (42 U.S.C. 1856) - Authorizes the Secretary of Agriculture to enter into agreements with fire organizations of foreign countries for assistance in wildfire protection.

Healthy Forest Restoration Act, of 2003 (HR 1904) - Expedites the preparation and implementation of hazardous fuels projects on federal land and assisting rural communities, States and landowners in restoring healthy forest conditions on state and private lands.

Regulation and Policy

The National Fire Plan (USDA Forest Service 2000) - Directs reduction of hazardous fuel and restoration of forest and rangeland. Includes a 10-year Comprehensive Strategy (2001) and implementation plan response developed by the Secretaries of Agriculture and the Interior, Western Governors, and other interested parties, for protecting communities and the environment. Coupled with the Federal Wildland Fire Management Policy (2001), the Plan forms a framework for federal agencies, states, tribes, local governments, and communities to reduce the threat of fire, improve the condition of the land, restore forest and rangeland health, and reduce risk to communities.

The Healthy Forests Initiative (HFI) - Reduces administrative process to facilitate implementation of projects to reduce hazardous fuels and restore healthy ecological conditions on Federal lands. The Healthy Forests Restoration Act (HFRA), passed in December 2003

provides improved statutory processes for hazardous fuel reduction projects on certain types of at-risk National Forest System (NFS) and Bureau of Land Management (BLM) lands. It also provides other authorities and direction to help reduce hazardous fuel and restore healthy forest and rangeland conditions on lands of all ownerships. HFRA is intended to be consistent with, and supportive of, the community-based wildfire planning, watershed planning and related ongoing efforts under the National Fire Plan and Comprehensive Strategy.

HERITAGE RESOURCES

Analysis Area

All federal lands within the National Forest boundary comprise the affected environment. Many heritage resources are best interpreted at a regional scale, therefore, the affected environment includes southwestern Montana, the Northern Plains, the Northern Great Basin and the Interior Plateau. Some heritage resources including historic mining districts, historic roads or trails and large prehistoric sites, lie across BLM and State of Montana land or private property boundaries.

Analysis Methods and Assumptions

Methods

Existing knowledge about the occurrence and distribution of heritage resources comes from the National Register of Historic Places, Montana State Historic Preservation Plan, Beaverhead-Deerlodge National Forest Master Site/Survey Atlas, previous archaeological survey reports, GLO plats, homestead entry survey records, mineral survey records, land status records, historic Forest Service maps, historic county maps, and aerial photographs. A wide range of other historic, ethno-historic, archaeological, and anthropological references were reviewed to gain the widest possible understanding of historic land use and site occurrence forestwide.

The electronic GIS database is complete for previous surveys, and recorded prehistoric and historic properties, on both the Beaverhead and the Deerlodge units. All statistics related to heritage surveys and sites displayed in this document are derived from the GIS database. A valid assessment of the existing condition of heritage resources is hampered because information derived from site record forms varies in completeness and quality. Field records from the 1970's and early 1980's are sometimes incomplete and difficult to compare to information collected to a higher standard in a more comprehensive manner over the last 15 years.

Assumptions

The Forest Service is responsible for identifying, evaluating, preserving and enhancing significant heritage resources found on National Forest lands. Heritage resources are nonrenewable and include archaeological and historic sites and cultural landscapes. Heritage properties of traditional cultural value to American Indian and other cultural groups also occur. The effect of any management action which adversely impacts heritage properties reduces the total heritage resource base across the forest.

Once destroyed, or allowed to deteriorate, the possibility of recovering the scientific, cultural, educational and aesthetic values embodied in cultural places and things is gone. The inherent nature of these resources (i.e. nonrenewable) means that the trend is inevitably downward. Natural conditions including erosion, natural deterioration or decay, impacts from animal and human disturbance all work to reduce the number and integrity of heritage sites.

Neglect of heritage resources is a *de facto* management decision. If broad-scale archaeological inventories are not taken to identify heritage resources across the 90% of the forest that is not surveyed, then countless prehistoric and historic heritage sites will remain unknown, go unprotected and suffer adverse effects due to natural deterioration and vandalism.

Foreseeable budget trends mean that the heritage program will by necessity focus on clearing project areas (the Section 106 consultation process) for other resource management actions and heritage stewardship may constitute a minor part of the BDNF heritage program.

This analysis assumes management activities with the potential to effect heritage resources will be subject to regulations in Section 106 of the National Historic Preservation Act as promulgated by 36 CFR 800.

Effect Indicators

- ◆ How many heritage properties will be adversely impacted by each alternative?
- ◆ How many acres of National Forest System lands will be inventoried for heritage resources under each alternative?
- ◆ How many heritage resources will be identified and evaluated for significance under each alternative?
- ◆ How many heritage resources will be protected or preserved in place under each alternative?
- ◆ How many tribal consultations are completed under each alternative?

Affected Environment

Project implementation and routine maintenance such as mineral development, grazing, recreation construction, road and trail construction, timber harvest, etc. have the potential to adversely impact heritage resources. Wanton vandalism and artifact collection or looting may also occur on occasion. The natural deterioration and decay of standing wood structures continues to occur if left unabated. The net effect of natural and human impacts is the loss of heritage properties-often before they're identified and evaluated for scientific and cultural significance.

Systematic archaeological investigations are lacking over broad areas in all landscapes. Compliance surveys based on the needs of other programs, coupled with a lack of broadly based analytical surveys to address questions of archaeological site distribution forestwide, introduced a level of bias into the BDNF heritage resource database.

Field inventories accomplished over the years are based on a normative model rather than a statistically valid sample founded on probability theory. A statistically representative sample across 3.3 million acres has been beyond the capabilities of the existing heritage resource management program. Conclusions about the existing resource distribution and condition may be subject to flaws associated with non-random sampling procedures and may need adjustment as levels of understanding about southwest Montana culture history grows based on a more rigorous analytical survey program.

Table 57. Archaeological survey acres and number of heritage sites recorded by landscape

Landscapes	Linear Survey Acres*	Area Survey Acres	Percent Landscapes Surveyed	Prehistoric Sites**	Historic Sites	Total Heritage Sites
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Chapter Three Heritage Resources

Big Hole	2,340	14,307	1.8%	17	81	98
Boulder River	2,214	5,981	1.7%	52	343	395
Clark Fork-Flints	3,718	11,135	1.5%	25	382	407
Gravelly	2,446	9,924	0.6%	87	33	120
Jefferson River	3,168	4,119	0.9%	61	102	163
Lima Tendoy	1,531	4,802	0.6%	77	26	103
Madison	351	330	0.2%	6	1	7
Pioneer	2,511	17,015	2.0%	68	189	257
Tobacco Roots	590	3,873	0.8%	32	99	131
Upper Clark Fork	959	2,782	1.4%	9	91	100
Upper Rock Creek	1,785	3,086	1.2%	21	122	143
Totals	21,613	77,353	10.9%	455	1469	1924***

* Roads, trails, pipelines, etc.

** Heritage sites with both prehistoric and historic cultural components were counted as prehistoric sites.

*** There are an additional 143 heritage sites outside but near enough to the forest boundary to be affected by forest management actions.

Cultural Context

This section explains the meaning and importance of the heritage resources described in the Existing Heritage Resource Condition and the Heritage Resources: Environmental Consequences. Without an understanding of the character and significance of heritage resources there can be no understanding of the potential impacts to heritage resources and the trade-offs proposed by the various alternatives in this document.

The context also relates to and informs the discussion on Native American Tribal treaty rights and government trust responsibilities found elsewhere in this document.

Human groups have occupied southwestern Montana, including the Beaverhead-Deerlodge National Forest, for at least the last 12,000 years. Evidence for this occupation is based on material recovered from archaeological sites and ethnographic sources. A wide variety of stone tools and other cultural remains (especially plant pollen or carbonized plant seeds) which have survived through time provide information about when, where and how humans adapted to the environmental challenges presented by this area of broad valleys, high mountains and climatic extremes.

Throughout prehistory human groups adapted to living in southwestern Montana pursued a hunting and gathering way of life. Over time populations grew and social complexity increased, but at no time did aboriginal groups abandon hunting and gathering in favor of other adaptations such as pastoralism or horticulture.

Paleo-Indian Period: 12,000 to 6,000 Years before Present

The oldest firmly documented human cultural groups in Montana are the hunters of the Paleo-Indian Period. Many archaeologists think this cultural tradition represents the first evidence of people arriving in the Americas. Some would put the date for human's first entrance into the Americas well before 15,000 years ago. At least some Paleo-Indian people entered North America by crossing the Bering land bridge over a period of several thousand years in different migratory episodes. Twelve thousand years ago the climate was wetter and cooler than at present, and Paleo-Indian subsistence strategies centered on the hunting of Pleistocene mega-fauna including mammoth and giant bison. Paleo-Indians likely moved about in small family bands following the seasonal migration of the herd animals they depended on for food. In southwestern Montana, and other intermountain areas, the Paleo-Indian subsistence pattern was probably somewhat different than those Paleo peoples adapted to a strict plains environment, and highly dependent on hunting. In this area researchers have postulated a "foothill-mountain" subsistence strategy in which Paleo-Indian groups made greater use of gathered plant foods in the plains-foothill and foothill-mountain slope ecotones.

One Paleo-Indian site has been recorded on the BDNF. On adjacent BLM lands fifteen Paleo-Indian sites have been recorded. The likelihood is that many Paleo-Indian sites remain to be found on the Beaverhead-Deerlodge National Forest.

Archaic Period: 6,000 to 1,500 Years before Present

The term "archaic" as it relates to human cultural groups is usually understood by archaeologists to indicate a shift in cultural patterns from dependence on hunting large Pleistocene mega-fauna to a more generalized hunting and gathering subsistence strategy that emphasized the taking of modern forms of bison, deer, elk, and other ungulates. A greater dependence on plant foods in an overall more generalized subsistence pattern is also considered a hallmark of the Archaic Period. The Archaic Period in this area is usually subdivided into Early, Middle and Late Plains Archaic, each with its own set of artifact assemblages. The principle chronological indicators remain projectile point types.

The Archaic Period was a time of important and substantial climatic shifts, particularly during the Early and Middle sub-Periods. Conditions grew more arid and forced human populations to adapt to the more difficult conditions by broadening their subsistence base. Communal bison hunts became an important subsistence strategy at this time. Social groups remained small and highly mobile. Archaic period bands probably had some idea of home territories as opposed to the territories of adjacent bands. Hunters and gatherers by necessity need an intimate knowledge of the opportunities present on the landscape to provide them with a living. The necessary level of knowledge about the availability of plant resources and the habits of game animals is difficult to acquire if groups are constantly moving into unfamiliar territory. Archaic hunters and gatherers tended to return to the same camp localities over time as they pursued their seasonal round of subsistence activities.

Archaic Period sites are well represented and occur in all Landscape at varying elevations and in a wide range of topographic settings. Both early (Bitterroot and Oxbow) and late (Pelican Lake) Archaic projectile point types appear in the database.

Late Prehistoric Period: 1,500 Years before Present to AD 1700

The Late Prehistoric was a period of increasing technological complexity (e.g. introduction of the bow and arrow, which replaced the spear thrower; ceramic and steatite vessels), which was probably mirrored in increasingly complex social systems. While human groups continued to follow a hunting and gathering lifeway this Period saw the zenith of communal bison hunts. This cooperative hunting technique is manifested in the archaeological record by large and small bison kill sites.

Large communal bison hunts were certainly not the only hunting strategy employed during this Period. Sites interpreted as game drive and ambush sites occur across the forest. The LaMarche game trap site in the East Pioneers is interpreted as a deer-hunting trap, while game drives and traps in the southern Tendoy seem to be aimed at taking Mountain Sheep.

Late Prehistoric Period sites are found at all elevations and in all ecological settings. The small corner-notched and side-notched arrow points found at them usually identify these sites.

Proto-Historic Period: AD 1700 to Aboriginal Contact with Euro-American People (ca. 1805)

None of the above chronological periods should be seen as hard and fast points in time. There appears to be considerable overlap in time and space between many of these periods, particularly the Early, Middle and Late Plains Archaic, and between the Archaic Period and the Late Prehistoric Period.

This overlap between archaeological assemblages defining one chronological period from another is nowhere more evident than during the Proto-Historic Period. This Period is defined as a time when elements of Euro-American culture were introduced to indigenous Indian groups, without the actual presence of Euro-American people in the area. The horse, trade beads, metal goods, and later, firearms were introduced through native trade networks into southwestern Montana decades before the actual arrival of the first white people.

One confirmed and one probable Proto-Historic Period archaeological site has been identified.

Historic Period

On 28 July 1805 Meriwether Lewis ushered in the historic period in southwestern Montana when he noted in his journal that he was naming streams he had recently encountered (at what became known as the “Three Forks”) after President Thomas Jefferson, James Madison and Albert Gallatin.

Tribal distributions in what is now southwestern Montana were significantly different 160 years prior to the arrival of Lewis and Clark. Before about AD 1640, the Salish speaking Flathead Indians claimed most of southwestern Montana from the Continental Divide to the Three Forks of the Missouri and south almost to Yellowstone Park, as their territory. They hunted far to the east along the Yellowstone River, perhaps as far as Powder River. By about AD 1730 several hundred years of Shoshone incursions into southwestern Montana culminated in a rapid northward expansion of the Shoshone (due principally to their acquisition of the horse) almost to the Canadian border. This Shoshone expansion forced the Flathead west across the Continental Divide and left southwestern Montana under Northern Shoshone control. In a very few years however, the Shoshone themselves were pushed back into the Lemhi River country west of the Continental Divide by nomadic Plains tribes who had recently acquired the horse and firearms

from Canadian traders. Chief among these were the Blackfeet and Gros Ventre, and to a lesser extent Assiniboine, Cree and the Crow.

Ethnographic and historic data indicates that the aggressive raiding of the Blackfeet, and other Plains tribes, made southwestern Montana a very risky place to live during a period from about 1790 to at least the early 1860's. During this time some anthropologists have called southwestern Montana "contested territory." Hunting parties of Shoshone, Flathead and Nez Perce traveled through the area on their way to hunt buffalo in eastern Montana. The Flathead continued to use at least the Big Hole and Deerlodge Valleys, and the Shoshone continued to hunt and gather throughout most of southwestern Montana. But neither tribal group felt completely safe from the Blackfeet until the mid to late 1860's when white settlements at Bannack, Alder Gulch and a host of other Euro-American communities served to reduce native conflicts and eventually stabilize the area.

Early Exploration

Early exploration of southwestern Montana by Euro-Americans began with the Lewis and Clark Expedition. This was the only pure effort at scientific exploration and geographic discovery to touch forest lands unless one includes the efforts of land surveyors and military explorers between the 1870's and the early 1900's. Several important outcomes for the United States are attributed to the efforts of the Corps of Discovery. Among the first was the opening of Montana to fur trade interests who were seeking to expand operations beyond the Great Lakes region and eastern Canada.

The location of one Lewis and Clark campsite has been identified.

Fur Trade

The fur trade era in southwestern Montana began a few short years after Lewis and Clark. The efforts of fur trade companies often included important elements of exploration and description, but their primary thrust was the exploitation of the region's fur bearing animals, especially beaver.

Between 1810 and the late 1840's every major fur trading company in the west passed through lands that are now on or adjacent to the Beaverhead-Deerlodge National Forest. Though their journals primarily refer to camps along the major rivers and streams (e.g. Jefferson, Ruby, Beaverhead, Big Hole, Blacktail Deer Creek, Horse Prairie Creek, Silver Bow Creek) they doubtless trapped and hunted on what are now BNDF lands. Many trapper's journals and fur company records mention specific places on or near the forest including Reynolds Pass, Monida Pass, Bannock Pass, Lemhi Pass, Gibbon's Pass, Blacktail Deer Creek, Horse Prairie Creek, Trail Creek, Big Sheep Creek basin, Medicine Lodge Pass and the "deer's house" in the Deer Lodge Valley.

No archaeological sites attributable to the fur trade era have been found. Considering the length of time fur trade activity lasted and the number of free traders and company representatives that hunted western Montana it is probably only a matter of time before some of these sites are identified. By the height of the fur trade (ca. AD 1810 to AD 1835) Indians often traveled with fur traders on their hunting expeditions and fur traders frequently resided with Indian bands. Based on fur trade journals it appears the fur traders and many Indians shared a material cultural that was an amalgam of Euro-American frontier culture and American Indian tribal culture.

Archaeologically, it will prove difficult to separate those sites that represented Indian bands owning a variety of trade goods from a predominantly Euro-American fur trade brigade traveling with Indian people.

Mining

The first paying quantities of gold in southwestern Montana were discovered on Gold Creek, a tributary of the Clark Fork River, in 1858. The diggings were called “American Fork” or “Pioneer” (not to be confused with the 1862 settlement of “Pioneer” on upper Ruby Creek, a tributary of the Big Hole River). By 1862 Gold Creek was eclipsed by the discovery of rich placer deposits on Grasshopper Creek by John White and a small party of prospectors from the Lemhi Valley in Idaho. As the rich diggings on Grasshopper Creek were declining other wealthy placer deposits were found in Alder Gulch in the Ruby Valley. The settlements of Bannock on Grasshopper Creek, Virginia City in Alder Gulch, and Deer Lodge City on Silver Bow Creek became centers from which miners spread out over the countryside to prospect virtually all drainages in southwestern Montana.

The free gold in placer deposits was soon exhausted and miners were forced to change their recovery strategies to lode mining. The wide-spread advent of lode mining in southwestern Montana by the mid-1870s gave rise to a truly industrial mining frontier with it’s emphasis on hard rock mining, complex ore milling and eventually smelting technology, a level of urbanization not in keeping with the remoteness of the Montana mining frontier and the entry of frontier Montana into the world industrial and marketing system.

The BDNF has one of the most extensive and best-preserved compliments of historic mining resources in the region. They run the gamut from isolated miner’s cabins, to full-blown ghost towns and regional transportation networks of remarkable complexity. Historic mining sites represent the most common site type in the database.

Ranching

Sheep and cattle ranching have played an important role in southwestern Montana's history beginning almost coincidentally with the gold rush. Early ranching operations, like Beaverhead County's Poindexter and Orr Livestock Company, provided meat to the throngs of busy miners at Bannack and Virginia City.

The ranching pattern in southwestern Montana included home ranches and winter ranges in the valleys, and rider's cabins (sometimes with corrals and roundup grounds associated) on the summer ranges in the adjacent mountains. Consequently, the forest has recorded no large home ranch facilities among historic ranching sites. Rider’s cabins (some with barns or sheds), are recorded corrals and historic water development facilities.

Homesteading

Homestead sites seem to be among the least likely site types on the forest. There was certainly no lack of historic homestead activity but actual sites may be missing for many of the same reasons "home ranch" sites are lacking. Homesteads were usually taken up in favored valley locations and successful operations were patented. National Forest System lands usually have only examples of failed homestead efforts on what would be considered marginal and sub-marginal land for crops.

It is possible that some of the extensive historic logging activity noted during archaeological survey is the result of domestic use by nearby homesteaders. .

Logging

Historic logging activity began with the earliest Euro-American settlement in southwestern Montana. Miners were rapacious users of timber for mine studs, mine lagging, building material and cord wood for charcoal, domestic heating, cooking and to fire early industrial boilers. Sawmills operated in larger settlements like Bannack, Virginia City, Argenta, Glendale and Butte. Small operations were established very early in isolated locations in drainages all over southwestern Montana. Most of these small operations used portable saw milling equipment. When the local market declined or saw logs became scarce sawmills were moved to new locations.

The analysis area shows the effects of historic logging activity in many locations. Extensive areas with the stumps of trees felled by axe and crosscut saw are evidence of aggressive timber harvest. Some old wagon roads likely acted as haul roads to move timber to sawmills in larger settlements.

Forest Service

The National Forest System grew out of an earlier conservation effort established by Congress in the Department of the Interior. In the late 1890's a series of Forest Reserves were created, primarily in the western United States, in answer to a growing national concern that the country's water, timber and grazing resources were being depleted at an alarming and unacceptable rate. In 1905 the Forest Reserves were renamed National Forests and responsibility for their administration was transferred to the newly formed Forest Service in the Department of Agriculture. The Beaverhead and Deerlodge National Forest were established in 1908.

No historic resources on the BDNF have been recorded that date to the earliest establishment, beyond some trails that were built in the early 1920s. Most of the historic Forest Service resources remaining are derived from the 1930s and are discussed below.

The Great Depression

This time of great economic stress in the United States lead to specific kinds of effects to some historic sites. The price of gold doubled during the 1920's and that sent significant numbers of unemployed or poorly paid men to National Forest lands to prospect for gold and other precious metals. The result was a reoccupation of many mining claims and the modification of early 20th century historic mining sites by subsistence miners during the 1930s. Many historic mining sites demonstrate the adaptive reuse of previously established placer and lode mining operations.

CCC

The Civilian Conservation Corps represented one example of monumental social programs instituted in the 1930s as a response to the Great Depression. It was designed to put men made jobless by the Depression back to work on public projects beneficial to the nation. While these public service programs operated under a number of names and a variety of specific goals, the CCC program was designed to put young men to work in National Forests to improve the infrastructure of the Forest Service and help manage resources. CCC crews fought forest fires,

built roads, trails, bridges and fire lookouts, worked to eradicate insect pests, built furniture for use in government agencies and a host of other projects.

On the Beaverhead-Deerlodge National Forest Civilian Conservation Corps work is notable for the large number of administrative sites they helped to construct during this period. These include multi-building ranger stations and isolated Guard Stations used by forest officers to patrol remote areas. They were all built in some form of the rustic architectural style specifically employed by designers of the period to make administrative sites as compatible and sympathetic to their natural surroundings as possible. There are 22 CCC-built administrative buildings eligible for listing in the National Register of Historic Places.

Additionally, the Birch Creek CCC camp in the east Pioneer Mountains is a National Register listed historic site that represents one of the best remaining examples of a CCC camp remaining in the Forest Service today.

Heritage Special Interest areas

A number of heritage properties are managed for unusually significant prehistoric, historic, cultural and aesthetic values. While many of the heritage properties are significant in a local and regional context, the following are significant in a broadly regional or national context:

Nee Me Poo National Historic Trail - The route of Chief Joseph's non-treaty Nez Perce during the Nez Perce War of 1877.

Lewis and Clark National Historic Trail - The route traversed by the Lewis and Clark Expedition of 1804-1806 on their way to and from the mouth of the Columbia River.

Lemhi Pass National Historic Landmark - A pivotal point for the Lewis and Clark Expedition and the point at which the party first crossed the Continental Divide. The landmark is also the point at which the explorers realized the full magnitude of the difficulties of reaching the west coast from the Continental Divide.

Monument Ridge-Black Butte Archaeological District – remnants of prehistoric aboriginal sites dating back to the Paleo-Indian Period. Black Butte likely qualifies as a Traditional Cultural Property.

Birch Creek CCC Camp - One of the best remaining examples of a CCC camp remaining in the United States.

Canyon Creek Charcoal Kilns - Brick bee-hive shaped charcoal kilns constructed in 1881 and used to produce charcoal for the smelter blast furnaces at Glendale, Montana, which reduced silver and lead ore from the Hecla mining district.

Elkhorn-Coolidge Historic Mining District - An early 20th century company mining town and an excellent example of industrial mining development not located in major mining centers like Butte, Montana.

Montana-Southern Railroad Grade - The Montana-Southern transported ore from the Elkhorn Mine in the Elkhorn-Coolidge historic mining district. The railroad grade runs from the ghost town of Coolidge to Divide, Montana more than 40 miles distant.

Allen and McCune Flumes - These large wooden water flumes were used to float timber from harvest areas near Mount Haggin to log landings near Anaconda, Montana. Constructed by

William R. Allen and A. W. McCune in the late 19th century, these two flumes supplied mine timbers for use in the underground mines of Butte and cord wood for the smelter in Anaconda. Some 50 miles of flume have been identified.

Park-To-Park Highway - This early 20th century automobile road represents an attempt to promote increased tourism in the United States. It was intended to make travel from Yellowstone National Park to Glacier National Park quicker and easier. .

Vision Quest Sites - A number of these Indian spiritual sites have been identified. They represent locations where Indian men sought assistance from spirit helpers who gave them various powers necessary to a successful life.

Pictograph Sites - More than 10 rock art sites have been identified. Interpreted in several ways, some likely represent records of successful Vision Quests. They are considered sacred sites by some American Indians and important cultural resources by all Indian people.

Conical Timbered Lodges - These small timber structures likely represent shelters used by Proto-historic and Historic period Indians hunting or traveling through the area. They are usually attributed to the Shoshone Tribe in this area. Their fragile nature and the fact that they have survived for over 100 years make them a unique class of cultural site.

Lithic Scatters - These archaeological sites represent stone tool manufacture and use by prehistoric peoples. Site densities range from a few flakes to extensive areas with stone tools and hundreds of stone flakes representing various stages in stone tool manufacture and are the most common prehistoric site type on the BDNF. While some are individually significant, all lithic scatters have interpretive potential beyond what may be apparent at a local scale. Strong inferences regarding the evolution of settlement patterns can be developed from a region-wide systematic examination of prehistoric cultural properties.

Cultural Landscapes - A relatively new class of heritage property, cultural landscapes are geographic areas associated with an historic event, activity or person, or that exhibit other cultural or aesthetic values. Several of these landscapes have been identified and represent cultural resources of growing importance. Potential cultural landscapes include Monument Ridge, Black Butte, Mount Baldy, Medicine Lodge Peak, Medicine Lodge Pass-Upper Sheep Creek Basin, Gibbons Pass-Trail Creek, Lemhi Pass-Trail Creek, Lake Abundance saddle, the upper Ruby River drainage, the upper Grasshopper Valley north of highway 287, and Horse Prairie.

Traditional Cultural Properties (TCPs) - A traditional cultural property is a place significant for its association with cultural practices or beliefs of a living community that are rooted in that community's history and are important in maintaining the continuing cultural identity of the community. Consultation with representatives of the various tribes continues, in efforts to identify, protect, and preserve this important heritage property type.

Past Actions

Heritage resources are non-renewable. Over 100 years of resource extraction including grazing, mining and timber harvest have adversely affected heritage resources to an unknown degree. Additionally, impacts from unauthorized road and trail construction, dispersed recreational use, unauthorized artifact collecting, and outright vandalism have damaged some resource values. Historic activities, which produced sites, valued today, caused destruction or damage to some

prehistoric aboriginal sites. Historic placer mining, for example, lead to the destruction of numerous prehistoric sites in riparian areas and adjacent relict terraces. Similarly, the legacy of early ranching very likely destroyed or damaged a host of prehistoric aboriginal sites centered on springs or along stream courses.

Heritage resources that have escaped adverse impact probably exist only in the most remote locations. Consequently, there is high potential for the occurrence of undisturbed subsurface archaeological remains throughout the forest. Many heritage sites retain good to excellent physical integrity and integrity of setting.

Environmental Consequences

This section discloses direct and indirect effects of alternatives by resource.

Summary

Federal undertakings and unauthorized uses have the potential to cause irreversible disturbance and damage to non-renewable heritage resources. The Forest Service would continue to mitigate impacts to heritage resources from authorized uses through project abandonment, redesign, and if necessary data recovery investigations in accordance with the Forest Service Region 1 Programmatic Agreement.

Without a 100% inventory of all forest lands within the planning area, the exact number, kind, and variability of heritage resources will be unknown. However, new heritage resources would continue to be found and evaluated for eligibility to the National Register of Historic Places as additional inventories are completed for compliance projects. Eligible cultural resources would continue to be treated similarly and equally in terms of type, composition, and importance, but many would continue to deteriorate through natural agents, unauthorized public use, and vandalism. The Forest Service would continue to consult with Native American Tribes on traditional cultural properties and values that are of concern to them.

The demand for use of heritage resources is expected to increase over the life of the plan. Public interest in historic sites and Native American interest in traditional uses are expected to increase. The demand to use cultural resources by the academic community in scientific research would be expected to remain at current levels.

Effects to heritage resources are very similar for all alternatives. Even with the direction provided by alternatives to preserve and protect heritage resources the number and integrity of significant heritage resources will decline as a result of natural deterioration or decay. The only variable is the rate of decline. Alternative 3 presents a slightly less steep rate of decline for significant heritage resources.

Direct and Indirect Effects

Though concerted attempts are made to avoid damaging heritage resources by federal undertakings or authorizations, in rare instances inadvertent impacts or damage may occur as a result of accident, miscommunication, or negligence. The avoidance of direct impacts to heritage resources from federal undertakings or authorized actions may in all instances not preclude the potential for unanticipated indirect and/or cumulative impacts from these undertakings or actions. For example, providing new or improved vehicle access to areas which may increase the

potential for the illegal collection of artifacts or vandalism, or the modification of vegetative cover may increase the potential for surface disturbance from the effects from natural erosion or decay. In a practical sense, however, there may be a greater risk of damage or destruction of heritage resources as a result of unauthorized activities (such as dispersed recreational activity, OHV use, and vandalism) and natural processes (natural decay, deterioration, or erosion). This is particularly important, where resource inventories are incomplete and heritage resources have yet to be found, documented, and evaluated and resources values are not monitored.

Given that heritage resources are nonrenewable, future trends will inevitably be towards a reduction in the number of heritage resources, their physical integrity, and the integrity of their historic setting.

Effects on Heritage Resources from Aquatic Resource Management

Management action that improves the stability and functionality of watersheds benefits heritage resources. This management action would reduce erosion, stabilize stream banks and otherwise improve landscape stability. Since terraces along streams are a high probability area for the occurrence of heritage sites any action that protects the integrity of soils and topography helps in the preservation of heritage resources, particularly prehistoric archaeological sites. Specific management actions, such as restoring the sinuosity of stream channels or building in-stream structures to manipulate the speed and flow of water, do have the potential to adversely affect significant heritage resources. These site-specific projects will be addressed through the Section 106 compliance process.

Since Alternative 3 has the highest number of key watersheds it is arguably a better choice for preservation of heritage resources.

Effects on Heritage Resources from Fire Management

Activities associated with wildfire suppression have a high potential to adversely impact heritage resources. Fire lines constructed by hand or machinery, safety areas, helicopter landing zones, drop points, camp locations, etc. all may adversely impact heritage resources. Wildfires will inevitably lead to the loss of historic structures such as mining sites, homesteads and occasionally historic administrative sites. They damage rock art sites through smudging, rock spalling and changes in the chemistry of paint pigments. Certain kinds of post-fire BAER activities can impact heritage resources. BAER activities that reduce soil erosion and promote rapid re-growth of ground covers will tend to stabilize heritage sites and reduce their visibility thereby reducing their vulnerability to looting and vandalism.

The location of the fire (e.g. sage/grass or forested environment) plays an important role in the possible effects to prehistoric heritage sites. In sage/grass environments the temperature, duration and intensity of prescribed fire rarely affects buried prehistoric sites in an adverse manner. Prescribed fire in timbered environments has the potential for serious adverse effects since fire intensity and duration is usually longer. This usually means a higher soil temperature. Depending upon the nature of archaeological remains (i.e. lithics, bone, carbonized plant remains, etc.) higher soil temperatures and longer fire duration, for example burning snags and burning root systems, do adversely effect buried archaeological sites (Timmons et al. 1996).

Alternative 3 proposes more acres for wildland fire use than the others; in two cases more than an additional 1,000,000 acres. With pre-project inventory and buffering of identified heritage

sites, prescribed fire represents little threat to heritage sites. Additionally, those alternatives with high acreages of fire use represent a better opportunity for mandated archaeological survey that will lead to a higher rate of heritage site identification and protection.

Effects on Heritage Resources from IRAs and NWPS Additions

It would seem that more acres set aside for management as wilderness would benefit heritage resources. In the short term that is probably true. Wilderness areas are subject to far fewer land disturbing management practices than other multiple-use areas. Aside from dispersed camping, hiking, livestock use and trail construction or maintenance, and perhaps wildland fire use, little active management takes place in designated wilderness. In the short term fewer ground disturbing management actions would lessen the threat of adverse effects to known and unidentified heritage resources.

Considering the fact that most archaeological survey completed on the Beaverhead-Deerlodge National Forest has been incident to “clearing” project areas for other management actions (e.g. timber sales, road construction, grazing, etc) fewer management actions in this context equates to fewer acres inventoried for heritage resources, fewer heritage sites identified and a lower probability for meaningful site preservation and protection. Therefore, in a practical sense Alternative 3 represents the least attractive option unless forest managers embark on a large-scale, systematic effort to complete archaeological planning inventories in all proposed wilderness areas.

Effects on Heritage Resources from Livestock Grazing

Grazing management practices and range improvement projects have the potential to impact heritage resources and could result in mitigated impacts. Livestock congregation and trailing at or across cultural resource site locations can damage artifacts and the contexts in which they occur. Cattle shading and rubbing can damage standing historic structures and prehistoric pictograph panels. Excessive trampling at spring sources and along stream banks, cattle trailing, and over grazing can all lead to a denuding of protective vegetation cover and create indirect impacts to cultural resources by accelerating natural erosion and exposing artifacts to illegal surface collection and vandalism.

The management of livestock grazing has the potential to produce a variety of adverse effects to heritage resources. These effects may destroy recorded sites and sites which have not yet been discovered and evaluated for significance.

Trampling - concentrated livestock use will trample archaeological material exposed on the surface of the ground. This trampling results in several kinds of adverse effects to archaeological materials. Archaeological remains (which depend in large measure on depositional context for their significance) will be displaced horizontally across the ground surface. In certain soil conditions (e.g. wet or damp soils adjacent to springs) archaeological materials may also be displaced vertically and come to occupy subsurface locations deeper or shallower than originally deposited. These kinds of displacement make interpreting the site formation processes at work at the site more difficult and sometimes impossible.

Artifact breakage - experimental evidence (USDOD 1990) indicates that one of the effects to be expected from livestock grazing is the breakage of artifacts exposed on the surface. This breakage may be in the form of edge damage to artifacts that can make the interpretation

of technological processes used in the manufacture of the artifacts difficult or impossible. Trained lithic analysts are often unable to determine if certain kinds of edge wear evident on artifacts are the result of prehistoric use, purposeful human modification during manufacture, or accidental flaking due to impact from livestock hooves. Again, the scientific interpretation of artifacts is impaired if analysis cannot distinguish between purposeful human cultural behavior and accidental edge damage due to trampling by livestock.

Artifacts may also be broken in two or more pieces after being stepped on by livestock. This type of breakage separates portions of artifacts critical for age dating and morphological typing (e.g. projectile point bases) from the remainder of the artifact.

Soil Compaction - compaction from the concentration of livestock and trampling can be an adverse effect to subsurface archaeological remains. In addition to the horizontal and vertical displacement of artifacts discussed above, this kind of disturbance can impair the stratigraphic interpretation of soils critical to understanding site formation, site function and scientific importance. Soil compaction seems to be a more important problem in damp or wet areas than in dry soils (Willingham 1994). For example, archaeological sites located in wet or damp areas likely will have been impacted adversely by livestock trampling as much as 15 to 20 cm below the ground surface.

Reduced Ground Cover - areas overgrazed to the point of removing or seriously depleting vegetation increase the potential for sheet and gully erosion. Archaeological sites present in these areas are subject to damage from erosion.

Destabilization of Stream Banks - riparian areas above the first or second order tend to be high probability areas for the occurrence of archaeological sites. These sites often occupy terraces adjacent to the streambed. If livestock use results in shearing and collapsing of stream banks this will adversely impact archaeological sites present on or buried in, the terrace.

Loafing - when cattle use unprotected historic structures for loafing sheds, or repeatedly rub against them, historic buildings will be destroyed eventually.

Grazing management which meets established standards will reduce the potential for damage to archaeological and historic sites from livestock grazing. None of the proposed alternatives differ enough in AUMs or acres suitable for grazing to make a useful distinction one from another.

Effects on Heritage Resources from Minerals and Oil and Gas

Minerals

Modern mining activity very often takes places in areas where historic mining has left behind a variety of mining sites and features important to the understanding of mining history, the evolution of mining technology and miner's social organization and behavior. Contemporary mineral development including prospect excavation, mines, ore processing sites, heavy equipment use, modern buildings and roads all reduce the number and integrity of remaining historic mining resources.

Similarly, mine reclamation work usually impacts historic mining features important to an understanding of mining history and technology. Mill tailings are removed, waste rock piles are removed or re-contoured, roads and trails are reconstructed, relocated or obliterated, mill

buildings and associated features are removed or isolated from their historic settings, adits are closed, shafts are refilled; reclamation work that seeks to restore natural resource values and aesthetic view sheds usually compromise the integrity of historic mining landscapes.

Significant heritage resources that go out of federal ownership as a result of a land exchanges are always considered to be adversely impacted due to the loss of protection afforded by federal law and the Section 106 consultation process. Heritage resources acquired through land exchanges are a beneficial effect to the heritage resource data base. Other cultural values, including resources reserved to Indian tribes on lands scheduled for exchange, may be considered an adverse effect to traditional cultural properties and an erosion of treaty rights.

Special use permits for the construction, reconstruction or maintenance of utility corridors, roads, structures or other facilities require ground disturbance that may affect heritage resources. Some, as in the case of power lines, have the potential to adversely affect large swaths of historic or cultural landscapes. Recreation special use permits that allow the alteration or destruction of privately owned historic resources such as 1930's era recreation cabins also degrade irreplaceable heritage resources.

Many historic administrative facilities, (i.e. Guard Stations, Ranger Stations) are important heritage resources. As more BDNF administrative buildings reach 50 years of age they too will become heritage resources. Removing those buildings considered surplus to current needs is an adverse impact. Remodeling, reconstruction, repairing, without due regard to the historic fabric and setting of historic resources are all adverse effects. Abandoning historic administrative sites with no provision for long-term stabilization and preservation is an adverse effect. A facility master plan to protect the historic configuration, historic fabric and historic setting of administrative sites would act as a beneficial counter-balance to necessary maintenance work.

All of the management actions mentioned above are subject to the Section 106 consultation process and that will serve to mitigate adverse impacts from these activities.

Oil and Gas Leasing and Development

The Beaverhead unit analyzed potential oil and gas development which resulted in a final EIS in 1995 and Record of Decision in 1996. The Deerlodge unit has not been analyzed for oil and gas development.

Stipulations defined in the 1995 FEIS have been examined as part of the revised plan and are listed in Appendix B. Heritage resource stipulations specify No Surface Occupancy (NSO) for all National Register eligible properties and all unevaluated heritage properties. Map layers identifying heritage resource locations have also been updated. Heritage sites near oil and gas developments may be indirectly affected to varying degrees by noise, odor, and visually intrusive development.

Annual programmatic monitoring of previously recorded heritage sites across the forest indicates that prehistoric sites and many historic sites are larger and more complex than they appeared when first recorded. Oil and gas lease notices state that the Forest Service is required to determine if heritage resources are present before ground disturbing activities can occur. Resource surveys may be required as part of an Application for Permit to Drill (APD) if information about the lease parcel indicates heritage or cultural resources may be present. Standard lease terms require operations to be conducted in a manner that minimizes adverse

impacts to heritage resources. Conditions have not changed substantially since the 1995 analysis and the stipulations detailed in Appendix B will continue to protect heritage resources.

Effects on Heritage Resources from Recreation and Travel Management

Population trends and visitor use statistics indicate increasing levels of visitor use from local residents and tourists. Experience shows that heritage site vandalism and site looting increase as visitation increases. Construction, reconstruction and routine maintenance of campgrounds, trails and other developed facilities may adversely affect heritage resources. Both prehistoric and historic heritage resources are often found in locations considered optimum for recreation development.

Dispersed recreation can also lead to adverse impacts to heritage resources. Dispersed camp sites are often located on prehistoric sites. Campers use logs from historic cabins for fire wood, backstops for target shooting and otherwise vandalize standing structures. Snowmobilers have been known to use the roofs of cabins as snowmobile jumps when the snow is sufficiently deep.

Many trails and roads are more than 50 years old and historic resources in their own right. Abandonment, reconstruction and changes in use patterns can adversely affect these resources.

The proliferation of ORV use, even in settings where riders are required to remain on designated routes, has and will continue to lead to the degradation of heritage resources. OHVs have opened areas of the forest to visitation at levels never seen before, or in some cases rarely seen at all. Evidence (U.S. Corps of Engineers, 1992) and experience shows that heritage sites within ¼ miles of trails are more prone to vandalism than those sites in isolated and invehicle accessible areas.

If conservation education and interpretive programs are increased then the adverse effects from recreation use may be reduced. Good interpretation of heritage sites gives forest visitors an appreciation of their irreplaceable national heritage.

Alternative 3 proposes the least amount of motorized use and is therefore less likely to contribute to a decline in heritage sites than other alternatives.

Effects on Heritage Resources from Timber Management

Timber harvest usually requires considerable levels of ground disturbance for harvest activities, skidding logs to landings, decking logs at landings, vehicle access roads to sale units and the timber sale area, etc. Depending upon the specific location of the timber sale, and other factors relating to the potential for the occurrence of significant heritage sites (e.g. steepness of terrain) timber harvest may have little or no impact on heritage resources. Ideally timber sale unit boundaries can be moved to avoid heritage resources and/or identified heritage resources can be protected by buffer zones within a sale unit. These mitigation measures work well for historic sites and those prehistoric sites that can be seen on the ground surface. In forested areas, however, there is usually some risk that prehistoric sites will not be identified by surface survey, or even limited subsurface testing of high probability areas. In those cases important heritage sites may be adversely impacted before they are identified and evaluated. The only potential remedy for this situation is a “stop work” stipulation in the timber sale contract that requires the operator to cease activities in the area of the unexpected heritage site and notify a forest officer. This approach assumes that the operator can identify prehistoric artifacts or other features. Aside from the obvious (i.e. projectile points, bone) this is usually not the case.

Alternative 3 with the no acres of land suitable for timber harvest has the least potential to impact heritage resources. Conversely, the fewest acres of archaeological survey are produced along with the lowest potential for heritage site discovery and protection.

Effects on Heritage Resources from Vegetation Management

Vegetation will be managed through a combination of opportunistic use of wildfire, prescribed fire and mechanical treatment to remove conifer encroachment and sage brush. The effects of fire on heritage sites are discussed below. The methods of mechanical harvest proposed for vegetative management will have minimal adverse effect to heritage resources. The potential effects can be controlled by pre-project inventories and the imposition of a buffer zone around heritage sites sufficient to insure that no damage occurs to them. Site protection may also be achieved through the stipulation that project goals be achieved by non-mechanical means.

Acres identified for proposed vegetative management do not differ sufficiently across alternatives to allow predictions concerning the relative impact it may have on heritage resources.

Effects on Heritage Resources from Wildlife Habitat Management

Effects to Heritage resources from Wildlife Habitat Management would be the same as effects from Fire Management. Reduced in open motorized road density provides some protection from vandalism but the effects between alternatives are slight. Trampling of archaeological sites by wild ungulates is unknown, but presumed to be minimal.

Cumulative Effects

The analysis area for cumulative effects considers all of southwestern Montana including lands outside the BDNF. Other regional resource, land use, and economic development planning efforts can affect the type and intensity of use within the planning area and affect the regional resource base. Development of lands not protected by federal or state cultural resource statutes and regulatory protection could decrease the regional resource base or lead to loss of Native American resources. Development can affect the understanding of resources and potentially limit management options. It is reasonably foreseeable heritage resources on the forest will increase in value and significance as sites in non-federal ownerships are damaged or destroyed by development or other activities. Restrictions on recreational activities in other areas, population growth, resource extraction, and development can increase the use intensity in the planning area, potentially affecting cultural resources. Coordinating regional planning actions could aid protection of resource values.

Most heritage resources are location specific, fragile, and nonrenewable; therefore, cumulative impacts could occur through incremental degradation of the resource base from a variety of sources reducing information and interpretive potential or affecting values important to Native American communities. The significance of heritage sites and Traditional Cultural Properties are often enhanced by their context in a larger landscape beyond the immediate physical boundaries of individual sites. Large scale changes to landscapes, whether immediate or cumulative, will adversely affect significant heritage properties. Measures are in place to identify threats to resources and to prioritize management actions; nevertheless, some impacts are unavoidable.

There would continue to be impacts on NHRP-eligible, unevaluated and undiscovered cultural resources associated with unauthorized activities such as OHV use, dispersed recreation, grazing,

and vandalism. Unauthorized activities, dispersed activities, and natural processes could cause unmitigated impacts on NRHP-eligible resources and/or traditional use areas that would exceed the significance threshold for impacts on cultural resources. Non-project related heritage inventories, the identification of significant heritage sites, and the preservation and protection of those significant heritage sites can reduce the downward trend in the heritage resource base and reduce cumulative effects from management activities across all landscapes.

Legal and Administrative Framework

Laws and Executive Orders

The National Historic Preservation Act of 1966, as amended - Establishes a program for the preservation of prehistoric and historic properties throughout the nation. It makes historic preservation national policy. *Section 106* of the Act directs that Federal agencies shall take into account the effects of their actions on heritage resources. *Section 110* of the Act directs federal agencies to take responsibility for the preservation and management of heritage resources that are owned or controlled by the agency.

The Archaeological Resources Protection Act of 1979 - Establishes various legal penalties for the unauthorized removal of antiquities or artifacts from federal property, and /or the damage or destruction of heritage properties on federal lands.

The American Indian Religious Freedom Act - Directs that American Indians shall have reasonable vehicle access to federal lands for the purpose of conducting traditional religious ceremonies and collecting traditional ceremonial and medicinal plants and materials. It also requires federal agencies to consult with American Indian tribes regarding proposed undertakings in areas that may be of cultural or spiritual interest to them.

The Native American Graves Protection and Repatriation Act of 1990 - Defines the rights of lineal descendants and Indian tribes to Indian skeletal remains and items or artifacts of cultural patrimony that may be held by Federal agencies or institutions.

National Environmental Policy Act of 1969 and National Forest Management Act of 1976 - Require the Forest Service to preserve important prehistoric, historic, cultural and natural aspects of national heritage.

Religious Freedom Restoration Act of 1993 - Establishes a higher standard for justifying federal actions that hinder or impact religious liberties, including American Indian religions.

Executive Order 3175 – Directs federal agencies to carry out trust responsibilities and assess the impacts of their actions on Indian trust resources.

Executive Order 13007 Indian Sacred Sites - Directs federal agencies to accommodate vehicle access to and ceremonial use of Indian sacred sites, avoid adversely affecting the physical integrity of such sacred sites and requires consultation with tribes to learn tribal concerns for sacred sites on public lands.

Executive Order 13287 Preserve America - Directs federal agencies to build partnerships with local governments, Indian tribes and the private sector to preserve heritage properties, and promote heritage tourism. Agencies are to improve planning and accountability for heritage properties, assess the current status of heritage properties, track progress in managing heritage properties and improve the stewardship of heritage properties.

Regulation and Policy

The Beaverhead and the Deerlodge National Forest Land Management Plans – Provides overall goals to *identify, evaluate, and preserve* significant heritage resources to maintain their scientific and historical values. They also specify objectives and standards that apply to the implementation of undertakings proposed for the National Forest that may affect heritage properties.

16 U.S.C. 432-433 – Implements the Antiquities Act of 1906 and gives the Secretary of Agriculture “...jurisdiction over ruins, archaeological sites, historic and prehistoric monuments and structures, objects of antiquity, historic landmarks, and other objects of historic or scientific interest...” on National Forest lands.

Chapter Three

Heritage Resources

36 CFR 60 - Establishes minimum standards and procedures for determining the significance of heritage properties and nominating eligible properties to the National Register of Historic Places.

36 CFR 63 - Establishes criteria for nominating significant historic properties to the National Register of Historic Places.

36CFR68 - Establishes the Secretary of the Interior's Standards for the Treatment of Historic Properties.

36 CFR 79 - Provides direction for the preservation and curation of archaeological collections (and associated records) removed from federal lands.

36 CFR 219.24 - Directs that Forest Planning shall provide for the identification, protection, interpretation and management of significant heritage resources on National Forest lands.

36 CFR 296 - Provides for the protection of archaeological resources and implements the Archaeological Resources Protection Act.

36 CFR 800 - Implements the National Historic Preservation Act and provides explicit direction for the identification of heritage properties, the determination of project effects on heritage properties, requirements for agency consultation with State Historic Preservation Officers and the Advisory Council on Historic Preservation (Section 106). The regulation also requires federal agencies to develop proactive programs for the stewardship and preservation of heritage properties (Section 110).

43 CFR 10 - Implements the Native American Graves Protection and Repatriation Act.

ROADLESS AREAS AND NATIONAL WILDERNESS PRESERVATION SYSTEM ADDITIONS

Update of Roadless Area Direction

This section of the FEIS describes the existing condition and effects to areas mapped in the current 2006 inventory of areas with potential for Wilderness, described in detail in Appendix C, which are different than IRAs. The roadless area discussion in this section published January 08 inappropriately applies the term “Inventoried Roadless Areas” or “IRAs.”

Inventoried Roadless Areas have a distinct status imparted by the 2001 Roadless Area Conservation Rule (RACR). The RACR formalized boundaries of the earlier generation of Forest Plan inventoried roadless areas through electronic maps submitted by Forests across the nation in 1999 and established as part of the rulemaking. RACR contains specific prohibitions and restrictions on activities allowed to take place within the boundaries of these Inventoried Roadless Areas - road construction in particular.

The 2001 RACR has been in and out of legal status during development of the Revised Forest Plan. RACR was in place when the FEIS was published in January 2008. It has since been vacated by a judge in Wyoming and is not being applied as the Record of Decision for the revised plan is published. It is difficult to predict when or how the status of the RACR will be resolved. If RACR is re-instated, any timber harvest within roadless areas governed by the 2001 RACR would have to comply with limitations on road building, harvest and protection of roadless characteristics. The Record of Decision contains further discussion of the RACR and its effects.

The evaluation of areas with wilderness potential, documented in Appendix C, complies with the implementing regulations of NFMA, 36 CFR 219.17(1), 1982. This regulation tells us that “roadless areas within the NFS shall be evaluated and considered for recommendation as potential wilderness areas during the forest planning process.” The undeveloped areas evaluated for wilderness potential based on the 2006 inventory may include all or only portions of “Inventoried Roadless Areas” in addition to new areas identified, as explained in Appendix C, pages 1-5. See the Glossary for a description of “*Areas With Wilderness Potential*” and “*Inventoried Roadless Areas*”. All acre figures presented on the pages following are based on the Appendix C inventory and evaluation of “*Areas with Wilderness Potential*.” Actual acres of IRAs may be different. This section of Chapter 3 discusses the effects to roadless areas mapped in 2006. Only discussions which mention RACR or road construction prohibitions relate to IRAs mapped in 2001.

Changes from Draft to Final

- This section was changed to address effects on inventoried roadless areas (IRAs) and effects to the wilderness preservation system. Because recommendations for wilderness are based on the suitability of individual roadless areas, an adverse effect on an IRA is an adverse effect on that areas ability to be recommended wilderness. Therefore the discussion of effects on wilderness characteristics in recommended wilderness was

incorporated into the discussion of effects on those characteristics in inventoried roadless areas. For a more detailed discussion of wilderness suitability for individual IRAs see Appendix C.

- Twelve ten-year oil and gas leases were issued in Garfield Mountain IRA in April 2007. The wilderness suitability evaluation of that IRA was **reassessed**. Because oil and gas potential is moderate, and because the 2001 Roadless Area Conservation Rule (RACR) does not allow road constructions for leases issued since 2001, development potential in this area is low. The rating remained the same.
- Stony Mountain IRA surfaced in public comments as an area meeting the criteria for recommended wilderness which was overlooked in the DEIS. After evaluation, it was included in Alternative 6 as recommended wilderness. The Lolo National Forest is also considering their portion of the Stony IRA as recommended wilderness.
- The Regional Wilderness Needs Assessment and related discussion were updated.
- Appendix C was updated with a discussion of effects to individual roadless areas by alternative.
- The wilderness suitability evaluation was updated to incorporate updates and additions to Appendix C.

Analysis Area

The analysis area for direct and indirect effects includes all lands identified as Inventoried Roadless Areas on the Beaverhead-Deerlodge National Forest (BDNF). The cumulative effects area includes BLM lands in southwest Montana (7 counties) and 11 IRAs on other national forests shared with the BDNF. There are 53 IRAs totaling approximately 1.9 million acres (Appendix C). The inventory of roadless areas is a constant that does not change by alternative.

Analysis Methods and Assumptions

Forest Service Handbook (FSH) 1909.12.7 provides a process and terminology for evaluating inventoried roadless area for wilderness recommendation. Forest Service policy, FSM 1923.03 (2) states that any area being recommended for Wilderness is not available for any use or activity that may reduce the area's Wilderness potential. The effects of alternatives were based on assumptions about activities which are likely to occur over the life of the plan (15 years) under each alternative. It was assumed that the 2001 Roadless Area Conservation Rule or similar national policy for the management of IRAs will continue to direct IRA management. Alternatives were evaluated for the contribution to the National Wilderness Preservation System of the composite of areas proposed based on size, location and quality of the area. Wilderness characteristics include both social and physical elements.

Effects Indicators

- ◆ Changes to the roadless and undeveloped character of IRAs
- ◆ Effects to the wilderness preservation system from areas and acres recommended for wilderness.

Affected Environment

Inventoried Roadless Areas

When revising forest plans, national forests are required to evaluate inventoried roadless areas and assess their wilderness characteristics, and to make recommendations to Congress regarding areas suitable for inclusion into the National Wilderness Preservation System (NWPS or Wilderness System). Through the Wilderness Act of 1964 (PL 88-577), Congress created the NWPS to provide protection for lands relatively untouched by human activity. Under this Act, the Department of Agriculture is directed to recommend “primitive” areas suitable for addition to NWPS. The Forest Service can only recommend wilderness allocations to Congress via forest plans and only Congress can designate wilderness through the legislative process. Recommendations and designation are often very controversial and Congress may defer the issue for many years before taking action. In the interim, the Forest Service shall manage any IRAs recommended for wilderness through forest plan direction that will protect their wilderness characteristics and values, and potential for inclusion into NWPS.

Inventoried Roadless Areas are inventoried tracts of National Forest System land characterized as having an undeveloped character. On the Beaverhead and Deerlodge Forests, IRAs were initially identified during the Roadless Area Resource Evaluation of 1972 (RARE I) and the RARE II of 1979. These inventories were updated and the areas evaluated for wilderness suitability as part of the initial forest planning efforts completed for the Beaverhead National Forest in 1986 and the Deerlodge National Forest in 1987. As part of the current forest plan revision process, these inventories were again reviewed, updated, and reevaluated for wilderness suitability.

Management of roadless areas is fraught with controversy between competing interests. Roadless areas are valued for a variety of resource benefits including relatively undisturbed habitat for fish and wildlife, protection of key watersheds, and biological diversity. They offer the best potential for any substantial additions to the National Wilderness Preservation System. They are coveted for dispersed recreation opportunities (motorized and non-motorized), as well as timber supplies and other commodity uses. The awareness of IRA values is increasing as the human population continues to expand, and demand for outdoor recreation and other forest products intensifies. Public opinion regarding the management of IRAs spans a range from full commodity development to preservation through wilderness designation.

During the Clinton Administration, management direction for IRAs was proposed on a national scale. Called the Roadless Area Conservation Rule (RACR), road construction and reconstruction were prohibited in inventoried roadless areas with some exception. However, RACR did not categorically prohibit motorized vehicles, logging, or mining within IRAs. On May 10, 2001, just before RACR was to take effect, the Forest Service was enjoined from

implementing it by an Idaho District Court ruling (*Kootenai Tribe of Idaho v. Veneman and the State of Idaho v. USDA Forest Service*).

The Court's decision to grant a preliminary injunction was appealed and brought before the Ninth Circuit Court of Appeals. On June 7, 2001, the Chief of the Forest Service and Secretary of Agriculture issued a letter concerning the interim protection of IRAs, stating: "The Forest Service is committed to protecting and managing roadless areas as an important component of the National Forest System. The best way to achieve this objective is to ensure that we protect and sustain roadless area values until they can be appropriately considered through forest planning." On December 12, 2002 the Ninth Circuit Court of Appeals reversed the May 10, 2001 ruling by the Idaho District Court. The 2001 RACR currently applies.

The criteria for determining whether an area of the National Forest System qualifies as in IRA are provided in FSH 1909.12 which states:

"Roadless areas qualify for placement on the inventory of potential wilderness if, in addition to meeting the statutory definition of wilderness (Section 2 (c) of the 1964 Wilderness Act), they meet one or more of the following criteria:

1. They contain 5,000 acres or more.
2. They contain less than 5,000 acres but:
 - a. Due to physiography or vegetation, they are manageable in their natural condition.
 - b. They are self-contained ecosystems such as an island.
 - c. They are contiguous to existing wilderness, primitive areas, Administration-endorsed wilderness, or roadless areas in other Federal ownership, regardless of their size.
3. They do not contain improved roads maintained for travel by standard passenger-type vehicles, except as permitted in areas east of the 100th meridian."

Contrary to the implication, IRAs *can* contain low-standard "roads". As noted above under item 3, only roads that are improved and maintained are excluded from IRAs. On the BDNF there are a number of IRAs that have user created roads or travel ways that were never planned, designed, physically constructed, or maintained. The existence of these routes does not in itself preclude roadless designation, although their presence within IRAs has understandably led to some confusion.

Generally, IRAs also do not contain structures, improvements, or obvious landscape alterations that would indicate the presence or influences of man. Such influences might include power line transmission corridors, communications installations, mines, airstrips, or timber harvest units where logging activity is evident. These development features are usually excluded from IRAs when roadless boundaries are defined.

The roadless inventory completed in 1986 for the Beaverhead National Forest and in 1987 for the Deerlodge National Forest identified 50 IRAs totaling about 1.8 million acres (about 54% of all lands administered by these Forests). The newest inventory, completed in 2004, identified 53 areas and about 1.9 million acres or 57% of the BDNF.

Changes in acreage between the inventories can result for several reasons. Reductions in IRA acreage occur from lawful timber harvest, road building and maintenance, mining activity or other developments which can remove portions of roadless areas from the inventory. Additions result from road obliteration, change in road status, recovery of timber harvest units, additions to the Forest base through land exchanges, or because some areas may have been missed in the original mapping process. Most acreage differences are not the result of landscape changes, but simply reflect the different methods used to calculate IRA size. For example, the computer mapping techniques used in the 2004 inventory is a more accurate tool than the dot grid system of earlier inventories.

Three new IRAs were identified through public comment or by Forest managers as suitable for consideration as wilderness. There are:

- ◆ **Madison Roadless** – adjacent to the Taylor Hilgard and Spanish Peaks units of the Lee Metcalf Wilderness;
- ◆ **Cowboy Heaven** – adjacent to the Spanish Peaks and Bear Trap Unit of the Lee Metcalf Wilderness;
- ◆ **Lost Creek** – northwest of Anaconda, MT.

Table 58. Changes in Acres for All IRAs between 1987 and 2007

Acre Updates to Map Categories	BDNF Acres Only
1987 Total	1,850,475
Added	73,676
Dropped	-69,089
GIS acreage recalculated	-9,894
2006 Total	1,845,168

The complete inventory description and evaluation of wilderness characteristics is contained in Appendix C.

Wilderness Suitability Evaluation

Federal regulations (36 CFR 219.17(a) require that “*Roadless areas within the National Forest system shall be evaluated and considered for recommendation as potential wilderness during the forest planning process.*” The wilderness suitability of each IRA was evaluated using the following elements described in FSH 1909.12.7. Because the evaluation for wilderness suitability requires that an entire IRA be evaluated regardless of administrative boundaries, portions of several IRAs shared with other administrative units were included. The evaluation was published in draft form in 2005 and completed in 2007 after review and comment.

Capability

Capability is the degree to which an area contains the basic wilderness qualities. These include the integrity of the natural environment and scenery; opportunities for solitude, challenge, and primitive recreation; unique ecological or cultural features. Factors such as size, shape, relationship to external influences, and boundary location were examined to determine manageability.

Availability

Availability is conditioned by the value of and need for the wilderness resource compared to the value of and need for other resources. A brief description of uses, wildlife, water resources, livestock grazing, timber, minerals, oil and gas, heritage resources, land use authorizations, lands not in federal ownership, and disturbances is included in the availability section of each roadless inventory form. Wilderness availability is rated high, moderate, or low for each area based on obligations such as special use permitted dams, vehicle access roads, or oil and gas leases which make it difficult to manage for wilderness.

Need

Need is evaluated based on the Region 1 Wilderness Needs Assessment (USDA 2003b) and public comments on the Proposed Action (2003) and the DEIS and Draft Forest Plan (2005). The Regional assessment evaluated potential contributions to the local and national distribution of wilderness and associated ecological and social values. Ecological values which are underrepresented in the NWPS and can be provided by the BDNF include:

Beaverhead and Bitterroot Mountains Ecological Sections, and particularly sagebrush, xeric shrublands, mountain grasslands, riparian shrublands, and aspen woodland communities,

Plant communities which may contribute Montana rare or sensitive **plants**,

Wildlife refuge for species of concern based on the concepts that 1) Large habitats are better than small habitats; 2) connected habitats are better than isolated habitats, and 3) habitat shape is important (Ibid, page 24). and

Protected habitat for **native fish species**

Areas were rated high, medium or low for each of the three elements. The wilderness suitability rating is a composite of the three. Areas that rated “High” for wilderness suitability were deemed to have sufficient wilderness potential to warrant further consideration for a recommendation of wilderness. Those rated low or moderate were dropped from further consideration unless recommended for wilderness in previous forest plans, or specifically suggested in public comments received in response to the Proposed Action (2003) for Forest Plan Revision (2003) and the Draft Plan and DEIS (2005). These rankings are relative and apply only to the BDNF. BDNF IRAs, if compared to IRAs on other Forests, say the Lewis and Clark National Forest, which hosts the Bob Marshall Wilderness, may rank lower.

See Appendix C for detailed descriptions of IRAs, the analysis process, and suitability evaluations.

Recommended Wilderness

As a result of decisions made in the 1986 Beaverhead Forest Plan and 1987 Deerlodge Forest Plan, 172,720 acres were recommended for wilderness designation. This is the existing condition of recommended wilderness represented by Alternative 1 and shown in this table.

Table 59. Wilderness Recommendations in the 1986-1987 Plans

Forest	IRA Name	Acres
1986 Beaverhead	Torrey Mountain (East Pioneers)	79,555
	Hellroaring / Mussigbrod	6,571
	West Big Hole	55,087

Forest	IRA Name	Acres
	Italian Peaks	25,664
	Storm Lake	1,729
1987 Deerlodge	Storm Lake	4,114
Total		172,720

Currently, the BDNF allowed the use of motorized and mechanized transport in recommended wilderness to varying degrees. Several areas remain open to snowmobiles in winter and some wheeled motorized opportunities are available. Cross-country travel, off of designated routes, is not allowed for wheeled vehicles since completion of the Off Highway Vehicle Environmental Impact Statement and Record of Decision in 2001. The following tables display the extent of motorized opportunities within existing recommended wilderness areas.

Table 60. Acres of Motorized Opportunities in Existing Recommended Wilderness Areas)

Motorized Travel Allowed	Acres
Open to SUMMER Cross-Country Motorized Use	0
Open to WINTER Cross –Country Motorized Use	144,500

Table 61. Miles of Motorized Opportunities in Existing Recommended Wilderness Areas

Motorized Travel Allowed	Miles
Miles of SUMMER Trail Open to Motorized Use	34
Miles of SUMMER Road Open to Motorized Use	18
Miles of Groomed Snowmobile Trail	0
Miles of Groomed Cross-Country Ski Trails	0

Levels of motorized travel were much lower in the mid-1980s when the existing forest plans were completed. The increased popularity and expansion of these uses, and the potential of these activities to affect wilderness character and potential for designation, were not fully anticipated.

No recommended wilderness is currently closed to bicycles or other non-motorized mechanized transport such as game carts, backcountry in-line skates or skate boards, hang gliders, or game carts.

Environmental Consequences

Inventoried Roadless Areas Summary of Effects

Outside of existing congressionally designated wilderness, Inventoried Roadless Areas are the last relatively large, undisturbed landscapes remaining within the continental United States. Because roadless area values and undeveloped character are best maintained by limiting human activities that may cause disturbance to soil, water, and vegetation, the alternatives which afford the most protection for the undeveloped character of IRAs are those which most restrict these activities. Alternatives which prescribe land disturbing activities or add structures to the landscape may reduce the suitability of an IRA for future consideration as wilderness. These activities would be of most concern in IRAs which rate “High” for wilderness suitability,

particularly if they are not in the protected status of “Recommended Wilderness” or “Wilderness Study Area.”

Without the RACR, Alternative 1 may have resulted in the most change because suitable timber base is allocated inside IRAs, which prescribes timber management and the associated road construction. Because of the RACR, however, these activities which have the greatest potential impact on roadless areas, are prohibited with few exceptions. Hence, the difference between alternatives in effects to IRAs is small.

Protection of high quality inventoried roadless areas as recommended wilderness can be best accomplished with the selection of Alternative 3. Alternative 3 recommends 37% of IRAs for wilderness, which would most limit other activities such as oil and gas development, motorized transport, and vegetation management and allocates a large percentage of the remaining IRAs to non-motorized use. Alternative 6 ranks higher than Alternative 5 in percent of area protected by wilderness recommendations, 18% compared to 13%. Alternatives 5 and 6 rank higher than Alternative 2 because they include a higher percent of acres in recommended wilderness and also include a higher percentage of IRAs in non-motorized allocations.

The alternative which provides the least protection to IRA values and undeveloped character is Alternative 4. This alternative does not recommend any wilderness areas for protection of wilderness characteristic, but again, because of the RACR, effects to roadless characteristics would likely still be acceptable.

Appendix C provides an evaluation of the effects to individual IRAs from each alternative as well as a summary of the effects to IRAs as a whole.

Recommended Wilderness Summary of Effects

Wilderness is highly valued by many, and represents a multitude of deeply held values and beliefs. Yet, recommendation and designation of lands for wilderness will necessarily result in opportunity losses for others. The impact recommended wilderness has on other resources is described in other sections of this FEIS. The decision maker must balance these recommendations to fairly allocate lands to different human values based on effects documented in the FEIS. Those tradeoffs will be documented in the Record of Decision.

The alternatives vary in how each composite of proposals meet the Regional Needs, the distribution and size of areas provided, and whether these areas are unique or address public comments. All alternatives which recommend wilderness include Italian Peaks and Torrey Mountain (East Pioneers), two of the larger blocks of roadless on the forest which represent lower elevation sagebrush grassland plan communities and have a broad base of public support.

The NWPS can be improved most with the selection of Alternative 3 which includes the most total acres and the largest number of IRAs rated high for wilderness suitability. But while these units are all rated highly, many are neither unique to the wilderness preservation system nor provide the large blocks which allow natural processes to operate.

Alternative 6 has the next most acres, but several blocks are only rated moderate or low for wilderness suitability. With the exception of add-ons and IRAs adjacent to other recommendations, the proposed blocks are large (25,000 acres plus). Alternative 5 has fewer acres than Alternative 6, but a higher percentage of the acres are rated higher for wilderness suitability. Alternative 2 only recommends 10% of the IRAs for wilderness and includes West

Big Hole, which raised a lot of controversy and does not contribute as well to underrepresented land types and plant communities as other highly ranked IRAs on the forest (Snowcrest Mountains for example). Alternative 1 recommends 9% of the IRAs for wilderness and the least acres. None of the proposals in Alternative 1 garner much public controversy and are generally supported.

Alternative 4 does not contribute to the NWPS.

Effects Common to All Action Alternatives

Management of IRAs and Recommended Wilderness shall comply with appropriate laws, regulations and policies (see the end of this section for the legal framework).

2001 Roadless Area Conservation Rule - RACR restricts timber harvest and road building (with some exceptions) in all inventoried roadless areas, regardless of alternative. RACR protects roadless characteristics so adverse effects from these activities under any alternative will be low.

Suitable Timber in IRAs- There are no suitable timber lands identified within IRAs in alternatives 2 through 6. The action alternatives will better protect roadless characteristics than Alternative 1 which schedules harvest on suitable timber lands within IRAs. This effect would only be realized if the RACR were rescinded.

Commercial Harvest in Recommended Wilderness- There will be no timber harvest permitted in recommended wilderness under any alternative so adverse effects from commercial harvest will not occur.

Oil and Gas Leasing and Development - Exploration and development of oil and gas resources will not be permitted in recommended wilderness under any action alternative. Ten-year leases issued in Garfield Mountain IRA in 2007 are based on stipulations from the previous oil and gas leasing decision which allow some development in that area. Alternatives which propose Garfield Mountain IRA as recommended wilderness will prohibit any future leases being issued.

Developed Recreation - Developed recreation sites such as trailheads and campgrounds are inconsistent with roadless character and are usually excluded from IRAs so there will be no effect

Direct and Indirect Effects

Effects on IRAs and NWPS Additions from Aquatic Resource Management

Watershed and fisheries improvement actions can include construction of structures for streambank stabilization (rock gabions, rock riprap, etc.), slope stabilization, and fish habitat improvement. Some structural improvements may be visually evident, and may detract from apparent naturalness. However, any such improvement structures are generally small and localized and would have a negligible effect upon undeveloped character and wilderness characteristics.

Actions which maintain, enhance, restore or protect habitat for native fish and other aquatic species, and improve stream function, promote natural conditions and will likely benefit IRA and wilderness values. Alternatives 1 and 2 identify no key watersheds within IRAs and therefore have no effect to the existing condition. Alternative 3, 4, 5 and 6 emphasize some level of

aquatic resource management which may ultimately benefit roadless and wilderness values by designating 37%, 21%, 26% and 25%, respectively, of IRAs as key watersheds.

Effects on IRAs and NWPS Additions from Fire Management

Forest health, as it affects natural integrity, is an issue of concern within IRAs and recommended wilderness. Effective fire suppression and drought throughout the western US has led to excessive fuel build up, insect infestation and vegetative composition outside the range of historic variability for these ecosystems (MacCleery 1993). Wildland fire use as an appropriate management response for resource benefits would help restore naturally functioning ecosystems and have a positive effect on the undeveloped character of IRAs and wilderness character of recommended wilderness.

Although Alternative 3 and 6 may appear to offer the most benefits to undeveloped character as it allows wildland fire use essentially forestwide, the limitations of implementing this alternative, such as budget constraints, the need for additional fire planning, and risks associated with fire use under current stand conditions may prove impractical on anything but a small scale. Because of these considerations, the substantive differences between Alternatives 1, 2, 3, 4, 5 and 6, in terms of the actual acres likely to be treated by wildland fire use, will probably be low.

Effects on IRAs and NWPS Additions from IRAs & Wilderness Recommendations

Each alternative offers a different package of recommended wilderness, ranging from none to 20 areas comprising 707,000 acres distributed throughout the BDNF forest. The different combinations vary in how they might contribute important elements to the National Wilderness Preservation System (NWPS). The table below describes which areas are included in each alternative.

Table 62. Recommended Wilderness Areas by Alternative

Recommended Wilderness Area Name	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
AP Addition – Hell Roaring	6,900	6,900	19,200	0	19,200	19,200
AP Addition - Storm Lake	5,700	5,800	9,400	0	5,900	9,300
AP Addition – Upper East Fork	0	0	8,900	0	0	5,100
Big Horn Mountain	0	0	50,300	0	0	0
Black Butte	0	0	39,100	0	0	0
Electric Peak	0	0	11,300	0	11,300	0
Flint Range/Dolus Lake	0	0	37,300	0	0	0
Freezeout Mountain	0	0	66,900	0	0	0
Garfield mountain	0	0	45,800	0	0	33,100
Italian Peaks	25,500	25,500	41,500	0	25,600	25,300
Lee-Metcalf Wilderness Additions, including Cowboy Heaven	0	15,600	17,700	0	17,500	15,600
Lost Creek	0	0	9,600	0	0	0
Middle Mountain Tobacco Roots	0	0	36,800	0	0	0
Mount Jefferson	0	4,500	4,500	0	4,500	2,200
Quigg	0	0	12,700	0	3,700	8,800

Recommended Wilderness Area Name	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Sheep Mountain	0	0	31,400	0	0	0
Snowcrest	0	0	86,500	0	86,900	92,000
Stony Mountain	0	0	0	0	0	15,900
Table Mountain	0	0	20,000	0	0	18,300
Torrey	79,800	79,600	89,700	0	73,500	84,100
West Big Hole	55,900	58,900	68,200	0	0	0
TOTAL	174,000	196,000	707,000	0	248,000	329,000

The alternatives are evaluated below for the degree to which they improve the size, distribution, and ecological protections of the NWPS.

Size- While it only takes 5,000 acres to qualify for roadless or wilderness, larger blocks of land offer more protection of ecological features and processes, more opportunities for solitude, and cost the agency less per acre to manage if designated. The fixed administrative costs of managing designated wilderness are similar regardless of size. Hence, smaller areas would cost more per acre. On the other hand, more areas, though small, offer the advantage of vehicle accessibility to more communities. Alternative 3 adds the most acres and the largest blocks of land to the NWPS (Snowcrest, Torrey Mountain, West Big Hole) along with 10 relatively small units. Alternative 4 adds the least. The remaining alternatives vary in the acreage and size of blocks.

Alternative 1 recommends 174,000 acres for wilderness in 5 areas. Units average 35,000 acres ranging from 79,800 to 25,500 acres.

Alternative 2 recommends the same general areas as Alternative 1, varying the boundaries through additions and deletions. Recommended are 195,000 acres in 7 areas. Units average 28,000 acres and range from 79,600 to 4,500.

Alternative 3 recommends the highest number of acres (707,000) in 20 areas. It includes most highly ranked areas and areas recommended by the public. These areas are well-distributed across the Forest. Many of these areas overlap in the features they contribute to the National Wilderness preservation system. Alternative 3 averages 35,000 acres per unit and ranges from 89,700 to 4,500. Only 10 of the 20 units proposed are over 50,000 acres or contribute to other larger protected areas.

Alternative 4 does not recommend wilderness and addresses concerns from members of the public that current wilderness designations offer sufficient protection.

Alternatives 5 and 6 were developed to come up with a mix of areas that represent the regional needs as well as responding to public concerns. Not all areas which rank high were recommended. Some areas which rank moderate were also recommended because they were contiguous with other Forest's recommendations. Alternative 5 recommends 248,000 acres in 9 areas. Alternative 6 recommends 329,000 acres in 12 areas. Alternative 5 averages 28,000 acres per unit ranging from 86,900 to 4,500 acres. Alternative 6 averages 28,000 acres per unit ranging from 92,000 to 2,200. The 2,200 acre portion of Mount Jefferson is contiguous with the much larger BLM Centennial Mountain WSA.

Quality of the Areas (Wilderness Suitability Rankings)

Wilderness suitability ratings consider the capability, availability and need for wilderness, and directly relate to which areas provide the best addition to the NWPS. The table below displays the number of IRA subunits, by rating, recommended in each alternative. IRAs are broken into subunits when there are distinctions in the characteristics which make up the capability of an area, or if there are buffered roads separating parts of the area. The table reflects the individual ratings for subunits. See Appendix C for the ratings by IRA and subunit.

Table 63. Number of IRAs with a High suitability rating recommended by alternative

IRAs wilderness suitability ranking	subunits	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
HIGH 616,306 acres	26	5	9	24	0	16	15
MODERATE 685,306 acres	38	3	4	8	0	3	6
LOW 399,137 acres	30	0	0	0	0	0	0

Several alternatives include subunits with only moderate rankings when they are either adjacent to a larger recommended or existing wilderness, were included in a past Congressional wilderness bill, or, in the case of Stony Mountain, were right on the numerical break between high and low capability.

Alternative 1 would continue protection of three of the largest IRAs as well as additions to the existing AP Wilderness. Italian Peaks and Torrey Mountain, in particular, offer all of the features identified by the Regional Needs assessment as underrepresented in the NWPS. Twenty other highly rated areas would continue under other management.

Alternative 2 has a similar effect as Alternative 1, adding two smaller units with unique contributions, Lost Creek and Mount Jefferson (part of the BLM Centennial WSA).

Alternative 3 recommends all but one of the IRA subunits which received a high wilderness suitability rating, contributing the greatest number of high ranking areas to the NWPS. Several of the largest blocks, West Big Hole, Italian Peaks, Torrey Mountain, and Snowcrest offer all of the features underrepresented in the NWPS. Many of the smaller areas, while unique in their own ways, duplicate the underrepresented features. For example, Freezeout, Black Butte, Bighorn and Greenhorn IRAs in the Gravelly Range would contribute very similar underrepresented plant communities, and wildlife refuge for wide ranging species like wolverines.

Alternative 4 adds no acres to the NWPS.

Alternative 5 does not add as many acres to the NWPS as Alternative 3 or 6, but more of those acres are in highly rated subunits than Alternative 6 (263,000 acres compared to 262,000). Alternative 5 includes the highly rated Electric Peak and high elevations of Mount Jefferson, dropped from Alternative 6, as well as the larger Torrey Mountain, Italian Peaks and Snowcrest IRAs. West Big Hole is not included in this alternative. While the West Big Hole does include underrepresented plant communities and wildlife refuge, this area is more typical of the “rocks and ice” land type that is already well represented in the NWPS.

Alternative 6 contributes the next highest number of subunits, but six of them received only a moderate rating. Stony Mountain has a moderate rating, but was only one point away from a high capability rating, which would have given it a High suitability rating and is being recommended by the Lolo NF. The other moderately rated subunits are adjacent to other highly rated areas or designated wilderness. Garfield Mountain, like Italian Peaks, Torrey Mountain and the Snowcrests offers all of the features currently underrepresented in the NWPS.

Effects on IRAs and NWPS Additions from Livestock Grazing

Grazing, under approved allotment management plans, will not affect IRAs. The commercial grazing of livestock is permitted within designated wilderness areas where it was established prior to wilderness designation. Structural range improvements such as stock watering developments and fences can impact apparent naturalness but are not considered inconsistent with undeveloped character or wilderness characteristics unless they create large, obvious impact zones.

The amount of suitable rangeland between the alternatives varies only slightly. Areas closed to grazing are not currently grazed so there is no impact regardless of alternative. The effects between the alternatives to IRAs or recommended wilderness will be negligible.

Effects on IRAs and NWPS Additions from Minerals and Oil and Gas

Locatable Mineral Development – Mineral exploration and development activities can vary from small, easily reclaimed operations to larger developments. Large mines may lead to extensive site alterations and long term impacts to the undeveloped character of IRAs and to wilderness characteristics. Road construction, surface disturbance, associated structures, and intensified human activity are impacts generally associated with mining development. These impacts may reduce roadless inventories by removing portions of IRAs where mining occurs. However, evidence of past mining, and even ongoing mining operations do not necessarily preclude wilderness consideration, although they do make it less likely.

The exploration and development of locatable minerals is allowed within IRAs and recommended wilderness as secured by the Mining Act of 1872 and 2001 Roadless Area Conservation Rule Federal Register, Jan. 12, 2001, 294.12(b)(3)) and does not vary by alternative. Therefore, effects are common to all alternatives.

Oil and Gas – Oil and gas leasing and subsequent development is not allowed in Forest Plan recommended wilderness. Therefore, there would be no effects to recommended wilderness from oil and gas development. (Leases issued prior to this decision are exempted. Subsequent development of these leases will be managed according to the stipulations in the 1986 Forest Plan as amended by the Oil and Gas Leasing Decision [USDA 1996a]).

Currently, road building for oil and gas development is precluded in IRAs by the RACR if the leases were issued after 2001. If oil and gas operations can take place without road building, then they could occur in or under IRAs. All alternatives include a Controlled Surface Use (CSU) stipulation for IRAs that precludes road building. The CSU also contains language that if the 2001 roadless rule is no longer in effect, the CSU could be waived. Then direction controlling oil and gas leasing and development would follow forest plan direction and stipulations for other resources.

Without the ability to build roads, it's unlikely that oil and gas development would occur in IRAs. Oil and gas exploration and development can lead to site alteration and impacts to roadless characteristics from drill pads, pumping facilities, ground disturbance, noise, structures, and increased human activity. The 1995 Reasonably Foreseeable Development Scenario predicts most activity on BDNF moderate potential lands would be exploratory wells, completed in less than a years time. Monitoring of a wildcat (exploratory) well drilled in the Lima area in 1986 demonstrated that reclamation could be completed one year following and within 5 years visual signs of disturbance that may impact roadless characteristics would be healed (Bump 1995).

Mineral Exploration and Development – Recommended wilderness and inventoried roadless areas preclude roads with exceptions (RACR, 36 CRF Part 294.12) for prior reserved rights and leases issued prior to 2001. The constraint will eliminate most lands from exploration and development of mineral materials or leasable minerals other than oil and gas. There may be development adjacent to the roads that form the boundaries of the IRAs. There would be few effects to IRAs or proposed wilderness from other mineral development.

Effects on IRAs and NWPS Additions from Recreation and Travel Management

Three recreation and travel decisions made by the forest plan have the potential of affecting IRAs:

- Allocation of land as non-motorized in summer or winter, backcountry, or recommended wilderness,
- Restriction of mechanized and motorized travel within recommended wilderness, and
- Establishing travel routes with a forest road and trail map.

Allocations- Non-motorized allocations in IRAs close blocks of areas to motorized recreation, offering opportunities for quiet and solitude and eliminating the possibility of growing motorized use in the area. Backcountry allocations in Alternative 6 establish a requirement for maintaining semi-primitive recreation opportunities, which will constrain density of use and increased developments. Recommended wilderness allocations in all action alternatives restrict all motorized uses to assure protection of roadless and wilderness characteristics in the event of wilderness designation by Congress. The table below indicates the level of protection offered by alternative for the various recreation allocations.

Table 64. Allocations in IRAs by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	9%	10%	37%	--	13%	18%
Wilderness Study Area	11%	11%	11%	11%	11%	11%
Summer Non-Motorized *	39%	54%	81%	50%	63%	37%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	33%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	60%	45%	19%	49%	36%	n/a
Winter Non-Motorized	11%	22%	55%	11%	42%	26%
Winter Motorized	89%	78%	45%	89%	58%	74%

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

The existing condition (Alternative 1) permits the highest level of motorized use in IRAs in winter and summer, followed by Alternatives 2 and 4. These alternatives have the greatest potential for affecting the undeveloped character of IRAs by increasing human activity and physical impacts. Alternatives 3, 5, and 6 allow the least amount of motorized recreation within IRAs (protecting 81%, 63%, and 66% in non-motorized allocations respectively) and will most protect the undeveloped character of these areas. Alternative 3, as it most restricts motorized recreation, is the best choice to protect roadless character.

Travel restrictions in Recommended Wilderness – Fundamental to the agency’s responsibility for recommended wilderness is protection and preservation of wilderness character until either designated by Congress as wilderness, or released from wilderness consideration (FSM 1923.03). The issue is whether or not motorized and mechanized recreation uses affect wilderness characteristics and the potential for Congress to consider these areas as additions to the National Wilderness Preservation System.

Wilderness characteristics are defined in section 2 (c) of the Wilderness Act of 1964:

A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has a least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

Motorized recreation is permitted in IRAs where approved by site-specific travel management regulations. The Roadless Area Conservation Rule does not prohibit motorized recreation. However, the presence of motorized recreation may diminish the undeveloped character in several ways. Physical impacts to vegetation and soils result from a variety of trail uses,

including motorized vehicles. While the physical impacts of motorcycles may be difficult to distinguish from other uses such as horses, hikers, and mountain bikers, full sized vehicles and ATVs lead to the establishment of two track routes, suggestive of roads and a more developed setting.

Increased visitation is a consequence of easier vehicle access, which causes more frequent encounters, thus reducing the sense of remoteness and opportunities for solitude. Engine noise detracts from natural settings and increased trail use requires more management. Bridges, culverts, turnpikes, and signs are improvements, which may reduce undeveloped character. Motorized vehicles also transport weed seed. Vehicles driven through populations of invasive plants often pick up seeds in the radiator grill, under carriage, tire treads, etc. and transport these seeds to previously uninfested areas (Trunkle & Fay 1991).

The physical impacts of winter motorized use are generally benign since soils and vegetation are buffered by snow and tracks vanish with snow melt. Although long term physical impacts of over snow motorized use may be difficult to quantify, snowmobiles do cause short term physical and social impacts. Tracks in snow fields and high mark play areas may be widespread and affect natural appearance and sense of solitude. Snow machines are often audible over great distances, affecting solitude and secure wildlife habitat.

Management prescriptions in Alternatives 2, 3, 5 and 6 are specifically designed to protect wilderness characteristics by constraining motorized uses. There will be no motorized conveyance allowed within recommended wilderness except for emergencies or administrative use. This includes the landing of aircraft, and use of snowmobiles, motorcycles, and All Terrain Vehicles (ATVs). Pending designation as wilderness by Congress, use of chainsaws for vegetative management, trail clearing, wildlife habitat improvement, fire fighting, and non-commercial wood gathering (such as for hunting camp use) will not be restricted. Use of motorized wheel chairs for persons with disabilities would not be restricted.

Some people feel the use of mechanized transport (mountain bikes) is inconsistent with visitor expectations in recommended wilderness areas. In these areas, horseback riders and hikers expect a wilderness-style quiet recreational experience. Management prescriptions in all alternatives protect wilderness character in roadless areas. Alternatives 3, 5, and 6 provide a higher degree of protection for wilderness characteristics from the effects of mechanized transport and minimize user conflicts. Use of wheel chairs for persons with disabilities and non-motorized game carts would not be affected.

The alternatives vary in effects of travel management on recommended wilderness. Alternative 1 is the least desirable choice for protecting wilderness characteristics since motorized and mechanized uses are permitted within recommended wilderness. Wilderness characteristics may erode over time. Alternative 2, prohibits motorized recreation within recommended wilderness but allows use of bicycles. The effects of this are described in the paragraph above. Alternative 4 recommends no wilderness and therefore there is no effect. Alternatives 3, 5, and 6 manage recommended wilderness areas in a manner consistent with the protection and preservation of their wilderness characteristics, so as to maintain their potential for consideration and possible designation to the National Wilderness Preservation System. These three alternatives provide the best protection of recommended wilderness.

Mapped vs. Visual Route Determinations - Under the current direction established by the 2001 Off Highway Vehicle Amendment for Montana, South and North Dakota, cross country travel is

prohibited and travel routes are based on a visual determination. With a visual determination, a motor vehicle driver may unknowingly follow a route established recently by an illegal user. Alternatives 1 and 2 continue the use of visual determination as a means for interpreting open routes. User built trails will likely continue to be pioneered into IRAs compromising roadless character and future suitability for wilderness. Alternatives 3, 4, 5, and 6 provide a mapped inventory of roads and trails which eliminates the visual interpretation of whether a road is open to motorized use. This prevents continued expansion of routes into IRAs. Alternatives 3, 4, 5, and 6 provide protection for IRAs. Alternatives 1 and 2 will likely see continued degradation of roadless character.

Effects on IRAs and NWPS Additions from Timber Management

The effects of timber harvest can vary considerably, from regeneration harvests, such as clearcuts with associated roads and skid trails, to very light and widely dispersed timber harvest using helicopter yarding methods.

Alternative 1 is the only alternative with any suitable timber land identified within IRAs. Because any harvest activity, no matter how minor, will reduce the undeveloped character of IRAs, this alternative is the least desirable choice for protecting IRA values. However, the RACR will restrict harvest and road building activities even in Alternative 1, neutralizing the impacts of timber management.

There is no effect to IRAs from timber management in any of the four action alternatives because no suitable timber lands are identified within the IRAs. Timber harvest to meet other resource objectives may take place but with road construction prohibited by RACR, the effect would be similarly small between all alternatives.

There are no effects from timber management to recommended wilderness since timber harvest is not permitted within recommended wilderness under any alternative.

Effects on IRAs and NWPS Additions from Vegetation Management

Vegetation and fuel treatments designed to increase aspen stands, reduce conifer encroachment, reduce fuels, maintain some level of old growth, and trend toward naturally functioning ecosystems are desirable in IRAs because these action help restore natural conditions. Uncharacteristic wildfire and insect infestation are two of the most prominent forest health issues on the BDNF and affect the natural integrity of IRAs and recommended wilderness.

Treatment of vegetation by mechanical means (generally chainsaws) can affect natural appearance with the creation of linear patterns and presence of stumps. However, since treatments under any alternative would take place without road construction and would have to take roadless character into account, the scale of effects would be small. Treatments utilizing wildland fire use and planned ignitions may have less impact to apparent naturalness since the evidence of fire is native to the forest landscape. However, where ecosystem restoration is desired, mechanical treatments may be the only viable option where fire use may prove too risky.

Alternative 1 identifies no measurable objective for active aspen regeneration or active Douglas-fir encroachment reduction. Alternative 2 allows aspen restoration and Douglas-fir reduction but sets no definitive targets. In comparison, Alternatives 3, 4, 5 and 6 all provide an equal range of vegetation management for aspen restoration and Douglas-fir encroachment reduction. These last four choices will most benefit IRA values.

For retention of old growth, the alternatives are fairly similar in range. Alternative 1 provides for slightly less retention of old growth, and Alternative 3, a bit more. Alternatives 4, 5, and 6 each call for 10% retention for all conifer species, while Alternative 2 maintains the present mix. The actual effects to IRAs from old growth management are fairly similar.

Effects on IRAs and NWPS Additions from Wildlife Habitat Management

Wildlife management actions may result in a broad array of physical alterations including road obliteration, vegetation treatments, prescribed burning, and habitat improvement structures. Some of these actions could be visually evident and detract somewhat from IRA values and wilderness characteristics. However, actions which maintain, restore, protect, or enhance wildlife habitat also improve natural integrity and ecosystem function and benefit IRA and wilderness values in the long term. Generally, the physical impacts from wildlife habitat management actions are so small and limited that any effects on undeveloped or wilderness characteristics will be negligible in all alternatives.

Closures from meeting road density objectives should have only beneficial effects on IRAs. Implementation of Alternative 3 would cause the most closures, improving roadless character of individual IRAs. Conversely Alternative 4 would likely result in the fewest closures. Although the beneficial effects of meeting road density objectives for the action alternatives will vary, adverse effects from road construction will be the same for all alternatives because of the RACR.

Cumulative Effects

The US population has grown by over 115 million people since 1960, and it is projected to continue growing rapidly. In recent years, population has risen from about 281 million in 2000 to 288 million in 2002, and to almost 295 million in 2004 (Cordell et al. 2004). Southwest Montana is also experiencing rapid population growth and increased urbanization. The population increased by 12.9% in Montana between 1990 and 2000 (Northern Economics 2002). Four of the fastest growing counties in Montana are in close proximity to the Beaverhead-Deerlodge National Forest. These are Gallatin, Ravalli, Broadwater, and Missoula counties. Ravalli County was the fastest growing county during the decade from 1900 to 2000 with a 44% growth rate for the period, followed by Gallatin County which grew 34.4% over the same time. Increased population proximal to the BDNF will increase demand for National Forest amenities, especially recreation. Increased development in southwest Montana resulting from population growth will make undeveloped lands a scarcer more valuable commodity.

Technological advances in ATVs, snowmobiles, mountain bikes, and as yet unforeseen methods of transportation, will influence the use of National Forests in the future. Snowmobile technology, for example, has improved steadily over the last decade to allow expansion into areas formerly considered **inaccessible**. Technological improvements often create demand for new types of recreation. Improved operational capabilities of snowmobiles, for example, has led to a rapidly expanding and increasing incidence of the relatively new activity of high marking. Advances **in mountain bike technology** have created more demand for single track mountain biking. The sudden rise in popularity of these activities was not fully anticipated or planned for during previous forest plan implementation. It is often difficult if not impossible to accurately predict recreation trends, but experience has shown that technological advances, coupled with population growth and increased urbanization, will lead to intensified recreational use on public lands and affect opportunities for primitive, undeveloped, and wilderness recreation.

Wilderness Recommendations in Southwest Montana

In southwest Montana both the Bureau of Land Management (BLM) and Forest Service allocate lands for the purpose of protecting wilderness characteristics. The BLM inventories and then designates Wilderness Study Area which meet similar criteria as those of BDNF inventoried roadless areas. BLM Wilderness Study Areas are evaluated to determine suitability for wilderness and are then recommended through a management framework plan. In southwest Montana, BLM offices allocate the following acres, which contribute to the cumulative effects of BDNF IRAs and wilderness recommendations.”

Table 65. Acres of BLM Recommended Wilderness and Wilderness Study Areas

BLM Unit	Wilderness Study Area Acres	Recommended Wilderness Acres
Dillon Field Office	121,919	49,865
Butte District Office	20,812	19,140
Missoula District Office	520	520
TOTAL	144,251	69,525

Jointly Administered IRAs

Several IRAs are jointly managed by adjacent forests or the BLM area offices. Differences in land management objectives between administrative units, especially in respect to travel management, can effect the entire IRA and influence future land designations. A consistent approach to the management of IRAs across jurisdictions is preferable when it makes sense. Management of adjacent IRAs was considered and consultation took place with the appropriate unit managers. The following areas are primarily affected by joint management:

Mount Jefferson –The BLM Wilderness Suitability Study and EIS for the Centennial Mountains was completed in 1990. Included in this study were USDA Forest Service lands in the Beaverhead and Targhee National Forests. The Forest Service agreed to manage any areas recommended for wilderness through this process consistently with BLM land use management prescriptions. No lands on the Targhee National Forest were recommended for wilderness, but 4,474 acres on the Beaverhead National Forest were included in the BLM wilderness proposal. The Forest Service did not close the area to snowmobiling, resulting in mismatched management of these adjacent lands. Alternatives 2, 3, and 5 will remedy this situation and fulfill the recommendation of the 1990 Wilderness Suitability Study that these areas be managed consistently to maintain and protect wilderness characteristics.

Italian Peak – The Targhee National Forest completed its Forest Plan revision in 1997. Their portion of the Italian Peak IRA is recommended wilderness. Alternatives 1, 2, 3, 5 and 6 propose the BDNF portion of this IRA for recommended wilderness.

West Big Hole – The Salmon National Forest administers a small portion of this IRA. Due to the presence of several intrusions, including roads, mining, and timber activity, it is unlikely the Salmon portion of the IRA will be recommended for wilderness. “Non-conforming” motorized use is established on both sides of this IRA. Alternatives 4, 5, and 6 do not recommend the West Big Hole for wilderness and provide the most consistent approach across administrative boundaries.

Quigg – This IRA is shared with the Lolo National Forest and the BLM. The Lolo is currently revising their Forest Plan and considering recommending portions of Quigg for wilderness. The BLM has recommended the 520 acre Quigg West WSA for wilderness. The wilderness recommendation on the BDNF side of Quigg in Alternatives 3, 5 and 6 were formulated in consultation with the Lolo National Forest.

Stony – This IRA is shared with the Lolo National Forest. The Lolo is currently revising their Forest Plan and considering recommending portions of Stony for wilderness. The wilderness recommendation on the BDNF side of Stony in Alternative 6 will be consistent with Lolo NF management.

Electric Peak – This IRA is shared with the Helena National Forest. The Helena portion is currently recommended for Congressional designation as wilderness and is closed to motorized recreation. Portions of the Electric Peak IRA on the BDNF side are proposed for wilderness in Alternatives 3 and 5 which will provide management consistency with the Helena National Forest.

National Wilderness Preservation System

The National Wilderness Preservation System (NWPS) consists of 667 areas in 44 states and totals 106,498,016 acres. Fifty four percent of NWPS is in Alaska. With Alaska wilderness excluded, 2.57% of the continental United States has been preserved and protected as wilderness. Most of the remaining 97% serves other purposes.

The USDA Forest Service wilderness system totals 193 million acres. Of this, nearly 35 million acres are designated wilderness, or about 18% of National Forest System lands. In the Forest Service's Northern Region, which includes Montana, Northern Idaho, North and South Dakota, there are 25 million acres of forest lands, of which 5 million, or 20%, are designated wilderness. On the Beaverhead–Deerlodge National Forest there are portions of two wilderness areas, the Anaconda-Pintler (117,453) and the Lee Metcalf (107,694 acres). Together these areas total 225,147, or 7% of lands administered by the BDNF.

If lands recommended for wilderness under each alternative were to ultimately be designated under NWPS, the Beaverhead-Deerlodge National Forest would be:

- ◆ Alternative 1 – 12% wilderness,
- ◆ Alternative 2 – 13% wilderness,
- ◆ Alternative 3 – 28% wilderness,
- ◆ Alternative 4 – 7% wilderness,
- ◆ Alternative 5 – 14% wilderness,
- ◆ Alternative 6 – 17% wilderness.

Legal and Administrative Framework

Laws and Executive Orders

The Wilderness Act (1964) – Established the National Wilderness Preservation System to be administered in such a manner as to leave these lands unimpaired for future use and enjoyment as wilderness.

The Alaska National Interest Lands Conservation Act (1980) – Directs the Secretary of Agriculture to provide adequate vehicle access to non-federal land within the boundaries of the National Forest System, including congressionally designated areas.

Congressional Grazing Guidelines (Sec. 108, PL 96-560, H.R. Report 96-617 dated 11/14/79) – Clarifies the Congressional intent that livestock grazing will be permitted to continue in national forest wilderness areas, when such grazing was established prior to the classification of an area as Wilderness. This policy is reiterated in FSM 2323.22.

Regulations and Policy

The Code of Federal Regulations (36 CFR 219.17(a)): States that "...Roadless areas within the National Forest system shall be evaluated and considered for recommendation as potential wilderness during the forest planning process."

The Forest Service Handbook (1909.12.7.1): Directs national forests to "...identify and inventory all roadless areas that satisfy the definition of wilderness found in section 2 (c) of the 1964 Wilderness Act". FSH 1909.12.7 also details the means by which the capability, availability, and need for potential wilderness areas are assessed.

Forest Service Manual 1923.03 (2): States that any area being recommended for Wilderness is not available for any use or activity that may reduce the area's Wilderness potential.

Forest Service Manual Interim Directives 1920-2001-1, 2400-2001-3, and 7710-2001-3, 3: These directives implement the Chief of the Forest Service's direction on interim protection of inventoried roadless areas pending any final decision on the Roadless Areas Conservation Rule (RACR) or implementation of a new roadless rule.

Off-Highway Vehicle Record of Decision and Plan Amendment for Montana, North Dakota and Portions of – January 2001(Tri-State OHV Decision): Restricts wheeled motorized cross-country travel to established routes. Cross country travel is not permitted.

Wilderness Needs Assessment – 2003 USDA Forest Service – Northern Region: This document concluded that there is the need for additional wilderness within the Northern Region to meet future demands for recreation, protect important wildlife habitat and connective corridors, and to include a broader diversity of ecological cover types within the Northern Region's portion of the National Wilderness Preservation System.

Changes Draft to Final

The National Energy Policy Act enacted by congress in 2005 took important steps to strengthen the nation's electric power grid. Congress authorized mandatory reliability and interconnection standards, and directed the Department of Energy to conduct a nationwide study of electric transmission congestion of current systems, which was completed in August of 2006. One of the congested areas identified in the study was the Montana, Idaho, and Northwest Region.

As a result of the study, North Western Energy is proposing to build and operate a new 500kV transmission line between southwestern Montana and southeastern Idaho called the Mountain States 500kV Transmission Intertie (MSTI) project. An Environmental Impact Statement (EIS) is being developed to evaluate and decide on a final route. This route may cross parts of the BDNF. The current forest plans, as well as the revised forest plan indicate areas appropriate for transmission corridors. The planning team has been coordinating with MSTI. If the decision is to locate new transmission lines outside of designated utility corridors, then a forest plan amendment will be developed. This amendment would apply to the existing forest plan and would also be carried forward to the revised forest plan.

Analysis Area

The analysis area for this section includes all National Forest System lands administered by the Beaverhead-Deerlodge National Forest inside the Forest boundary. The area of consideration is the same for direct, indirect and cumulative effects.

Key Indicator

- ◆ Number of communication sites

Affected Environment

Land Ownership

Inside the Forest boundary there are 539 tracts of private land completely surrounded by NFS lands. An additional 624 tracts are only partially surrounded. Development on some resulted in a loss of historical vehicle access to public roads and trails, reduced amount and quality of wildlife habitat, increased potential for encroachment, and damage to watersheds. Opportunities have been identified for land adjustments to establish more easily defined boundary lines.

Private lands within the forest boundary (inholdings) are in demand. Over the years many of these inholdings have been developed for recreation and other purposes and are no longer suitable for acquisition. Private individuals normally initiate proposals for land exchanges; however, the Forest Service can also initiate an exchange to achieve management goals and objectives, or if the acquisition is clearly in the public interest. Examples include acquisition to provide public vehicle access, or critical wildlife habitat.

Forest lands available for exchange usually 1) have lost their national forest character because of urban impacts; 2) are isolated tracts that are not readily vehicle accessible; or 3) provide little public benefit in federal ownership. Land adjustments have included land exchanges, interchanges, purchases, legislated exchanges, and donations. We anticipate these methods will continue to provide the major source of land adjustments.

Occasionally private landowners or other entities seek to donate land to the United States. Donation proposals will be considered, subject to clear title and Hazardous Materials (HAZMAT) concerns.

Inholdings

Extensive mining and homesteading activities, particularly on the northern portion, brought about the existing mixed land ownership pattern. Patented claims and homesteads are abundant although a fair number are generally undeveloped because of rugged terrain or poor vehicle access. Multiple patented mining claims are also scattered across the forest. Management concerns about changing ownership and development involve vehicle access to the property. The owners of record have a statutory right of vehicle access, under Alaska National Interest Lands Conservation Act (ANILCA). Although Forest Service line officers determine what type of vehicle access is reasonable and adequate.

There are a number of isolated NFS tracts outside the forest boundary. There is significant private interest in some of those parcels, especially for rural residential subdivision development. Small size, location relative to contiguous NFS lands, and lack of vehicle access, make them difficult to manage in accordance with national forest objectives. Generally, these tracts are located where there is little demand for development or no vehicle access and they are considered available for conveyance.

Part of the Anaconda Pintler and the Lee Metcalf Wilderness on the BDNF contain private inholdings inside Wilderness boundaries. Development and construction on these tracts is a management concern. When or if, they are subdivided and sold the result could be a loss of public vehicle access to BDNF lands. It may also increase potential for encroachment, wildfire, and reduction of the quality of wildlife habitat and other natural resources.

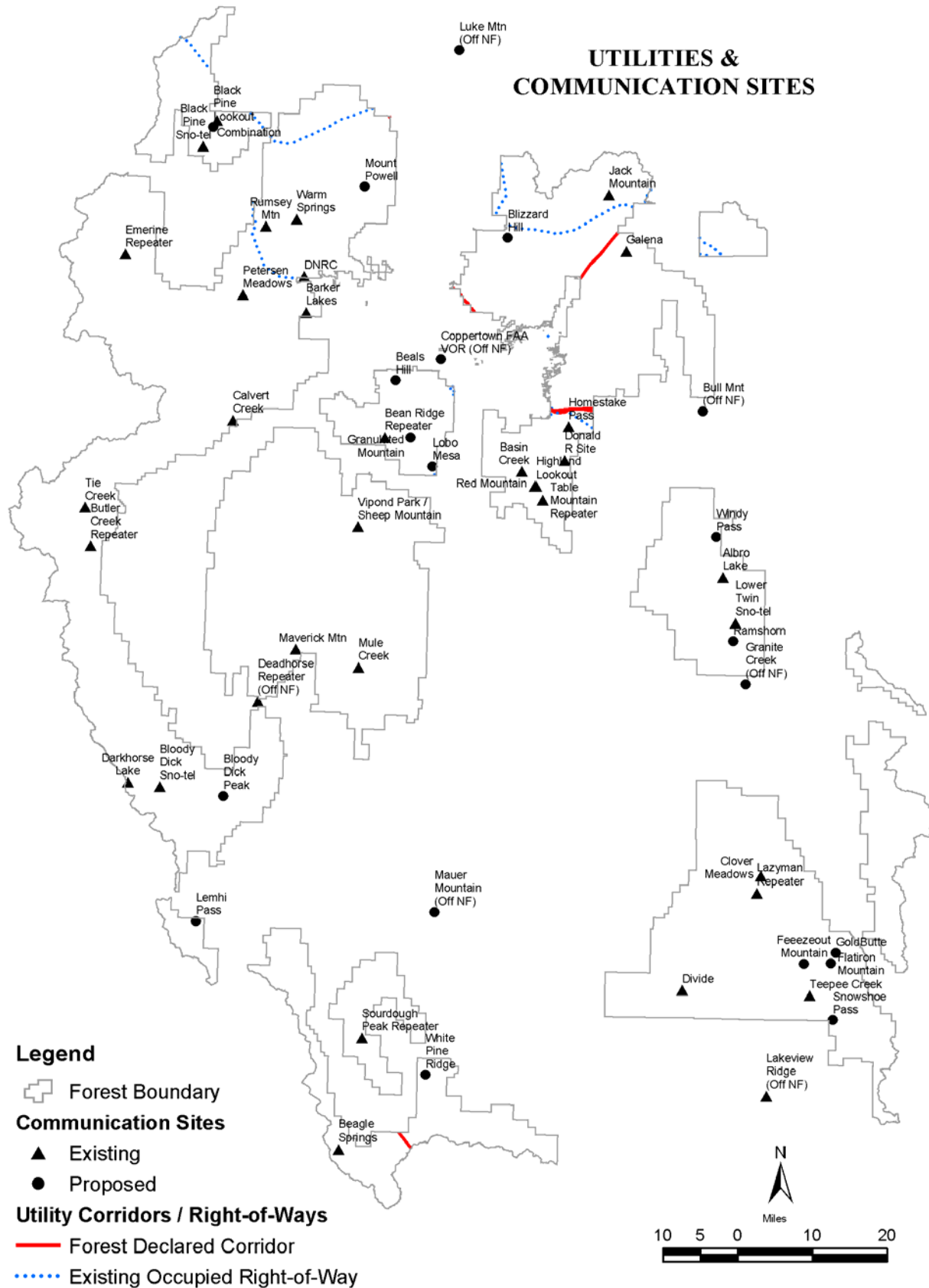
Mineral Estates

There are tracts of land on the BDNF where the United States owns either the surface rights or sub-surface rights (mineral estate), but not both. Split estates complicate use and ownership of NFS lands as well as private interests.

Utility Corridors and Communication Sites

Designated utility corridors identify places available for new major utility transmission rights-of-way. Each designated corridor has the capacity to accommodate least one new utility. Corridors are designated in the Forest Plan for transmission facilities. They do not supply local distributors. Transmission facilities are generally cross-county power lines (larger than 66 kilovolts), fiber optic lines, and pipelines. They also do not serve local end-users and are normally located along existing road systems or other previously disturbed areas in order to minimize environmental impacts.

Presently, there are 5 designated utility corridors on the BDNF as shown in the map on the next page. Three of these were also identified by the Western Utility Group (WUG) as priority utility corridors in their latest update in 2003. WUG listed these as Priority 2 because expansion may be needed in 3-5 years. The other 2 were identified as corridors where expansion could be allowed. Other existing rights-of-way occupied by utilities, are not designated as corridors because expansion will not be encouraged.



Vehicle access and Rights-of-Way

The Eastside Recreation Analysis identified limited “vehicle access to the forest” as an area of concern for Forest Plan Revision. The 1986 Beaverhead Forest Plan identified several right-of-way acquisition priorities. A few of these vehicle accesses have been acquired or formalized. Opportunity and/or funding have limited acquiring the rest. Concerns about vehicle access to the Deerlodge Unit were expressed. Vehicle access remains a concern throughout the forest even though it is not an alternative driving issue.

Many private landowners acquired their property adjacent to, or inside, the forest boundary with the expectation of solitude. As a result, they often enjoy exclusive use of NFS land by restricting or denying public or administrative vehicle access across their property and are reluctant or unwilling to negotiate to provide public or administrative vehicle access.

Over time, vehicle access and easements across private lands have been secured for management of timber, rangeland, minerals, and recreational uses. Many main vehicle access roads are under county, state, or other federal administrations. Additional high standard roads and high clearance roads vehicle access the forest and connect to the larger network of the forest travel routes.

Mechanisms and processes available to secure new vehicle access or protect historic routes include direct rights-of-way acquisition, land adjustments, acceptance by a state or county public road authority, reciprocity, recognition of outstanding rights, quiet title action, or eminent domain.

Non-recreation Special Use Authorizations

There are approximately 375 non-recreation special use authorizations on the BDNF. This number varies by expiration and new authorizations. The number of improvements, uses, or occupancies may exceed 450, because many authorizations provide for multiple uses or facilities. The number of authorizations has steadily increased since the 1986 Beaverhead and 1987 Deerlodge forest plans and is likely to continue. Processing new applications is discretionary and they must meet forest plan objectives. Staff and funding available to process applications are also factors.

Non-recreation special-uses include, but are not limited to:

- Irrigation pipelines
- Water tanks
- Municipal water systems
- Some mineral developments
- Research study and education centers
- Military training areas
- Agricultural uses and facilities
- Airstrips, hangars and navigation aids
- Some industrial camps and residences
- Authorizations for roads and highways

Communication sites
Energy generation and transmission facilities
Telephone and fiber optic communication lines
Gas and oil pipelines
Dams, reservoirs, ditches, and canals

Environmental Consequences

Common to All Alternatives

Under all alternatives, the Forest Service would pursue opportunities to acquire lands, particularly inholdings, that contribute to valuable wildlife habitat, wetlands, or to maintain scenic viewsheds. The ability to take advantage of these opportunities is constrained by budgets and landowner willingness to sell or exchange.

Management of Beaverhead-Deerlodge National Forest lands consists of surveying, marking of landlines and other boundaries, dealing with trespass/encroachment, exchange of lands with non-federal and other Government Agencies, acquisition of privately owned lands within the forest by means of either purchase or donation as well as the acquisition of vehicle access rights-of-way, and administration of special use permits, utility corridors, and communication sites.

These activities will continue under all alternatives because they contribute to achievement of overall management efficiency regardless of alternative emphasis and the effects will be the same.

Communication Sites: The effect of alternatives on communication sites varies mainly by the ability of agencies or companies to vehicle access and maintain or construct the facilities on site. As such these sites will incur higher costs for maintenance or new site installations because of vehicle access limitations and restrictions. Table 106 below identifies the number of existing sites and proposed sites which are in non-motorized areas, and recommended wilderness areas by alternatives.

Direct and Indirect Effects

Effects to Lands from Aquatic Resource Management

Aquatic resource management actions proposed under each alternative are not expected to have any effect on the Lands program in any alternative.

Effects to Lands from Fire Management

Management actions proposed under each alternative are not expected to have any effect on the Lands program because the Fire Plan would not include fire use in corridors or communication sites in any alternative.

Effects to Lands from Livestock Grazing

Acres of suitable range proposed under each alternative are not expected to have any effect on the Lands program in any alternative.

Effects to Lands from Minerals and Oil & Gas Leasing and Development

There will be no effects to the Lands Program from Minerals or Oil and Gas Leasing and Development.

Effects to Lands from Recreation and Travel Management

The impact to communication sites or utility corridors from recreation and travel management decisions should be minimal for all alternatives since administrative and permitted uses may continue in areas allocated as non-motorized or recommended wilderness areas. There may be some impact from mitigation measures which may be required for specific sites or corridors to help protect the semi-primitive non-motorized setting or Wilderness character. Or existing roads or trails could be removed from these allocations. However, it is not possible to estimate these situations at this level of planning. A way to evaluate this would be to examine the number of sites or corridors in non-motorized or recommended allocations by alternatives and assume a higher risk in proportion to the number of sites within these allocations. Table 66 shows how many communication sites would be located in areas allocated as non-motorized by alternative.

Alternatives 1, 5, and 6 affect only one site, whereas Alternatives 2 and 4 show two sites. Alternative 3 has the most sites in non-motorized areas.

Table 66. Communication Sites (Existing & Proposed) in Non-motorized and Recommended Wilderness Areas by Alternative.

Alternative	Summer Non-motorized		Winter Non-motorized		Recommended Wilderness	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
1	4	1	3	1	1	0
2	8	2	5	1	1	0
3	13	4	12	4	7	0
4	6	2	3	1	0	0
5	9	1	12	3	2	0
6	5	2	11	3	4	0

Utility Corridors: The BDNF has a number of existing occupied rights-of-way; several designated corridors and several proposed WUG corridors. The table below identifies the number of existing utility rights-of-way and designated corridors in non-motorized areas, and recommended wilderness areas by alternatives.

Table 67. Utility Corridor Segments in Non-Motorized and Recommended Wilderness

Alternative	Summer Non-motorized	Winter Non-motorized	Recommended Wilderness
1	0	4 - Existing Rights of Way	0
2	0	4 - Existing Rights of Way	0
3	2 - Existing Rights of Way 2 - Designated Corridor	5 – Existing Rights of Way 1 – Designated Corridor	1 – Designated Corridor (no change)
4	1 - Designated Corridor	4 - Existing Rights of Way	0
5	1 - Existing Right of Way 2 - Designated Corridors	4 - Existing Rights of Way 3 – Designated Corridor	0
6	1 - Existing Right of Way	3 – Designated Corridors	0

Alternative	Summer Non-motorized	Winter Non-motorized	Recommended Wilderness
	1 - Designated Corridor		

Effects to Lands from Timber Management

Acres of land suitable for timber production or land where timber harvest is allowed, proposed under any alternative are not expected to cause an effect on the lands program.

Effects to Lands from Vegetation Management

Vegetation management actions proposed under each alternative are not expected to have any effect on the Lands program in any alternative.

Effects to Lands from Wilderness Recommendation

Acres of recommended wilderness vary by alternative carrying with it non-motorized direction. When communication sites or utility corridors are located in recommended wilderness there may be additional requirements for the sites or corridor to protect the Wilderness character.

Alternative 3 has the most acres involved with seven communication sites and one designated right-of-way corridor. Alternatives 1 and 2 have only 1 communication site apiece. Alternative 5 has two existing sites that would require effort to maintain and no proposed sites.

There are no utility corridors involved in recommended wilderness areas in Alternatives 1, 2, 4, 5, and 6 so therefore, no effects.

Effects to Lands from Wildlife Management

Wildlife management actions proposed under each alternative are not expected to have any effect on the Lands program in any alternative.

Cumulative Effects

During the development of alternatives we coordinated with adjacent National Forest and Bureau of Land Management offices to determine the impact of designated corridors in our alternatives. In only one case, a corridor up to Lemhi Pass was there a discrepancy. The Salmon National Forest on one side and the Dillon Field Office of the BLM designate the corridor on their lands. For resource and cultural concerns we did not designate the corridor.

Legal and Administrative Framework

Laws and Executive Orders

The Organic Administration Act of 1897 - Provides the basic authority for authorizing uses of National Forest System lands.

The Transfer Act of 1905 - Transferred the Forest Reserves to the Department of Agriculture.

The Weeks Law of 1911 - Provides for land acquisition, exchange, condemnation and rights of way easements. Lands acquired by the United States under this act are reserved and not subject to appropriation under mineral law except as provided by the Secretary of Agriculture.

The General Exchange Act of 1922 - Authorizes land adjustments within national forest boundaries.

The Color of Title Act 1928 - Authorizes the Secretary of Agriculture to recognize an adverse possession of public land under claim or color of title based on designated conditions.

The Land Acquisition Declaration of Taking Act of 1931 - Provides condemnation authority to the United States.

The Department of Agriculture Organic Act of 1956 - Provides additional land purchase authority.

The Land and Water Conservation Fund Act of 1965 - Provides funds for the acquisition of lands and interests in lands.

The Sisk Act of 1967 - Provides for the exchange of lands with states and local governments.

The Federal Land Management and Policy Act of 1976 - Provides authority for the majority of non-recreation special use authorizations and allows for the issuance of permits, leases, or easements to occupy, use, or traverse National Forest System lands.

The Alaska National Interest Lands Conservation Act of 1980 - Provides direction for providing vehicle access to non-federally owned land within the boundaries of national forests.

The Small Tracts Act of 1983 - Provides for the sale, exchange, or interchange of certain parcels of minimal size.

Executive Order 11990 (Wetlands) - Preserve wetland functions including the ability to produce abundant and diverse wildlife and fish habitat, buffer water quality, recharge ground water, and meet socio-economic needs. Listed in Federal Register 42FR 26961. Policy appears in FSM 2527.

Executive Order 11988 (Floodplains) - Preserves floodplain functions including the ability to dissipate flood flows and moderate flood peaks, and not increase flood hazards. Listed in Federal Register 42FR 26951. Policy appears in FSM 2527.

Changes Draft to Final

Although little changed in this section an additional effects indicator was added to help explain the slight variations between alternatives

Affected Environment

The analysis area, for direct and indirect effects on livestock grazing, is land administered by the Beaverhead-Deerlodge National Forest in existing allotments.

Effects Indicators

- ◆ Acres of suitable range.
- ◆ Animal Unit Months (AUMs) of livestock grazing

Lands Capable of Livestock Grazing

Capability is defined in the Forest Service Manual as “the potential of an area of land to produce resources, supply goods and services and allow resource uses under an assumed set of management practices and given level of management intensity.” Capability is an inventory and remains constant throughout the planning process. Twenty-eight percent of the BDNF, or 926,000 acres, are capable of supporting livestock grazing. This excludes the Elkhorn Mountains portion which will be evaluated during revision of the Helena National Forest Plan. The determination was made according to criteria described in Forest Service Manual 1905. All lands, regardless of slope, are capable and suitable for grazing and browsing by wildlife.

Lands Suitable for Livestock Grazing

Suitability is defined as “the appropriateness of applying certain resource management practices to a particular area of land as determined by an analysis of the economic and environmental consequences and alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices” (FSM 1905). Once capability is determined, an assessment by alternative, of suitability is conducted to address whether livestock grazing is, or is not, compatible with management direction for other uses and values in that area. The assessment also decides which if any, other uses would be foregone with livestock grazing.

Under current forest plan direction, several allotments or portions of allotments have been identified as unsuitable for grazing based on economic or other resource values. These areas have either been left vacant for a number of years, were identified for closure through previous NEPA analysis, or are not grazed through cooperation with permittees and their annual operating plans. These potentially unsuitable lands form the basis for designing alternatives around a mix of suitable acres compatible with management direction for other resource uses and values. No forestwide issues were identified which would cause reassessment of currently stocked suitable lands. The Beaverhead-Deerlodge National Forest will use the allotment management planning

process to determine additional lands that are not suitable and determine the site-specific permit actions necessary to meet forest plan desired conditions, objectives, standards.

Table 68. Capable and Suitable Acres on the BDNF by Landscape

Landscape	Capable Acres in All Alternatives	Percent of Landscape	Existing (Alt 1) Suitable Acres	Percent of Landscape
Big Hole	69,000	13%	62,000	12%
Boulder River	37,000	16%	27,000	12%
Clark Fork - Flints	78,000	21%	64,000	17%
Gravelly	296,000	63%	293,000	62%
Jefferson River	44,000	23%	44,000	23%
Lima Tendoy	178,000	48%	173,000	47%
Madison	21,000	17%	12,000	10%
Pioneer	106,000	18%	79,000	14%
Tobacco Roots	60,000	35%	58,000	33%
Upper Clark Fork	13,000	16%	12,000	15%
Upper Rock Creek	27,000	10%	22,000	8%
Total Acres	929,000	27%	846,000	25%

The Forest Service defines an AUM as “the amount of forage required to sustain a 1000-pound animal for one month.” Permitted use is the use level displayed the grazing permit as numbers, kind, and class of livestock and the season. Actual use is the livestock use that actually occurs and is reported annually at the end of the grazing season.

Most livestock grazing is permitted during the summer months. A normal grazing season is the middle of June through September. The table below shows the trends in numbers of livestock use since 1945. Permitted use when the 1986 and 1987 forest plans were approved was 254,600 AUMs. The existing plans predicted potential stocking rates of 191,000 AUMs on the Beaverhead and 64,200 AUMs on the Deerlodge, 255,200 combined. The average actual use from 2001 through 2003 was 177,278 AUMs or 31% less than projected.

Table 69. BDNF Annual Livestock Numbers

Year	Cattle	Sheep
1945	45,870	139,194
1960	45,650	79,208
1965	45,020	69,541
1985	59,042	21,309
1990	56,932	21,579
1995	53,504	12,550
2003	49,498	15,750

Table 70. Actual Livestock Use 2001 through 2003.*

Stock	2001 AUMs	2002 AUMs	2003 AUMs
Bison	324	324	324
Cattle	167,982	171,389	167,714
Horses	846	836	840
Sheep	7681	7357	7188

**The 3-year average actual output of AUMs for 2001 to 2003 was 177,278 AUMs (includes both sheep & cattle) and is based on a changed data collection system beginning in 2001.*

The average actual use level for sheep and cattle (AUMs per year) has been consistently below term permit numbers and seasons. The reasons, according to range conservationists who work directly with permit holders, include

- ◆ Agency funding is limited to implement management and range improvements.
- ◆ Permittees, either voluntarily or through agency requirements, reduce their numbers or season of use to meet the grazing standards in their permits.
- ◆ Permit waivers get turned back to the government and are not re-issued because of resource concerns.
- ◆ Long-term drought has reduced forage production thereby requiring shorter seasons or fewer numbers in order to meet grazing standards.
- ◆ Also because of drought, some perennial water sources have gone dry, preventing use of affected allotments or pastures.
- ◆ Some permits, held for a long time, began with stocking numbers based on past grazing standards. Less livestock use is required to meet current standards.
- ◆ Conifer encroachment on grasslands and shrublands is reducing forage on some allotments.

An important component of rangeland management is the ability of the land to produce forage. For this analysis, the ability will be described in terms of grazing outputs, or animal unit months (AUMs), expected to be produced from all suitable lands on an annual basis. Acres of suitable range, grazing standards, and key watersheds vary by alternative. The effects of the alternatives are estimated and displayed in terms of AUM output. We have chosen to estimate grazing levels for suitable lands from records of actual use over the last three years. The base level will be the 3-year average of 177,278 AUMs.

Environmental Consequences

Effects Summary for All Alternatives

In the short term Alternative 1 and 2 are the most favorable to livestock grazing by maintaining livestock production. However, in the long term Alternatives 3, 4, 5, and 6 are the most favorable to permittees because the alternatives manage vegetation and will provide more forage in the future. The disadvantages of Alternative 3 are the higher numbers of key watersheds and acres of suitable range in the key watersheds and high acres of recommended wilderness. Alternatives 4,

5 and 6 are the most favorable to livestock grazing because they have relatively high levels of Douglas fir encroachment treatment, aspen enhancement, timber harvest and wildland fire use; all activities that can produce forage, disperse livestock use and reduce conflicts between livestock, big game and riparian areas.

Effects Common to All Alternatives

Domestic livestock grazing has been prohibited in both existing and proposed RNAs under all alternatives. Therefore effects are the same for all alternatives.

Even though alternatives do not increase motorized opportunities and no new recreation areas are proposed, recreational use is predicted to increase. This may complicate livestock management and make it more expensive. For example more gates may be left open and livestock inadvertently or purposely moved.

Effects to Livestock Grazing from Aquatic Resources Management

The objectives and standards for the protection of the aquatic resources, particularly riparian areas, have had some of the greatest impact on the forest grazing program. Over the last 10 to 15 years much has been accomplished through altering grazing practices to protect aquatic resources. This occurred on the Deerlodge portion through implementation of INFISH standards west of the Continental Divide and the Deerlodge Riparian Mitigation Standards east of the Divide. On the Beaverhead Unit aquatic resources have been improved through the implementation of the 1997 Riparian Amendment to the Beaverhead Forest Plan (USDA 1997a).

The continuation of protection measures will have the same effect for each alternative. Some permittees will be able to manage to meet grazing standards and as a result be able to graze their permitted season and numbers. Other permittees may not be able to meet standards and may have to reduce use to comply with standards. Additional impacts may be caused by the designation of Key Watersheds in alternatives 3, 4, 5, and 6. Impacts might include increased time, labor, and capital investments in order to meet grazing standards on a timely basis.

The effects of aquatic resource standards are hard to quantify. The comparison of suitable acres in key watersheds by alternative displays relative effects as shown in the following table.

Table 71. Relationship of Key Watersheds to Suitable Acres.

Alternatives	Number Key Watersheds	Suitable Acres outside of Key Watersheds	Suitable Acres in Key Watersheds	Percent of BDNF Suitable Acres in Key Watersheds
1	n/a	846,135	0	0
2	0n/a	846,135	0	0
3	135	462,391	341,838	43%
4	57	719,891	126,244	15%
5	72	636,579	173,482	22%
6	71	647,590	153,451	19%

As stated earlier, determination of the effects of standards or outputs is only estimated. Many variables impact the effectiveness of action by the permittee to comply with standards. For this analysis, we made estimates based on historic compliance records, and input from the rangeland management specialists from each ranger district specific to the key watersheds. These estimates

do not represent actual reduction expected but rather an estimate to determine potential relative effects between alternatives. Actual results from implementation may vary.

Table 72. Effects on AUMs by Alternatives

Alternative	Number of Key Watersheds	AUMs	Percent Reduction
1	0	177,278	0%
2	0	177,278	0%
3	135	167,676	5%
4	57	173,181	2%
5	72	171,179	3%
6	71	171,312	3%

The effects to allotments will vary. Some allotments in key watersheds may meet standards at current actual use levels. Others may need a 10% to 40% reduction in livestock use.

Effects to Livestock Grazing from IRAs and NWPS Additions

Areas identified as recommended wilderness will not change the current grazing standards, season of use or suitable range allocation. Therefore, the immediate effects to suitable acres are negligible in all alternatives. Following site-specific analysis for allotment planning, wilderness recommendation could require mitigation to protect wilderness qualities

The number of suitable acres that may be affected is displayed in this table.

Table 73. Acres of Suitable Range in Recommended Wilderness

Suitable Range	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt. 6
Acres In Recommended Wilderness	17,200	20,100	206,800	0	60,900	84,962
Total Acres	846,135	846,135	804,229	846,135	810,061	802,041
Percent in Recommended Wilderness	2%	2%	26%	0%	8%	11%

Effects to Livestock Grazing from Livestock Grazing Management

Table 74 displays the acres of suitable rangeland for each alternative. Alternative 3 emphasizes the influence of natural processes in maintaining ecosystems, and so allocates fewer lands suitable for grazing. Most of these are vacant or closed allotments identified through previous NEPA analysis, but in some cases minor portions of allotments with other resource conflicts are closed. The best example is the closure of lands in a Class A watershed to grazing.

Alternatives 1, 2, and 4, have the most suitable range. Alternative 4 emphasizes sustainable commodities and allocates as much suitable rangeland as possible. The reduction in acres for these alternatives is from closing all or portions of existing vacant allotments and portions of other allotments that are not currently being grazed. This difference is an estimate of acres and does not change current livestock management. It may affect potential of the area to be grazed in the future.

Alternatives 5 and 6 fall between the other alternatives, in terms of acres of suitable rangeland, by closing mostly vacant allotments or those identified through previous NEPA analysis, and minor portions of allotments that have other resource conflicts.

Table 74. Rangeland Suitability Acres by Alternative

Livestock Grazing	Alt 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Acres Suitable Rangeland	846,000	846,000	804,000	846,000	810,000	802,000
AUMs	177,278	177,278	167,676	173,181	171,179	171,312

Effects to AUMs Outputs - For the three-year period 2001 to 2003, actual use was 177,278 AUMs from approximately 846,000 acres of suitable NFS lands.

The application of integrated resource direction under each alternative would result in indirect short-term and long-term effects on estimated overall grazing outputs in suitable acres. Actual changes will ultimately depend on implementation of forest plan direction in conjunction with site-specific allotment management planning, and implementation. For this reason changes to forestwide AUM outputs or individual allotments are hard to accurately predict. Estimated grazing outputs in terms of AUMs by alternative are displayed in Table 70. Differences between alternatives provide a more important reference than the absolute numbers themselves. Estimates of reductions in AUMs from current actual use were based on needs to meet aquatic standards, particularly in key watersheds as described in aquatic resource management.

Effects to Livestock Grazing from Minerals and Oil & Gas

There are no effects to livestock grazing from minerals or oil and gas leasing. This is common to all alternatives. The 1995 Beaverhead Oil & Gas EIS predicted 8 wells would be drilled although no drilling occurred. Even if it did, the effect on livestock grazing would be minimal.

Effects to Livestock Grazing from Recreation and Travel Management

The impact to livestock grazing from recreation and travel management is mainly limited by the grazing permit holder's ability to vehicle access the allotment. Motorized vehicle access into areas allocated for non-motorized settings can be authorized by line officers. These decisions are discretionary and are made on a case-by-case review of the proposal and circumstances. The intent of the non-motorized areas is not to prevent allotment management. Some of the motorized vehicle access needs include transportation of fence and/or water development materials, noxious weed control, and salt distribution. During particular times of the year, or as some routes grow in from lack of use or maintenance; vehicle access may be more restrictive than what is currently available.

The impacts of non-motorized area allocations on permittees and livestock grazing are difficult to quantify as there are too many variables, but after review of each non-motorized area the following effects were determined. Because permittees can still have motorized vehicle access into non-motorized areas through the permitting process, the adverse impacts to permittees are less than not having any motorized vehicle access opportunities. The table below identifies acres of suitable range that are included in non-motorized areas by alternatives. Alternative 3 has the greatest potential to limit grazing permittees vehicle access to their allotments (48%). For Alternative 3 almost half of the suitable range would be in areas with motorized travel restrictions. Although the acres of suitable range in non-motorized areas is higher than the

existing condition, the differences of effects between Alternatives 2,4, 5 and 6 and the existing condition are minimal.

Table 75. Acres of Suitable Range in Non-Motorized Areas

Status	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Acres Non-motorized	208, 158	253,841	386,377	226,130	264,827	262,087
Percent	25%	30%	48%	27%	33%	33%

There is no effect on livestock grazing from winter recreation and winter travel management activities since very little grazing takes place during this time period. This is common for all alternatives.

The effects of a designated road and trail system as identified in Alternatives 2,3,4,5 and 6 would be both negative and positive. The miles of roads and trails open to motorized travel under these alternatives will generally be adequate for livestock management needs.

The positive effects are that cattle and range improvements will generally receive less disturbance and vandalism with vehicles restricted to designated roads and trails.

The main negative effect is that permittees would need more time to obtain prior authorization to travel off roads or trails in their allotment. Management effectiveness decreases with fewer motorized opportunities for them to observe stock, check fences and water developments, distribute salt, etc

Table 76. Miles of Roads and Trails Open to Motorized Travel in Suitable Range

Open Miles	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Roads	4,802	4,693	4,247	4,753	4,625	4,537
Trails	958	840	499	917	795	797

Since there are no new developed recreation areas proposed in any alternative the effects of developed recreation on livestock grazing are the same for each alternative.

All of the action alternatives provide for improved trail and road systems, which will reduce conflicts between forest visitors and livestock grazing. The differences of effects to livestock grazing between alternatives are minimal.

Effects to Livestock Grazing from Timber Management

Acres managed for timber production can have a favorable effect on forage production and vehicle accessibility of the area for livestock. Douglas-fir forests with a bunchgrass or elk sedge understory can produce forage when the trees are harvested. Other timber types don't produce much palatable forage after the overstory is harvested. However, the transportation system including skid trails can improve vehicle access for livestock into newly created forage areas and existing grassland previously invehicle accessible. Alternatives 1, 2 and 4 would have the most potential for benefits of timber harvest to livestock grazing. Alternative 5 would have about 2/3 as much benefit as Alternative 2 and less than half as much as Alternative 4. Alternative 6 would provide less benefit than 5 and Alternative 3 the least.

Increases of forage production from any of the vegetation treatments is not expected to be great enough to increase permitted grazing but may make management of livestock easier. For

example, increased forage and improved palatability of forage will help draw livestock out of riparian areas. Reduced timber densities will allow riders and livestock to move through forests easier. More forage will reduce the forage competition with big game and possibly allow deciduous species (for example aspen and willow) to grow beyond the reach of big game and livestock so viable populations can be maintained and/or increased.

Effects to Livestock Grazing from Vegetation Management

This analysis focuses on four opportunities for vegetation management: Douglas fir encroachment, aspen restoration, acres available for wildland fire use, and acres of suitable timberlands. Other activities such as fuel reduction will affect livestock grazing but can't be analyzed at this time.

In general, reduction of Douglas fir encroachment will have the most beneficial effect on livestock grazing. The predominant understory vegetation in the Douglas fir encroachment areas will respond favorably to conifer removal and will provide forage for livestock and big game. A flush of forbs and grasses occurs especially after a prescribed burn and to a lesser extent after other conifer removal. The increase in production in these cases can last for many years or even decades.

Alternatives 3, 4, and 5, all provide up to 74,000 acres of treatment. Alternative 6 proposes to treat 74,000 acres. Depending on the alternative, 74,000 acres is about 8 to 10 % of existing suitable range. However, not all of the reduction of Douglas fir encroachment will create suitable range.

Alternative 6 is the most beneficial for range because its target treatment acreage is 74,000 acres. Alternative 4 and 5 provide a range with a minimum of 30,000 acres of encroachment reduction where the rest have no lower limit. The major negative effect is that treatment areas may have to be temporarily rested to provide fuel to carry the fire and/or to allow the forbs and grasses to recover from the burn and begin to occupy space. This is a short-term effect considering beneficial effects are increased forage and can last for decades. Douglas fir treatment areas outside of grazing allotments would provide increased forage for big game and reduce competition between livestock and big game.

Aspen restoration will also increase forage but the treatment areas are less likely to be in grazing allotments. Because of the sensitivity of aspen to browsing, cattle may be fenced from treatment areas, or pastures or allotments would be in nonuse status until the sprouts are out of reach of livestock. Alternative 6 provides the most benefit with the largest acres of treatment at 67,000 acres. Alternatives 3 and 5 project a range of 13,340 to 66,700 with the same effects on livestock grazing depending on how many acres actually get treated. The rest don't identify acres for treatment beyond and "emphasis" in Alternative 3.

Effects to Livestock Grazing from Fire Management

Wildfire: Wildfire will continue to be a large influence on the forest. Between 1970 and 2001 approximately 115,503 acres were burned and the trend is for more and larger fires. We expect, over the next 30 years, at least 115,000 acres could burn. Large fires are usually in remote areas of dense timber sometimes at the edge of allotments. We don't expect much of an increase in forage for livestock, but do expect increased forage for big game. This would reduce competition between big game and livestock for forage.

If wildfire burns an allotment, some fences and water developments may need to be replaced. The pasture or allotment may also have to be rested from grazing for one to two years. The short term effects of wildfire are minor compared to the long term effects of increased forage and improved vehicle access for riders and livestock that can last for decades. The effects from wild fire are the same for all alternatives.

Appropriate Management Response: Fire management could also provide increased forage for livestock depending on the vegetation types burned and whether appropriate fire occurs in areas suitable for livestock grazing. In general, lower elevation grasslands, shrublands and Douglas fir stands will provide the most forage after burned. We expect initially, most wildland fire use will be in remote areas of dense timber or in high mountain ranges and areas closed to livestock grazing.

Alternatives 3 and 6 have the potential for the most positive effects where Alternative 2 has the least. Alternative 3 has about 116,000 (15%) more acres available for wildland fire use than Alternative 5. Depending on the severity and extent of fire, allotments or pastures may temporarily be rested for vegetation to recover. Fences and water developments damaged or destroyed by fire may need replacement. These negative effects are minor, considering positive effects can last for decades.

Table 77. Suitable Range Available for Wildland Fire Use

Category	Alt 1	Alt. 2	Alt. 3	Alt 4	Alt. 5	Alt. 6
Acres of Suitable Range in Wildland Fire Use	766,000	552,700	804,000	602,000	688,000	802,000
Total Acres of Suitable Range	846,000	846,000	804,000	846,000	810,000	802,000
Percent of Suitable Range available for Fire Management	90%	65%	100%	71%	85%	100%

Effects to Livestock Grazing from Wildlife Habitat Management

Wildlife management proposed in any alternative will have no effect on the current grazing program. Since there is no change to the mapping of elk winter range and since all allotments within elk winter range currently must provide for elk, there is no change to the current condition or effects.

Management in grizzly bear habitat is directed by the Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests: “Outside the Primary Conservation Area in areas identified in state management plans as biologically suitable and socially acceptable for grizzly bear occupancy, livestock allotments or portions of allotments with recurring conflicts that cannot be resolved through modification of grazing practices may be retired (closed) as opportunities arise with willing permittees,” (USDA 2006a).

Alternatives 5 and 6 include options to reduce encounters between grizzly bears and domestic sheep conflicts when sheep allotments become vacant in occupied grizzly bear habitat. A vacant sheep allotment could be added to an existing sheep permit. The number of sheep permitted to graze would not be increased even though the area available to graze is greater. This would give the permittee more places to move sheep to avoid bear-sheep encounters. The other possibility

would be to stock the sheep allotment with cattle if it is suitable for cattle grazing. This alternative benefits existing permittees, even though it may not maintain AUM production.

Cumulative Effects

The analysis area for cumulative effects includes all 7 counties in southwestern Montana including lands administered by the BLM, and the State of Montana adjacent to the BDNF and the communities which depend on livestock production from public lands.

The cumulative effect of federal agency management will probably be low. The Butte Field Office of the Bureau of Land Management (BLM) anticipates producing a draft EIS for public review during June of 2007. They predict a slight decrease in livestock production, but this may be off set by the use of forage reserve allotments. The BLM Dillon Field Office signed the Record of Decision for the Final Environmental Impact Statement (FEIS) for their Resource Management Plan during February of 2006. They selected the preferred alternative that predicted a 0 to 11% decrease in livestock production after implementing the Record of Decision. The effects from implementation of their plans appear to be similar to those predicted in the alternatives displayed in this FEIS. Effects from all plans are predicted to be low, although some individual allotments or permittees may be affected if major reductions are required. Even with the effects from key watersheds in Alternative 3, the AUM output for the BDNF is only predicted to be 5% of actual use.

Protection of threatened or endangered species habitat may have the largest influence on livestock grazing on Federal lands. Some permittees could be severely affected if conditions on their federal allotment require a substantial reduction. At this time predicting any future reductions are outside the scope of this analysis but would be addressed with an analysis if species are listed.

Livestock production from State of Montana trust lands has slightly increased (Chappell 2005) and is expected to stay the same or increase slightly. Grazing on private land depends on the market, drought conditions, and needs of the owner.

There will likely be a net loss of forage and in some cases loss of big-game winter and spring range, as ranches are sold and subdivided. Two or three scenarios could occur on ranches adjacent to this forest. First they could be sub-divided and sold as home sites. This is especially likely for the ranches near population centers. These conditions will likely continue to occur in the short term for all seven counties. As a result marginal winter habitat may be used more frequently by big game and may increase localized competition between livestock and wildlife on private lands. Second, large remote ranches could be bought and used primarily as a big game refuges. In this case wildlife habitat could increase and off-set habitat losses else where. The last scenario is that the situation stays the same and existing permittees continue to operate for the next few decades.

The grizzly bear management plan being developed does not propose mandatory elimination of sheep allotments in occupied habitat. Having a sustainable population of grizzlies in the same mountain ranges as permitted livestock will probably result in increased depredation of livestock, especially sheep. This may increase operating costs for permittees.

Legal and Administrative Framework

Laws and Executive Orders

The Granger-Thye Act (1950) - Provides for the issuance of term grazing permits for up to 10 years. It also provides for the use of grazing receipts for range improvement work.

The Multiple-Use Sustained-Yield Act (1960) - Provides that national forests are established and administered for several purposes, including livestock grazing. This act also authorizes the Secretary of Agriculture to develop the surface renewable resources of national forests for multiple uses and sustained yield of the services and products to be obtained from these lands, without impairment of the productivity of the land.

The Wilderness Act (1964) - Provides that livestock grazing, and the activities and facilities needed to support it, are allowed to continue in wilderness areas when such grazing was established before designation.

The Forest and Rangeland Renewable Resource Planning Act (1974) - Directs the Secretary of Agriculture to develop a process for the revision of national forest land and resource management plans, including the identification of the suitability of lands for resource management.

The Federal Land Policy and Management Act (1976) - States that public lands will be managed in a manner that will provide food and habitat for fish, wildlife, and domestic animals.

The Public Rangelands Improvement Act (1978) - Recognizes the need to correct unsatisfactory conditions on public rangelands by increasing funding for maintenance and management of these lands.

The Rescission Bill (1995) - Directs the Forest Service to complete site-specific NEPA analyses and decisions on allotments on a scheduled basis.

Regulations and Policy

Forest Service Manual 2200 - Directs rangeland management and livestock grazing on National Forest System Lands.

Other

Allotment Management Plans (AMPs) - Developed through site-specific environmental analysis, an AMP uses Forest Plan direction and current issues to determine desired conditions, areas suitable for grazing, and a broad strategy on how to meet desired conditions. They describe site-specific grazing strategies, stocking, structural and non-structural range improvement needs, and coordination with other resources. The output or Animal Unit Months (AUMs) are a result of the AMP requirements, range improvements, and the ability of the permittee to manage forage and livestock.

National Wildlife Federation Law Suit on Grazing on the Beaverhead National Forest – This law suit resulted in the Riparian Amendment to the Beaverhead Forest Plan. Part of the settlement agreement requires that the Forest annually monitor grazing permit compliance and send the results to those involved in the suit.

Changes – Draft to Final

As of June 2007, 12 parcels have been leased for oil & gas on the southern half of the BDNF.

Analysis Area

The analysis area for direct, indirect, and cumulative effects includes all lands administered by the Beaverhead-Deerlodge National Forest in southwest Montana.

Analysis Methods and Assumptions

The opportunity to explore for and extract minerals depends upon the level of availability of the land and the restrictions placed upon the activity. For locatable minerals on lands with public domain status, unless the land in question is withdrawn from mineral entry, the mining laws apply. Mineral exploration, development, and extraction may take place subject to other applicable laws and reasonable resource protection measures. Examples of situations that may require additional time for analysis and mitigation include, but are not limited to:

- Proposals in roadless areas – particularly those recommended for wilderness,
- Proposals that may affect TE&S species,
- Proposals that may impact heritage resources,
- Proposals that may have unacceptable impacts to ground and/or surface waters.

Historically, most of the mineral activity on the BDNF has been in the locatable category. The Forest contains large areas favorable for a wide variety of locatable mineral resources (Figure 16). The amount of activity that we can expect largely depends on mineral prices. As of the spring of 2007 many metal prices are at fairly high levels, and we are starting to see an increased interest in exploration. Continued high metal prices will likely generate more mineral exploration and probably some mine development. (USD 1996, USDI 2005a, AND USDI 2005b)

Mineral leasing and mineral material sales are discretionary activities. Therefore land designations and use restrictions have a greater impact on the availability of these commodities. Analysis in this section will look at the effect of management designations on the development of minerals. Analysis in other sections in this FEIS will look at the effect of mineral leasing and mineral material sales on other resources.

The 1986 Beaverhead National Forest Plan determined what lands were available for oil and gas leasing and established direction for protection of resources. The Forest Service promulgated regulations for oil and gas leasing analyses and decisions (36 CFR 228 Subpart E). The Beaverhead National Forest (BNF) completed an oil and gas leasing decision (USDA 1996a) and FEIS (USDA 1995c) which complied with the 1990 regulations and amended the 1986 Plan. The FEIS analyzed an array of alternatives ranging from no lands available for lease to many lands available for lease. Under all alternatives, wilderness areas and forest plan recommended wilderness are unavailable for oil and gas leasing. The alternatives also analyzed the use of

different stipulations to protect various resources. Stipulations that varied included No Surface Occupancy (NSO) stipulations, Timing Limitations (TL), Controlled Surface Use (CSU) stipulations or Standard Lease Terms (SLT). This FEIS tiers to the 1995 FEIS and utilizes the analysis of the various alternatives presented in that document.

The 1995 FEIS included a Reasonably Foreseeable Development (RFD) scenario predicting a level of oil and gas development on the Beaverhead for the next 15 years. The levels of effect to various resources from oil and gas development were based on the RFD. The RFD has two parts; a prediction of potential for occurrence and a prediction for potential for development. The 1995 potential for occurrence was based on work by the Bureau of Land Management (BLM) and U.S. Geological Survey (Project File). Both have revised their predictions for potential for occurrence of oil and gas resources on the BDNF slightly since 1995. The occurrence potential map used for this analysis differs from the potential for occurrence map used in the 1995 Beaverhead Oil & Gas EIS primarily in an area of moderate potential on the Gravelly Range has been changed. Neither the 1995 map nor the GIS coverage used for this analysis show any BDNF land with higher than “Moderate” potential for the occurrence of oil and gas. The remaining land shows “Low” or “Very Low” potential. Figure 19 shows areas of moderate potential for oil and gas.

The potential for development presented in the 1995 RFD is based on information such as occurrence potential, past drilling history, price history, remoteness from infrastructure, and leasing history. The 1995 Oil and Gas Leasing EIS Record of Decision pointed out that the economics of oil and gas development are variable. The background information used to predict the 1995 Reasonably Foreseeable Development (RFD) scenario included leasing and drilling numbers from the 1970’s and early 1980’s, a time of higher prices and activity, as well as the information from the early 1990’s, a period of lower activity. Although the 1995 scenario predicted more activity than actually came to pass, interest in leasing increased in the middle of the decades.

For much of the late 1990’ and early 2000s, oil and gas prices were low, and the interest in leasing on the BDNF dropped after an initial spurt of leasing activity in the Lima-Tendoy area in which eight leases were let and subsequently dropped. More recently, oil and gas prices have reached much higher levels. Lands areas considered to have high potential have seen an increase in leasing and development. That increased interest has now extended to the low and moderate potential lands of the BDNF. As of June, 2007, 12 parcels have been leased.

Since the 1995 RFD scenario was based on periods of both high oil price/high leasing interest and low price/low leasing interest, we are using the same assumptions for this FEIS. Since the occurrence potential predictions were basically the same, the Forest Service still is using the same RFD predicted in 1995.

Reasonably Foreseeable Development Scenario (RFD) predicts that there would be a low level of drilling on the Beaverhead NF. The assumption is there could be 10 wildcat and four development wells drilled over the subsequent 15-year period. The majority of wells would be dry holes, thus making the effects short lived, i.e. less than a year. If one of the exploratory wells was successful and found oil and/or gas the effects could last longer. The RFD also predicts that the foreseeable wells would require pads and roads averaging 6.7 acres/well. Reclamation of the site would return the land to a status similar to the pre-drilling condition.

Levels of interest in other mineral resources, including mineral materials and geothermal potential, will likely remain constant.

Key Indicators

- ◆ Acres of land favorable for mineral deposits open to locatable mineral entry
- ◆ Acres of low (as opposed to “very low”) and moderate potential land open to oil and gas leasing

Affected Environment

Lands in the Beaverhead-Deerlodge National Forest were reserved from public domain at the same time as mineral searches occurred in southwestern Montana. The State’s first gold discovery was on Gold Creek in 1852, adjacent to what is now part of the Pintler Ranger District. The first “major” gold discovery at Bannack came 10 years later on lands near the Dillon Ranger District.

The geologic history and complexity of southwest Montana has created an abundance and variety of mineral resources. There are numerous areas considered favorable for various types of locatable mineral resources on the Forest. The U.S. Geological Survey performed an assessment of undiscovered mineral resources for the interior Columbia Basin, plus much of Montana east of the continental divide. The assessment looked at the potential for occurrence of locatable minerals in 30 different deposit models. Seventeen show “permissive” areas and in some cases “favorable,” for mineral deposits on the BDNF. Figure 16 shows areas identified by the U.S. Geological Survey as favorable for mineral deposit types.

Mineral materials are of relatively low unit value, and include sand and gravel, pit-run fill material, building stone, landscape boulders, riprap, and other similar materials. Mineral materials in one form or another can be found on many parts of the Forest, but are of value only in readily vehicle accessible areas.

Because of the unique setting of the BDNF the search for and development of minerals will continue to be an important part of commodity resource-generated activities. Management has been and continues to be linked to the critical issues facing prospectors and mine developers. Land availability and resource protection are focal points in the management of mineral resources.

Some historic mineral exploration and development was performed with little or no concern for environmental consequences. This left many old mining sites that present environmental and safety hazards, although most of the impacts are downstream of Forest boundaries. The Clark Fork drainage, extending from Butte to the Milltown dam near Missoula, constitutes the largest superfund site in the country.

Areas Withdrawn From Mining or Mineral Leasing laws

Wilderness – Wilderness lands are withdrawn from mineral entry subject to pre-existing rights.

Ski areas – A total of 2,002 acres of land are withdrawn from the mining and mineral leasing laws, for ski areas. Of this land, approximately 1,440 acres are considered favorable for polymetallic gold-silver vein and disseminated deposits; all 2,002 acres are considered favorable for polymetallic vein deposits related to porphyries; and 460 acres are considered favorable for

porphyry copper deposits. A total of 807 acres of this land has low oil & gas potential. The remainder has very low potential.

Areas Withdrawn From Mining Laws

Recreation areas – A total of 11,155 acres are withdrawn from mining laws for recreation areas. Of this land, approximately 400 acres are considered favorable for polymetallic gold-silver vein and disseminated deposits; 7,340 acres are considered favorable for polymetallic vein deposits related to porphyries; 40 acres are considered favorable for polymetallic replacement deposits containing lead, zinc, copper and silver as well as gold skarn deposits and skarn deposits containing lead and zinc; 3,550 acres are favorable for porphyry copper deposits; and 1,930 acres are considered favorable for porphyry molybdenum deposits.

Administrative sites – A total of 5,307 acres of land are withdrawn from the mining laws, for administrative sites. Of this land, approximately 200 acres are considered favorable for Comstock-type gold-silver vein deposits and hot spring gold-silver deposits; 75 acres are considered favorable for polymetallic gold-silver vein and disseminated deposits; 3,940 acres are considered favorable for polymetallic vein deposits related to porphyries; 230 acres are considered favorable for polymetallic replacement deposits containing lead, zinc, copper and silver as well as gold skarn deposits and skarn deposits containing lead and zinc; 660 acres are considered favorable for porphyry copper deposits; and 1,150 acres are considered favorable for porphyry molybdenum deposits.

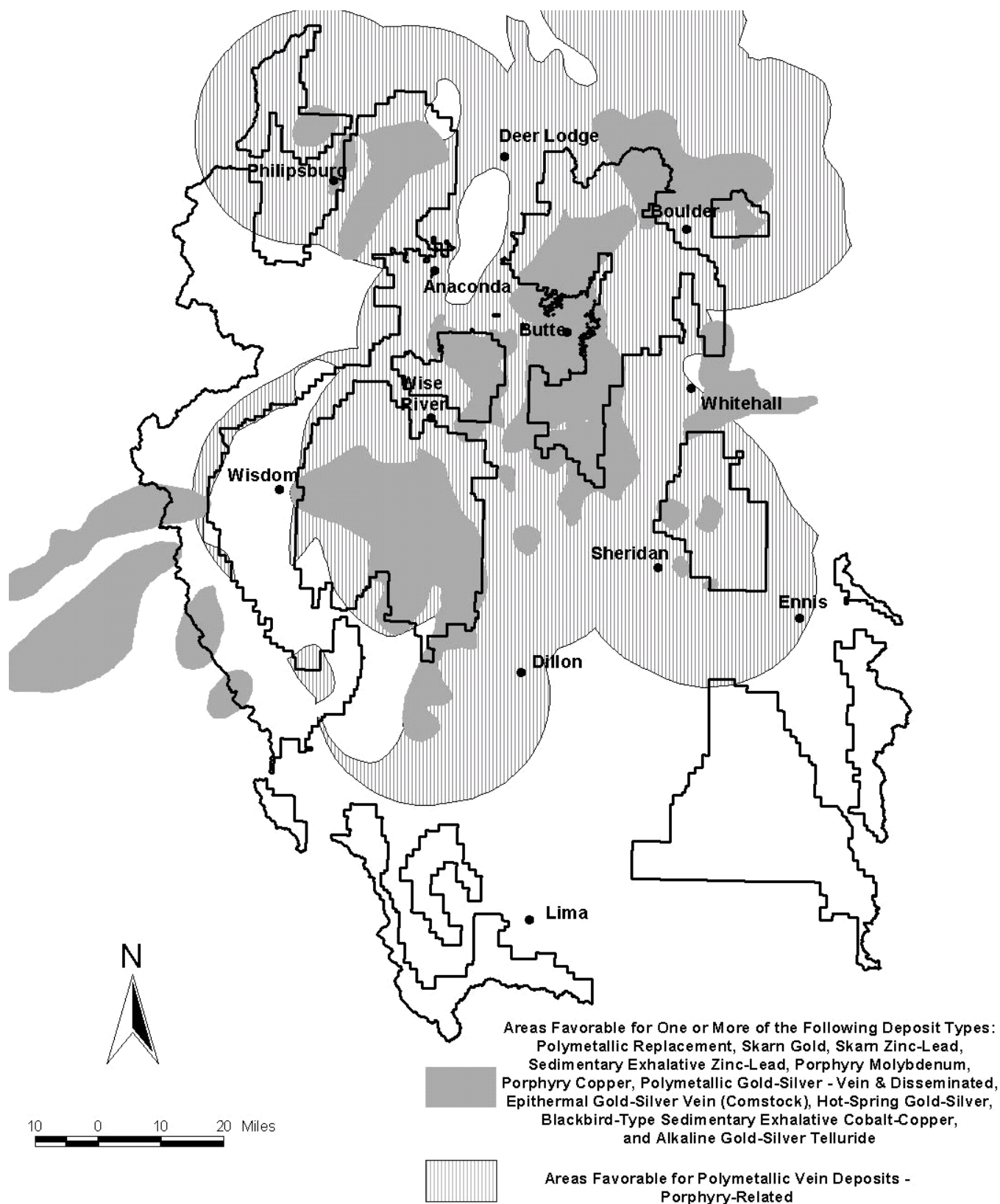
Campground/picnic areas – A total of 3,113 acres of land are withdrawn from the mining laws, for campgrounds and picnic areas. Of this land, approximately 710 acres are considered favorable for Comstock-type gold-silver vein deposits and hot spring gold-silver deposits; 40 acres are considered favorable for polymetallic gold-silver vein and disseminated deposits; 2,340 acres are considered favorable for polymetallic vein deposits related to porphyries; 35 acres are considered favorable for polymetallic replacement deposits containing lead, zinc, copper and silver as well as gold skarn deposits and skarn deposits containing lead and zinc; and 240 acres are considered favorable for porphyry copper deposits.

Ski areas – A total of 2,002 acres of land are withdrawn from the mining and mineral leasing laws, for ski areas. Of this land, approximately 1,440 acres are considered favorable for polymetallic gold-silver vein and disseminated deposits; all 2,002 acres are considered favorable for polymetallic vein deposits related to porphyries; and 460 acres are considered favorable for porphyry copper deposits. A total of 807 acres of this land has low oil & gas potential. The remainder has very low potential.

Special designations areas – A total of 181 acres of land are withdrawn from the mining laws, for special areas. Of this land, all 181 acres are considered favorable for polymetallic vein deposits related to porphyries; and 20 acres are considered favorable for porphyry copper deposits.

Streamside Zones – A total of 129 acres of land are withdrawn from the mining laws, for streamside zones. None of these lands are considered favorable for locatable mineral deposits.

This information is summarized in the map on the next page.



From Box et al, 1996

Figure 16. Summary of Mineral Deposits. (Box et al., 1996).

Locatable Minerals

Locatable or hard rock minerals, include gold, silver, copper, lead, zinc, and molybdenum; along with numerous others. They are a finite resource and are difficult to inventory, explore, and develop. The Montana Bureau of Mines and Geology publishes a map of mining districts in Montana. The BDNF includes all or portions of 81 districts. These old mining districts had informal names and boundaries. By far the largest production has come from the world famous Butte mining district, with well over \$6 billion worth of metals produced. The combined output of all other districts probably does not exceed \$400 million.

In the late 1980s, there were around 10,000 active unpatented mining claims on both forests. That number dropped drastically until there were only 1,770 active claims by the summer of 2004. The decline was due to lower metal prices and the imposition by the BLM of a yearly holding fee to keep claims active. Recently, metal prices have risen well above levels of the past few years and claim numbers and exploration activity has increased.

Gold prices ranged from \$250 to \$400 per ounce until 2005, and recently rose above \$600. For years, silver was \$4 to \$5 per ounce and started rising in 2004, to about \$13 per ounce in mid 2007. Likewise, copper and molybdenum prices rose substantially from the \$0.65 - \$1 per pound for copper to \$3 - \$4. Moly-oxide went from \$5 per pound to \$30 - \$40. Currently there are over 2,700 active unpatented mining claims on the BDNF. Since the Beal Mountain Mine shut down in 1998, there has been very little actual mining activity. However, there are presently at least two exploration programs for potentially large mineral targets.

Since the administrative combination of the Beaverhead and Deerlodge Forests in 1996, an annual average of 33 Notices of Intent and 28 Plans of Operation have been processed under surface use regulations for locatable minerals (36 CFR 228, Subpart A). These numbers vary considerably from year-to-year, and have been on the low end of the scale in recent years for the reasons above dealing with the reduced number of active claims (see the table below). So far, higher metal prices have not translated into higher numbers of notices and plans.

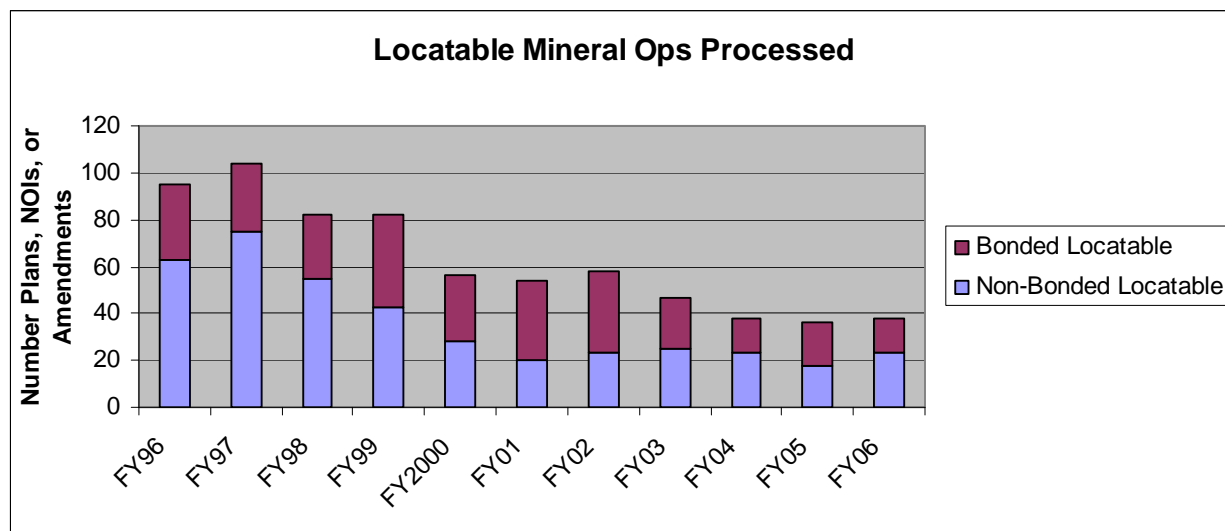


Figure 17 Locatable Mineral Operations

The General Mining Law of 1872 authorizes qualified parties to enter lands open to mineral entry and locate mining claims for locatable minerals and does not allow the Forest Service to

prohibit mining. Both the law and Forest Service mining regulations establish a process whereby the Forest Service evaluates mining proposals in the context of its responsibilities as a steward of National Forest System lands. Reasonable mitigation and reclamation measures must address any significant associated surface disturbance. Site-specific environmental considerations must be addressed when mining activities have the potential to cause significant disturbance to surface resources. Additionally, where there may be significant disturbance, the Forest may conduct a surface use determination to verify whether the proposed activity is reasonably necessary and constitutes the next logical step in the progression from prospecting through development.

Locatable minerals are subject to appropriation by mining claims under the General Mining Law of 1872. This law provides U.S. citizens with the right to prospect, explore, and develop these minerals on public domain lands, which include lands reserved to the National Forest System by virtue of the Organic Administration Act and provides for reasonable vehicle access to conduct these activities. Reasonable vehicle access depends on the stage of exploration or development, and can range from unimproved vehicle access by foot, to unimproved temporary road vehicle access for prospecting or drilling, to a more permanent improved road for full-time mine operations.

There is a great deal of interest in recreational mining, which includes prospecting, gold panning, and crystal or sapphire digging. What the public sees as a recreational activity is actually covered by federal mining laws and regulations, particularly when impacts become significant. Consequently, recreational mining is most logically covered under locatable minerals especially when impacts to surface resources become significant.

Saleable Minerals

Saleable or common variety minerals include sand, gravel, stone, and clay. Saleable minerals are abundant and are generally extracted from designated sites or from broad, general areas. Along with the traditional requests for sand and gravel, we are starting to see more interest in building and landscaping stone. Several districts have let small contracts or permits for decorative rock in the past few years.

Laws authorizing the method of disposal for locatable and saleable minerals differ considerably in the degree to which they allow the Forest Service to manage impacts associated with developing either type. In contrast to the 1872 Mining Law, Congress gave the Forest Service, through the Secretary of Agriculture, the discretion to dispose of saleable minerals by sale or by free use permit. In this context, the Forest Service has ultimate discretion over whether such disposals are made. Removal of saleable minerals is at the sole discretion of the Forest Service. The value is dependent upon the market, quality, and vehicle accessibility for extraction and transportation. The Forest Service is the primary user of borrow pit material for construction and maintenance of forest roads and facilities.

Since the combination of the Beaverhead and Deerlodge Forests in 1996, the annual average number of free use mineral material permits has been nine for approximately 14,000 tons of material. The charge permits have averaged seven per year for over 5,000 tons of material. The average yearly in-service use of mineral materials has been nearly 12,500 tons. The yearly number of permits and volumes varies widely and is hard to predict for the future (see the table below). In 2003 a back payment for 2,550,000 tons of material removed from the NFS portion of

the Anaconda lime quarry was paid to the BDNF. This figure is not included in the averages above.

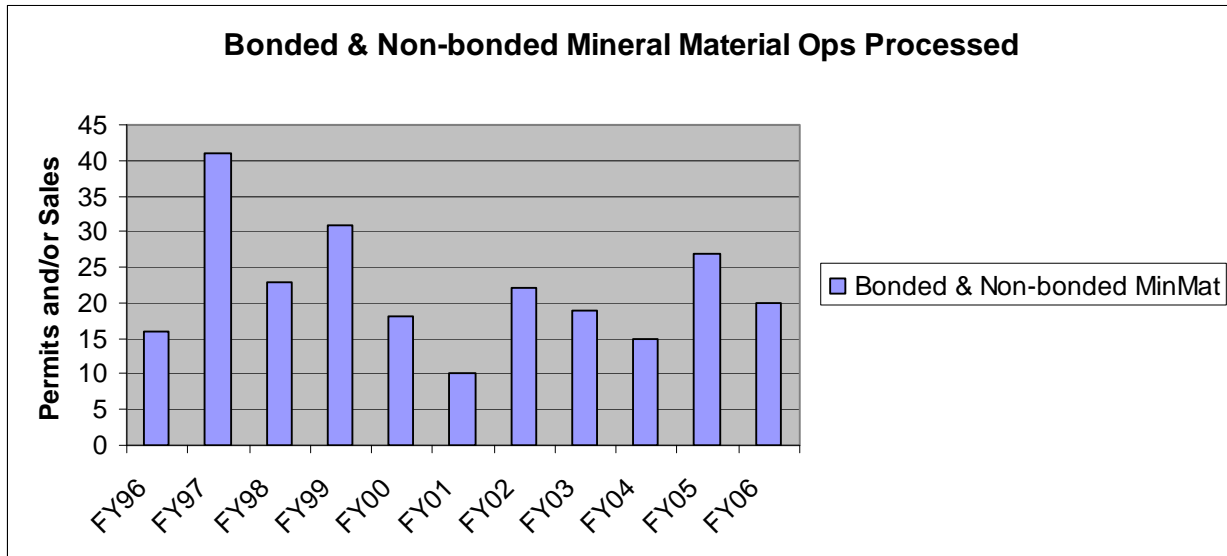


Figure 18. Mineral Operations Processed

Leasable Minerals

Potentially, the BDNF contains a variety of leasable minerals, including oil and gas, coal, phosphate, and geothermal resources.

Most of the forest lies in the Montana Thrust Belt Province. The basic setting consists of numerous thrust sheets and intrusive bodies. Areas of interest for oil and gas leasing include the Blacktail Salient Oil Play which includes a portion of the Tendoy Mountains and the Tertiary Basin Oil and Gas Plays contained in the Big Hole and Deer Lodge valleys. In addition, the Beaverhead River Basin and the upper Ruby River Basin are believed to contain sediments with source and reservoir potential.

Permits and leases to companies for oil and gas exploration have been issued in the past. Over the years, several wells have been drilled in the Forest vicinity, but only three within the Beaverhead Unit and none within the Deerlodge. All were dry. Reclamation following drilling successfully restored the sites. During the 1980's, most available Forest lands were under leases. All leases issued in the 1980s have terminated. A few new leases were issued after the 1995 Beaverhead Oil and Gas Leasing EIS, but have since lapsed. As oil prices rose in 2007, twelve parcels were leased on the BDNF. As of November 2007, there were 27 authorized federal oil and gas leases in Beaverhead and Madison Counties covering 36,384 acres.

Certainly, any discovery in southwest Montana, on public or private land, could result in more leases and possibly applications for permits to drill (APDs).

In the past, favorable sites on both the Deerlodge and Beaverhead Forests were under lease for phosphate. Mining companies dug trenches or drove adits into the mountains to extract test shipments of phosphate. In the 1950's, the U.S. Bureau of Mines also carried out an extensive trenching and sampling program. Because of low prices and better availability from other

sources, all of the phosphate leases have lapsed. The Forest contains a sizable phosphate resource, but the economics are not favorable for more development in the foreseeable future.

There are also some small areas with low-grade coal potential. The only coal lease on the BDNF in the Gravelly Range lapsed in the 1990's. The low quality, limited volume, and shallow burial of the known coal resources on the Forest indicate very low potential for coal bed natural gas, and little likelihood of further coal leasing in the foreseeable future.

There are some known geothermal areas in the vicinity, but most are outside the Forest boundary. Exceptions include Elkhorn Hot Springs north of Polaris, Potosi Hot Springs near Pony, a small area south of Boulder, and the area along the western front of the Madison Range (see Figure 20). Temperatures in these areas are considered insufficient for power generation, and are used for swimming pools and heating greenhouses.

Abandoned Mine Lands (AML) Program

In 1992, the Northern Region of the Forest Service entered into the first of a series of participating agreements with the Montana Bureau of Mines and Geology (MBMG) to carry out an inventory and preliminary characterization of abandoned and inactive mines in Montana that might have environmental health and/or safety problems either on or affecting USFS lands.

In 1993, the Montana State Office of the BLM entered into a similar agreement with the MBMG. As a result of the inventory, the abandoned inactive mines database now contains over 8,000 records and includes information on location, ownership, office and field screening results, and water and soil sampling results.

Two of the program goals as they pertain to the BDNF, were to develop preliminary screening criteria to assess the effects of abandoned and inactive mine sites and to categorize sites based on their individual and cumulative effects on other resources and the human environment. In the northern zone of the BDNF, 1,057 abandoned or inactive mines were identified. Of these, 99 sites were determined to have sufficient effects on water, soil, and fisheries to be classified as Superfund sites. The inventory also identified a number of hazardous mine openings and structures. An inventory of the southern zone of the BDNF begun in 1995, identified 287 abandoned mine sites. Forty-six of these sites were determined to have sufficient effects on the water, soil and fisheries to be classified as Superfund sites.

In the area between the towns of Basin and Rimini, the Forest Service and State of Montana are working with the EPA to clean up early day mining wastes and place them in a common repository located within a recent (1990s) pit created by the Basin Creek Mine on the drainage divide between the Beaverhead-Deerlodge and Helena National Forests. This joint repository is the first of its kind in the country, and due to the joint agency involvement, is being used to handle mine wastes from both public and private lands. The number of sites, combined with budget constraints for both agencies, will take many years to address completely.

Under Regional guidance, we attempt to address the largest problem areas under a watershed approach. We have selected drainages with extensive mining impacts, and are taking action to reduce or eliminate environmental problems associated with old mine and milling wastes. This involves removal of wastes and placing them in repositories that isolate them from the environment.

Acid mine drainage (AMD) from old mine workings presents more of a problem than can adequately be addressed by current technology. Efforts have been made to divert these drainages into wetlands where possible, which provide some measure of pH adjustment and metals attenuation. Active water treatment necessary to fully ameliorate the effects of AMD is not an option in most cases because of remote locations, power requirements, and cost of treatment.

In addition to work with the environmental hazards left by mining activity, the Forest has an on-going program to close hazardous mine openings. Prior to closure, bat surveys are performed to make sure we are not eliminating desirable habitat. Where bats use old mine openings, bat-friendly gates are installed rather than full closure. All sites are evaluated for historical significance and mitigation measures are applied, as needed.

Although most of our mine remediation efforts have been directed toward historic mining activity, the bankruptcy of Pegasus Gold Corporation in 1998 has caused the diversion of a large part of our remediation funds to reclamation of the Beal Mountain Mine on Butte Ranger District. Problems identified at Beal subsequent to the bankruptcy have run reclamation/ remediation expenses far beyond the reclamation bond posted for the mine. In order to cover these unanticipated expenses, the Northern Region of the Forest Service and the Montana Department of Environmental Quality (DEQ), reached an agreement to share reclamation/ remediation costs. For the duration of that agreement, the reclamation costs exceeded twice the original bond amount of \$6.5 million. In February of 2004, the Forest and DEQ jointly agreed to terminate our agreement to share costs. The Forest Service is responsible for continuing remediation actions at the site that including evaluating long-term operation, monitoring, and maintenance of the site.

Other Geologic Interests

The range of exposed geologic formations goes from Archean to Paleozoic and Mesozoic to Cenozoic. These formations include a variety of sedimentary, volcanic, and igneous intrusive rock types. Many of the Paleozoic and Mesozoic formations of marine origin may contain invertebrate fossils of interest to recreational fossil collectors. Mesozoic, Tertiary, and Quaternary age strata of continental, lacustrine, or fluvial origin may contain scientifically important vertebrate fossils.

The quality and quantity of paleontological resources that may be present is not known. An extensive inventory would be necessary to identify the areas of highest interest and need for proactive management. In 2006, a previously unknown species of burrowing dinosaur was found on the Forest by a team of Montana State University paleontologists. This discovery received national attention. Not only is it a new species, but it's the first dinosaur known to have use a burrow. Specific federal regulations cover protection of vertebrate remains. All vertebrate and significant invertebrate fossils can only be removed from National Forest System lands for non-commercial uses with a special use permit. Casual collection of invertebrate and plant fossils does not require a permit.

There are numerous caves and other karst features present on the Beaverhead-Deerlodge Forest. These features are of scientific and recreational interest. Many of the delicate formations in vehicle accessible caves have been vandalized by thoughtless people. The Forest hopes to control vehicle access to these sites and only allow responsible groups and individuals to enter them.

This is necessary for protection of the resource and public safety, as some of the caves have vertical drops and areas of loose rock.

There is also a portion of an ancient meteor impact site in the Medicine Lodge Creek area. This site is evidenced by shatter cones which are a result of the impact of the meteor with the ground surface. The same result, on a smaller scale, happens if you hit a rock with a heavy hammer hard enough to break it. The rock tends to break away in a cone-shaped pattern, radiating from the point of impact.

This particular impact site predates the famous event that closed the Age of Dinosaurs, 65 million years ago. Analysis of the affected and unaffected rocks in the vicinity indicates a Late Proterozoic impact date of 850 to 900 million years before present. The original impact crater is estimated to have been over 100 miles in diameter (Carr & Link, 1999). Later geologic processes have either removed or concealed much of the original impact area.

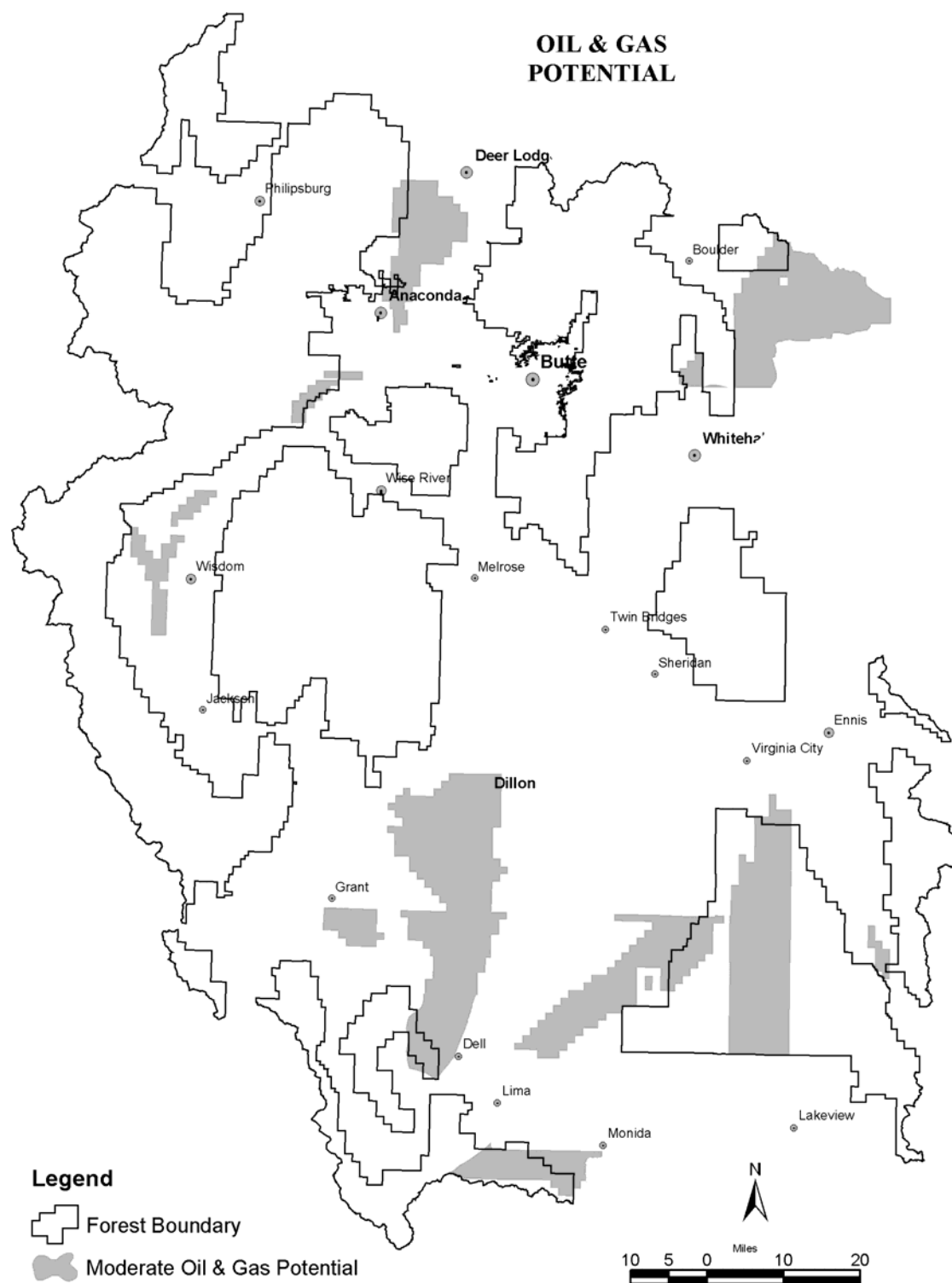


Figure 19. Oil and Gas Potential - Areas not shown as moderate potential are low or very low potential.
Source: R1 Oil and Gas Potential Map

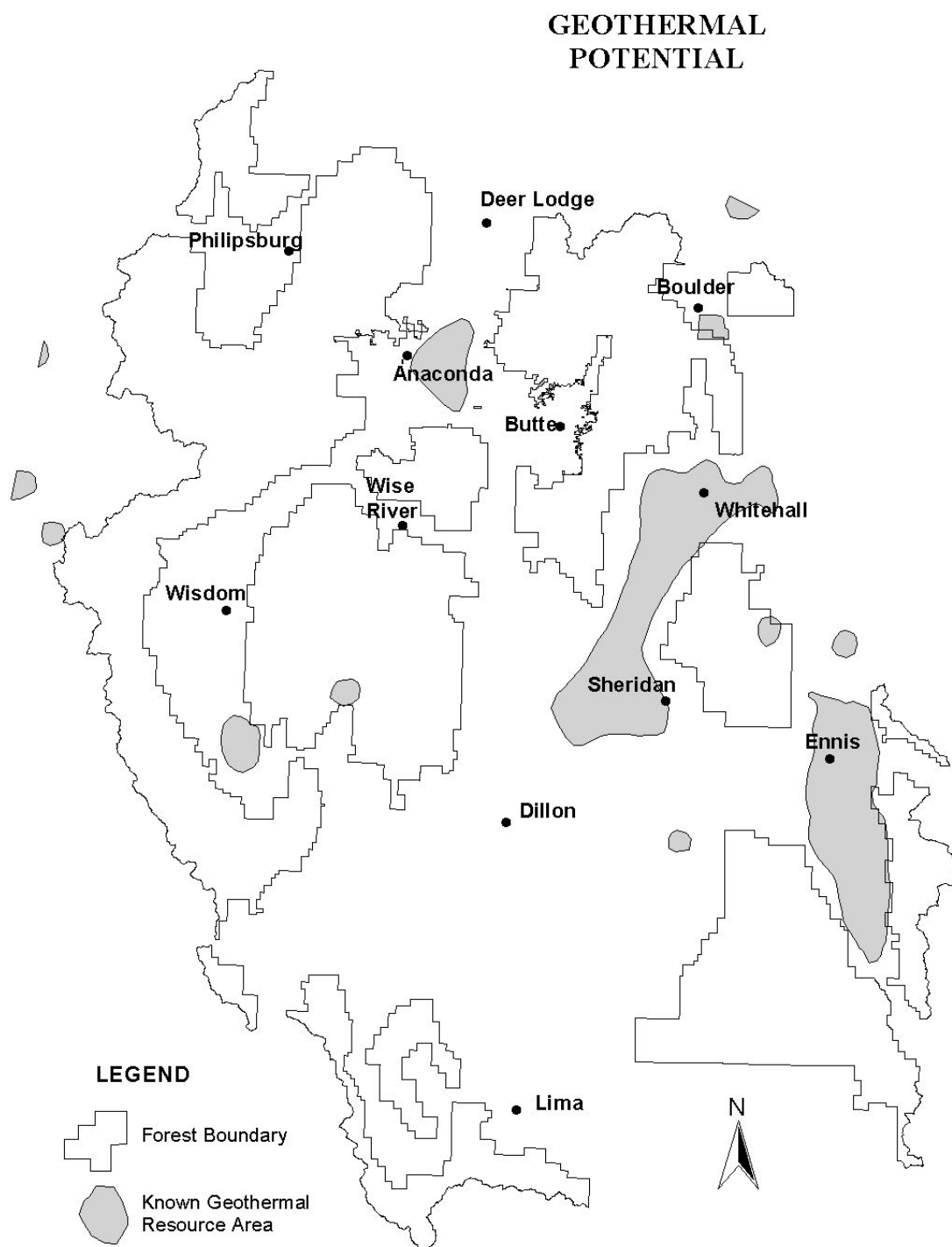


Figure 20 Geothermal Potetntial in Southwest Montana: Source: R1 Minerals Unit

Environmental Consequences

Summary of Effects by Alternative

From a mineral resource standpoint, the best alternative has the most area open to development and least management restrictions. Availability of land favorable for mineral deposit occurrence is a primary consideration. Following the availability question is the level of restriction and mitigation applied to operations in different management areas. Restrictions and mitigation increase costs and have a direct effect on the economics of a deposit whether locatable, leasable, or saleable.

Locatable Minerals: In terms of land availability for locatable minerals, Alternative 4 is the most favorable. Alternative 1 would be next, followed by Alternatives 5, 2, and 6, and Alternative 3 would be the least favorable. Table 78 shows acres of land in recommended wilderness compared with the mineral deposit information displayed in Figure 16.

Table 78. Acres of Recommended Wilderness by Alternative in Areas Favorable for Locatable Minerals

Recommended Wilderness Acres in Areas Favorable for Locatable Minerals						
Deposits	Alt 1 Acres	Alt 2 Acres	Alt 3 Acres	Alt 4 Acres	Alt 5 Acres	Alt 6 Acres
Polymetallic Replacement, Skarn Gold and Skarn Zinc- Lead	1,800	1,900	9,100	0	1,800	4,000
Sedimentary Exhalative Zinc-Lead	0	0	11,000	0	0	11,000
Porphyry Molybdenum	80,000	80,200	99,600	0	74,200	84,000
Porphyry Copper	0	0	21,900	0	0	13,400
Polymetallic Vein Deposits - Porphyry-related	81,200	83,500	226,100	0	97,500	126,700
Polymetallic Gold-Silver Vein and Disseminated	23,100	20,700	43,000	0	0	0
Epithermal Gold-Silver Vein and Hot Spring Gold- Silver	0	0	Negligible	0	Negligible	0
Blackbird-Type Sedimentary Exhalative Cobalt-Copper	0	0	10,900	0	0	10,500

** Box, S.E., et al. 1996. Assessment of undiscovered mineral resources in the Pacific Northwest: a contribution to the interior Columbia Basin ecosystem management project: U.S. Geol. Survey Open-File Report OF 95-682, 432 p., with GIS mineral potential model maps.*

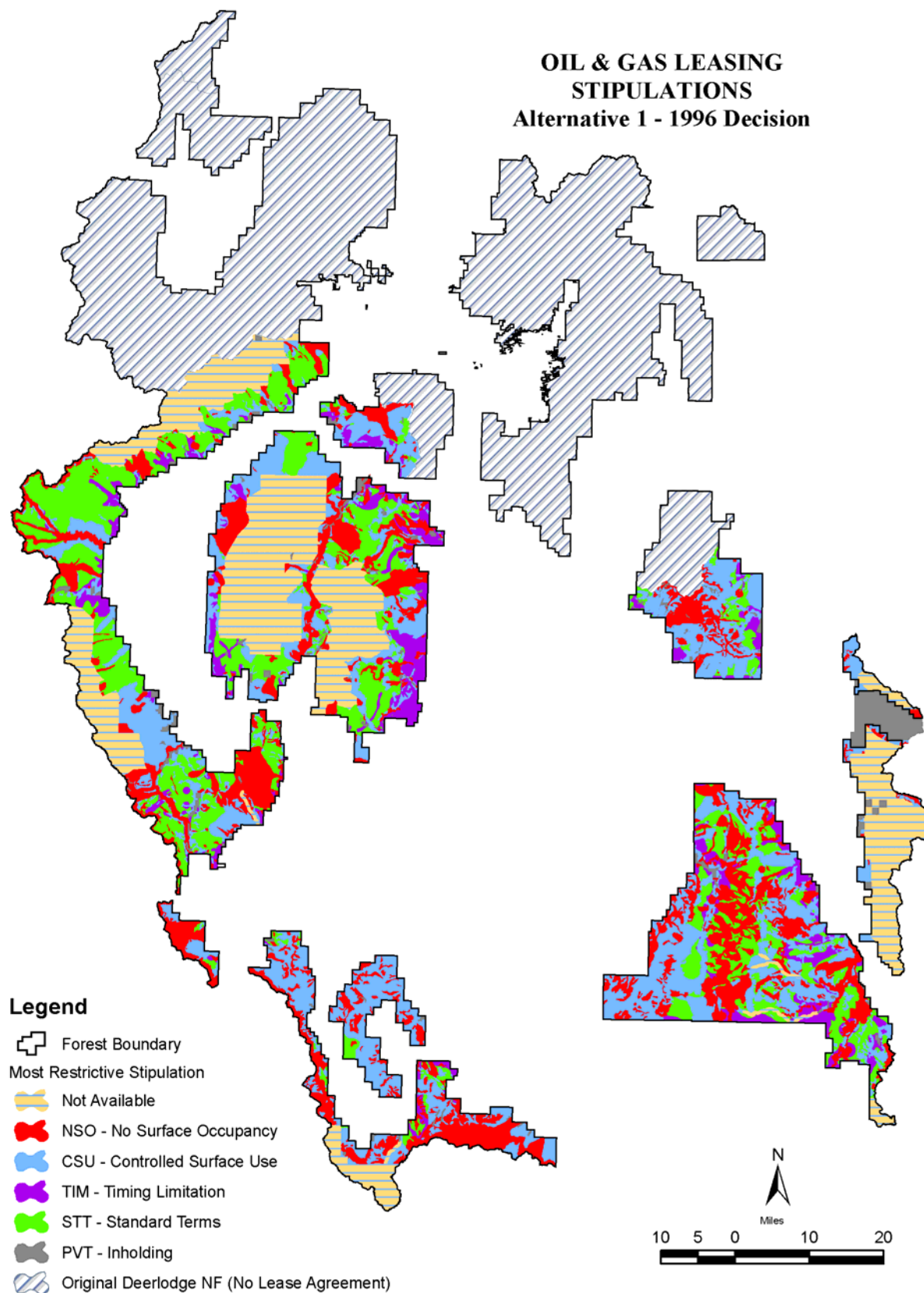
Oil & Gas Leasing: The 1995 Beaverhead National Forest Oil & Gas Leasing FEIS and 1996 Record of Decision identified lands available for leasing and stipulations that would apply to available lands. This analysis looks at land availability and stipulations, verify whether they are still appropriate and if so, where the stipulations will apply. The following list contains the types of restrictions from the most to the least restrictive:

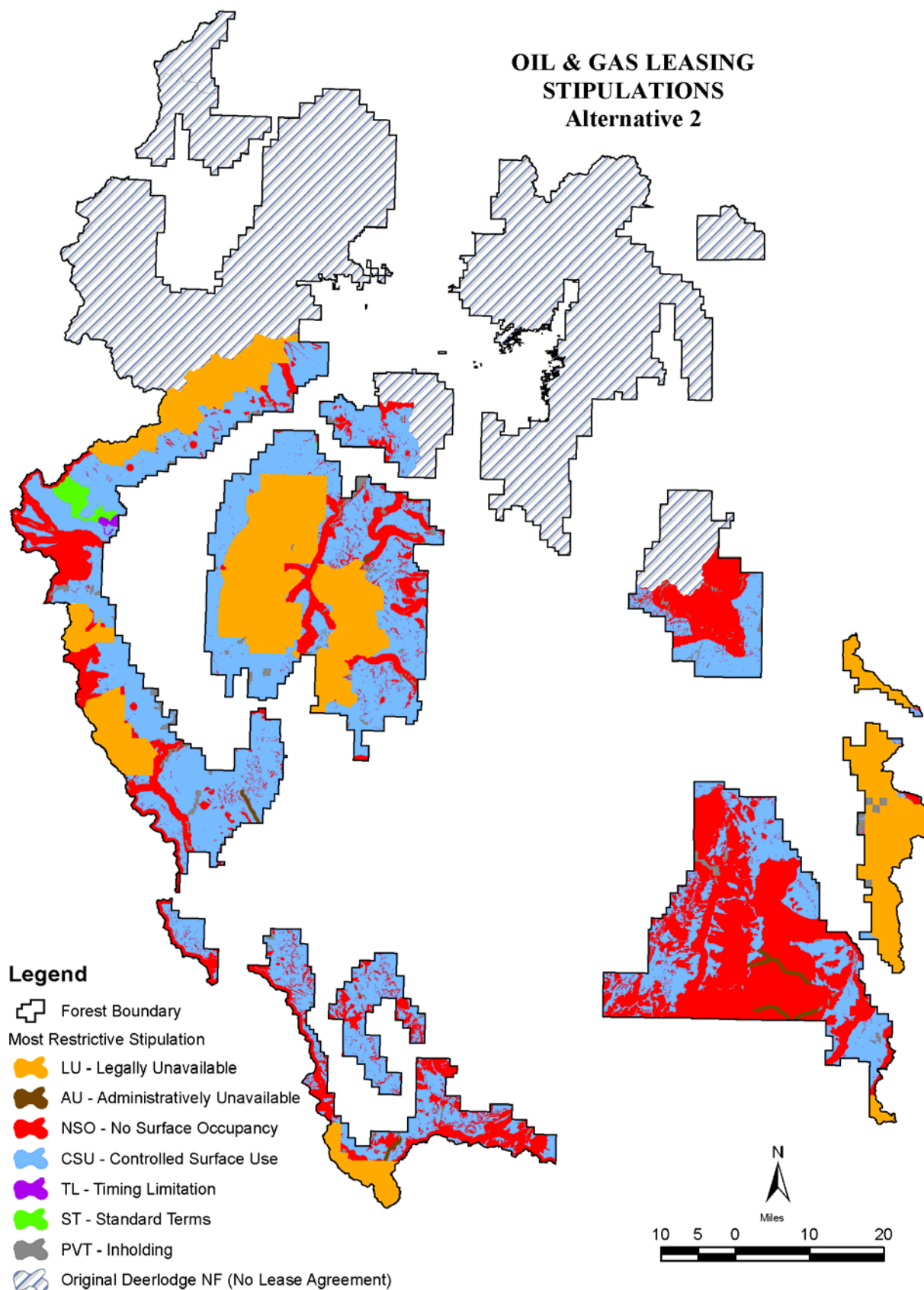
- “Not Available” (NA) - Whether legally or administratively unavailable, the area will not be leased;
- “No Surface Occupancy” (NSO) stipulation allows leasing, but use or occupancy of the surface for fluid mineral exploration or development is prohibited;
- “Timing Limitation” (TL) stipulation prohibits fluid mineral exploration and development activities for certain time periods;
- “Controlled Surface Use” (CSU) stipulation to be used when fluid mineral occupancy and use are generally allowed on all or portions of the lease area year-round, but because of special values or resource concerns, lease activities must be strictly controlled;
- Standard lease terms, (ST) applicable to all lands approved for leasing.

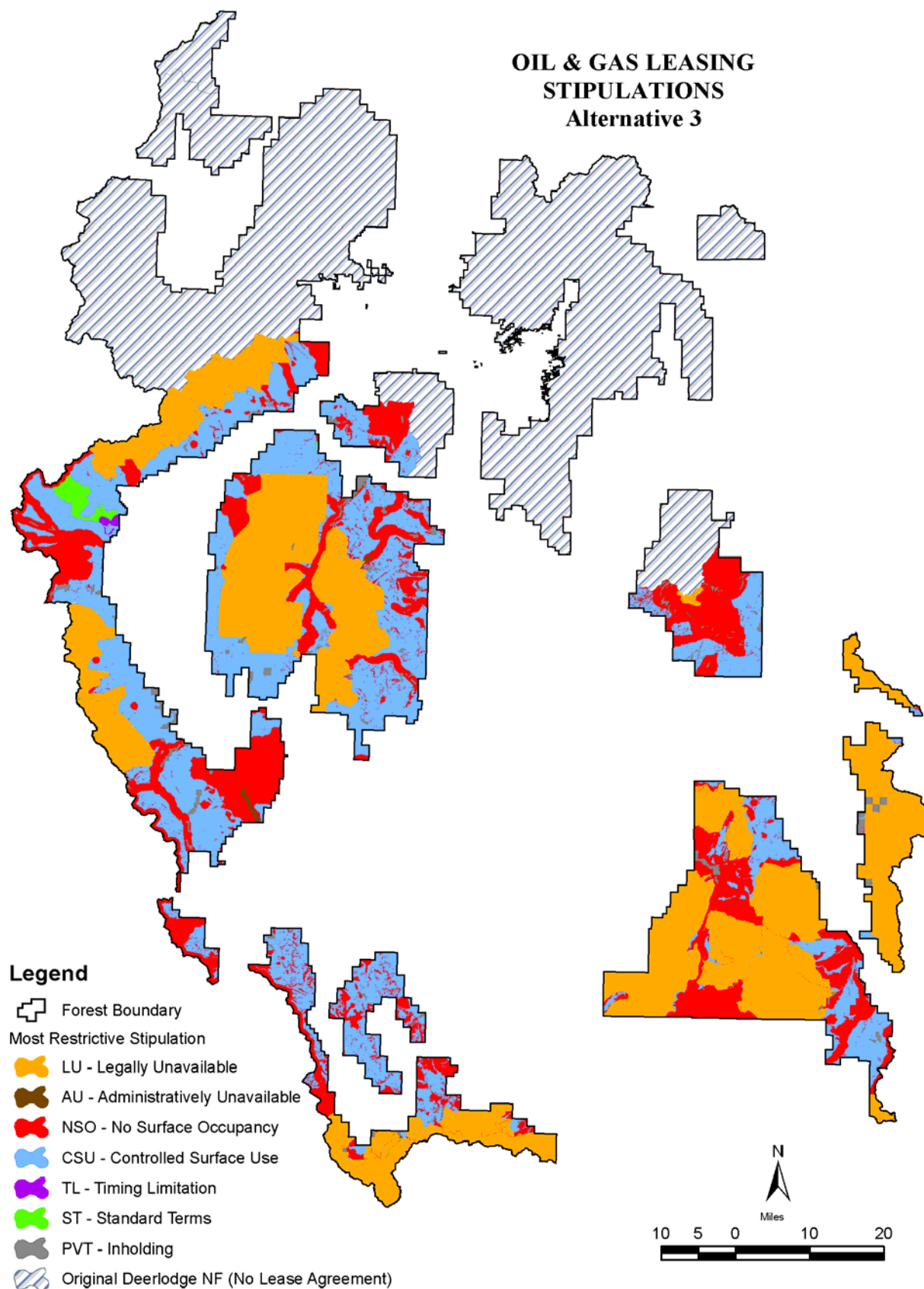
The type of stipulations for areas open to oil and gas leasing will not vary between Alternatives 2 through 6. Direction was modified from the 1996 ROD for grizzly bear, fisheries, and scenic resource protection. Changes from new information about a stipulated resource or changed land classifications have changed the number of acres stipulated. For example the acres have changed from the 1996 decision because the latest resource surveys were used to calculate areas. NSO wildlife, fisheries, soils and heritage stipulations will not vary by alternative. Wildlife timing limitation stipulations will not vary by alternative either. CSU wildlife, fisheries, and most recreation stipulations will not vary by action alternatives (2-6).

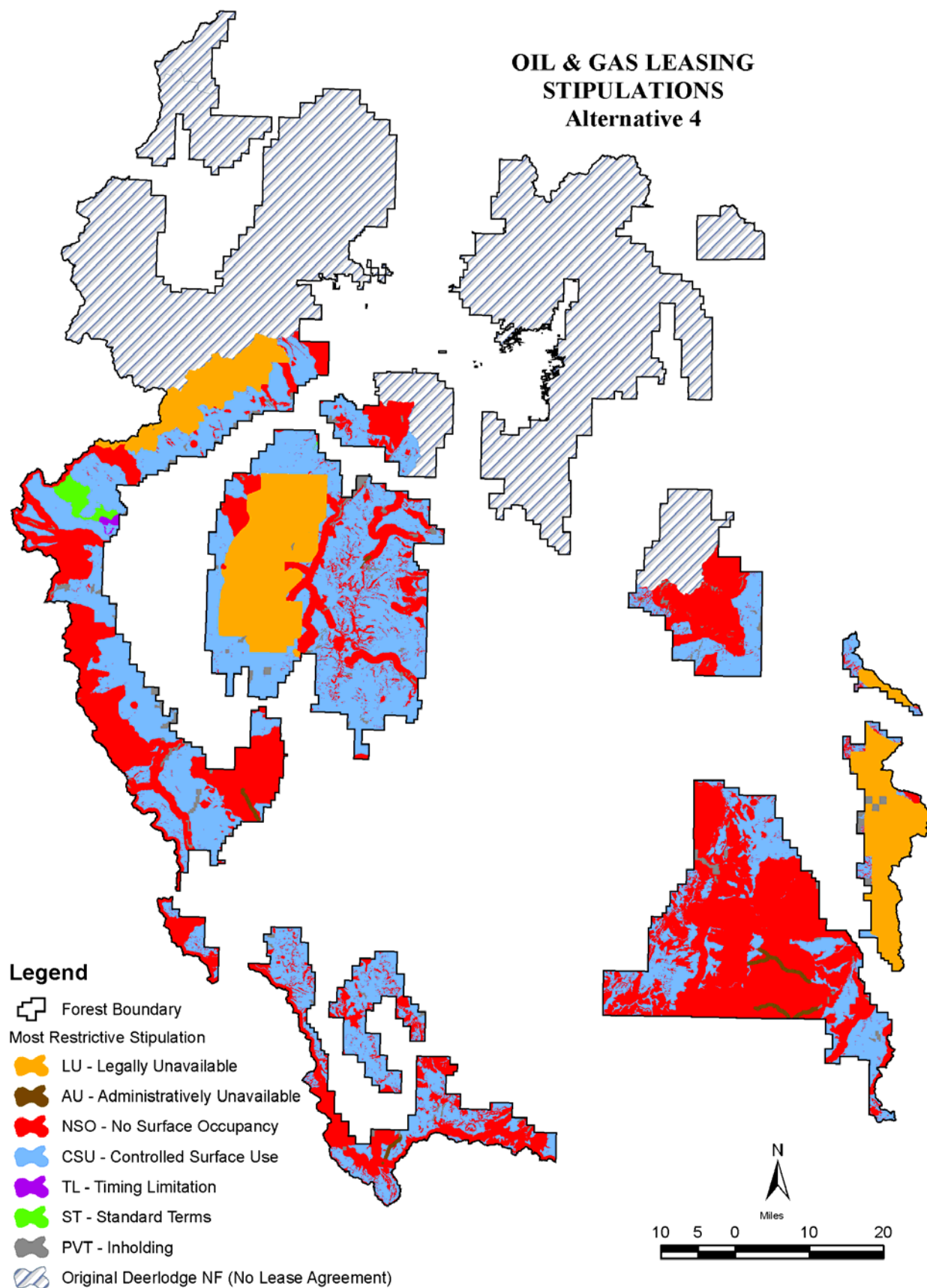
A new CSU stipulation was used to cover leasing of inventoried roadless lands due to lawsuits regarding what kind of activities may or may not take place in these areas. Stipulations are listed and described in Appendix B of the revised plan.

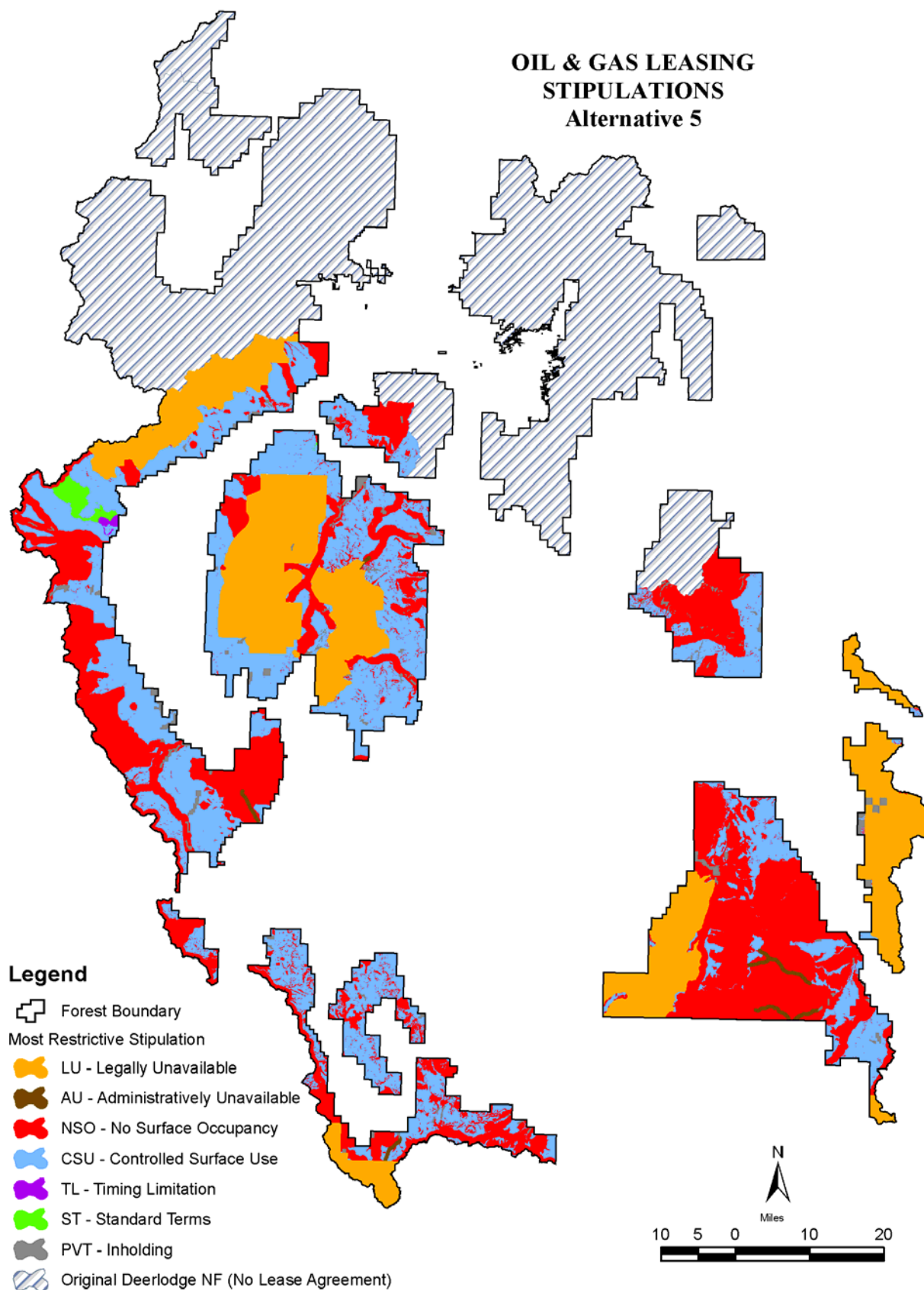
Stipulations are mapped by alternatives on the following pages.

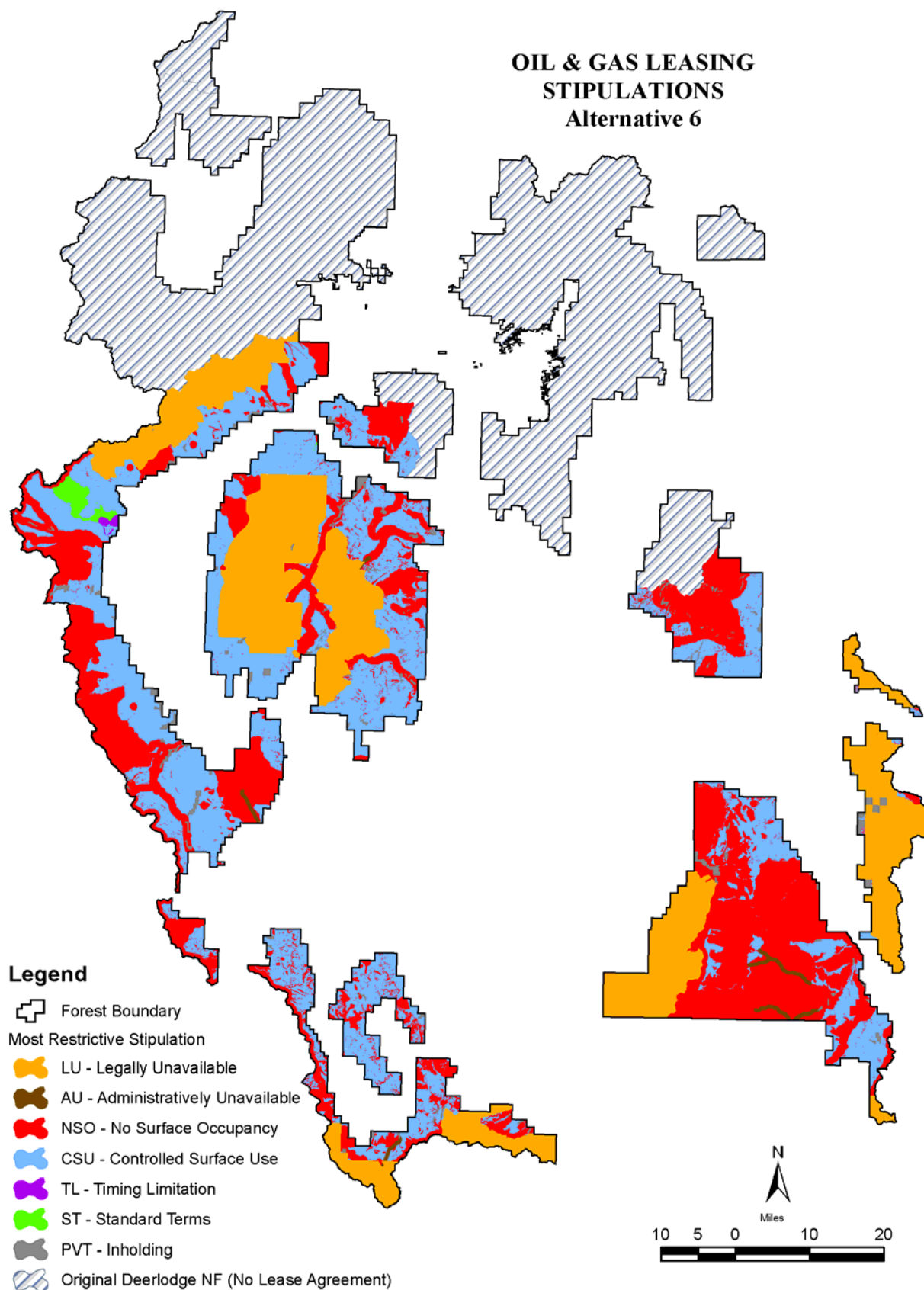












Alternative 4 is the most favorable in terms of land available for oil and gas exploration and development, followed in order by Alternative 1, 2, 5, 6, and 3. Land available for leasing under a No Surface Occupancy (NSO) stipulation may be at least partially available for exploration and development through use of angled drilling techniques. Alternative 1 (the existing condition) has the most land available for actual oil and gas occupancy. The following table shows restrictions on land for moderate, low, and very low potential for oil and gas by alternative. As previously stated, none of the BDNF is considered to have high potential.

Table 79. Acres of Land Available for Oil & Gas Leasing (Beaverhead Portion Only) by Alternative

Decision/Stipulation and Potential	1996 O&G Decision	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Legally Unavailable Moderate & Low Potential	244000*	225600	506900	186500	304900	348200
Legally Unavailable Very Low	268000*	296600	389100	144200	255500	258000
Administratively Unavailable Moderate & Low Potential	*	5900	100	5900	5900	5900
Administratively Unavailable Very Low	*	4700	2200	4700	4700	4700
No Surface Occupancy Moderate & Low Potential	329000	362400	194700	403100	348600	326000
No Surface Occupancy Very Low	150000	274700	304900	459100	423800	413700
Timing Limitation Moderate & Low Potential	**	1700		1700	1700	1700
Timing Limitation Very Low	**	400	400	400	400	400
Controlled Surface Use Moderate & Low Potential	474000	397700	289900	396100	332200	311600
Controlled Surface Very Low	268000	575100	455000	543200	467200	474700
Total Beaverhead Acres	2,149,000	2,144,900	2,144,900	2,144,900	2,144,900	2,144,900

* Legally & Administratively Unavailable combined in FEIS for 1996 decision.

** Timing not analyzed in FEIS for 1996 decision.

Data Source for 1996 Decision Column: Beaverhead Oil & Gas Leasing FEIS, page II-8.

Saleable: Exploitation of mineral materials will only take place within lands designated as motorized. Non-motorized lands include designated wilderness, recommended wilderness, and other forest lands designated as non-motorized. There may be additional restrictions placed on uses in motorized lands. Table 80 compares the alternatives based on percentage of land

unavailable under a non-motorized designation. Based upon the amount of non-motorized allocations, Alternative 1 is the most desirable for mineral material use based on number of acres available, followed in order by 4, 2, 5, 6, and 3.

Table 80. Non-Motorized Land, Acres of Land Unavailable for Leasing of Mineral Materials

Non-motorized	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6*
Acres	994,485	1,335,877	1,983,910	1,227,218	1,536,705	1,352,567
Percent of BDNF	29%	39%	59%	36%	45%	40%

**Alternatives 1-5 non-motorized allocations include some portions of wilderness study areas. Alternative 6 non-motorized allocations do not include wilderness study areas.*

Effects Common to All Alternative

Certain restrictions and mitigation measures that may limit operations or increase costs are constant across all alternatives. Regardless of the alternative, mineral operations have to comply with federal and state laws and regulations. These include but are not limited to laws such as Clean Water Act, or Endangered Species Act. All sites must have a reclamation plan and many operations require a bond.

A proposed oil or gas well can be moved 200 meters or 60 days in time even under standard lease terms. Best management practices are used at the Application for Permit to Drill point to help minimize effects from oil and gas development. The standard terms included with every oil and gas lease state if a threatened or endangered species is observed, the lessee shall cease an operation that would result in the destruction of such species. Also, a lease notice is attached to every Region 1 lease to notify operators a biological study may be required prior to surface disturbance if threatened or endangered species or their habitat are present. Any proposed operations will have to be located or conducted in such a manner as to maintain viability of these species.

The lease notice mentioned above also notifies an operator a biological study may be required before surface disturbance if a sensitive animal or plant species or their habitat is present. See the last pages of Appendix B for an example of the Lease Notice. Any proposed operations will have to be located or conducted in such a manner as to maintain viability of these species.

Locatable minerals can be developed per the direction in the 1872 Mining Law, Forest Service regulations, and other pertinent laws and regulations on all areas of the BDNF not withdrawn from locatable mineral entry. Therefore, there should be minimal difference in the level of development between alternatives.

Effects on Minerals and Geology from Aquatic Resource Management

Protection of water quality and compliance with the Clean Water Act is required of mineral operations in all alternatives. Under Alternatives 3, 4, 5, and 6 the entire watershed containing westslope cutthroat Conservation populations are under CSU stipulations for oil and gas leasing. Under Alternatives 3, 4, 5, and 6 the Fish Key Watersheds have an NSO stipulation which precludes location of oil and gas wells as shown in this table.

Alternative 1 and 2 do not specify key watersheds. Effects on mineral operations would be the same as described in the Oil and Gas EIS (USDA 1995c).

Table 81. Acres of Land under NSO Stipulation for Oil & Gas Leasing for WCT Protection

Oil & Gas Potential	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Low	8,060	8,060+	55,830	55,830	55,830	40,470
Moderate	1,510	1,510	25,980	25,980	25,980	23,120

Effects on Minerals and Geology from IRAs and NWPS Additions

Should the areas recommended for wilderness become designated by Congress, they would be closed to further mineral entry, and no locatable mineral development could take place upon them unless they could be shown to have preexisting mining claims with valid discoveries. Wilderness recommendation alone removes lands from consideration for leasing and mineral materials use. Effects in order from most to least would be from Alternatives 3, 6, 5, 2, 1, and last 4.

Effects on Minerals and Geology from Livestock Grazing Management

The effects of allocating suitable rangeland are the same for all alternatives including Alternative 1, the No Action Alternative. Any suitable rangeland decisions are not expected to adversely or positively affect Minerals and Geology to any degree. Fencing of some operations may be required both for protection of the livestock and the good of the operation.

Effects on Minerals and Geology from Recreation and Travel Management

For saleable minerals, development can only take place within areas designated for motorized use. A non-motorized designation essentially eliminates the opportunity to exploit mineral materials. Since quarries and borrow pits create visual impacts, many vehicle accessible sources may be off limits to potential purchasers due to proximity to scenic roads and trails. In addition, the requirement for road reclamation to preexisting condition under travel management increases expenses for locatable mineral operations.

Recreation use and mineral activity might generate conflict. If areas of interest to recreationists coincide with areas of proposed mineral activity, controversy, permitting delays and additional expense to operators can result.

Effects on Minerals and Geology from Scenery Management

For oil and gas leasing, the scenery related stipulations in Revised Draft Forest Plan Appendix B have been modified from the existing situation, Alternative 1, to reflect the changes to the Forest Service Visual Management System. Conversion to the new system resulted in additional acres being stipulated as NOS. Alternatives 2 through 6 also stipulate controlled surface use for moderate scenic integrity areas.

Alternatives 2 through 6 results in an increase in acres stipulated as shown on Oil & Gas Leasing Stipulations mapped by alternative on pages 415 through 420. Because a broad area is stipulated there may be opportunities to maintain the scenic integrity and still permit oil and gas operations. Exceptions to NSO and/or CSU stipulations can be granted if an operator can demonstrate the objectives for scenery can still be met.

Effects on Minerals and Geology from Timber Production

The effects of allocating suitable timberland are the same for all alternatives including Alternative 1, the No Action Alternative. Any of the suitable timberland decisions are not expected to adversely or positively affect Minerals and Geology to any degree.

Any conflicts between timber management and mineral activity would be of short duration, and could likely be resolved with limited impact.

Effects on Minerals and Geology from Vegetation Management

The effects of vegetation management are the same for all alternatives including Alternative 1 the No Action Alternative. It is not expected that any of the vegetation decisions being made will adversely or positively affect Minerals and Geology to any degree.

Site-specific reclamation requirements for specific seed mixes, shrubs, trees, etc. could increase costs.

Effects on Minerals and Geology from Fire Management

Alternative 1 limits wildland fire use to existing wilderness areas, and therefore, there is little or no effect to minerals or geology. The effects of increasing the area available for wildland fire use cannot be quantified but may be discussed in terms of risk. The assumption is the more areas available for wildland fire use the more likely of an adverse impact to a mineral activity. However, this is not a good analysis assumption because the program and prescription developed require the protection of property including mining claims.

Although alternatives 2 thru 5 increase greatly the areas available for wildland fire use, the impact to mineral or geology is expected to be low because of the guidelines required of the program. It is more likely that impacts would come from wildfires.

Effects on Minerals and Geology from Wildlife Habitat Management

The effects of wildlife management, including timing restrictions and avoidance of specific sites for wildlife protection, can increase time to permit and the cost of mineral operations.

Protection of wildlife and compliance with ESA is required of mineral operations under any alternative.

Cumulative Effects

Cumulative effects from mineral activities in the analysis area, southwest Montana, will depend greatly on the market prices. Oil and gas leasing and subsequent attempts at discovery and development will depend upon the prices for those commodities and industry's interpretation of how favorable the area is for discovering new resources. Much of the area considered to have moderate potential in the Forest vicinity is on private or BLM-managed land. Since industry's interpretation of favorability may not exactly coincide with the interpretations provided by the BLM and USGS, some of the lands identified as having "low" favorability by the latter may still be of interest for leasing. The lands shown as having "very low" favorability will most likely not be of interest to industry for leasing.

Locatable mineral development will likewise depend upon the prices these commodities are bringing. In addition to the prices, regulatory framework is a consideration for companies

interested in mineral development. The environmental concerns and permitting processes in Montana are considered to be restrictive toward mineral development. Montana's ban on further cyanide leaching operations for gold recovery has essentially eliminated the possibility of development of additional large, low-grade, open-pittable gold deposits.

The forest does have large favorable areas for discovery of additional mineral deposits, and this factor will likely overcome industry's perception of permitting difficulties if the commodity prices reach high enough levels.

Legal and Administrative Framework

Laws and Executive Orders

Archeological Protection Act of 1979 – authorizes use and protection of National Forest System lands for paleontological resources associated with archeological resources. The act allows for the collection of rocks, minerals, and non-significant fossils for non-commercial use without a permit.

Energy Security Act of 1980 – directs the Secretary of Agriculture to process applications for leases and permits to explore, drill, and develop resources on National Forest System lands, notwithstanding the current status of any management plan being prepared.

Executive Order 13212 of 2001 – directs agencies to take appropriate actions to the extent consistent with applicable law, to expedite projects that will increase the production, transmission, or conservation of energy.

Federal Cave Resource Protection Act of 1988 – authorizes use and protection of paleontological resources found in caves on National Forest System land.

Federal Onshore Oil and Gas Leasing Reform Act of 1987 – expands the authority of the Secretary of Agriculture in the management of oil and gas resources on National Forest System lands. The BLM, without approval of the Forest Service, cannot issue leases of oil and gas on National Forest System lands, and the Forest Service must approve all surface-disturbing activities on National Forest System lands before operations commence.

General Mining Law of 1872 – allows exploration, development, and production of minerals from mining claims on public lands.

Mineral Land Leasing Act of 1920 made deposits of coal, phosphate, potassium, gilsonite, sodium, oil, oil shale, and gas owned by the United States subject to disposition by leasing. The BLM was made responsible for leasing under this Act.

Mineral Leasing Act for Acquired Lands of 1947 – extends the provisions of the mineral leasing laws to federally-owned mineral deposits on acquired NFS lands and requires the consent of the Secretary of Agriculture prior to leasing.

Mineral Material Act of 1947 – authorizes disposal of common variety minerals. It also allows free use to government agencies, municipalities, and non-profit organizations.

Multiple Use Mining Act of 1955 – allows the sale of mineral materials such as sand and gravel and provides direction for the multiple use of surface resources of mining claims.

Mining and Minerals Policy Act of 1970 – states that it is the continuing policy of the federal government to foster and encourage private enterprise in the development of economically sound and stable domestic mining and mineral resources.

Organic Act of 1897 – Established national forests and specific uses thereof and initial regulation. It continues rights to conduct activities under the general mining law, if in compliance with rules and regulations covering National Forest System lands.

Regulation and Policy

Code of Federal Regulations at 36 CFR 228, subpart A - provides rules and procedures for use of National Forest System lands for locatable minerals.

Code of Federal Regulations at 36 CFR 228, subpart C – provides rules and procedures for use of National Forest System lands for mineral materials (sand, gravel, stone, etc.).

Code of Federal Regulations at 36 CFR 251, subpart B – provides direction for managing special uses including paleontological resources.

Code of Federal Regulations at 36 CFR 261, subpart A – defines paleontological resources and describes prohibited activities.

Forest Service Manual (FSM) 2800 – provides policy and procedures on mineral and geologic resources. Includes locatable minerals (FSM 2810); leasable minerals (FSM 2820); reserved and outstanding mineral rights (FSM 2830); reclamation of lands disturbed by mineral activities (FSM 2840); management and disposal of mineral materials (FSM 2850); prospecting and mineral collecting (FSM 2860); and geologic resources and services (FSM 2880).

The minerals program is administered in order to encourage and facilitate the orderly exploration, development, and production of mineral resources on National Forest lands. These efforts are coordinated with the Bureau of Land Management (BLM) for leasable minerals, and the State of Montana Department of Environmental Quality (DEQ), to provide direction for these activities through regulatory requirements.

RECREATION AND TRAVEL MANAGEMENT

Changes from Draft to Final

- Descriptions of the affected environment were updated where more recent research reports were made available since the DEIS. This includes the 2005 National Visitor Use Monitoring Survey (USDA 2006f).
- The Recreation Opportunity Spectrum (ROS) maps and discussion were clarified.
- The difference and similarities between ROS and recreation allocations were clarified.
- Road and trail routes, open and closed, were updated using District and public comments. Road and trail numbers and effects discussion changed as a result.
- Alternative 6 was developed to respond to concerns about recreation allocations in specific areas. A backcountry motorized allocation was developed in response to requests to preserve semi-primitive motorized experiences from encroachment by road improvements or development.
- Effects analysis was clarified for alternatives which use a route based map to determine open motorized routes rather than the user's visual determination of what existed prior to 2001.
- A discussion of effects to mountain biking opportunities was added.

Analysis Area

The analysis area includes all BDNF lands except the Elkhorn Mountains.

Analysis Methods and Assumptions

Predicted Recreation Growth

The population of the United States is expected to double between 2000 and 2050. Counties in the analysis area can expect between 0 and 12% population growth over the next 20 years. Jefferson County may grow slightly more. Counties in Idaho and Montana within 100 miles of the BDNF have an average projected growth of 12 to 20 percent. While clearly not an exact scientific, this data was used to determine the probable 10 to 20 percent increase in visitation over the life of the plan (USDA 2001).

Demand

Calculations using the process outlined in the *ROS Users Guide*, reveal that forest recreation settings currently meet demands for both summer and winter uses. This conclusion is further supported by comments from those interviewed in the 2000, 2001, and 2005 NVUM surveys (USDA 2006f). Nearly all visitors indicated they either did not sense crowding or "hardly anyone was there". Indications of crowding would gradually become apparent on peak days in summer or fall, and in the easiest areas to vehicle access and most developed areas before these numbers were met. The first settings affected would be the Roaded and Rural settings in summer.

Survey, Trend, and Use Information

The National Visitor Use Monitoring results were used in determining the amount of visitation, what types of activities visitors engaged in, and their level of satisfaction. NVUM surveys were conducted on the BDNF in 2000 and 2005. In comparing the two years, there was reduction in visitation in 2005. Since visitor use is inherently variable due to weather, fire, and a multitude of other factors, it is understood that a comparison of data between the two survey years does not necessarily reflect real changes on the ground or a trend. Fires, gas prices, events such as the Rainbow Family Gathering, and many other variables will need to be analyzed over multiple years to determine what and why visitation fluctuates. There were also some differences in the sampling structure between the two survey years. Regardless of the many variables affecting visitation and the relatively new methodology for collecting statically sound visitor information, in the context of forest planning, NVUM data was helpful in assessing the general use, primary activities, and general satisfaction levels of forest visitors.

Surveys revealed that 85 percent of visitors in 2000, and 72 percent in 2005, came from within 100 miles. Hunting, viewing scenery, and fishing were the top three reasons for visitation in both survey years (2000 and 2005). Wilderness use was approximately 15,000 visitors in 2000 and less than 6,000 in 2005. It is unclear whether the reduction in Wilderness use is due to a sampling change, or a true reflection of decreased use over the past 5 years. The percentage of users using OHVs has also declined according to NVUM surveys. In 2000, 6.5 percent of visitors used OHVs. In 2005, only 5.7 percent of visitors used OHVs. Overall forest visitation also went down according to NVUM results. While 1,377,049 site visits were estimated in 2000, 1,134,500 were estimated in 2005.

Activities in which NVUM results show an increase between 2000 and 2005 include visiting historic sites, bicycling, driving for pleasure, horseback riding, cross-country skiing, and other non-motorized use. As stated above, the NVUM data may not necessarily indicate a trend. The information was used in conjunction with other social assessments and visitor use information to better understand the needs and preferences of forest visitors.

The National Survey on Recreation and the Environment, conducted in 1980, 1990, 2000, and a 2004 update was the main source of data about recreation trends. The data collected and used in reports about peoples preferences for recreation activities and settings includes regional, gender, age, and racial background information, and demographic information about various parts of the U.S. The ongoing surveys have spanned over 40 years.

NVUM hunting information was substantiated by MTFWP hunting reports for the same timeframes. Local knowledge and information through discussions with BDNF District recreation staff was critical in assessing the existing situation, local preferences, and local trends.

Promotional information for tourism and recreation were helpful in determining the source of information often used by visitors and what their expectations are. Several publications are available from the Montana Tourism Department, such as *Montana Winter Guide* and *Gold West Country*. Forest information includes local snowmobile trail maps, trail information campground listings, in addition to information published on the Southwest Montana Interagency Travel Maps and the Deerlodge National Forest Travel Map.

ROS – The Recreation Opportunity Spectrum

A recreation opportunity is defined as “the availability of a real choice for a user to participate in a preferred activity in a preferred setting, in order to realize desired experiences,” (USDA 1982). The Recreation Opportunity Spectrum, or ROS, is a method used to categorize, evaluate, and monitor settings and opportunities based on the natural, managerial, and social environment. On National Forest System (NFS) lands five ROS classes apply from Primitive to Rural (see Glossary). The Urban class, is not appropriate on NFS. An ROS inventory is helpful in establishing baseline conditions for recreation settings. It is a macro, not micro, management tool, used in forest, and other broad-scale planning. ROS can be used to show the general affects of alternatives to recreation settings and opportunities over broad landscapes. Each ROS class is defined in the glossary. The graphic below shows a generalization of the spectrum and its components.

ROS is a spectrum. Lines between classes are blurred except in cases where motorized uses are excluded. ROS maps do not only depict areas where motorized uses are allowed; they also show areas influenced by motorized activities.

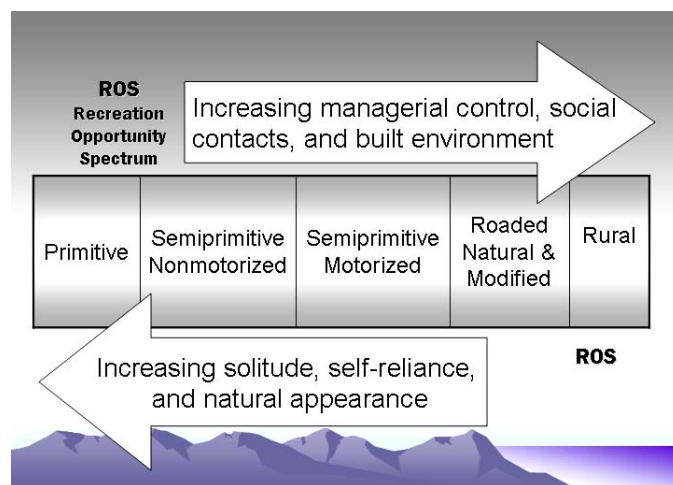


Figure 21. The Recreation Opportunity Spectrum (USDA 1982)

Though we have at least four distinct seasons and varied use, our analysis defines summer as May 16 through December 1 and winter as December 2 through May 15. These two seasons are used because they best reflect the main recreation issues of motorized and non-motorized opportunities in summer and winter on the forest. Hunting season is included in the summer season to simplify analysis even though additional close to motorized use during hunting season.

Another way to look at ROS is through the differences in the types of activities and facilities visitors can expect to find in each of the settings. These differences are shown in the table on the next page.

Table 82. Recreation Activities by ROS Category

Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural & Modified	Rural
Not consistent with the setting				Ski and other Recreation Resorts
				Camping in campgrounds
				Motorized watercraft activities
				Scenic driving on asphalt or gravel roads
				Four-wheeling (full-size) on low standard roads
				ATV & motorcycle riding on trails
				Snowmobiling and motorized over-snow activities
				Mountain Biking
				Consistent with the setting
				Stock use, hiking, backpacking
				Dispersed Camping
				Hunting, fishing, wildlife viewing
				Mineral Collection
				Non-motorized watercraft activities, climbing, spelunking
				Snowshoeing, cross-country skiing, ski touring

Recreation Allocations

Similar to and built from ROS classifications, recreation allocations were developed to convey what types of settings and experiences are being proposed across the forest. Recreation allocations delineate an overall recreation management theme and are often associated with either a motorized or non-motorized emphasis. Within the forest plan context, recreation allocations serve as desired conditions in which future management decisions will tier to and subsequent project implementation will be consistent with. Recreation allocations are discussed and mapped for each alternative.

The table below shows the relationship between recreation allocations, ROS classes, and either motorized or non-motorized management emphasis. This relationship is not exact due the differences in how ROS classes are defined. While the ROS classification system uses size criteria to define Primitive and Semi-Primitive settings, allocations and resulting management emphasis do not. This results in differences between acres of ROS classes and allocation acreages. To best describe differences between alternatives, both classification systems are used in conveying and disclosing the effects of each alternative. Note: recommended wilderness may include semi-primitive motorized uses in some alternatives.

SUMMER ALLOCATIONS FOR ACTION ALTERNATIVES:	Wilderness & Recommended Wilderness		Mixed Road-based & Backcountry		
		Wilderness Study Area		Road-based	
		Non- motorized	Backcountry		
ROS CLASS:	P	SPNM	SPM	RN	R
MANAGEMENT EMPHASIS:	NON-MOTORIZED		MOTORIZED		

WINTER ALLOCATIONS FOR ACTION ALTERNATIVES:	Wilderness & Recommended Wilderness		Motorized Recreation		
		WSA: Non- motorized	Wilderness Study Area		
		Non-motorized	Recommended Wilderness Motorized		
ROS CLASS:	P	SPNM	SPM	RN	R
MANAGEMENT EMPHASIS:	NON-MOTORIZED		MOTORIZED		

Motorized Roads and Trails

Motorized travel routes, both roads and trails, are mapped for each alternative. Since cross country travel is not permitted under any of the alternatives, displaying the quantity and location of these routes is an important factor in evaluating and disclosing how and where people will be able to recreate across the forest. Effects to motorized routes are described for both winter and summer use seasons. All action alternatives incorporate direction from the 2001 OHV Plan Amendment for Montana, North Dakota, and South Dakota (Tri-State OHV Decision). This decision gave the user discretion to determine the status of routes as “existing” based on a visual determination. While Alternative 1 and 2 do not further define the system of routes, Alternatives 3 through 6 establish an updated base map. The base map delineates routes as they existed under the Tri-State OHV Decision. The significance of this new base map is that the ambiguity of on-the-ground visual interpretation of which routes are “existing routes,” is eliminated. The map rather than user discretion, documents existing routes.

Effects Indicators

Balance of Opportunities

- ◆ Acres of each Recreation Opportunity Setting for each alternative in summer (May 16 through December 1) Forestwide and by Landscape.

Non-motorized Recreation

- ◆ Acres allocated to non-motorized travel in summer (May 16 through December 1) Forestwide and by Landscape.
- ◆ Acres allocated to non-motorized travel in winter (December 2 through May 15) Forestwide and by Landscape.
- ◆ Miles of trails open to mountain bikes.

Motorized Recreation and Travel

- ◆ Acres allocated where motorized travel is allowed in summer (May 16 through December 1) Forestwide and by Landscape.
- ◆ Acres allocated where motorized travel is allowed in winter (December 2 through May 15) Forestwide and by Landscape.
- ◆ Miles of roads where motorized travel is allowed for all or part of summer (May 16 through December 1) Forestwide and by Landscape.
- ◆ Miles of trails where motorized travel is allowed for all or part of summer (May 16 through December 1) Forestwide and by Landscape.

Affected Environment

National Forest recreation management provides a wide range of environmentally sustainable opportunities in natural settings to meet the needs and desires of visitors. People have always enjoyed relatively free vehicle access and opportunities on federal public lands. Since the end of World War II, demand for outdoor recreation on public lands has grown immensely and is the fastest growing use on national forests and grasslands. Use is expected to dramatically increase in the future. Forest managers are charged with providing a wide range of outdoor recreation opportunities within the parameters of national direction and local conditions.

Local lifestyles and economics are firmly linked to public land in southwestern Montana. The majority of people who visit, influence, and are directly influenced by the BDNF live within two-hours driving time of these lands according to the National Visitor Use Monitoring Report (USDA 2006c). Recreation is the predominant use with activities occurring in all seasons. Settings range from rural to primitive. BLM, other agencies, and private providers contribute to the total outdoor recreation opportunities; some provide these services and facilities on National Forest Lands by permits or agreements.

Recreation in southwestern Montana is rooted in local traditions, yet constantly changing and posing increased challenges for agency managers. Factors that affect recreation management on the Beaverhead-Deerlodge National Forest include:

- National Forest lands provide a majority of the nature-based mountain recreation in southwestern Montana. Key attractions include scenic drives, nature viewing and study, wilderness travel, wildlife viewing, big game hunting, and winter activities in deep snow. Visitors come from near and far to escape the stress of daily life and relax or find adventure in these mountains for a few hours to a few days.
- While some level of recreation activity occurs almost everywhere on the forest, the majority of summer use is concentrated around campgrounds, resorts, and other developed sites, and along roads. (USDA 2006f). This is also true in winter, where many roads are managed as snowmobile or ski trails. Ski areas provide key winter destinations, where large concentrations of use occur.
- The forest is an aggregate of isolated mountain ranges featuring diverse topography and vegetation. With large expanses of undeveloped lands on either side of the Continental Divide, low population densities in the vicinity, and relatively few external vehicle access points to some mountain ranges, visitors have an abundance of opportunities for solitude in both motorized and non-motorized backcountry settings. Travel is a major part of backcountry experiences here, whether by OHV, trail bike, snowmobile, mountain bike, horse, or foot.
- While recreation visits are fewer in spring, there is no off-season here. Use is year-round, with the highest visitor numbers on the first weekend of big game rifle hunting season and on summer holiday weekends. With current and predicted levels of use, the available recreation opportunities on the approximate 3.5 million acres are expected to continue to exceed demands within the foreseeable future. (See Analysis Methods and Assumptions)
- Between 20 and 25 percent of the visitor days on the forest are spent in the five week rifle hunting season in October and November. In Montana, 35 to 40 percent of big game hunter days are spent in District 3 (southwestern Montana). Large numbers of elk, limited motorized vehicle access to mostly non-motorized areas, and successful hunting contribute to the area's hunting popularity statewide and nationally. (USDA 2006f and MTFWP 1998)
- Recreation facilities, areas, and programs on BDNF lands influence local economies by prompting business in tourism, and retail sectors. Both tourism and local recreation on the forest are factors in the viability of many businesses in the area. (See Economic Section)
- Developed recreation sites for day use and camping are available across the forest. Many sites were constructed or reconstructed in the last 15 years but others are at the end of or past their lifespan of about 30 years. The supply of campgrounds is adequate, but condition and location of some sites, as well as safety and vehicle access to people with disabilities, will require construction, reconstruction, or removal of some sites. Additional trailheads and day use sites may be needed to support increasing recreation uses.
- Forest Service identity is strong in the area. People who live in the area are concerned with forest management, have place attachments to the landscape, and fear management

changes, which could affect their lifestyle or livelihoods. Some people fear that the forest is being “shut down”, or that consumptive uses and motorized recreation are being removed from National Forest Lands. Others fear the forest is being “opened up” to uncontrolled motorized uses, timber harvest, mining, and grazing. These concerns are not limited to forest plan revision; rather, they are ongoing and persist through every forest management decision.

- Several sites and routes, designated as a part of larger national systems provide recreation opportunities. These include a scenic byway, twelve national trails and trail segments, a national historic landmark, parts of two designated Wildernesses, and parts of two Montana Wilderness Study Areas. See Special Designations section, where each is identified and discussed. These designations help to draw a national recreation audience to the area.
- Ample opportunities are provided for history buffs to explore and interpret the past. The BDNF and adjacent areas -contain remnants of historic human occupation to more recent Native American sites and activities. Remnants of historic mining and ranching are also an important part of the area’s past and present history. See Special Designations and Heritage Resources sections for more information.

National Recreation Trends

Understanding trends in recreation use and demographics helps in determining whether settings and activities are in line with the demand for recreation opportunities into the future. National surveys are a way to assess trends in recreation use. Surveys and predictions from 2003 found the following:

Recreation activities with growth projected to be substantially greater than projected population growth by 2020 include: sightseeing, viewing historic places, wildlife viewing, wildlife photography, motor-boating, and cross-country skiing. Of these, sightseeing, viewing, and photography are very common, with well over half the population participating in one or of these pursuits. Cross-country skiing has considerably less participation, including about 4.5 percent of the population.

Recreation activities with growth projected to be about the same as projected population growths by 2020 include: canoeing, walking, fishing, and developed and dispersed camping.

Recreation activities with substantially less growth than projected population increases by 2020 include downhill skiing, rafting/floating, snowmobiling, horseback riding, backpacking, off-road driving, hiking, primitive camping, hunting, and rock climbing.

Local Recreation Trends

An assumption made during the analysis was the expectation of 10 to 20 percent growth in recreation visitation to the forest over the next 15 years. (See analysis methods and assumptions above.)

Since the existing plans were written the following changes have occurred in recreation use and activities. The National Visitor Use Monitoring Report, conducted in 2000 and 2005, summarized use as over one million recreation visits (one person entering and leaving the forest regardless of time spent). Most visitors surveyed reported the experience did not include feeling

crowded, regardless of setting. This factor is important because crowding indicates more demand than supply of desired settings. Presently most settings, from the forest visitor perspective, are uncrowded on all but peak use days like July 4th and opening day of rifle hunting season.

Forest scenery, the condition of the natural environment, and facilities conditions, all received high marks for visitor satisfaction. Surveyed hunters, ATV riders, and snowmobilers indicated that these conditions were important to, and the primary reasons for, visiting the BDNF. If conditions were to change, these visitors would most likely seek another area for their preferred activities rather than change activities in order to return to the same area. (USDA 2006f)

According to Eastside Recreation Analysis surveys of Ranger District personnel, there have been large increases in snowmobile use over the last fifteen years. Additionally, technologic advances in snowmobile design have led to snowmobiles penetrating farther into backcountry areas. Forest recreation managers believe that changes to snowmobile opportunities in Yellowstone Park may result in increased snowmobile use on adjacent NFS lands. The number of visits by cross-country skiers is increasing in some areas, particularly the Big Hole, where snow conditions are often excellent and a trail system at Chief Joseph Pass has been developed. Some places are seeing decreases in cross-country skiing as snowmobile use increases.

Ranger District recreation personnel have observed that ATV use has grown rapidly on the Forest over the last five years (USDA 2004i). The Research concludes that over 49.6 percent of the surveyed US population over the age of 16 has ridden an ATV at least once in the last year. This is a 12 percent increase since the 1999 survey.

Based on comments written about the DEIS, public meetings, and NVUM surveys in 2000 and 2005, it is apparent that mountain biking on forest roads and trails has grown over the last 5 years. Mountain bikers, as with motorcycle and ATV riders, have differing skills and expectations. While some mountain bikers seek gravel roads, others prefer more remote and challenging single track opportunities. Popular destinations for more challenging trails include, but are not limited to: Pipestone, Italian Peak and Torrey Mountain.

Recreation Settings and Opportunities

Existing Summer Settings and Activities: ROS maps were updated in 2004 and the acreages of each class are shown in Table 79. Summer ROS classes reflect the types of settings and opportunities provided between May 16 and December 1. While approximately 32% of the forest is non-motorized, about 68% are managed for motorized uses and activities. Summer includes the fall hunting season, in which additional motorized restrictions apply to specific roads and trails and areas. These additional fall restrictions result in a higher percentage of non-motorized opportunities than those shown for the entire summer season.

National recreation surveys since the 1960s consistently show scenic driving among the top four nature-based recreational pursuits (USDA 2001). Travel routes, associated picnic areas, and interpretive sites support this activity. The Pioneer Mountain Scenic Byway is a key destination for visitors, offering scenery and a variety of day-use and camping opportunities. The BDNF is the scenic backdrop for travelers on federal and state highways in southwestern Montana.

There are many opportunities for recreation in developed campgrounds and day use areas along forest roads. Trend data suggests the forest has enough developed campground and day use sites to accommodate demand through 2030 (Eastside AMS, Appendix II in the Project File). These

sites, however, may not be in the right locations relative to demand. Campground conditions range from new and well maintained to worn out and in need of reconstruction to accommodate larger vehicles, improve vehicle accessibility for people with disabilities, and meet health and safety standards. Most of the newer campgrounds, located around Georgetown Lake and along the Pioneer Mountain Scenic Byway, provide opportunities for larger recreation vehicles or towing units. Forest Service cabins are also available as overnight rentals.

The forest is also known for a wide variety of uncrowded backcountry recreation. Backcountry uses include activities such as: backpacking and stock packing trips into the Anaconda Pintler or Lee Metcalf Wildernesses, ATV travel in the Whitetail Pipestone area, and bike riding in the West Pioneers. Non-motorized activities are allowed forestwide and occur in all ROS classes. An extensive trail system accommodates both motorized and non-motorized uses. Opportunities exist for both short day trips and longer, multiple day trips.

Southwestern Montana, including the BDNF, is a popular area for resident and non-resident hunting. This region receives the greatest hunting pressure for elk in the State. Hunting days amount to about 20 percent of the total recreation use on the forest (*see Wildlife Section*). The bulk of this use occurs during the five weeks of general rifle season in October and November.

Elk and deer are the most commonly hunted game during bow and rifle seasons. Moose and bear are also hunted, but by fewer people. Both resident and non-resident hunters generally decide where to hunt based on type of transportation allowed, daily travel distances, hunting restrictions, where they believe their chances of success are best, past favorite places, and weather conditions. Travel plan restrictions during fall hunting season have developed over time to provide big game security and to provide opportunities for a variety of hunting opportunities. See the Wildlife section for more hunting use information.

The following tables display forestwide acres of both summer ROS settings and summer allocations. Discrepancies in non-motorized totals between the two tables are due to differences in how the two types of classification systems are defined. For example, ROS classes are, in part, defined using minimum acreages (i.e. 5,000 acres for Primitive settings and 2,500 acres for Semi-primitive settings). Recreation allocations were not limited to this and other ROS criteria.

Table 83. Existing Forestwide Summer ROS Acres

Existing Forestwide Summer Recreation Opportunity Settings				
Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural & Modified	Rural
49,738 acres	1,051,413 acres	881,607 acres	1,357,349 acres	88,252 acres

Table 84. Existing Forestwide Summer Recreation Allocations

Non-Motorized (includes all managed non-motorized areas: Wilderness, and portions of Wilderness Study Areas and Recommended Wilderness)	Current Travel Plan Applies (includes all areas managed for motorized road and trail-based recreation activities)
994,485 acres	2,363,890 acres

Existing Winter Settings and Activities: Winter ROS classes were also update in 2004 and reflect the types of settings and opportunities provided between December 2 and May 15. Although the majority of the forest is open to motorized use in the winter, approximately half of the motorized settings are not vehicle accessible to snowmobiles due to natural features such as: dense timber, large rocks, cliffs, steep terrain, or inadequate snow depths. Since most skiers are limited to about 10 miles per day, much of the forest's winter backcountry is also not visited by skiers. Cross-country skiing, for the most part, occurs in areas mapped as motorized and within 10 miles of roads and parking areas. A few skiers take multiple day trips and winter camp.

There are five areas managed for cross-country skiing, and many more parts of the forest are available to and used by skiers. Snow-shoeing and dog sledding are activities with limited participation. ATV and 4WD activities over snow are gaining in popularity. Two Winter Sports Areas (ski resorts) are also located on the forest.

Winter uses of all kinds have become more popular over the life of the forest plans. Deep snow with over 100 usable days per year, moderate terrain, cool temperatures and relatively undeveloped settings make the forest an attractive area for winter activities. Of the eleven areas listed for snowmobiling by the Montana Winter Guide, six and portions of two more areas are on the BDNF.

Table 85. Existing Forestwide Winter ROS Acres

Existing Forestwide Winter Recreation Opportunity Settings				
Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural & Modified	Rural
144,612 acres	435,258 acres	1,804,906 acres	901,462 acres	48,710 acres

Table 86. Existing Forestwide Winter Recreation Allocation Acres

Non-Motorized (includes all managed non-motorized areas, managed, Wilderness, and portions of Wilderness Study Areas and Recommended Wilderness)	Current Travel Plan Applies (includes all areas managed for motorized road and trail-based recreation activities)
526,521 acres	2,830,538 acres

Travel Routes and Restrictions

Travel is an integral part of virtually every activity on the forest. While travel is necessary to manage outdoor recreation, wildfire suppression, livestock and wildlife, commodity resources, and vehicle access to private in-holdings, and maintenance of electronic sites and utilities, this discussion deals just with effects on recreation travel. Other travel described here is administrative. Motorized summer and fall travel on the forest include the use of large commercial trucks, automobiles, high clearance vehicles, four-wheel drive vehicles, all-terrain vehicles, motorcycles, and motorized boats. Non-motorized travel includes horses, mules, mountain bikes, non-motorized boats, and pedestrian (on foot or wheelchair) travel.

The current travel plan and the Tri-State OHV Decision delineate area and route-specific travel and use restrictions. Cross country travel off established routes is prohibited. The current road inventory shows 6,802 miles of forest roads. Of these, 5,737 miles are open at least part of the summer season (May 16 to December 1), and 1,065 miles are closed to motorized use for a number of reasons. Many of these roads, constructed for timber harvest, were closed to provide wildlife security. The existing condition trail inventory includes 2,619 miles with 1,237 miles open for motorized use all or part of the summer season and 1,382 miles where motorized uses are not allowed during the summer season.

Winter motorized use is available on 2,143 miles of trail. Of these, 490 miles are groomed, 286 miles are marked, and an additional 1,366 miles are available for snowmobiles. Cross-country skiing and other non-motorized travel are allowed throughout the forest, with three trail systems specifically maintained for cross-country skiing. A few roads are also open to wheeled use in winter; with a majority managed and maintained by the state or counties.

Table 87. Existing Miles of Motorized Routes Forestwide

Motorized Routes	
Summer Motorized Roads	5,737 miles
Summer Motorized Trails	1,237 miles

Environmental Consequences

Summary of Effects

Balance of Recreation Settings and Opportunities Year-Round

Each Alternative results in a mix of recreation settings to provide quiet, non-motorized settings, remote and challenging motorized settings, and more developed settings offering amenities for

user comfort and opportunities to socialize. Differences between alternatives are largely in how much of the forest is allocated for the quiet, non-motorized settings and how much of the forest is allocated for the motorized uses and activities.

Alternative 1 (no action) provides the most acres for motorized uses and activities. Of the action alternatives, Alternative 4 makes only slight alterations to existing settings, with the lowest reduction in motorized settings. In response to those concerned about protecting wilderness values and other qualities provided by allocations for quiet (non-motorized) recreation settings, Alternative 3 allocates the most acres for non-motorized use.

Remaining action alternatives (2, 5, and 6) result in less dramatic changes from the current mix of recreation settings and opportunities provided. Changes would result in a reduction of motorized recreation opportunities and an increase in non-motorized settings and recommended Wilderness. The West Big Hole area received the largest number of comments to the Proposed Action (2003) (Alternative 2), in which the majority of the area would be undeveloped, and non-motorized in the summer. In the winter, Alternative 2 would manage approximately 30 percent the area would also be in a non-motorized allocation. Alternatives 5 and 6 balance the approach to managing the West Big Hole area. Forestwide, Alternative 6 also incorporates a division in the type of motorized allocations being made by distinguishing the backcountry motorized settings from other, more developed roaded-based settings. This was done to better address the needs of those visitors seeking a more challenging and remote backcountry motorized experience.

The change of acres allocated to non-motorized settings for both summer and winter use is only one measure used in showing the balance of settings and opportunities provided. The miles of roads and trails are also displayed to show where motorized travel is allowed within those motorized settings. Although there is a reduction in overall acreage of motorized ROS settings in all action alternatives, many of the popular and longer motorized trails and roads are retained. Miles of motorized routes for each alternative are displayed in the next section.

Table 88 Acres of Summer Recreation Allocations by Alternative

Alts 1-5 Cate- gory	Wilderness	Recommend- ed Wilderness	Wilderness Study Area	Non-motorized (Includes acres of Wilderness, Recommend-ed Wilderness, and non-motorized portions of Wilderness Study Areas in previous columns)	Current Travel Plan Applies (Mixed Road-based & Backcountry Motorized)	
1	219,128	173,888	211,689	994,845	2,363,890	
2	219,128	194,701	211,689	1,337,286	2,021,090	
3	219,128	706,588	211,689	1,985,855	1,372,519	
4	219,128	0	211,689	1,228,536	2,129,840	
5	219,128	248,011	211,689	1,536,931	1,821,443	
6	219,128	330,983	374	802,499	631,809	1,162,488
Alt 6 Cate- gory	Wilderness	Recommended Wilderness	motorized	Summer Non-motorized	Backcountry	Road-based
			Wilderness Study Area			

Table 89 Acres of Winter Recreation Allocations by Alternative

Alt 1-5 Category	Wilderness	Recommended Wilderness	Wilderness Study Area		Non-motorized (Includes acres of Wilderness, Recommended Wilderness, and non-motorized portions of Wilderness Study Areas in previous columns)	Current Travel Plan Applies (Mixed Road-based & Backcountry Motorized)
1	219,128	173,888	211,689		526,521	2,830,538
2	219,128	194,701	211,689		745,981	2,611,083
3	219,128	706,588	211,689		1,539,260	1,817,804
4	219,128	0	211,689		524,290	2,832,774
5	219,128	248,011	211,689		1,260,153	2,096,911
6	219,128	330,983	173,854	37,484	752,981	1,844,345
Alt 6 Category	Wilderness	Recommended Wilderness	motorized	non-motorized	Winter Non-motorized	Motorized
			Wilderness Study Area			

Motorized Recreation and Travel Opportunities (Year-round)

Alternatives 1 and 4 are the most favorable for providing summer and winter motorized opportunities because most existing opportunities would remain available. All alternatives except Alternative 1 (No Action) would result in closure of some existing roads and trails.

By closing recommended Wilderness yearlong and Burton Park in winter as travel variation from the current Forest Plan, Alternative 2 could be considered the middle alternative with regard to motorized opportunities because it would result in the closure of some areas and trails, but not as many as the Alternative 3 , 5, or 6.

Alternative 3 closes the largest amount of area to motorized uses in both summer and winter. This is the only alternative with closures widespread enough to reduce motorized fall hunting opportunities, and remove many motorized trails offering day long opportunities in summer other than Wilderness Study Areas in the West Pioneers and Sapphire Range.

Motorized opportunities within areas proposed for recommended Wilderness will be prohibited in all action alternatives based on Forest Service policy, FSM 1923.03 (2). Alternative 3 proposes the most acres (706,588) of recommended Wilderness, while Alternative 4 proposes no recommended Wilderness. Other action alternatives propose recommended Wilderness as follows: Alternative 2 proposes 194,701 acres, Alternative 5 proposes 248,011 acres, and Alternative 6 proposes 330,983 acres.

In addition to area allocations, there are differences in the miles of routes (roads and trails) that will be managed for motorized use. While Alternative 1 (no action) provides the most miles of motorized travel routes, alternative 3 provides the least miles of motorized travel routes. The following table displays miles offered under each alternative.

Table 90. Forestwide Miles of Motorized Travel Routes

Season	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Summer	6,974	6,732	5,928	6,897	6,637	6,670
Winter	2,143	2,017	1,643	2,118	1,885	1,904

Although there is no cross-country travel allowed now, current direction allows for visual determination of open motorized routes by users. This has resulted in the creation of new routes and difficulty in effective enforcement of the decisions made by the Tri-State OHV Decision. Under all action alternatives except alternative 2, this visual determination will be eliminated and routes open to motorized use will be shown on an updated travel route layer. Routes shown on the Forest Plan Interim Roads & Trails Map are the best estimate of travel routes that existed in 2001.

Non-motorized Recreation and Travel Opportunities (Year-round)

Alternatives 1 and 4 would continue to provide non-motorized settings where they exist today. Non-motorized areas could be reduced on a permanent basis by construction of new motorized trails or roads in areas where these uses are not restricted by the present forest plans.

Alternative 2 would increase non-motorized areas by closing the areas recommended for Wilderness to motorized uses yearlong and by restricting motorized winter activities in some specific areas not closed in Alternative 1.

Alternative 3 would provide the largest acreage of non-motorized allocations in both summer and winter, and would provide the most non-motorized trail opportunities. Some of the summer settings would be of lower quality overall because they would contain closed or abandoned low standard roads, detracting from the overall scenic quality and sense of remoteness.

Alternatives 5 and 6 have fewer acres of non-motorized allocation than Alternative 3 but more than Alternatives 1 and 2. Alternatives 5 and 6 provide non-motorized areas where undeveloped qualities are present and are in addition to Wilderness and recommended Wilderness. These non-motorized allocations have high value as wildlife habitat, and would displace fewer motorized recreationists than Alternative 3.

Alternative 1 contains 173, 888 acres of recommended Wilderness. Alternative 3 proposes the most acres (706,588) for recommended Wilderness, while Alternative 4 doesn't propose any recommended Wilderness. Other action alternatives propose recommended Wilderness as follows: Alternative 2 proposes 194,701 acres, Alternative 5 proposes 248,011 acres, and Alternative 6 proposes 330,983 acres.

Table 91. Forestwide Miles of Travel Routes on which Motorized Use is Prohibited

Season	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Summer	2,447	2,690	3,493	2,524	2,784	2,751
Winter	0	125	499	25	258	239

In addition to area allocations, miles of routes (roads and trails) that will be managed for non-motorized use vary. While Alternative 1 (no action) provides the least miles of summer non-motorized travel routes, Alternative 3 provides the most miles. The following table displays the miles of non-motorized travel routes by alternative for both summer and winter use.

In all alternatives roads and trails where motorized uses are not allowed by season, will generally be open for non-motorized uses, including mountain biking. The exception is under alternatives 3, 5, and 6 where mountain biking is prohibited within Recommended Wilderness. In spite of closures in Recommended Wilderness, the total miles of non-motorized routes available for mountain biking increases in all alternatives except Alternative 1.

Alternative 2 allows mountain biking in recommended Wilderness, and under Alternative 4, no additional areas are recommended for Wilderness. The total miles of trails available for mountain biking use are displayed in a table under the direct and indirect effects to Summer Non-motorized Opportunities and Activities below.

Common to All Alternatives

Summer Recreation Opportunities

The number of recreation visits to the forest is expected to increase by 10 to 20 percent in all alternatives, over the life of the plan. Recreation activities with the largest increases are expected in day use areas, particularly related to wildlife viewing, historic resources, and natural features.

Use of motorized trail vehicles, particularly ATVs, is expected to increase if current trends continue. Participation in most other National Forest recreation is also expected to increase, other than established hunting activities. Hunting uses are expected to remain stable or decrease. (*See data and assumptions in Affected Environment*).

All alternatives include limiting motorized use to designated routes. No cross-country travel is allowed as a result of the Tri-State OHV Decision made in 2001.

All action alternatives also include recreation allocations that create additional closures of areas and travel routes to motorized travel. Although a reduction in the total quantity of motorized acres and travel routes will result, the quality of provided opportunities will improve. This is due, in part, to improved loop opportunities in areas open to motorized use.

Regardless of alternative, backcountry non-motorized opportunities are expected to remain undeveloped and relatively uncrowded. Even with greater than expected growth in an activity, such as hiking on trails or stock use, semi-primitive non-motorized settings will not be adversely affected in any alternatives.

Crowding is not expected in either designated Wilderness except near boundaries where associated trailheads outside the wildernesses tend to concentrate visitors. The Anaconda-Pintler Wilderness and Lee Metcalf Wilderness will continue to provide Primitive and Semi-primitive Non-motorized settings over the life of the plan. A4 areas from the Deerlodge Plan remain closed to motorized wheeled travel in summer in all alternatives.

Developed settings, including rural and some roaded natural settings, are expected to meet the demand for existing and increased activities over the life of the plan. These include main road corridors, the Georgetown Lake area, and the Pioneer Mountains Scenic Byway and its vicinity.

Recreation opportunities provided by nationally designated sites and routes will not vary by alternative. (*See Special Designations Section for more information.*) The exception is a few areas where the Continental Divide National Scenic Trail would become non-motorized. This change would be consistent with national and forest plan direction for the trail in all alternatives, and is therefore, considered minimal as an effect to recreation opportunities.

Winter Recreation Settings and Opportunities

Under all alternatives, a range of motorized and non-motorized recreation settings and opportunities will be provided. Existing cross-country ski areas and trails will be retained under all alternatives. All action alternatives also allocate additional quiet, non-motorized opportunities. This will result in a reduction to motorized settings in the winter. Winter visits to the two portions of designated Wilderness may increase, but current winter use in Wilderness is low and the increase is not expected to affect opportunities for solitude.

Effects to the more developed settings (roaded natural and rural settings) will not be significant. Visitation is expected to grow by 10% and will likely create an increased use in existing facilities, such as Georgetown Lake, Discovery Basin, Maverick Mountain, and sites along Pioneer Mountain Scenic Byway, and highway corridors.

Vehicle Access

Primary vehicle access routes will be retained in all alternatives. Road vehicle access to private property will also continue where provided by existing roads.

Developed Recreation

Under all alternatives developed recreation opportunities will be provided at Forest Service campgrounds, trailheads, picnic areas, and interpretive sites. Use of these facilities is expected to increase by 10 to 20 percent over the life of the plan.

Under all action alternatives facilities may be constructed or reconstructed if demand exists, other management objectives can be met, and funding is available for both short term construction and longer term operation and maintenance. New or reconstructed facilities would occur along or near existing road systems. Facilities may also be closed or removed. A nationally consistent process, Recreation Facilities Analysis, will be used to evaluate the forest's developed recreation program. Considerations such as: niche compliance, community and public demand, resource protection, and costs will be used in evaluating both existing and desired conditions for each developed recreation site. Under Alternative 1 a forest plan amendment is required to construct new facilities on the Beaverhead Unit only.

Resorts, ski areas, and recreation residences will continue by permit under existing national policy and Forest Service Manual Direction. New permits would need to be consistent with forest plan direction.

Direct and Indirect Effects

Balance of Recreation Settings and Opportunities

A Recreation Opportunity Spectrum (ROS) inventory was completed using existing conditions represented by Alternative 1. The ROS classes were also mapped to reflect changes resulting from allocations in Alternatives 2, 3, 4, 5, and 6. The differences in the mix of ROS classes are shown in the table below.

Table 92. Summer ROS Acres by Alternative

Alternative	Primitive*	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural & Modified	Rural
1	49,738	1,051,413	881,607	1,357,349	88,252
2	49,738	1,186,190	733,034	1,301,079	88,318
3	49,738	1,666,418	336,829	1,217,002	88,371
4	49,738	1,091,004	808,966	1,320,374	88,276
5	49,738	1,264,183	666,700	1,289,459	88,279
6	49,738	1,249,785	684,055	1,286,502	88,279

**Primitive acres are located within Designated Wilderness areas which do not change by alternative*

In Alternative 1, semi-primitive summer settings would decrease slightly over the life of the plan due to timber harvest and other management. The existing plans both predicted this conversion due to the shift of some existing semi-primitive settings to roaded settings. Additionally, some existing semi-primitive non-motorized areas available for the development of roads and motorized trails would likely become semi-primitive motorized or roaded natural. Overall, winter settings would remain the same over the life of the plan, with only minor changes to motorized vehicle access in recommended wilderness and some elk winter range.

Alternative 2 increases semi-primitive non-motorized acres from Alternative 1 largely through motorized closures in Recommended Wilderness and some selected areas year-round. This includes a prohibition of snowmobile use in Burton Park Management Area in winter, and a few area closures in the Gravelly Range.

Alternative 3 creates the largest change in recreation settings by allocating Inventoried Roadless Areas as non-motorized. This results in converting approximately two-thirds of the semi-primitive motorized settings and a small portion of roaded natural settings to a semi-primitive non-motorized designation. Over half the forest would be non-motorized in the summer. Large areas would also be allocated as non-motorized settings in winter. By nearly doubling the non-motorized settings, opportunities for quiet winter recreation would be increased and opportunities for motorized winter recreation would be decreased.

Alternative 4 results in the least amount of change to existing ROS settings. The primary change would be the conversion of approximately 234,000 acres classified as motorized to a semi-primitive non-motorized designation. Winter settings would remain the same as Alternative 1.

Alternative 5 would result in measurable changes to the mix of recreation settings on the forest, but to a much lesser degree than alternative 3. Summer non-motorized allocations and Wilderness recommendations would result in an increase to summer semi-primitive non-motorized settings and a decrease of semi-primitive motorized settings in both summer and winter.

Alternative 6 would also result in an increase in non-motorized settings and a decrease in motorized settings. The degree of overall change is similar to those in alternative 5 but is displayed differently to better differentiate the types of motorized setting being provided. Alternative 6 utilizes an allocation system in which road-based allocations are divided into those offering a more remote, backcountry motorized experience, from those offering a more developed front country experience. This distinction was made in response to public comments, indicating a need to retain highly valued remote settings which are declining nationally. Definitions for these allocations are included in the glossary. Table 92 displays the differences in summer recreation setting allocations by alternative.

Summer Non-motorized Opportunities and Activities

All action alternatives allocate additional areas and routes for non-motorized activities, including mountain bike travel. Existing motorized routes in these areas would become non-motorized, providing additional trails for quiet, non-motorized activities. Each alternative provides a different degree of increased non-motorized settings in the summer (May 16 – December 1). In order of most to fewest allocated non-motorized acres, the alternatives are 3, 5, 6, 2, 4, and 1. For more detailed information regarding the effects of each alternative to the mix of settings and travel opportunities offered in a specific area, reference the effects by landscape. Also see the two tables under “Summary of Effects, Balance of Recreation Opportunities (Year Around)”.

Alternative 1 provides the least area of the forest managed for non-motorized settings and opportunities. The majority of recommended wilderness is managed as non-motorized in the summer, with some motorized routes providing opportunities for ATV or motorcycle travel. There are no restrictions on mountain biking use within existing recommended wilderness.

Alternative 2 would provide 1,337,286 acres of non-motorized settings. Approximately 242 miles of existing motorized travel routes would be closed to motorized use. Mountain biking would be allowed in recommended wilderness.

Alternative 3 provides the most non-motorized summer settings. The majority of Inventoried Roadless Areas would be designated as non-motorized along with the conversion of existing motorized roads and trails to non-motorized routes. Additional opportunities for mountain biking would be less than other non-motorized opportunities since areas allocated as recommended wilderness would be closed to mountain biking use.

Alternative 4 would result in the least increase in non-motorized areas. In addition, motorized travel and mountain biking would be allowed in recommended Wilderness. This is different from all other action alternatives in which their respective recommended Wildernesses areas are closed to motorized travel and mountain bikes.

Alternative 5 would also offer additional non-motorized settings and opportunities. Over 1.5 million acres would be allocated for quiet, non-motorized settings. Recommended wilderness would prohibit both motorized uses and mountain biking.

Alternative 6 would have similar effects as alternative 5. Approximately 41,000 additional acres would be allocated as recommended wilderness, further expanding non-motorized settings on the forest. Mountain biking would not be allowed in recommended wilderness in this alternative.

The tables below summarize the differences in acres allocated for non-motorized settings and miles of non-motorized travel routes by alternative.

Table 93. Forestwide Summer Non-motorized Acres by Alternative

Summer Non-motorized acres by Alternative					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
994,485	1,337,286	1,985,855	1,228,536	1,536,931	1,564,038

Table 94. Forestwide Summer Non-Motorized Travel Routes

Forestwide Summer Non-Motorized Travel Routes						
	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Roads	1,065	1,171	1,556	1,100	1,209	1,169
Trails	1,382	1,518	1,938	1,424	1,575	1,582
Miles of Road where opportunities would change from motorized to non-motorized	0	106	491	35	144	104
Miles of Trail where opportunities would change from motorized to non-motorized	0	136	556	42	193	200

Mountain Biking

In all alternatives roads and trails where motorized uses are not allowed by season, will generally be open for non-motorized uses, including mountain biking. The exception is under alternatives 3, 5, and 6 where mountain biking is prohibited within Recommended Wilderness.

Table 95. Forestwide Changes from Motorized to Non-Motorized Summer Travel Routes & Non-Motorized Routes Available for Mountain Biking

Type of Change Forestwide	Alt 1 Miles	Alt 2 Miles	Alt 3 Miles	Alt 4 Miles	Alt 5 Miles	Alt 6 Miles
Total Non-motorized Roads	1065	1171	1556	1100	1209	1169
Non-motorized roads available for mountain bike use outside of Recommended Wilderness	1048	1131	1425	1100	1166	1116
Non-motorized roads available for mountain bike use inside of Recommended Wilderness	17	40	0	0	0	0
Non-motorized roads NOT available for mountain bike use inside Recommended Wilderness	0	0	131	0	43	53
Total non-motorized roads available for mountain bike use	1065	1171	1425	1100	1166	1116
Total Non-motorized Trails	1382	1518	1938	1424	1575	1582
Non-motorized Trails available for mountain bike use outside Recommended Wilderness	1260	1357	1307	1424	1294	1268
Non-motorized Trails available for mountain bike use inside Recommended Wilderness	122	161	0	0	0	0
Non-motorized Trails NOT available for mountain bike use inside Recommended Wilderness Areas	0	0	631	0	281	314
Total non-motorized Trails available for mountain bike use	1,382	1,518	1307	1424	1294	1268
Total of combined non-motorized miles open to mountain bikes	2,447	2,689	2,732	2,524	2,460	2,384
Change from Alternative 1	0	242	285	77	13	-63

Alternative 2 allows mountain biking in recommended Wilderness, and under Alternative 4, no additional areas are being recommended for Wilderness. The total miles of trails available for mountain biking use are displayed above.

Summer Motorized Opportunities and Activities

Alternative 1 would allow the continuation of all existing motorized activities. Motorized road and trail opportunities are expected to meet demand over the life of the plan.

Alternative 2 reduces motorized settings and closes 242 miles of motorized travel routes. Although a reduction in total area and travel routes would result, it is expected to meet the anticipated future demand for motorized opportunities. This is largely due to the currently uncrowded nature of existing settings. With the degree of reduction proposed, it is anticipated that there would still be adequate area and travel opportunities to meet predicted demands.

Alternative 3 would have the greatest effect to motorized use by closing over a million acres to motorized activities and closing over 1,000 miles of travel routes currently open to motorized use. These substantial reductions, compounded with increasing demand, would likely result in not meeting the predicted demand for motorized opportunities.

Alternative 4 would result in the least amount of change to motorized activities on the forest. Seventy seven miles of road and trail would be converted from a motorized to a non-motorized designation. In addition, over 234,000 acres of currently motorized settings would be allocated for non-motorized use. It is anticipated that these changes would not significantly affect the overall opportunities for motorized use across the forest.

Alternative 5 reduces ATV and motorcycle opportunities by prohibiting these uses in recommended Wilderness and other areas emphasizing non-motorized activities. The reduction is more than proposed in alternatives 2 and 4, but less than in alternative 3. Over 1,800,000 acres and over 6,600 miles of travel routes would be available for motorized activities. It is predicted that this alternative would meet predicted demands for motorized use and would also improve the quality of motorized opportunities in some areas by providing better loop trails.

Alternative 6 would have similar effects on motorized opportunities as those discussed under alternative 5. Close to 1,800,000 acres with over 6,600 miles of motorized travel routes would be available under this alternative.

The total acres of open to motorized use, and the miles of both motorized roads and motorized trails are displayed in the following tables for each of the alternatives.

Table 96. Forestwide Summer Motorized Acres by Alternative

Summer motorized Acres by Alternative					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
2,363,890	2,021,090	1,372,519	2,129,840	1,821,443	1,794,297

Table 97. Forestwide Summer Motorized Travel Routes

Forestwide Miles of Summer Motorized Travel Routes						
	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Roads	5,737	5,631	5,247	5,702	5,593	5,633
Trails	1,237	1,101	681	1,195	1,044	1,037
Miles of Road where opportunities would change from motorized to non-motorized	0	106	491	35	144	104
Miles of Trail where opportunities would change from motorized to non-motorized	0	136	556	42	193	200

Winter Non-motorized Recreation Opportunities and Activities

Alternative 1, reflecting existing forest plan direction, did not anticipate the growth of demand for winter recreation. As a result, little consideration was given to winter recreation except at downhill Ski Areas. Existing cross country ski area and trails would be retained. No additional areas for non-motorized use are allocated.

Alternative 2 increases non-motorized winter allocations by approximately 220,000 acres. This alternative also adds 125 miles of non-motorized routes to the system.

Alternative 3 would result in the largest percent, over 1.5 million acres, allocated for non-motorized winter use. In addition, close to 500 miles of trail would be available for quiet, non-

motorized use. This is largely due the amount of recommended wilderness proposed and the closure of these areas to motorized activities.

Alternative 4 would result in a small reduction to current non-motorized acres for winter use. It does, however, add 25 miles of trail for non-motorized winter activities. Changes are insignificant and would not result in negative impacts to motorized winter use.

Alternative 5 would more than double the current amount of acres allocated for non-motorized winter uses. Over 250 miles of trail would be available for non-motorized travel activities. Recommended Wildernesses under this alternative, would be closed to motorized travel and provide additional opportunities for quiet winter recreation.

Alternative 6 would result in slightly more acres allocated for quiet, non-motorized winter use than alternative 5, but less than that proposed in alternative 3. This alternative provides non-motorized allocations near conveniently located staging areas that provide quick and easy vehicle access to winter day use. This alternative also accommodates opportunities for the hardest winter recreationists, seeking longer trips and non-motorized winter camping. A total of 239 miles of quiet, non-motorized trails, facilitating vehicle access to over 1.3 million acres on winter non-motorized settings in the BDNF front and back county.

The following tables quantify the differences between alternatives in the number acres and miles of trail being allocated for quiet, non-motorized winter opportunities.

Table 98. Winter Non-Motorized Acres by Alternative

Forestwide Acres of Winter Non-Motorized by Alternative					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
526,521	745,981	1,539,260	524,290	1,260,153	1,340,774

Table 99. Forestwide Winter Travel Routes on which motorized use is prohibited

Forestwide Miles of Winter Travel Routes where motorized use is prohibited						
	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Travel Routes	0	125	499	25	258	239

Winter Motorized Recreation Opportunities and Activities

Alternative 1 did not anticipate the growth of demand for winter recreation. As a result, little consideration was given to winter recreation except at downhill Ski Areas. Under this alternative, the vast majority of the forest to be available for snowmobile and other winter motorized use. Restrictions to motorized use only occur in designated Wilderness and small portions of winter range.

Alternative 2 decreases motorized winter allocations by approximately 220,000 acres. This alternative also eliminates over 120 miles of motorized winter travel routes. Although these reductions would displace some use, the area - over 2.5 million acres proposed for motorized use, would be adequate to meet current and anticipated demand for motorized winter opportunities.

Alternative 3 would result in the largest reduction - over 1.5 million acres, open to motorized use. In addition, close to 500 miles of trail would be closed to motorized winter use. This is largely due the amount of recommended wilderness proposed and the closure of these areas to motorized activities. Additional restrictions would result in more concentrated use in areas open to motorized use but would likely accommodate existing and anticipated demands.

Alternative 4 would result in a small increase to current motorized acres open for winter use. It would also eliminate approximately 25 miles of existing motorized trail. No wilderness recommendations result in winter closures. Changes are insignificant and would likely not result in negative impacts to motorized winter use forestwide.

Alternative 5 would decrease existing motorized winter areas by converting over 733,000 acres that currently allow motorized use to areas allowing only non-motorized activities. In addition, over 250 miles of trail would no longer be available for snowmobile use. Recommended Wildernesses under this alternative would be closed to motorized travel. Although these reductions would displace some use, the amount of area, over 2 million acres, would be adequate to meet current and anticipated demand for motorized winter opportunities.

Alternative 6 would result in slightly more reductions to motorized winter allocations than proposed under alternative 5, but less than that proposed in alternative 3. This alternative would provide over two million acres allocated for motorized use, and over 1,900 miles of motorized winter travel routes. It is anticipated that opportunities for winter motorized uses under this alternative would meet both existing and anticipated demands.

The following tables quantify the differences between alternatives in the number acres and miles of trail being allocated for motorized winter opportunities.

Table 100. Forestwide Winter Motorized Acres by Alternative

Forestwide Winter motorized acres by Alternative					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
2,830,538	2,611,083	1,817,804	2,832,774	2,096,911	2,018,199

Table 101. Forestwide miles of Motorized Winter Travel Routes by Alternative

Forestwide Miles of Motorized Winter Routes by Alternative					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
2,143	2,017	1,643	2,118	1,885	1,904

Effects on Recreation and Travel Management from Non-Motorized Allocations

In response to public comment, alternatives were developed around allocating non-motorized areas in summer and winter while providing varied levels of motorized opportunities. Public comments suggested a need to provide areas where different user expectation could be met and user conflicts reduced. There was also an attempt by alternative to create logical areas where recreational setting could effectively be managed. Areas not allocated as non-motorized provide a mix of opportunities and activities.

All action alternatives result in reductions to areas available for motorized use and increased areas for non-motorized uses. The degree of change varies by alternative, with alternative 3 creating the most significant change, and alternative 4 retaining the majority of allocations as they currently exist. Landscape-specific effects are described under *Effects by Landscape*.

Effects on Recreation and Travel Management from Wilderness Recommendations

Areas being proposed as recommended wilderness will increase the protection of backcountry recreation opportunities with solitude, challenge and a natural appearing setting. In Alternatives 1 and 4, current opportunities would not change. Under all action alternatives, except 4, non-motorized opportunities would increase and motorized opportunities decrease. Alternative 3, largely due to the quantity of area proposed as recommended wilderness, would result in the most significant shift from motorized to non-motorized settings. Alternatives 2, 5, and 6, wilderness recommendations would also result in increases to non-motorized opportunities.

Some desirable mountain biking opportunities are reduced by recommended wilderness in Alternatives 3, 5, and 6. Cowboy Heaven, Italian Peak, Torrey Mountain, and Snowcrest areas are included in all three alternatives. Electric Peak is included in Alternatives 3 and 5. West Big Hole is included in Alternative 3. Mountain biking opportunities in these areas would be lost.

Forest roads and trails outside of recommended wilderness (over 9,000 miles) would remain open to mountain bikes. Alternatives 3, 5, and 6 offer 1,938, 1,575, and 1,582 miles, respectively, of non-motorized trails for mountain bike use. Alternatives 1, 2, and 4 do not reduce mountain biking opportunities because of recommended wilderness allocations.

Effects to mountain biking would be most significant under Alternative 3, in which 706,588 acres are proposed as Recommended Wilderness. Other alternatives that include additional recommended wilderness are: alternative 5 proposing 248,011 acres, and alternative 6 proposing 330,983 acres.

Effects on Recreation and Travel Management from Designated Routes

There would be little to no effects to recreation opportunities as the result of route designations proposed under all action alternatives, except Alternative 2. Route designations under Alternatives 3, 4, 5, and 6 are based on decisions made during the Tri-State OHV Decision and therefore do not alter current opportunities.

Management and enforcement of travel regulations will be improved under Alternatives 3, 4, 5, and 6. By eliminating the need for visual interpretation of legal travel routes, compliance with travel regulations will be easier for visitors. Enforcement will also be facilitated by having a designated system of travel routes.

Effects on Recreation and Travel Management from Vegetation Management

In all alternatives, whether for timber production, aspen regeneration, fuel reduction, or other objectives, vegetation management may alter the recreation environment. Effects can be negative or positive and both short term and/or long term. Specific impacts depend on project location and design. Where timber products are removed, log landings and skid trails may be apparent on site. Some areas may be clear-cut, and have an altered appearance. Areas partially harvested may result less disturbance. Removal of wood products may occur in motorized or non-motorized

areas, and signs of clearing may be obvious from roads, depending on location. Areas harvested could lead to more areas open for snowmobile or ATV use, depending on area restrictions. In non-motorized areas vegetation management could include removal of products.

Effects on Recreation and Travel Management from Wildlife Habitat Management

Wildlife habitat management has affected motorized recreation opportunities in all seasons over the life of the existing forest plans because restrictions to motorized uses have been a mitigation tool used to protect wildlife habitat. For instance, many areas do not allow snowmobile use in order to protect wintering elk. Many such areas are not used for cross-country skiing because road and parking vehicle access to them does not exist, or because skiing is discouraged by not providing vehicle access. Fall closures have been used to provide wildlife security and to enhance walk-in hunting opportunities.

Road density standards associated with wildlife management objectives, affect both motorized and non-motorized recreation settings and opportunities. Road density standards in Alternative 3 would benefit non-motorized uses the most. Road density standards associated with Alternatives 1 and 4 will likely not significantly affect recreation opportunities. Some beneficial effects would likely result in Alternatives 2, 5, and 6 by resulting in a more balanced mix of recreation opportunities.

Effects on Recreation and Travel Management from Aquatic Resource Management

Direction for protection of fish and watersheds may affect some developed and dispersed sites similar in all alternatives, particularly on the west side of the Continental Divide on the Pintler and Butte Ranger Districts. However, it is expected that few sites would be adversely affected to the degree where capacity or visitor days would be reduced. Bull trout protection in Rock Creek may result in redesign or even removal of campgrounds and day use facilities at Crystal Creek, East Fork Reservoir, Moose Lake, and Stony Creek, however, again it is not expected that sites would be adversely affected to the degree where capacity or visitor days would be reduced. For example, sites at Crystal Creek could be closed, but are more likely to be relocated. Other developed sites, roads, and trails in all landscape may need redesign or even closure to mitigate effects to fisheries and watersheds on either side of the divide, particularly in key watersheds. Each alternative has somewhat different direction, but total effects will be driven mostly by budgets available to implement direction, regardless of alternative.

Under all alternatives standards for aquatics could affect developed site construction or could lead to closure, removal, or relocation of existing sites. The majority of developed sites are along or near lakes, rivers, and streams. Aquatic standards may lead to changes in how and where sites are located, constructed, and reconstructed because they require adverse effects of recreation sites on watersheds and fish habitat be reduced or eliminated.

Alternative 3 would be the most restrictive and Alternative 2 would be the least restrictive to recreation management and use due to aquatic resource management.

Effects on Recreation and Travel Management from Fire Management

While wildland fire control efforts and use of prescribed burning is present in the existing Plans and will continue under alternatives, all action alternatives provide new opportunities for the use

of wildland fire. Wildland fires would be used as a management tool for vegetation and fuels in all these alternatives, but the acres available and their locations vary.

Recreation could be affected site-specifically for the duration of a managed wildland fire in any alternative. Recreationists would be displaced from the burn area for the duration of the fire, regardless of their activities. In rare cases roads or trails could be closed for a longer duration if hazardous conditions, such as frequent falling trees, are considered too dangerous for public uses in an area. These effects do not vary between alternative because the number and frequency of wildland fire use is expected to be low regardless of acres available. (See fire section for more information.) All alternatives for fire management would have similar effects to recreation.

Fire, depending on scale, could reduce the appeal of areas for recreation in the short term due to their appearance, safety concerns, and other concerns from being “in the black.” Regardless of ignition source, fires will, in the long term, enhance the recreation setting by adding visual variety and sustainable vegetation patterns across forest landscapes. This is true regardless of alternative.

Effects on Recreation and Travel Management from Livestock Grazing

Livestock grazing will continue under all alternatives. Changes to recreation are not expected because of adjustments to grazing, regardless of alternative over the life of the plan.

Effects on Recreation and Travel Management from Timber Suitability on Recreation

Timber suitability will have little effect on recreation regardless of alternative. If and where timber is harvested on suitable lands, effects will be similar to those described under vegetation management (see Effects of Vegetation Management).

All alternatives except Alternative 3 have lands suitable for timber production. Future timber harvest, under all alternatives, will likely occur in areas where past timber harvest has occurred and an existing transportation system is in place. Over the life of the plan these areas will continue to appear altered, and provide road-based recreation opportunities. Over the life of the plan past clear-cuts will become less apparent but new disturbance will appear in all Alternatives except 3. Timber production and resulting disturbance on suitable lands is expected to be similar, regardless of the quantity of suitable lands under the various Alternatives.

Effects on Recreation and Travel Management from Oil and Gas Leasing and Development

The effects analysis of the 1995 Beaverhead National Forest Oil and Gas Leasing remains valid and discloses effects to recreation and travel management for that portion of the Beaverhead-Deerlodge National Forest. Proposed Oil and Gas activities may affect recreation opportunities and settings. Where exploration and/or development occur, well sites may impact scenic integrity, create noise, increase traffic on existing roads, as well as potentially result in additional road construction. Depending on the type of recreation setting, impacts may be minimal or significant.

All action alternatives, except Alternative 4, propose additional acres unavailable. Alternative 3 proposes the largest amount of forest unavailable for oil and gas activities. Although Alternative 4 has the most acres available, more acres are designated for no surface occupancy. Regardless

of the total acres available and no surface occupancy on 23-40% of the acres available, some effects may result.

Effects by Landscape

Some of the proposed management changes and resulting affects are concentrated only in specific landscapes as opposed to occurring across the entire forest. This section was added to better describe changes as they relate to specific places. The alpha-numerical references link to winter and summer non-motorized allocations by Alternative. Maps are available on the forest Website or by request.

Big Hole Landscape

Under all alternatives recreation visitation is expected to increase in summer and winter seasons. Hunting is expected to continue, but use levels will remain constant or decline slightly if existing trends continue. Campgrounds are generally not crowded, and should be able to accommodate additional use, though some may need reconstruction. Expansion of day use and additional camping facilities may be needed in the Trail Creek area.

Alternative 1 would continue to provide all existing opportunities unless or until they are restricted by further planning. Existing motorized restrictions would remain, with summer closures shown in 1-BH-01 for the Anaconda-Pintler Wilderness and its recommended Additions, and 1-BH-02 and 1-BH-03 summer non-motorized areas of the West Big Hole Recommended Wilderness. Non-motorized winter areas include the Anaconda-Pintler Wilderness, non-motorized in the forest plan (1W-BH-01) and part of the Mount Haggin Area where winter range is protected by the Travel Plan (1W-BH-MNM) in all alternatives.

A few areas of additional timber production could occur in the Tie Johnson Ruby Creek, Fishtrap, Mount Haggin, and Selway and Saginaw areas. These are adjacent to or within existing production areas, where a modified environment is part of the expected setting.

Alternative 2 would provide a distinct recreation focus for each Proposed Action (2003) management area. Motorized uses would be prohibited yearlong in the alternative in the Anaconda Pinter Wilderness and its Recommended Additions, and in the West Big Hole Recommended Wilderness. (Non-motorized summer polygons 2-BH-01, 2-BH-02, and 2-BH-03, and winter polygons 2W-BH-01 2W-BH-03 and 2W-BH-04) The upper portions of Moose Creek, Little Lake, Ravel, Miner, Hanby, Berry, and Pioneer, Rock, and Janke Creek drainages would become non-motorized in summer. Presently used drainages which would be closed to snowmobiling include Moose, Rock, Rock Island, Little Lake, Miner, Hanby, Berry, Pioneer, and Janke Creeks, totaling about 2/3 of the existing West Big Hole proposed wilderness. The portion not recommended for Wilderness which would be left open for motorized uses in summer and winter include Big Lake, Dark Horse, and Slagamelt routes in summer and drainages in winter. People who use these areas in winter and summer would be displaced to other areas for summer and winter activities. Additionally, a large part of the Anderson Mountain area would be non-motorized in summer (2-BH-09 and 2-BH-10) and the entire area would be become non-motorized in winter (2W-BH-05).

Alternative 2 would restrict motorized travel on 8 roads (18 miles) and 11 trails (17 miles) to protect wilderness values (existing or recommended), protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 4 roads (3 miles) and 5 trails (12.7 miles) to

provide larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. An additional 3 roads (3 miles) would restrict motorized travel to protect other resource values. This alternative would reduce motorized opportunities; and would emphasize motorized opportunities in the West Big Hole Flats. It would also provide for a separation of users into destination areas for motorized and non-motorized travel.

Alternative 3 would close the most area to motorized uses in both summer and winter, and consequently prohibit motorized uses on roads and trails in those areas. The majority of areas mapped as Semi-primitive motorized ROS in summer would become non-motorized. The Anaconda Pintler Wilderness and its enlarged recommended additions as well as additional areas along the south and east edges the wilderness and additions are in non-motorized polygon 3-BH-01. Another large non-motorized area is recommended Wilderness in the West Big Hole and additional Inventoried Roadless lands (3-BH-02).

In winter the designated and recommended wilderness and part of the Pintler Face are shown as non-motorized polygons 3W-BH-01 and 3W-BH-03. The Alternative also provides non-motorized opportunities in the Anderson Mountain area (3-BH-11 in summer and 3W-BH-04 in winter), and portions of the Tie Johnson area in summer (3-BH-09 and 3-BH-10), the area between Trail Creek and Highway 43 in winter (3W-BH-05), and Pintler face areas to snowmobiles. These closures would displace snowmobilers who use them, with the West Big Hole and Tie Johnson areas important to the largest number of users. Enforcement (manageability) would be difficult due to trails and even play areas crossing boundaries which are not apparent on the ground. Summer closures would displace people using the landscape for motorized trail activities and for driving on low standard roads.

Alternative 3 would restrict motorized travel on 72 roads (64 miles) and 50 trails (71 miles) to protect wilderness (existing or recommended) and roadless values, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 41 roads (24 miles) and 36 trails (74 miles) to provide larger semi-primitive non-motorized areas, protect wildlife values, protect roadless values, and reducing user conflicts. An additional 5 roads (2 miles) would restrict motorized travel to protect other resource values. This alternative would have the greatest reduction of motorized roads and trails, and the greatest shift in the recreation opportunities compared to current opportunities, moving from 24 percent in a non-motorized setting to 60 percent. This would be beneficial to the management of the Anaconda Pintler Wilderness and recommended additions and meet public expectations.

Alternative 4 would have effects similar to Alternative 1, with additional summer non-motorized including an enlarged area of the West Big Hole (4-BH-02 and 4-BH-04) and winter non-motorized would remain the same as Alternative 1.

Alternative 4 would restrict motorized travel on 7 trails (9 miles) to motorized vehicles to protect existing wilderness values, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 3 roads (1 mile) and 4 trails (5 miles) to motorized vehicles to provide for larger areas of semi-primitive non-motorized, to protect wildlife values, and reducing user conflicts. An additional 5 roads (2 miles) would restrict motorized travel to protect other resource values. This alternative proposes the least amount of motorized roads and trails reduction when compared to the current condition and the effect would be similar to the current conditions.

Alternative 5 would include summer non-motorized allocations in West Big Hole (5-BH-02 and 5-BH-03) in a management area larger than the current West Hole Recommended Wilderness would be managed for summer non-motorized with designated vehicle vehicle access routes and two large areas of winter non-motorized (5W-BH-03 and 5W-BH-04). These allocations would reduce winter motorized opportunities there by about half, and result in about half as many motorized summer roads and trails. Non-motorized areas would be designated in the Anderson Mountain area (5-BH-10 and 5W-BH-05) in both summer and winter. The Anaconda-Pintler Wilderness would have an expanded Hellroaring Addition as well as the Storm Lake Addition, and additional non-motorized areas along the southern edge of the Wilderness, where two and three mile trails vehicle vehicle access the Wilderness boundary (5-BH-01 and 5W-BH-01).

About half of the area proposed for wilderness in the existing plan would be closed to snowmobiles and other winter motorized use. In summer motorized activities would be limited to about half of the existing motorized routes, including both roads and trails, and resulting in less motorized opportunities available than under the existing condition. An enlarged summer non-motorized area in Selway-Saginaw (4-BH-07) would be designated. Fleece non-motorized would be increased with a new closure at Bear Mountain (4-BH-09). Most areas now open to motorized activities in the Big Hole receive some level of use in both seasons. Visitors using motorized trail vehicles would either choose another destination or would become more concentrated, particularly in summer. Backcountry motorized experiences may be degraded due to increased user density and fewer available trails. In winter snowmobilers would likely find adequate areas for their sport; however, some high-marking and deep snow opportunities would be lost, particularly in the West Big Hole and Anderson Mountain areas.

Alternative 5 would restrict motorized travel on 7 roads (2 miles) and 26 trails (35.4 miles) to protect wilderness values (existing or recommended), protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 16 roads (23 miles) and 24 trails (54.9 miles) to motorized vehicles to provide for larger areas of semi-primitive non-motorized, protect wildlife values, and reducing user conflicts. An additional 5 roads (2.1 miles) would restrict motorized travel to protect other resource values. This alternative would reduce motorized roads and trail from the current condition, but looked to find areas that would be least impactive to motorized users, while providing non-motorized areas and reduce user conflicts. This alternative provides a mix of used while minimizing impacts to all user groups. This would be beneficial to the management of the Anaconda Pintler Wilderness and recommended additions and meet public expectations.

Alternative 6, the preferred alternative, would result in similar effects to those described in Alternative 5. To better distinguish remote motorized areas from the motorized front country, the mixed road-based allocation (approximately 56% of the landscape) has been divided into backcountry motorized (approximately 22%) for the more remote areas and road-based (34%) for front country motorized opportunities. This distinction will ensure the retention of areas with a more semi-primitive character. Specific road and trail closures are listed below

Table 102. Alternative 6 Road and Trail Closures in the Big Hole Landscape

Road No.	Miles	Trail No.	Miles
2490	1.51	R010201427	2.43
71205	4.05	R010202037	0.13

Road No.	Miles	Trail No.	Miles
71206	2.12	R010202126	2.73
7322	1.03	R010202127	2.92
7325	1.56	R010202128	2.51
7328	2.08	R010202129	2.14
7363	1.35	R010202130	2.75
		R010202131	1.12
		R010202132	2.52
		R010202177	1.69
		R010202742	0.50
		R010203009	10.04
		R010203066	8.58
		R010203087	5.31
		R010203101.1	1.03
		R010203102	8.13
		R010203103	5.69
		R010203113	1.87
		R010203151	1.58
		R010203172	1.84
		R010203185	0.86
		R010203372	1.32
		R010203374	1.77
		R010203376	5.13
		name unknown	1.76

Table 103. Big Hole Landscape Summer Motorized Acres by Alternative

Big Hole Landscape Summer					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
402,378	352,334	215,015	360,358	275,696	296,250

Table 104. Big Hole Landscape Winter Motorized Acres by Alternative

Big Hole Landscape Winter					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
449,577	363,547	293,938	451,299	352,332	358,411

Table 105. Big Hole Summer ROS acres by alternative

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
1	30,895	138,930	117,300	242,757	1,137
2	30,895	166,352	92,331	240,304	1,137

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
3	30,895	246,058	27,194	225,735	1,137
4	30,895	143,860	115,568	239,559	1,137
5	30,895	202,414	56,216	240,358	1,137
6	30,895	191,725	68,248	239,014	1,137

Table 106. Big Hole Landscape Summer Travel Opportunities by Alternative

Roads	Alt 1 Miles	Alt 2 Miles	Alt 3 Miles	Alt 4 Miles	Alt 5 Miles	Alt 6 Miles
Motorized wheeled travel allowed for all or part of the summer	846	825	782	845	845	826
All motorized wheeled travel restricted (not allowed)	344	366	408	346	346	365
Miles of road where opportunities would change from motorized to non-motorized	0	22	64	2	2	21
Trails						
Motorized wheeled travel allowed for all or part of the summer	227	201	77	217	217	143
All motorized wheeled travel restricted (not allowed)	190	216	340	200	200	275
Miles of trail where opportunities would change from motorized to non-motorized	0	26	150	10	10	85

Boulder River Landscape

The majority of this landscape is heavily roaded, with some roads used as ATV trails. Under all alternatives recreation visitation is expected to increase in summer and winter seasons. The area already receives concentrated use, particularly in hunting season. Campgrounds should be able to accommodate additional use, though some need reconstruction and or removal. Trailhead facilities are inadequate, resulting in roadside parking. Over the life of the plan, crowding could discourage or displace some visitors.

Alternative 1 will continue to provide some of the most densely roaded recreation opportunities on the forest in this landscape. Backcountry opportunities would continue in the Little Boulder Cottonwood, and Three Brothers areas, in both seasons. Non-motorized opportunities are provided in the Cottonwood area through A4 designation (non-motorized map1-BR-01) and the Travel Plan. Winter non-motorized areas provide elk winter range as provided in the travel plan (1W-BR-MNM).

Alternative 2 would provide continued non-motorized opportunities in summer (02-BR-01) and snowmobiles would only be allowed on designated routes in the Cottonwood Management Area

(winter non-motorized not shown on map). Present winter snowmobile play areas near Cottonwood Lake would no longer be available to visitors who use the area. Other than the Cottonwood area there would be little change to winter opportunities. Non-motorized winter range (2W-BR-01, 2W-BR-02, 2W-BR-03, and 2W-BR-04, would be retained. Additional areas would be managed as non-motorized in summer in east and south of I15 in the I15 Corridor and Little Boulder areas (2-BR-02, 2-BR-03, and 2-BR-04). These areas presently have little motorized use, and displacement of recreationists is expected to be minimal.

Alternative 2 would restrict motorized travel on 11 roads (8 miles) and 4 trails (12 miles) to provide larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however it would provide for a separation of users and reduce user conflicts in a landscape that currently provides few areas for the non-motorized user. The effects of Alternative 2 are very similar to Alternative 4.

Alternative 3 allocates a recommended Wilderness, Electric Peak, which includes the Cottonwood area and larger non-motorized areas around it in summer and winter (3-BR-01 and 3W-BR-04). Additional non-motorized would be allocated in both seasons throughout the landscape (3-BR-02 to -08 and 3-BR-01 to -11). Though not all of these areas provide opportunities now, motorized recreationists would be displaced in all seasons. Open road and trail standards for wildlife could lead to additional conversion of area roads non-motorized trails. Motorized summer opportunities would be lost on several miles of roads and trails. About half of the areas now open to snowmobiles would be closed. Opportunities for cross-country skiing and snow-shoeing would improve slightly, though vehicle access to non-motorized areas would limit their use.

Alternative 3 would restrict motorized travel on 9 roads (5 miles) and 1 trail (5 miles) to protect recommended wilderness and roadless values, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 17 roads (14 miles) and 10 trails (12 miles) to provide larger areas of semi-primitive non-motorized, to protect wildlife values, protect roadless values, and reducing user conflicts. This alternative would have the greatest reduction of motorized roads and trails when compared to current opportunities, however, 69 percent of the landscape remains available for motorized uses.

Alternative 4 would have effects similar to Alternative 1, except in the Little Boulder and I15 corridor, where additional non-motorized would be allocated in areas which are presently managed as mostly non-motorized (4-BR-02, 4-BR-03, 4-BR-04, and 4-BR-05).

Alternative 4 would restrict motorized travel on 11 roads (7 miles) and 4 trails (5 miles) to provide larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however it would provide for a separation of users and reduce user conflicts in a landscape that currently provides few areas for the non-motorized user. Alternative 4 is very similar in its effects to Alternative 2.

Alternative 5 would have effects the same as Alternative 3 in winter, The Electric Peak recommended wilderness area would be closed to motorized uses. In summer several areas south and east of Interstate 15 would be allocated as non-motorized around motorized travel corridors from all directions into Whitetail Reservoir in the Jefferson Landscape (5-BR-03, 5-BR-04, 5-BR-05, and 5-BR-06). Effects to summer motorized recreationists would be fewer than in Alternative 3 but more than Alternative 1.

Alternative 5 would restrict motorized travel on 4 roads (2 miles) and 1 trail (2 miles) to protect recommended wilderness and roadless values, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 13 roads (9 miles) and 5 trails (3 miles) to provide for larger areas of semi-primitive non-motorized, protect wildlife values, and reducing user conflicts. This alternative would reduce motorized roads and trails; however it would provide for a separation of uses and reduce user conflicts in a landscape that currently provides few areas for a non-motorized setting. Seventy-six percent of the landscape remains available for motorized uses. Alternative 5, when compared to the other alternatives, provides the best mix of uses for this landscape, while minimizing impacts to existing motorized users.

Alternative 6, the preferred alternative, would have similar effects as Alternative 5. In this alternative, the mixed road allocation (approximately 78% of the landscape) has been sub-divided into a backcountry motorized allocation (approximately 8% of the landscape) and a road-based allocation (approximately 70% of the landscape). This does not change the opportunities from alternative 5, but rather, better describes the types of motorized experiences the visitor would encounter and preserves the semi-primitive character. In addition, the Electric Peak area, recommended for Wilderness in Alternative 5, is allocated as a non-motorized setting in this alternative. 3.7 miles of trail no. R010204082 will be closed to motorized use. No changes in the management of other roads and trails shall occur.

Table 107. Boulder River Landscape Summer Motorized Acres by Alternative

Boulder River Landscape Summer					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
195,676	166,548	139,278	167,099	154,721	157,625

Table 108. Boulder River Landscape Winter Motorized Acres by Alternative

Boulder River Landscape Winter					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
189,122	189,123	143,575	189,123	145,072	131,451

Table 109. Boulder River Summer ROS acres by alternative

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
1	0	29,071	17,099	139,077	18,319
2	0	33,306	19,228	132,714	18,319
3	0	55,514	2,686	126,988	18,379
4	0	32,250	20,426	132,547	18,343
5	0	35,887	19,071	130,235	18,373
6	0	35,887	19,071	130,235	18,373

Table 110. Boulder River Summer Travel Opportunities

Roads	Alt 1 Miles	Alt 2 Miles	Alt 3 Miles	Alt 4 Miles	Alt 5 Miles	Alt 6 Miles
Motorized wheeled travel allowed for all or part of the summer	599	595	586	594	594	570
All motorized wheeled travel restricted (not allowed)	70	74	83	75	75	100
Miles of road where opportunities would change from motorized to non-motorized	0	4	13	5	5	30
Trails						
Motorized wheeled travel allowed for all or part of the summer	88	80	68	96	86	85
All motorized wheeled travel restricted (not allowed)	23	30	42	25	25	25
Miles of trail where opportunities would change from motorized to non-motorized	0	7	19	2	2	2

Clark Fork Flint Landscape

Development on private land is increasing in the vicinity of Georgetown Lake. The character of this area is changing regardless of alternative. Campgrounds and day use areas are already full many weekends in all seasons. Most visitors come from Montana with increasing numbers of part time residents and second home owners from other places. Local users may be displaced by increased visitation over the life of the plan. The rest of the landscape will likely remain at the average 1% annual increase projected. Parking and trailhead facilities may be built, if budgets allow, along the east face of the Deerlodge Valley to provide non-motorized hunting vehicle access and snowmobiling. Management Area identified as A4 in the Flint range under the Deerlodge Forest Plan would remain non-motorized in summer under all alternatives.

Alternative 1 allows a continuation of all present recreation opportunities and activities. Some of the recently acquired “Watershed Property” is closed to motorized uses. Some motorized could be lifted when existing road and trail effects and needs are determined by site-specific analysis.

Alternative 2 would be the same as Alternative 1 in winter. Non-motorized summer designations could be assigned in the Harvey Creek, Flint Uplands, and Georgetown Lake Management areas based on existing condition and management area direction (2-CFF-01 through 08).

Alternative 2 would restrict motorized travel on 25 roads (28 miles) and 19 trails (21 miles) to provide for larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however it would provide for a separation of users and reduce user conflicts in a landscape that currently only provides for 15 percent in a non-motorized setting.

Alternative 3 would increase non-motorized opportunities, mostly by closing existing areas with trails to motorized use in both summer and/or winter. Yearlong restrictions would result from wilderness recommendations and other in the upper Flint Range (3-CFF02, 3-CFF-03, and 3-CFF-04) and near the Anaconda Pintler Wilderness (3-CFF-01). Long John Ridge would also be

closed to motorized summer uses (3-CFF-08 and 3-URC-06). Additional snowmobile closures would include the uplands of the Flints (3W-CFF-10), Lost Creek (3W-CFF-14), Harvey Creek (3W-CFF-06), and additions to the Anaconda-Pintler Wilderness (3W-CFF-01). Lost snowmobile opportunities may result in a decline in winter visitation to the Georgetown Lake area and towns around the Flint Range where snowmobiling is popular.

Alternative 3 would restrict motorized travel on 33 roads (41 miles) and 13 trails (31 miles) to protect recommended wilderness and roadless values, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 34 roads (37 miles) and 15 trails (22 miles) to provide for larger areas of semi-primitive non-motorized, protect wildlife values, protect roadless values, and reduce user conflicts. This alternative would have the greatest reduction of motorized roads and trails when compared to current opportunities, moving the area from 15 percent in a non-motorized setting to 43 percent.

Alternative 4 would have effects similar to Alternative 2, including additional non-motorized areas allocated in both summer and winter.

Alternative 4 would restrict motorized travel on 4 roads (8 miles) and 11 trails (8 miles) to provide for larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however the overall effects would be very similar to the current condition as there are very few changes in actual road and trail available for motorized use.

Alternative 5 would include enlarged non-motorized areas in the Flints (5-CFF-02, 5-CFF-03, 5-CFF-04, and 5-CFF-08) and near the Anaconda Pintler Wilderness (5-CFF-01). New non-motorized areas would also be allocated in Harvey Creek (5-CFF-06 and 5-CFF-07), and non-motorized east of the Deerlodge Valley would be retained (5-CFF-05). Most snowmobile opportunities east of the Deerlodge valley would continue, but some connecting activities in the Boulder River Landscape, particularly the Cottonwood Lake trail and play area would be lost. A large area, presently seldom used due to steep terrain, would be designated non-motorized in the Harvey Creek area (CFF-18) and several islands of non-motorized would be designated in the Flint uplands (5W-CFF-10, 5W-CFF-14, 5W-CFF-15, 5W-CFF-16, and 5W-CFF-17). Both summer and winter motorized opportunities would be lost, and some users may be displaced from their favored recreation trails and sites.

Alternative 5 would restrict motorized travel on 13 roads (16 miles) and 17 trails (19 miles) to provide larger areas of semi-primitive non-motorized protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however it would provide for a separation of uses and reduce user conflicts in a landscape that currently provides few areas for a non-motorized setting. Seventy-two percent of the landscape remains available for motorized uses.

Alternative 6, the preferred alternative, would have the same effects as described in Alternative 5. The mixed road-based allocation (approximately 69% of the landscape) is further categorized to reflect backcountry motorized opportunities (approximately 11% of the landscape) and road-based allocations of the front country (approximately 58% of the landscape). This distinction will ensure the protection of the semi-primitive motorized settings.

Table 111. Alternative 6 Travel Route Closures in the Clark Flint Landscape

Road No.	Miles	Trail No.	Miles
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Road No.	Miles	Trail No.	Miles
5182	1.24	R010208032	1.31
676	0.40	R010208037	0.74
78596	0.16	R010208045	3.69
9363	0.25	R010208056	2.67
		R010208059	3.07
		R010208062	0.98
		R010208130	2.12
		R010208139	2.21
		R010208141	0.29
		R010208145	0.87

Table 112. Clark Fork-Flint Landscape Summer Motorized Acres by Alternative

Clark Fork-Flint Landscape Summer					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
309,046	257,541	209,127	284,441	264,748	257,135

Table 113. Clark Fork Flint Landscape Winter Motorized Acres by Alternative

Clark Fork-Flint Landscape Winter					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
339,487	335,788	264,857	339,721	287,450	298,987

Table 114. Clark Fork Summer ROS Acres by Alternative

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
1	0	66,817	50,709	230,762	21,011
2	0	75,680	48,786	223,728	21,106
3	0	116,831	18,703	212,755	21,011
4	0	68,794	50,088	229,406	21,011
5	0	81,713	43,192	223,384	21,011
6	0	87,398	37,506	223,384	21,011

Table 115. Clark Fork Flint Summer Travel Opportunities

Roads	Alt 1 Miles	Alt 2 Miles	Alt 3 Miles	Alt 4 Miles	Alt 5 Miles	Alt 6 Miles
Motorized wheeled travel allowed for all or part of the summer	1,049	1,039	995	1,048	1,048	1,046
All motorized wheeled travel restricted (not allowed)	220	230	275	222	222	224
Miles of road where opportunities would change from motorized to non-motorized	0	10	55	2	2	4

Roads	Alt 1 Miles	Alt 2 Miles	Alt 3 Miles	Alt 4 Miles	Alt 5 Miles	Alt 6 Miles
Trails						
Motorized wheeled travel allowed for all or part of the summer	156	146	114	149	149	143
All motorized wheeled travel restricted (not allowed)	145	155	187	152	152	159
Miles of trail where opportunities would change from motorized to non-motorized	0	10	42	7	7	14

Gravelly Landscape

The gentle benches on top of the range are ideal for dispersed camping and horseback or hiking recreation in summer and fall. Pleasure driving and motorized trail recreation will continue to be popular in the Gravelly Range. Developed sites along Highway 287 provide recreation opportunities. In winter it is a popular snowmobiling destination.

Alternative 1 provides for continued existing visitor opportunities. Some facilities were constructed or reconstructed over the last planning period. Others will be further upgrading if budgets allow. The Snowcrest Range will continue to provide mostly non-motorized opportunities over the life of the plan.

Alternative 2 would have effects similar to Alternative 1, with some additional new areas allocated to non-motorized opportunities in Ruby-Horse Creek in summer (2-GR-05), resulting in a loss of some motorized opportunities. The Centennial Recommended Wilderness (Mount Jefferson, 2-GR-16) area would be non-motorized yearlong. An area of winter non-motorized would be allocated along the Chain of Lakes to provide wildlife habitat and cross-country skiing. Most settings and opportunities, however, would change little over the life of the plan.

Alternative 2 would restrict motorized travel on 16 roads (28 miles) and 4 trails (15 miles) to provide larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however it would provide for a separation of users and reduce user conflicts. Alternative 2 is very similar to the current condition, except for the Snow Crest Mountain Range where most of the road and trail restrictions are being proposed.

Alternative 3 would provide recommended wilderness over a large part of the landscape. Uses there would be motorized yearlong (see non-motorized maps). Additional non-motorized areas would also be allocated for summer and winter. The majority of motorized summer trail opportunities would be lost, and large areas closed to winter snowmobiling or other uses. The landscape, as a result, would provide mostly auto driving, hiking, horse, mountain bike, or other opportunities. Remaining motorized opportunities would be so limited that many recreationists would need to look elsewhere for primitive road and motorized trail opportunities. Snowmobiling is now popular through much of the range, and the closures could lead to crowding or displacement of those visitors. Cross-country ski opportunities would be available through out the landscape, with vast quiet opportunity areas far exceeding predictable demand.

Areas would also be available for long distance winter skiing and camping for the hardier visitors.

Alternative 3 would restrict motorized travel on 39 roads (79 miles) and 15 trails (77 miles) to protect recommended wilderness and roadless values, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 2 roads (3 miles) and 3 trails (11 miles) to provide for larger areas of semi-primitive non-motorized, protect wildlife values, protect roadless values, and reduce user conflicts. This alternative would have the greatest reduction of motorized roads and trails when compared to current opportunities, reducing the motorized roads and trails by approximately 30 percent.

Alternative 4 would be similar to Alternative 1; however, areas now managed as non-motorized under the Travel Plan would be a non-motorized allocation in the forest plan.

Alternative 4 would restrict motorized travel on 1 road (less than 1 mile) to protect wildlife values. This alternative has virtually the same affect as the current condition (Alternative 1 No action) since less than 1 mile of road is being affected out of approximately 513 miles of motorized roads and trails.

Alternative 5 would have effects similar to Alternative 2 in summer, plus some additional recommended wilderness in the Snowcrest Mountains (5-GR-01 and 5W-GR-01), where motorized opportunities would be lost on some short segments of roads and trails. Hiking, mountain biking, and stock opportunities would increase slightly. In winter the large additional blocks of the landscape would be allocated as non-motorized. The majority of existing marked snowmobile routes would be retained, with restrictions reducing play area opportunities (see non-motorized maps). Motorized opportunities would be lost on few routes because most of these areas are already managed as non-motorized.

Alternative 5 would restrict motorized travel on 12 roads (19 miles) to protect recommended wilderness and roadless values, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 1 road (2 miles) and 1 trail (6 miles) to provide larger areas of semi-primitive non-motorized, protect wildlife values, protect roadless values, and reduce user conflicts. The affects of alternative 5 are very similar to the current condition (Alternative 1 – No Action) with the exception of the Snow Crest Mountain Range. This area is recommended for wilderness and this is where most of the restrict take place within the Gravelly Landscape. Only 6 miles of motorized roads or trails is being affected outside of the Snow Crests.

Alternative 6, the preferred alternative, would have similar effects to recreation as those discussed under Alternative 5. The mixed road-based allocation (approximately 41% of the landscape) is further categorized to reflect and preserve backcountry motorized opportunities (approximately 24% of the landscape). The remaining road-based allocations reflect the front country (approximately 17% of the landscape). Specific road and trail closures under this alternative are listed below. The primary difference occurs within the Mt. Jefferson area. This alternative proposes only the northern half of Mt. Jefferson as recommended Wilderness due to it's proximity to the BLM Centennial Wilderness Study Area. The southern half will be allocated as summer non-motorized with snowmobiling allowed in the winter, excluding the area closed by special order to protect wolverine the last three years. This change is in response to public comment on the DEIS. This allows popular snowmobiling to continue while protecting the more remote portion for solitude and quiet recreation.

Table 116. Alternative 6 Road and Trail Closures in the Gravelly Landscape

Road No.	Miles	Trail No.	Miles
1216	1.08	R010206035	1.93
30_?*	0.08	R010206413	2.53
71823	0.79		
952	0.62		
9650	2.27		
9651	2.67		
9656	2.71		
9657	0.67		
9660	1.18		
9660A	0.23		
9661	1.80		
9662	0.75		
9663	3.33		
9664	1.71		
9665	1.24		

*actual road indicator in INFRA database

Table 117. Gravelly Landscape Summer Motorized Acres by Alternative

Gravelly Landscape Summer					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
231,472	214,602	126,016	242,512	196,827	192,873

Table 118. Gravelly Landscape Winter Motorized Acres by Alternative

Gravelly Landscape Winter					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
377,935	364,874	141,189	377,935	234,815	234,607*

*Number subject to change pending database adjustment because of Mt Jefferson change

Table 119. Gravelly Summer ROS acres by alternative

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
1	0	199,459	138,493	127,478	3,915
2	0	220,827	121,111	123,520	3,915
3	0	317,222	39,253	108,954	3,915
4	0	199,459	140,617	125,354	3,915

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
5	0	224,094	119,451	121,912	3,915
6	0	222,697	120,849	121,912	3,915

Table 120. Gravelly Landscape Summer Miles of Travel Opportunities

Roads	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Motorized wheeled travel allowed for all or part of the summer	400	370	323	399	399	380
All motorized wheeled travel restricted (not allowed)	99	129	176	100	100	119
Miles of road where opportunities would change from motorized to non-motorized	0	30	77	1	1	20
Trails						
Motorized wheeled travel allowed for all or part of the summer	109	95	20	109	109	103
All motorized wheeled travel restricted (not allowed)	306	320	395	306	306	312
Miles of trail where opportunities would change from motorized to non-motorized	0	14	89	0	0	6

Jefferson River Landscape

In all alternatives recreation use is expected to increase by at least 10 to 15 percent over the life of the plan. Snowmobile and OHV use are expected to meet or exceed the average increase expected forestwide due to the terrain and proximity to Butte and Bozeman and the increasing popularity of these activities.

Alternative 1 would provide a continuation of existing opportunities across the landscape. Updated travel planning for the Whitetail Pipestone area is currently underway, and will determine travel management there.

Alternative 2 The alternative would result in increased non-motorized areas in the landscape. One objective for the Humbug MA would separate ATV and full size vehicle use on existing routes. About half of the semi-primitive motorized areas in the landscape, where most OHV and many 4WD routes are located, would become non-motorized (see non-motorized summer map. The Table Mountain Management Area would be mostly non-motorized, enlarging the non-motorized there (2-JR-01). In spite of the large amount of non-motorized, only 9 miles of road and 13 miles of trail would change to non-motorized opportunities.

Alternative 2 would restrict motorized travel on 16 roads (9 miles) and 15 trails (13 miles) to provide for larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however, it would provide

for a separation of users and reduce user conflicts. Alternative 2 would move this landscape from approximately 15 percent allocated as non-motorized to 40 percent.

Alternative 3 would increase non-motorized areas in this landscape in both summer and winter. New non-motorized areas in summer would include most areas either side of the Highway 84 (Pipestone Pass) except designated routes heading north and south leading to other open areas. The closures would reduce snowmobile play areas available in the Whitetail area, though much of the area closed is not easily used by snowmobiles due to terrain. Cross country ski opportunities could improve slightly in some places. The alternative would displace more motorized recreationists from the area or confine them to limited roads and trails.

Alternative 3 would restrict motorized travel on 2 roads (1 mile) and 1 trail (less than 1 mile) to protect recommended wilderness and roadless values, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 25 roads (18 miles) and 23 trails (24 miles) to provide larger areas of semi-primitive non-motorized, protect wildlife values, protect roadless values, and reduce user conflicts. This alternative would have the greatest reduction of motorized roads and trails when compared to current opportunities, moving the area from 15 percent in a non-motorized allocation, to 52 percent.

Alternative 4 would be between Alternative 1 and 2, with some areas allocated to non-motorized in summer around Table Mountain and around Whitetail Reservoir, with designated routes remaining open.

Alternative 4 would restrict motorized travel on 8 roads (1.6 miles) and 7 trails (5 miles) to provide larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however, the overall effects would be very similar to the existing condition as there are very few changes in actual road and trail available for motorized use.

Alternative 5 is similar to Alternative 3 in winter and Alternative 2 in summer.

Alternative 5 would restrict motorized travel on 15 roads (10 miles) and 19 trails (11 miles) to provide larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however it would provide for a separation of uses and reduce user conflicts in a landscape which currently provides few areas for non-motorized activities. Fifty-six percent of the landscape remains available for motorized uses. Alternative 5, when compared to the other alternatives, provides the best mix of uses for this landscape, while minimizing impact to existing motorized users.

Alternative 6 the preferred alternative, would restrict motorized travel on roads 417 (3.78 miles) and 514 (.86 miles) and 3.85 miles of Trail R010204082 to protect recommended wilderness and roadless values. Other than the effects specific to recommended wilderness, this alternation would result in the same effects as those described in Alternative 5. The mixed road-based allocation (approximately 58% of the landscape) is further categorized to reflect and protect backcountry motorized opportunities (approximately 7% of the landscape). The remainder of the road-based allocations includes the front country (approximately 51% of the landscape).

Table 121. Jefferson River Landscape Summer Motorized Acres by Alternative

Jefferson River Landscape Summer					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
164,770	113,807	91,333	124,103	106,781	106,668

Table 122. Jefferson River Landscape Winter Motorized Acres by Alternative

Jefferson River Landscape Winter					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
190,565	162,055	98,324	190,602	99,520	86,417

Table 123. Jefferson River Summer ROS acres by alternative

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
1	0	47,023	33,252	104,715	5,841
2	0	61,566	23,559	99,864	5,841
3	0	78,023	13,502	93,464	5,841
4	0	52,850	30,512	101,627	5,841
5	0	58,661	23,363	102,964	5,841
6	0	58,661	23,363	102,964	5,841

Table 124 Jefferson River Summer Travel Opportunities

Roads	Alt 1 Miles	Alt 2 Miles	Alt 3 Miles	Alt 4 Miles	Alt 5 Miles	Alt 6 Miles
Motorized wheeled travel allowed for all or part of the summer	494	477	467	484	484	477
All motorized wheeled travel restricted (not allowed)	38	55	64	47	47	54
Miles of road where opportunities would change from motorized to non-motorized	0	17	26	9	9	16
Trails						
Motorized wheeled travel allowed for all or part of the summer	103	86	81	97	97	92
All motorized wheeled travel restricted (not allowed)	30	46	51	36	36	41
Miles of trail where opportunities would change from motorized to non-motorized	0	16	21	6	6	11

Lima Tendoy Landscape

Hunting season brings the most use to this landscape. Increases in use are expected to be less than in other parts of the forest because of low quality recreation development and relatively narrow pieces of NFS lands. The Continental Divide National Scenic Trail, the Nez Perce and Lewis and Clark national historic trails, and Lemhi Pass National Historic Landmark attract a national audience in the summer and fall. In all alternatives enforcement of closures along the

Montana-Idaho border would be difficult due to remoteness of areas and management for motorized recreation of adjacent areas.

Alternative 1 provides continuation and increases existing use in present locations. If OHV use continues to increase, some recreationists may come here for a more uncrowded summer experience. Italian Peak Proposed Wilderness is closed yearlong to motorized uses except the primitive road to Deadman Lake, which remains open in summer.

Alternative 2 includes closing the last mile of road to Deadman Lake in the Italian Peak Recommended Wilderness to motorized summer recreation. Otherwise recreation management and opportunities would be similar to Alternative 1.

Alternative 3 would restrict motorized travel on 1 road (2 miles) and 1 trail (1 mile) to protect recommended wilderness and roadless values, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 5 roads (8 miles) and 4 trails totaling 6 miles to provide for larger areas of semi-primitive non-motorized, protect wildlife values, protect roadless values, and reduce user conflicts. This alternative reduces motorized roads and trails; however it provides separation of users and reduces user conflicts.

Changes would result in approximately two-thirds of the landscape managed as summer non-motorized and half managed as winter non-motorized. The quantity and quality of motorized opportunities would be reduced. Short stretches of some primitive roads would be closed as mapped in the comparison maps at the end of Chapter 2. Little cross-country skiing and snowshoeing occurs in this landscape, but opportunities would substantially increase, along with summer non motorized opportunities.

The alternative would restrict motorized travel on 28 roads (50 miles) and 5 trails (11 miles) to protect recommended wilderness and roadless values, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 58 roads (53 miles) and 16 trails (31 miles) to provide for larger areas of semi-primitive non-motorized, protect wildlife values, protect roadless values, and reduce user conflicts. This alternative would have the greatest reduction of motorized roads and trails when compared to current opportunities, reducing the motorized roads and trails by approximately 25 percent. Alternative 3 would also move the non-motorized allocation from 24 percent currently to 64 percent.

Alternative 4 would restrict motorized travel on 9 roads (9 miles) and 15 trails (5 miles) to provide larger areas of semi-primitive non-motorized, to protect wildlife values, and reduce user conflicts. Alternative 4 is very similar to Alternative 2 in effects and very close to Alternative 1 in that only 14 miles of roads and trails are affected.

Alternative 5 would close parts of the Tendoy Mountains (5-LT-03 through -07) and in the Lima Peaks (5-LT- 01 and 5-LT-02) to summer motorized activities, resulting in reduced opportunities for motorized travel. Additional areas would be closed to snowmobiling in the Lima Peaks (5W-LT- 01) and Tendoy Mountains (5W-LT-03, 5W-LT-06, and 5W-LT-07), but remaining opportunities should be adequate to meet snowmobiling demand.

Alternative 5 would restrict motorized travel on 8 roads (10 miles) and 4 trails (4 miles) to protect recommended wilderness, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 26 roads (25 miles) and 9 trails (19 miles) to provide for larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. Alternative

5, when compared to the other alternatives, provides the best mix of uses for this landscape, while minimizing impact to existing motorized users.

Alternative 6, the preferred alternative, would be similar to those described in Alternative 5. The mixed road-based allocation (approximately 53% of the landscape) is further categorized to reflect backcountry motorized opportunities (approximately 32% of the landscape) and road-based allocations of the front country (approximately 21% of the landscape). The primary change in this alternative is the addition of approximately 32,905 acres of recommended wilderness in the McAtee Basin area. This will result in a reduction in motorized opportunities. Reference the table below for the specific routes closed to motorized travel.

Table 125. Alternative 6 Travel Route Closures in the Lima Tendoy

Road No.	Miles	Trail No.	Miles
3922	0.04	R010201032	1.20
3937	0.41	R010201082.2	3.39
70018	0.62	R010201148	0.06
70024	0.71	R010201194	2.77
70028	1.20	R010201427	4.34
70029	0.78	R0102016666.6	0.26
70030	0.21	name unknown	2.60
70049	0.66		
70085	0.52		
70086	0.11		
70087	0.11		
70088	0.13		
70089	2.50		
70103	1.13		
70123	0.75		
7353	0.79		
7354	0.49		
946	0.80		

Table 126. Lima-Tendoy Landscape Summer Motorized Acres by Alternative

Lima-Tendoy Landscape Summer					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
278,423	235,475	133,774	236,217	190,527	199,028

Table 127. Lima Tendoy Landscape Winter Motorized Acres by Alternative

Lima-Tendoy Landscape Winter					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
291,956	291,956	173,997	291,956	234,314	202,396

Table 128. Lima Tendoy Summer ROS Acres by Alternative

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
1	0	105,510	174,696	84,923	2,448
2	0	120,653	163,442	81,035	2,448
3	0	211,944	77,962	75,224	2,448
4	0	117,179	165,831	82,119	2,448
5	0	142,114	146,221	76,795	2,448
6	0	137,374	151,104	76,652	2,448

Table 129. Lima Tendoy Summer Travel Opportunities

Roads	Alt 1 Miles	Alt 2 Miles	Alt 3 Miles	Alt 4 Miles	Alt 5 Miles	Alt 6 Miles
Motorized wheeled travel allowed for all or part of the summer	575	565	443	566	566	525
All motorized wheeled travel restricted (not allowed)	90	100	222	99	99	140
Miles of road where opportunities would change from motorized to non-motorized	0	10	132	9	9	50
Trails						
Motorized wheeled travel allowed for all or part of the summer	74	63	30	63	63	50
All motorized wheeled travel restricted (not allowed)	89	100	133	100	100	113
Miles of trail where opportunities would change from motorized to non-motorized	0	11	44	11	11	24

Madison Landscape

The majority of this landscape comprises the Lee Metcalf Wilderness Area and much of the remainder is non-motorized. Management is focused on preservation and there are slight differences in alternatives.

Alternative 1 would continue to provide day hiking and overnight wilderness trips into the Lee Metcalf Wilderness. Increases in use are expected commensurate with Forestwide increases. Crowding may become a problem at trailhead areas and on the most popular trails.

Alternative 2 would be similar to Alternative 1 even though some parcels adjacent to private lands, already managed as non-motorized, would be managed as recommended wilderness under this alternative.

Alternative 2 would restrict motorized travel on 1 road (less than 1 mile) and 1 trail (less than 1 mile) to protect recommended and existing wilderness, protect wildlife values, and reduce user conflicts. Since the additions are currently being managed as non-motorized the effects are very similar to the current condition (Alternative 1).

Alternative 3 would be similar to Alternative 2 except in McAtee Basin, where wilderness is recommended. The result would be a loss of snowmobile opportunities which provide a through

route for Gallatin National Forest snowmobile trails. In summer the landscape would be similar to Alternative 2.

Restrictions to roads and trails are the same as Alternative 2.

Alternative 4 would be similar to Alternative 1.

Restrictions to roads and trails are the same as Alternative 2

Alternative 5 would be similar to Alternative 3 except the snowmobile route in McAtee basin would be not be included in the recommended wilderness, and would remain open for snowmobile use.

Restrictions to roads and trails are the same as Alternative 2

Alternative 6, the preferred alternative, would be similar to those described in Alternative 5, with the exception of the McAtee Basin area. Instead of being proposed as recommended wilderness, it would have a non-motorized recreation setting allocation. Travel route management would not change significantly with the closure .16 miles of Road 327. No closures would occur on any trails. .

Table 130. Madison Landscape Summer Motorized Acres by Alternative

Madison Landscape Summer					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
11,969	1,637	316	8,550	316	315

Table 131. Madison Landscape Winter Motorized Acres by Alternative

Madison Landscape Winter					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
13,192	3,684	676	13,199	834	2,731

Table 132. Madison Summer ROS acres by alternative

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
1	11,530	110,677	0	794	0
2	11,530	110,677	0	794	0
3	11,530	110,677	0	794	0
4	11,530	110,677	0	794	0
5	11,530	110,677	0	794	0
6	11,530	110,677	0	794	0

Table 133. Madison Summer Travel Opportunities

Roads	Alt 1 Miles	Alt 2 Miles	Alt 3 Miles	Alt 4 Miles	Alt 5 Miles	Alt 6 Miles
Motorized wheeled travel allowed for all or part of the summer	0	0	0	1	1	0
All motorized wheeled travel restricted (not allowed)	1	1	1	0	0	1

Roads	Alt 1 Miles	Alt 2 Miles	Alt 3 Miles	Alt 4 Miles	Alt 5 Miles	Alt 6 Miles
Miles of road where opportunities would change from motorized to non-motorized	0	0	0	0	0	0
Trails						
Motorized wheeled travel allowed for all or part of the summer	0	0	0	0	0	0
All motorized wheeled travel restricted (not allowed)	121	121	121	121	121	121
Miles of trail where opportunities would change from motorized to non-motorized	0	0	0	0	0	0

Pioneer Landscape

Recreation uses are expected to increase by about 10% over the life of the plan and is expected to be most noticeable along the Pioneer Mountains Scenic Byway when the rest of the route is paved. Crowding is unlikely over the life of the plan, except on holiday weekends and the first week of hunting season.

Alternative 1 would result in continuing existing opportunities for developed and backcountry recreation. Further travel planning will be needed in the Pioneers to meet the intent of the OHV EIS if this alternative is selected. The number of snowmobilers using the Pioneers will likely to continue to increase due to the supporting infrastructure and grooming.

Alternative 2 management areas give an emphasis different from the existing plan. New management area allocation would remove unique recreation allocations in Birch Creek and Rock Creek, and replace the Grasshopper Recreation Area MA with the larger scenic byway management area. Within the Torrey Mountain Recommended Wilderness MA, areas presently open to motorized uses in both summer and winter would be closed. This change would result in a loss of high country snowmobile opportunities. Some high mountain lakes and alpine trail opportunities would no longer be available to OHV recreationists.

Alternative 2 would restrict motorized travel on 9 roads (10 miles) and 8 trails (27 miles) to protect recommended and existing wilderness study areas, protect wildlife values, and reduce user conflicts. Alternative 2 would also restrict motorized travel on 3 roads (4 miles) and 1 trail (less than 1 mile) to provide for larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however it would provide for a separation of users and reduce user conflicts. Alternative 2 is very similar in its effects to Alternative 5 with the exception of the East Pioneer recommended wilderness area in Alternative 4.

Alternative 3 would result closures to motorized uses within the Torrey Mountain Recommended Wilderness and adjacent roadless areas. Some of these trails originate in Birch Creek, while others originate along the byway. Motorized vehicle access to most mountain lakes in the East Pioneers would be lost (3-PIO010 through -15). The loss of motorized trails in the Pioneers would reduce the variety of opportunities available near Dillon and vehicle accessed from the scenic byway. There could be a shift in use by motorcycles from the Torrey Mountain area to the West Pioneer WSA, and there may be effects to the WSA from higher

concentrations of motorcycles on open trails there. Motorized winter closures in the Torrey Mountain Recommended Wilderness and near Birch Creek (3W-PIO-05) may lead to increased snowmobile use the West Pioneer WSA. Opportunities for hiking, cross-country skiing or snow shoeing near Dillon and in quiet backcountry settings would increase.

Alternative 3 would restrict motorized travel on 34 roads (38 miles) and 25 trails (66 miles) to protect recommended wilderness, wilderness study areas, and roadless values, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 25 roads (26 miles) and 10 trails (17 miles) to provide for larger areas of semi-primitive non-motorized, to protect wildlife values, protect roadless values, and reducing user conflicts. This alternative would have the greatest reduction of motorized roads and trails (147 miles) when compared to current opportunities.

Alternative 4 would be similar to Alternative 1, though new management area emphasis would remove some recreation allocations in Birch Creek and Rock Creek, and replace the Grasshopper Recreation Area MA with the larger scenic byway management area. Areas of timber production may increase roaded settings slightly in Bull Creek drainage and in the Quartz Hill area.

Alternative 4 would restrict motorized travel on 1 road (1 mile) and 1 trail (3 miles) to protect recommended wilderness, wilderness study areas, and roadless values, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 5 roads (5 miles) and 2 trails (2 miles) to provide larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however, it would provide for a separation of users and reduce user conflicts. Alternative 4 is very similar in its effects to current condition (Alternative 1) with only 10 additional roads miles being affected.

Alternative 5 would be similar to Alternative 2, with slightly less area in the Torrey Mountain Recommended Wilderness, but total non-motorized allocations over more area in each season (see maps). Motorized opportunities would be lost in both seasons, including longer OHV and snowmobile routes across the east Pioneers. Additional non-motorized winter opportunities would be provided in the east Pioneers, with vehicle vehicle access though Birch Creek and the byway (5W-PIO-07).

Alternative 5 would restrict motorized travel on 11 roads (12 miles) and 17 trail (35 miles) to protect recommended and existing wilderness study areas, protect wildlife values, and reduce user conflicts. Alternative 5 would also restrict motorized travel on 4 roads (4 miles) and 1 trail (less than 1 mile) to provide larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however it would provide for a separation of users and reduce user conflicts. These areas allocated to non-motorized currently have a motorized road/trail density of approximately 0.14 miles per square mile. Alternative 5 is very similar in its effects to Alternative 2, as both provide for a mix of uses. The greatest impact to current motorized use comes from the restriction of motorized used in recommended wilderness areas, in this case the East Pioneer Recommended Wilderness Area. Motorized vehicle vehicle access would affect 47 miles of roads and trails currently available.

Alternative 6, the preferred alternative, would have similar effects to those described under Alternative 5. Portions of the East Pioneer area, recommended for Wilderness in Alternative 5, would be allocated as non-motorized recreation settings in this alternative. The mixed road-based allocation (approximately 49% of the landscape) is further categorized to better protect

backcountry motorized opportunities (approximately 21% of the landscape). Road-based allocations include the front country (approximately 28% of the landscape). Travel routes in which management would change from motorized to non-motorized are displayed in the following table.

Table 134. Alternative 6 Travel Route Closures in the Pioneer

Road No.	Miles	Trail No.	Miles
70654	0.43	7407	2.01
7426	0.16	R010201070	0.53
unknown	0.26	R010201104	2.27
		R010201111,12	0.66
		R010201425	0.90
		R010202002	5.99
		R010202043	3.85
		R010202056	5.13
		R010202140	7.90
		R010202152	1.06
		R010202752	1.00
		R010202753	1.09
		R010202754	1.14
		R010203096	0.49
		R010203100	1.38
		R010203197	0.02
		R010203259	0.02
		name unknown	0.89

Table 135. Pioneer Landscape Summer Motorized Acres by Alternative

Pioneer Landscape Summer					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
392,565	361,911	262,363	376,972	330,750	283,289

Table 136. Pioneer Landscape Winter Motorized Acres by Alternative

Pioneer Landscape Winter					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
531,917	455,329	392,942	531,917	424,083	424,703

Table 137. Pioneer Summer ROS Acres by Alternative

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
1	0	198,017	169,925	200,284	5,853
2	0	214,902	166,235	187,088	5,853
3	0	267,822	127,751	172,652	5,853

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
4	0	203,025	177,982	187,218	5,853
5	0	218,081	163,722	186,422	5,853
6	0	213,737	168,066	186,422	5,853

Table 138. Pioneer Summer Travel Opportunities

Roads	Alt 1 Miles	Alt 2 Miles	Alt 3 Miles	Alt 4 Miles	Alt 5 Miles	Alt 6 Miles
Motorized wheeled travel allowed for all or part of the summer	925	915	868	919	919	914
All motorized wheeled travel restricted (not allowed)	84	94	140	89	89	95
Miles of road where opportunities would change from motorized to non-motorized	0	10	56	5	5	11
Trails						
Motorized wheeled travel allowed for all or part of the summer	259	239	183	259	259	232
All motorized wheeled travel restricted (not allowed)	192	212	268	193	193	219
Miles of trail where opportunities would change from motorized to non-motorized	0	20	76	1	1	27

Tobacco Root Landscape

Most visitors are people from surrounding small towns along with visitors from Bozeman and Butte. The landscape offers a variety of high mountain lakes with routes which include roads, OHV, and hiking trails. This area already has high occupancy rates at campgrounds along the Mill Creek Road and dispersed camping along the South Boulder and South Willow Creek roads. Recreation use is expected to increase by about 10 to 15 percent, with the highest increases expected on OHV trails.

Alternative 1 would provide a continuation of all existing recreation opportunities and activities.

Alternative 2 would have effects similar to Alternative 1, with the exception of some motorized open areas on the north end of the range where trail opportunities are limited by the steep terrain and private in-holdings. Objectives otherwise would maintain motorized opportunities where they exist within the landscape, and aim for increasing non-motorized opportunities in both seasons.

Alternative 2 would restrict motorized travel on 3 roads (4 miles) and 13 trails (23 miles) to protect recommended wilderness, protect wildlife values, and reduce user conflicts. Alternative 2 would also restrict motorized travel on 3 roads (4 miles) and 5 trails (2 miles) to provide for larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however, it would provide for a separation of users and reduce user conflicts.

Alternative 3 changes would include a loss of motorized summer trails vehicle accessed by the South Boulder Creek Road, and closure of ATV trails south of Pony (3-TR-01), and in the Twin Lakes area of North Meadow Creek (3-TR-01). These motorized opportunity losses would mostly affect area recreationists from Butte, Whitehall, Ennis, and the Bozeman area. On the other hand, this non-motorized allocation would increase non-motorized vehicle access to high mountain lakes on the east side of the Tobacco Roots, which has been an expressed need by many local users.

The Middle Mountain area is recommended for wilderness under this alternative, and would continue to receive hiking and overnight use originating from both ends of the range. Areas open to snowmobiles would be lost, mostly on the north end of the range. Routes connecting to the south side of the range, however, would remain open to snowmobiles.

Alternative 3 would restrict motorized travel on 20 roads (20 miles) and 32 trails (52 miles) to protect recommended wilderness, and roadless values, protect wildlife values, and reduce user conflicts. It would also restrict motorized travel on 7 roads (4 miles) and 3 trails (4 miles) to provide for larger areas of semi-primitive non-motorized, to protect wildlife values, protect roadless values, and reducing user conflicts. This alternative would have the greatest reduction of motorized roads and trails (80 miles) when compared to current opportunities.

Alternative 3 would result in a loss of motorized trails vehicle accessed by the South Boulder Creek Road, and the closure of ATV trails south of Pony (3-TR-01) and in the Twin Lakes area of North Meadow Creek (3-TR-01). These motorized losses would likely affect recreationists from Butte, Whitehall, Ennis, and the Bozeman area. The proposed non-motorized allocation on the east side of the Tobacco Roots responds to local requests for increased non-motorized vehicle access to high mountain lakes.

Alternative 4 would allocate exiting summer and winter non-motorized management in the forest plan and additional summer non-motorized areas between Hollowtop and Mammoth and an area around Manhead Mountain.

Alternative 4 would restrict motorized travel on 2 road (2 miles) and 2 trails (2 miles) to provide larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however it would provide for a separation of users and reduce user conflicts. Alternative 4 is very similar in its effects to current condition (Alternative 1) with only 4 roads miles being affected.

Alternative 5 would increase summer non-motorized settings by prohibiting motorized use between Manhead Mountain and Lake Louise, an area around Old Baldy Mountain (5-TR-03), and an area between Hollowtop Mountain and Mammoth (5-TR-02). These closures, however, would not result in additional non-motorized vehicle access to high mountain lakes. Selected trails, an area north of Wisconsin Creek, and an area between Mill Creek and including Meadow Creek Road, would remain open for snowmobiling. In total over 55 percent of the landscape would be closed to winter motorized travel (5W-TR-01 and 5W-TR02), including the road above Mammoth as compared to the current closure around Middle Mountain. The change to winter opportunities from mostly open to snowmobiles to over half closed would displace some snowmobilers from the northern part of the range.

Alternative 5 is the same as Alternative 4 above for roads and trails, and very similar to the current condition for effects.

Alternative 6, the preferred alternative, would be the same as those described in Alternative 5. The mixed road-based allocation (approximately 72% of the landscape) is further categorized to reflect and protect backcountry motorized opportunities (approximately 31% of the landscape). Road-based allocations encompass the front country (approximately 41% of the landscape). Management on .12 miles of Road 9373 and 1.18 miles of Trail R010206307 would change from motorized to non-motorized.

Table 139. Tobacco Root Landscape Summer Motorized Acres by Alternative

Tobacco Root Landscape Summer					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
139,933	121,890	72,382	129,800	126,182	126,366

Table 140. Tobacco Root Landscape Winter Motorized Acres by Alternative

Tobacco Root Landscape Winter					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
164,638	164,644	56,871	164,644	74,380	83,849

Table 141. Tobacco Root Summer ROS Acres by Alternative

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
1	0	37,387	59,120	72,981	4,452
2	0	48,334	50,593	70,561	4,452
3	0	82,176	22,865	64,447	4,452
4	0	39,326	59,351	70,810	4,452
5	0	40,601	59,017	69,870	4,452
6	0	39,152	60,466	69,870	4,452

Table 142. Tobacco Root Summer Travel Opportunities

Roads	Alt 1 Miles	Alt 2 Miles	Alt 3 Miles	Alt 4 Miles	Alt 5 Miles	Alt 6 Miles
Motorized wheeled travel allowed for all or part of the summer	260	258	238	259	259	259
All motorized wheeled travel restricted (not allowed)	41	43	63	41	41	41
Miles of road where opportunities would change from motorized to non-motorized	0	2	22	0	0	0
Trails						
Motorized wheeled travel allowed for all or part of the summer	90	66	33	87	87	87
All motorized wheeled travel restricted (not allowed)	75	99	132	77	77	77
Miles of trail where opportunities would change from motorized to non-motorized	0	24	57	2	2	2

Upper Clark Fork Landscape

This landscape serves as the backyard for residents of Butte with high levels of use year round. Most use is motorized, with exceptions like Molten Reservoir Cross-Country Ski Trails, hiking trails in Thompson Park, and the Continental Divide National Scenic Trail. Local visitors may be crowded out and move to adjacent landscapes for recreation.

Alternative 1 provides existing recreation opportunities and management.

Alternative 2 would be similar to Alternative 1, although objectives seek to separate mixed uses on roads (ATV and auto) in some management areas. Non-motorized loop trail opportunities in the Northeast Fleece Management Area could be provided by new construction or by converting motorized routes. Burton Park would be closed to motorized winter use, expanding cross-country ski and other quiet recreation opportunities near Butte. This may displace snowmobilers to other areas.

Alternative 2 restricts motorized travel on 2 roads (less than 1 mile) and 7 trails (5 miles) to provide larger semi-primitive non-motorized areas, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however it provides separation of users and reduces user conflicts. Alternative 2 is similar to Alternative 1, in that only 6 miles of roads or trails are affected by this alternative.

Alternative 3 increases non-motorized areas to about one-third of the landscape in summer. Motorized summer backcountry opportunities would be lost in the Northeast Fleece and in areas south of Butte. While some new snowmobile closures would take effect, the landscape remains a mix of motorized and non-motorized opportunities in winter, and receives heavy use from Butte and Anaconda residents.

Alternative 3 restricts motorized travel on 7 roads (4 miles) and 22 trails (34 miles) to provide larger semi-primitive non-motorized areas for wildlife security, to protect roadless values, and reduce user conflicts. It reduces the most motorized routes (38 miles).

Alternative 4 would be similar to Alternative 1.

Alternative 1 does not recommend restricting any roads or trails to motorized vehicle and therefore is similar or no change from Alternative 1, current condition.

Alternative 5 would result in more non-motorized summer areas than any alternative except 3, and is the highest percentage alternative for winter non-motorized areas. In summer a part of the Backyard Butte and Burton Park Management Areas would be allocated for non-motorized use (5-UCF-01 through 05). Several snowmobile routes would be open between non-motorized areas South of Butte, and lead to open areas beyond the closures (non-motorized 5W-UCF-02 through 10).

Alternative 5 would restrict motorized travel on 3 roads (2 miles) and 11 trails (14 miles) to provide for larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however it would provide for a separation of users and reduce user conflicts. Alternative 5 is very similar in its effects to Alternative 2 with only 6 and 15 miles being affected respectively.

Alternative 6, the preferred alternative, would have the same effects as those described in Alternative 5. The mixed road-based allocation (approximately 83% of the landscape) is further

categorized to reflect and protect backcountry motorized opportunities (approximately 22% of the landscape). Road-based allocations include the front country (approximately 61% of the landscape). Roads 78055, 78057, and 9305 would be closed to motorized use for a total of 1.69 miles (.64 miles, .48 miles, and .57 miles respectively). No change in management would occur on system trails.

Table 143. Upper Clark Fork Landscape Summer Motorized Acres by Alternative

Upper Clark Fork Landscape Summer					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
81,042	76,952	50,675	81,021	69,733	68,756

Table 144. Upper Clark Fork Landscape Winter Motorized Acres by Alternative

Upper Clark Fork Landscape Winter					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
74,274	72,031	59,614	74,326	54,734	56,650

Table 145. Upper Clark Fork Summer ROS Acres by Alternative

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
1	0	1,882	20,237	42,138	18,929
2	0	6,960	15,788	41,508	18,929
3	0	19,894	2,042	42,261	18,988
4	0	1,882	20,867	41,508	18,929
5	0	6,373	16,294	41,590	18,929
6	0	6,373	16,294	41,590	18,929

Table 146. Upper Clark Fork Summer Travel Opportunities

Roads	Alt 1 Miles	Alt 2 Miles	Alt 3 Miles	Alt 4 Miles	Alt 5 Miles	Alt 6 Miles
Motorized wheeled travel allowed for all or part of the summer	232	231	228	232	232	231
All motorized wheeled travel restricted (not allowed)	10	10	13	10	10	11
Miles of road where opportunities would change from motorized to non-motorized	0	0	3	0	0	1
Trails						
Motorized wheeled travel allowed for all or part of the summer	70	64	41	70	70	63
All motorized wheeled travel restricted (not allowed)	39	44	68	39	39	45
Miles of trail where opportunities would change from motorized to non-motorized	0	5	29	0	0	6

Upper Rock Creek Landscape

This landscape provides large areas of backcountry, including the Sapphire Wilderness Study Area and a portion of the Anaconda-Pintler Wilderness. In addition there are several areas with campgrounds, roads, and motorized trails for visitors seeking less crowded experiences. Groomed and un-groomed snowmobile opportunities will be provided over the life of the plan.

Alternatives 1 would be managed to maintain existing conditions and opportunities for recreation, including upgrades to infrastructure, and for other resource uses.

Alternative 2 would continue existing management could allocate areas without motorized roads and trails or areas managed non-motorized as non-motorized in summer. These areas are all near existing non-motorized; a large area west of the Willow Creek Road and several areas near the Sapphire Mountain Wilderness Study Area. Non-motorized areas would remain the same as in Alternative 1, where elk winter range and existing Wilderness are managed non-motorized in winter. Recreation users are not expected to be affected.

Alternative 2 would restrict motorized travel on 5 roads (2 miles) and 1 trail (3 miles) to protect recommended wilderness, and wilderness study areas, protect wildlife values, and reduce user conflicts. Alternative 2 would also restrict motorized travel on 8 roads (5 miles) and 6 trails (5 mile) to provide for larger areas of semi-primitive non-motorized, protect wildlife values, and reduce user conflicts. This alternative would reduce motorized roads and trails; however it would provide for a separation of users and reduce user conflicts. Alternative 2 is similar to Alternative 1 since there is only 14 miles of road affected out of approximately 300 miles, less than 1 percent of the total motorized road and trail system in this landscape.

Alternative 3 would retain vehicle vehicle access on the Skalkaho Highway, Rock Creek Road, and Willow Creek Road. Non-motorized areas in this landscape include the Quigg Recommended Wilderness, and an increase trail opportunities for hiking, mountain biking, and horseback riding trails by not allowing motorized travel in non-motorized areas (3-URC-05 and 3-URC-06). Non-motorized allocations near the Sapphire Mountain Wilderness Study Area would be largest in this alternative (3-URC-03 and 3-URC-04). The result would be the loss of most motorized backcountry trail opportunities in the landscape. A few roads would also be converted to non-motorized trails. Opportunities on non-motorized trails would remain unchanged. Snowmobile opportunities would be reduced by area closures near Stoney Campground and near the WSA.

Alternative 3 would restrict motorized travel on 40 roads (37 miles) and 12 trails (25 miles) to protect recommended wilderness and wilderness study areas, protect wildlife values, and reduce user conflicts. This alternative also restricts motorized travel on 15 roads (16 miles) and 13 trails (19 miles) to provide for additional semi-primitive non-motorized opportunities, protect wildlife values, and reduce user conflicts. The greatest reduction in motorized roads and trails (107 miles) and therefore the greatest impact to motorized opportunities, would result under this alternative.

Alternative 4 would be similar to Alternative 2 in terms of roads and trails, and similar to the current condition for effects.

Alternative 5 would be similar to Alternative 2 in summer and Alternative 3 in winter.

Alternative 5 restricts motorized travel on 18 roads (15 miles) and 7 trails (15 miles) to protect recommended wilderness, wilderness study areas, and wildlife values, and reduce user conflicts.

Alternative 5 also restricts motorized travel on 7 roads (5 miles) and 11 trails (14 miles) to provide larger semi-primitive non-motorized areas, protect wildlife values, and reduce user conflicts. This alternative reduces motorized routes; however, it provides a separation of users and reduces conflicts. Alternative 5 provides a balanced mix of travel opportunities while protecting resources, with minimal impacts to motorized recreation.

Alternative 6 is similar to Alternative 5. However additional Recommended Wilderness is proposed adjacent to existing Wilderness. The same areas were allocated non-motorized under Alternative 5. New areas are be allocated for non-motorized recreation as opposed to Recommended Wilderness under Alternative 5. The mixed road-based allocation (approximately 38% of the BDNF) is further categorized to provide and protect backcountry motorized opportunities (approximately 8% of the landscape). Road-based allocations include the front country (approximately 30% of the landscape). Specific routes which management would change from motorized to non-motorized are listed in the table below.

Table 147. Alternative 6 Travel Route Closures in Upper Rock Creek

Road No.	Miles	Trail No.	Miles
5110	0.02	R010208010	1.90
R010208011	4.98	R010208011	2.34
		R010208017	5.01
		R010208017A	0.49
		R010208129	0.64
		R010208313.2	0.62

Table 148. Upper Rock Creek Landscape Summer Motorized Acres by Alternative

Upper Rock Creek Landscape Summer					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
156,618	118,392	72,243	118,768	105,161	105,971

Table 149. Upper Rock Creek Landscape Winter Motorized Acres by Alternative

Upper Rock Creek Landscape Winter					
Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
207,874	208,052	191,821	208,052	189,377	137,995

Table 150. Upper Rock Summer ROS Acres by Alternative

Alt	Primitive	Semi-Primitive Non-motorized	Semi-Primitive Motorized	Roaded Natural	Rural
1	7,312	116,641	30,776	111,440	6,346
2	7,312	126,933	31,961	99,962	6,346
3	7,312	160,258	4,871	93,728	6,346
4	7,312	121,701	27,724	109,431	6,346
5	7,312	143,568	20,152	95,137	6,346
6	7,312	146,104	19,088	93,665	6,346

Table 151. Upper Rock Creek Summer Travel Opportunities

Roads	Alt 1 Miles	Alt 2 Miles	Alt 3 Miles	Alt 4 Miles	Alt 5 Miles	Alt 6 Miles
Motorized wheeled travel allowed for all or part of the summer	361	358	319	358	358	346
All motorized wheeled travel restricted (not allowed)	69	71	111	71	71	83
Miles of road where opportunities would change from motorized to non-motorized	0	2	42	2	2	14
Trails						
Motorized wheeled travel allowed for all or part of the summer	66	63	36	63	63	50
All motorized wheeled travel restricted (not allowed)	172	175	202	175	175	188
Miles of trail where opportunities would change from motorized to non-motorized	0	3	30	3	3	16

Cumulative Effects

The analysis area for cumulative effects includes all lands within a 100 mile radius of BDNF boundaries where most people, who work or play on the BDNF, live. The 2001 NVUM (USDA 2001) showed that over 85 % of the individuals surveyed were local or came from adjacent counties.

Travel Management by Neighboring Agencies

National and other agency decisions regarding the administration of public lands in southwest Montana are ongoing and reasonably foreseeable. Off highway vehicle travel continues to be restricted to designated routes based on the by the Tri-State OHV Decision. The Gallatin National Forest Travel Management Plan and the BLM Resource Management Plan for the Dillon Field Office have completed their respective plans. Additional restrictions to motorized uses are now being implemented.

Other travel planning efforts are underway and include the Butte Field Office of the BLM, and the Bitterroot and the Helena National Forests. Yellowstone National Park continues to implement snowmobiling restrictions that may cause additional pressure on NFS lands. All of the travel management efforts reduce motorized recreation opportunities to some degree. Conversely, the same reductions also result in new quiet opportunities for non-motorized visitors.

Hunting Regulations

The BDNF manages wildlife habitat and Montana Fish Wildlife and Parks manages game populations. Some effects from hunting regulations, such as area, road, and/or trail closures, can be expected. These restrictions are typically limited to one season as opposed to a year-long restriction.

Fire Events and Management

Recent and anticipated fire events may also influence both the levels of use and the location of use. Due to the unpredictable nature of fire, the only reasonable assumption is that some areas of the forest, particularly where there is high fuel loading, may be closed to recreation use after the fire event. This may cause increase use in other areas of the forest, particularly during hunting season.

Endangered Species Act

Regardless of alternative, listing or de-listing of species under the ESA may change types of recreation use allowed. Changes in listing could also result in availability of areas for recreation or TE&S habitat.

Legal and Administrative Framework

Laws and Executive Orders

The Multiple-Use Sustained-Yield Act (1960) – Supplements the purposes for which national forests were established and administered to include outdoor recreation, range, timber, watershed, wildlife, and fish.

Forest and Rangeland Renewable Resource Act (1974) – Directs the Secretary of Agriculture to periodically assess the forest and rangeland resources of the nation and to submit to Congress, at regular intervals, recommendations for long-range Forest Service Programs essential to meet future resource needs.

Land and Water Conservation Fund Act (1964) – “Assists in preserving, developing and assuring vehicle accessibility to all citizens of the United States of America . . . such quality and quantity of outdoor recreation resources as may be available and are necessary and desirable . . . by . . . providing funds for the federal acquisition and development of certain lands and other area.” The law also provides for the collection of daily recreation use fees for each federal agency that develops, administers, provides or furnishes, at federal expense, specialized outdoor recreation sites, facilities, equipment, or services.

National Trails System Act (1968) – Requires: “to provide for the ever-increasing outdoor recreation needs of an expanding population . . . trails should be established.”

Wilderness Act (1964) – Establishes a National Wilderness Preservation System consisting of public lands designated by Congress for that purpose.

The Architectural Barriers Act (1968) – Establishes additional requirements to individuals with disabilities. It covers architecture and design, transportation, and communication elements of recreational site planning and development.

The Americans with Disabilities Act (1990) – Establishes additional requirements to ensure that buildings, facilities, rail passenger cars, and vehicles are vehicle accessible to individuals with disabilities.

Regulation and Policy

Forest Service Manual 1920, 2310, and 2330.3.3 - “Use the land and resource management planning process to reach decisions to develop recreation sites.” This direction further instructs the Forest to develop sites and facilities to enhance natural resource-based activities normally associated with a natural environment. The Forest must consider cost efficiency, public safety, protection of the natural environment, the NFS recreation role, and provisions for people with disabilities.

Forest Service Manual 1920, 1922, 2340, and Forest Service Handbook 1909.12 – Requires that “forest plans must identify and justify sites suitable for development, operation, and use by private sector recreation providers under special use permit authority when such use and development are expected to exceed other benefits possible from those lands.”

Chapter Three

Recreation and Travel Management

Forest Service Manual 1923.03 (2): States that any area being recommended for Wilderness is not available for any use or activity that may reduce the area's Wilderness potential.

Forest Service Manual Direction, 2310.3 – Directs the Agency to “Use the Recreation Opportunity spectrum (ROS) to establish planning criteria, generate objectives for recreation, evaluate public issues, integrate management concerns, project recreation needs and demands, and coordinate management objectives.” And to use the ROS system to develop standards and guidelines for proposed recreation resource use and development.

Forest Service Manual 2352.03 - Requires the Agency to “Manage the Forest Development Trail System to carry out the objectives and direction established in the Forest Plans.” The trail system must provide a diversity of opportunities consistent with the FS recreation role and land capability and it should be cost effective in the long term. In some cases trails may be used for resource management and protection. Some trails may be designated as part of a National Trail System (*see Special Designations section, National Trails*).

Changes Draft to Final

No changes were made beyond data corrections and clarification of text.

Analysis Area

People view the BDNF from platforms on and off National Forest System lands. The analysis area for direct, indirect, and cumulative effects includes all BDNF lands and all lands with views to the forest except those affected in or by activities in the Elkhorn Mountains.

Analysis Methods and Assumptions

The effects of alternatives were analyzed by making assumptions about proposed management activities likely to occur over the life of the plan. The process and terminology contained in Ag HB 701, Landscape Aesthetics, A Handbook for Scenery Management was used in describing and evaluating existing scenic conditions and predicting the effects of implementing each alternative. Several measures were used and include: Landscape Character, Scenic Attractiveness, public concern or Concern Levels, Existing Scenic Integrity, and Scenic Integrity Objectives. Definitions for these terms and their applications can be found in the glossary.

Effects Indicators

- ◆ What changes to Landscape Character, Scenic Integrity, or Scenic Attractiveness are likely under each alternative?

Affected Environment

Forest scenery is an integral part of the larger landscape and way of life in southwest Montana. Forest lands provide a scenic backdrop for travel, work, play, and daily life. Forest scenery contributes to casual and inexpensive recreation experiences near home, and contributes to a general sense of well-being, security, and constancy. Many people point to their tie to the landscape, regardless of administration or ownership, as a major reason for living in southwest Montana.

Beyond the local level, the scenery of southwestern Montana is a factor in drawing new and return tourists to the area, as well as contributing to people's decisions to move to southwestern Montana. In addition to influencing choices in where people visit and settle, scenic conditions can influence how people perceive the health of ecosystems and can be an indicator of whether or not management practices are successful.

Landscape Character

The BDNF, except for the Madison Range, is a part of the Broad Valley Rockies Character Type. The Madison Range is a part of the Yellowstone Rockies Character Type but can easily be characterized with the rest of the forest (USDA 1980).

The overriding image of the forest and its surroundings is one of spaciousness and scenic variety. Mountain ranges are separated by broad valleys which occupy about half of the total area. Sweeping panoramas are visible from the wide valley bottoms. Transition from the valley bottom to the mountains is often on gentle slopes cut by streams. Typically the mountains are rounded and forested on top. Dramatic rocky peaks are focal points on the skyline where they are present.

Elevations range from 4500 to 6500 feet in the valleys, with mountain peaks ranging from 6500 to more than 11000 feet above sea level. Past glaciation is evident in cirque basins and trough walls, and in some of the higher mountain valley soils. Rocks and outcrops are prevalent features east of Butte in the Boulder batholith area, in the BLM managed Humbug Spires, and incidentally in other areas.

Such rivers as the Clark Fork, Jefferson, Madison, and Big Hole, while not on National Forest System lands, receive the majority of their water from streams and rivers originating on the forest. The large rivers and waterways are important for domestic water supplies, agricultural uses, and many are classified as Montana State Blue Ribbon Trout Streams. Alpine lakes and reservoirs are common in the Big Hole, Pioneer, Flint, and Tobacco Root ranges.

The pattern of vegetation offers variety, yet serves as a unifying feature across the area. Valley vegetation is mostly versions of grasslands, such as croplands, hay fields, or sagebrush grasslands with willow-lined streams. Communities every few mile along most valleys are enhanced with cottonwoods and other hardy trees. In many places the transition from valleys to mountains includes the meandering ecotone between conifer forests above and sagebrush grasslands below. In other areas the ecotone is less abrupt, with Douglas-fir or lodgepole pine parks as a transition zone between grasslands and the forested mountains. Mountain vegetation primarily consists of conifer forests interspersed with mountain grasslands, aspen groves, and willow lined streams in varying percentages of the whole. Nearly half of the all the known vegetation species found in Montana are present on the BDNF.

People have influenced the land, wildlife, and vegetation for thousands of years. Aboriginal people hunted, gathered, made tools, and managed vegetation with fire. Modern communities began with a dependence on resources from lands which are now managed by the Forest Service. Precious metals, beginning with gold, silver, and copper were mined. Area grasslands were prime opportunities for large ranching enterprises. Trees provided both lumber and fuel for smelting plants as well as households in the communities such as Gold Creek, Butte, Georgetown, and Glendale. The influence of early European settlement and mining is still evident both on and off forest. Within the perimeter many places like the ghost towns of Granite, Hecla as well as the Canyon Creek Charcoal Kilns, are noticeable remnants of these uses. Both written history and physical evidence show the wholesale logging of large areas to support the mining industry over a hundred years ago. Most historic logging areas have returned to the Douglas-fir and mature lodgepole forests of today.

The characteristic landscape of today includes the influence of people over time. Over the past one hundred years fire suppression has had widespread influence over forest, sagebrush, and grassland vegetation. Logging, mining, grazing, road building, recreation developments, and historic sites are apparent throughout this mostly natural appearing to natural evolving landscape. These changes are rarely of large enough scale and long enough duration to influence the forest landscape character.

Scenic Attractiveness

“Scenic attractiveness measures the scenic importance of a landscape based on human perceptions of the intrinsic beauty of the landform, water characteristics, vegetation pattern, and cultural uses,” (Ag HB 701, page 1-14 and R1 80-11 pages 30-37). Scenic Attractiveness Classes were mapped in 2004 using criteria established for the Broad Valley Rockies character type. Class A – Distinctive, landscapes cover 21 percent of the forest, Class B – Typical, landscapes encompass 76 percent, and Class C – Indistinct, landscapes cover the remaining 3 percent. Maps and data are in the project file at the Supervisor’s Office in Dillon.

Scenic Concern

The 1986 Beaverhead Forest Plan addressed scenery concerns by including a list of “Sensitive Routes and Sites” in Appendix D. The list provided a link between the forest plan and the Visual Management System for project NEPA. The Deerlodge Plan Standards used a ROS table and a less apparent link to the Visual Management System (VMS), with no list of sensitive routes and sites (Beaverhead Forest Plan, page II-7 and Appendix D, Deerlodge Forest Plan, pages II-16 & 17). Scenic Concern Level routes and sites are listed in Appendix A and will be used to map Landscape Visibility at project levels.

Sensitivity Level One and Two vantage points and corridors, listed in Appendix D of the 1986 Beaverhead Forest Plan, have been updated and revised to include Sensitivity Level One and Two areas for the Deerlodge portion of the forest. The list is contained in Appendix A of the revised plan and incorporate terminology and definitions of the Scenery Management System.

Existing Scenic Integrity Levels

Scenic Integrity is a measure of the degree to which the landscape is perceived as whole or complete, and a measure of the degree of deviation from the characteristic landscape within an area. Existing Scenic Integrity Levels are mapped as a condition of the land regardless of Scenic Concern and Landscape Visibility. Areas with High Scenic Integrity Levels have very few if any deviations from the natural appearing or natural evolving landscape character.

Existing Scenic Integrity Levels of High, Moderate, and Low were mapped in 2004 (Project File GIS layers). Those maps show less than 25 percent of the BDNF with Low Scenic Integrity, most of which is the result of clear-cuts and mining. More than 75 percent of the forest appears only slightly altered or appears natural as reflected by the Moderate and High Scenic Integrity Objectives.

Scenic Integrity Objectives

Scenic Integrity Objectives (SIOs) reflect the desired scenic integrity. Although not developed as part of this plan revision, SIOs will be developed to replace the Visual Quality Objectives (VQOs) of the existing forest plans. Very High, High, Moderate, Low, and Very Low Scenic Integrity objectives are defined in the glossary.

The Beaverhead Plan provided minimum VQOs for each management area, and required further analysis to develop site-specific VQOs during project analysis using a Concern Level List (Sensitive Views List in Appendix D of the current Plan). The Deerlodge Plan dictated a more complex method of analysis. Most projects which produced disturbance over the life of the plan

were analyzed using one of the methods provided, and most projects met the VQOs for the project areas. SIOs will be developed for the forest and use the components discussed above, including: Landscape Character, Scenic Attractiveness, Landscape Visibility, and the Concern Level list. Interim direction is to assess scenic integrity at the project level and establish the appropriate SIO utilizing the updated information contained in the new plan. Until Scenic Integrity is mapped forestwide the Scenic Concern List and Matrix in Appendix A will be used to map SIOs at the project level.

Environmental Consequences

Effects Summary for Alternatives

At the end of the planning period, overall Scenic Integrity would likely be higher if Alternative 3 were implemented because there are few acres of land suitable for timber production and large areas allocated to non-motorized use. Other action alternatives would result in little change to the Scenic Integrity of the forest. Since Concern Level 1 and 2 routes and sites are consistently applied across the alternatives, and resulting visibility of management activities would not change by alternative. Landscape Character and Scenic Attractiveness will likely be retained in the long term under all alternatives.

Effects Common to All Action Alternatives

Under all action alternatives the Forest Scenic Concern Level List and Scenic Integrity Objective Matrix will supplement the plan as forestwide direction. The BDNF does, and will continue to, provide outstanding scenery with high to moderate scenic integrity over most of the forest. The exception would be in areas of timber production, where existing scenic integrity and the SIO may be low.

Effects to scenery are generally limited to visible management changes that can be detected by the casual forest visitor. Generally, the types of activities which create these changes are ground disturbing activities such as road building, mining, or other excavation, construction of facilities, and vegetation management activities, including timber harvest. These activities are allowed in all alternatives, but the emphasis varies by alternative. Regardless of the alternative, the effects of management activities on scenic resources forestwide will be minimized through mitigation measures and design features to achieve the appropriate SIO.

Effects on Scenic Resources from Aquatic Resource Management

Differences in management for aquatic resources between alternatives are not expected to produce noticeably different effects to scenic resources.

Effects on Scenic Resources from IRAs and NWPS Additions

As discussed above, the same Concern Levels and protocols for protecting scenery apply to all action alternatives. Areas recommended for wilderness may afford additional protection for the scenic resources since ground disturbing management activities would be extremely limited. Alternative 3 allocates the largest amount of recommended wilderness and would therefore ensure achievement of high or very high scenic integrity in those areas. Alternative 4 does not propose additional areas for recommended wilderness, and would therefore allow more potential

for ground disturbing activities in those areas. Although effects would still be mitigated to achieve objectives for scenery, there may be short term negative effects. There are no significant differences in predicted affects from other action alternatives.

Effects on Scenic Resources from Livestock Grazing

Differences in management for livestock grazing in alternatives are not expected to produce noticeably different effects to Scenic Resources because impacts from livestock grazing are not normally visible to the casual forest visitor. The presence of cattle, while objectionable to some of the public, supports the landscape character of the Forest and the associated ranching history of the area.

Effects on Scenic Resources from Minerals and Oil and Gas

Locatable Minerals

Remnants of past mining activities are, and will continue to be visible. Future locatable mineral development shall include mitigation measures to minimize impacts to the scenic resources. Specific measures will be determined at the project level and may include adjusting the location, orientation, size and shape of the excavation and vehicle access, screening techniques, and mitigation measures specific to above ground structures and utilities. Due to the uncertainty where future mining activities will occur, it is unknown whether new mining activity will meet the objectives for scenery. This determination, along with site-specific mitigation measures to minimize impacts to the scenic resources shall be specified during project level NEPA analysis.

Oil and Gas Leasing and Development

No Surface Occupancy and Controlled Surface Use stipulations from the 1995 Beaverhead National Forest Oil and Gas Leasing (USDA 1995c) and the 1996 Record of Decision (USDA 1996a) will be carried forward and applied to revised objectives for scenery established in the forest plan. Although the acres available for leasing vary by alternative, all exploration and development will meet the established objectives for scenery.

Effects on Scenic Resources from Recreation and Travel Management

Differences in management for recreation and travel between alternatives should not produce noticeably different effects to the scenic resources. Alternative 3 may result in improved scenic conditions long term, due to the emphasis on non-motorized use, and protection of wilderness characteristics, including scenery. Other action alternatives would result in acceptable and similar effects.

Effects on Scenic Resources from Timber Suitability and Management

Under all action alternatives, scenic resource information is evaluated and Scenic Integrity Objectives are identified by management area direction or by using the Scenic Integrity Objectives Matrix for Project Planning and Design in Appendix A. Under Alternative 1, existing Management Area and forestwide standards would apply. Management in timber production allocations would continue to provide Low to Very Low Scenic Integrity, and other areas would generally provide Moderate to Very High Scenic Integrity. Mitigation measures would be used to keep the effects of harvest and other timber management activities less apparent from major highways, roads, and developed recreation sites (Concern Level One and Two areas).

All alternatives, except Alternative 3, propose lands suitable for timber production. Timber production in all alternatives will occur in areas of past timber harvest. Over the life of the plan these areas will continue to appear altered. Past clear-cuts will become less apparent, while new disturbance will be created. Timber production and resulting effects to scenic resources are expected to be similar, regardless of alternative.

Site-specific impacts depend on project location and design. Where timber products are removed, log landings and skid trails may be apparent. Some areas may be clear-cut, and have an altered appearance. Areas partially harvested may result less disturbance. Removal of wood products may occur in motorized or non-motorized areas, and signs of clearing may be obvious from roads, depending on location. Mitigation practices would be required to minimize effects to the scenery and achieve the appropriate SIO.

Effects on Scenic Resources from Vegetation Management

In all alternatives, effects to Scenic Integrity would not change significantly. Alternative 3, due to the focus on non-motorized recreation and no suitable timber base, would likely result in more “high” scenic integrity over the life of the Plan. In alternatives 1, 2, 4, 5, and 6, similar amounts of timber products are expected, whether for vegetation management or timber production. Site-specific mitigation measures would be developed at the project scale to ensure compliance with objectives for scenery. As a result, effects to scenery would be similar and acceptable under all alternatives.

Effects on Scenic Resources from Fire Management

All alternatives allow wild land fire use on 2 million or more acres. Fire effects would appear natural or nearly natural, depending on fire preparation and control efforts. Large wildland fires of several thousand acres may lower Scenic Attractiveness for the first five to ten years by reducing vegetative diversity, but in the longer term, could add to vegetative diversity and improve the Scenic Attractiveness. There is little difference between alternatives. Mitigation measures, where necessary to meet the appropriate SIO, will be designed at the project scale.

Effects on Scenic Resources from Wildlife Habitat Management

Differences in management for wildlife habitat between alternatives are not expected to change effects to scenic resources.

Cumulative Effects

Areas modified by timber harvest will continue to appear highly managed over the next 10 to 15 years and Scenic Integrity will remain Low to Very Low in those areas. Timber harvest on neighboring private, state and federal lands may influence overall scenic integrity in southwestern Montana. Harvest in the urban interface as directed by the National Fire Plan may also add to these effects. However, the scenic backdrop above the valleys will remain generally unchanged regardless of alternative. Driving for pleasure and other scenery dependent activities on the BDNF could be affected slightly by human disturbance to areas under other administrations.

Wildland fire and other disturbance processes, if large in scale and intensity, may result lowered scenic attractiveness for a few years in those areas affected by the disturbance. These effects cannot be predicted or analyzed, and the area would naturally recover over time.

Legal and Administrative Framework

Laws and Executive Orders

National Environmental Policy Act (1969) – Sets forth a national policy for the environment that provides for the enhancement of environmental quality. It states that it is the “continuing responsibility of the federal government to use all practicable means to assure for all Americans, aesthetically and culturally pleasing surroundings.” The Act directs agencies to develop practicable methodologies for **scenery management** of “aesthetically and culturally pleasing surrounding.’ It also requires a “systematic and interdisciplinary approach which will insure the integrated use of the natural and social sciences and the **environmental design arts** into planning and decision-making which may have an impact on man’s environment.”

National Forest Management Act (1976) – Directs that the preservation of aesthetic values be analyzed at all planning levels. Part 219.21 requires visual resources to be inventoried and evaluated as an integral part of evaluating alternatives in the forest planning process, addressing both the landscape’s visual attractiveness and the public’s visual expectation.

Regulation and Policy

Forest Service Manual 2380.3 – Requires the agency to “inventory, evaluate, manage, and, where necessary, restore scenery as a fully integrated part of the ecosystems of National Forest System lands through the land and resource management and planning process. Scenery must be treated equally with other resources.”

Forest Service Manual 2380.31 - Requires the use of the basic concepts, elements, principles, and variables defined in Ag HB 701, *Landscape Aesthetics, a Handbook for Scenery Management*.

Changes Draft to Final

No changes except to clarify and update the analysis.

Analysis Area

The analysis area for direct and indirect effects includes all soils directly managed by the BDNF, except the Elkhorn Mountains which is managed by the Helena National Forest, where ground disturbing activities are expected to occur, under the alternatives, for the next 15 to 20 years.

Analysis Methods and Assumptions

Soil information is an integral part of land management planning. A variety of reconnaissance soil surveys for the BDNF were completed between 1970 and 1990. The surveys were designed to meet National Cooperative Soil Survey standards. Survey data is maintained by, and available at, the BDNF Supervisor's Office in Dillon and will be used to assure compatibility between planned management activities and affected soils with the goal of maintaining or improving soil condition.

There are 134 different soils on the BDNF because of variation in topography, parent material, climate, organisms, and time. The sheer number of discrete soil types prevents detailed description. However, subsection mapping levels of the Ecological Unit mapping hierarchy generally stratifies soils into 17 mapping units shown in Figure 22.

Subsection maps are prepared by using geology, climate and landforms as criteria to differentiate map units (Cleland, et al. 1997) which permits general descriptions of major soils within the subsections because all map unit criteria affect soil formation. It is legitimate and more manageable to describe the soils and other physical environmental attributes in terms of subsections, described below. Subsections also correspond well with the landscapes, Forest subdivisions used in the planning process, as illustrated in the Revised Draft Forest Plan page 54.

The primary intent of soil management is to maintain or enhance long-term soil productivity. As a result, most soil disturbing activities are modified (best management practices, soil and water conservation practices, and Region 1 Soil Quality Standards) to avoid effects on long-term soil productivity. These modifications result in very similar soil effects for all alternatives. However, the risk of soil productivity effects increases as more land is allocated to management activities that cause soil disturbance. Region 1 Soil Quality Standards define the threshold for soil productivity effects as detrimental soil disturbance. Therefore, the risk of detrimental soil disturbance will be used to evaluate alternatives based on the area allocated to soil disturbing management activities.

Effects Indicators

- ◆ Risk of detrimental soil disturbance.

Affected Environment

Soil is a fundamental component of the environment because it is the growing medium for most plants and absorbs, stores, and filters water, releasing it slowly over time. Soil supplies water and nutrients to vegetation, which in turn supplies habitat for wildlife and other resources. All renewable resources are dependent on soil. Soil is considered a non-renewable resource because of the length of time required for its formation.

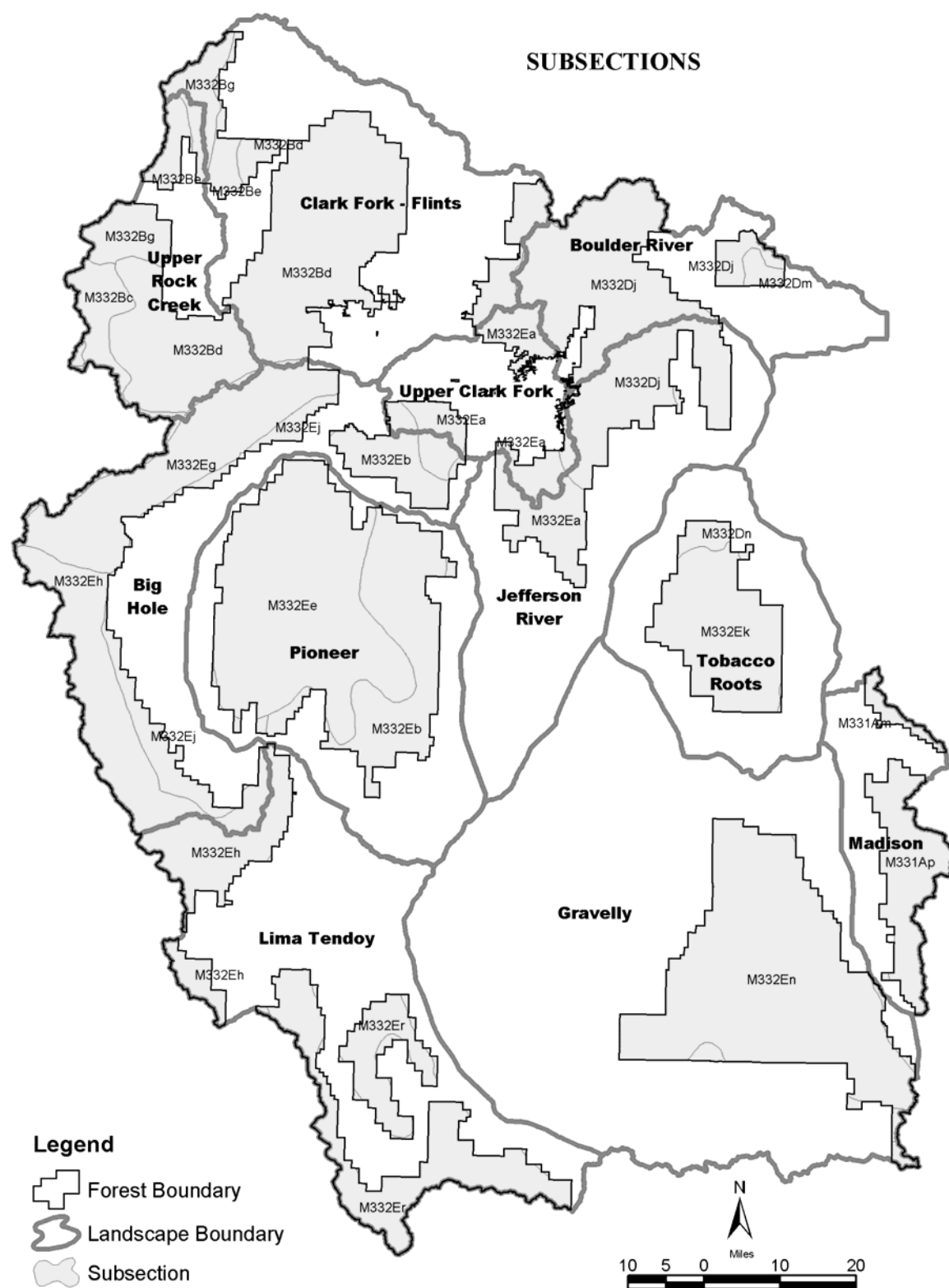


Figure 22. Map of Soil Subsections on BDNF

Subsection Descriptions

Garnet/Sapphire Mountains Subsection (M332Bg) – Mountains, hills, moraines, and valleys that formed in till, sedimentary and igneous rocks. Glaciation has modified parts of this subsection. Elevations range from 3200 to 8800 feet. Drainage density is moderate. Mean annual precipitation ranges from 13 to 40 inches, about 40 percent falling as snow.

Soils are shallow to moderately deep, cobbly and very cobbly loams and sandy loams. Some have a thin surface layer mixed with wind deposited volcanic ash. They are moderately productive and resistant to erosion.

Principal ecological concerns affecting soil quality are invasive weed species, wildfire, and flooding.

Principal management activities with the potential to affect soil quality are roads, timber harvest, grazing, mining, an electrical transmission corridor and recreational development.

Flint Creek/Upper Willow Creek Basins Subsection (M332Be) – Structural basins and low relief uplands formed in lacustrine deposits, alluvium, and metasedimentary and volcanic rocks. Elevations range from 4000 to 7000 feet. Drainage density is moderate. Wetlands are common within the basins. Mean annual precipitation ranges from 11 to 20 inches, about 30 percent falling as snow.

Soils in the basins are deep loams, clay loams and clays. They are moderately productive, easily eroded, and are moderately susceptible to rutting and compaction. Soils in some locations are susceptible to slumping. Sizable areas have soils with water tables at or near the surface.

Upland soils are shallow and moderately deep, cobbly and very cobbly loams and sandy loams, some with cobbly clay loam subsurface layers. They are moderately productive and moderately resistant to erosion.

Principal ecological concerns affecting soil quality are invasive weed species, wildfire and flooding

Principal management activities with the potential to affect soil quality are roads, timber harvest, grazing, mining, an electrical transmission corridor and recreational development.

South Anaconda/Bitterroot Mountains Subsection (M332Bc) – Mountains formed in granitic rocks with some glaciation at higher elevations. Elevations range from 3500 to 8800 feet. Drainage density is moderate and high. Lakes occur in a few high elevation cirques.

Soils are shallow to deep with a thin loamy volcanic ash surface layer over very cobbly sandy loam and loamy sand subsurface layers. They have low to moderate fertility and are easily eroded

Principal ecological concerns affecting soil quality are wildfire and flooding.

Principal management activities with the potential to affect soil quality are roads, timber harvest, grazing and some mining.

Anaconda/Flint Creek Mountains Subsection (M332Bd) – Glaciated fault block mountains formed from complexly folded and faulted sedimentary and igneous rocks. Some lower elevation slopes have been modified by mass wasting. Elevations range from 4000 to 10,200 feet.

Drainage density is moderate to high. Lakes are common in cirque basins. Mean annual precipitation ranges from 11 to 50 inches, about 55 percent falling as snow.

Soils are shallow to deep, cobbly and very cobbly sandy loams and loams. Most have a thin loamy volcanic ash surface layer. Some at lower elevations have cobbly clay loam subsurface layers. Productivity ranges from low to moderately high. Most soils are resistant to erosion but those formed in granitic sources and Tertiary sediments are easily eroded. Soils in Tertiary sediments are also susceptible to rutting, compaction, and slumping.

Principal ecological concerns affecting soil quality are invasive weed species, wildfire and flooding.

Principal management activities with the potential to affect soil quality are roads, timber harvest, grazing, an electrical transmission corridor, mining, and suburban and recreational development. The Anaconda/Arco Smelter superfund site is located near and within the southeastern boundary of this subsection.

Continental Divide Uplands Subsection (M332Ea) – Block faulted mountains that formed in a variety of igneous, sedimentary and metasedimentary rocks. Elevations range from 5300 to 10,200 feet. Drainage density is moderate to high. Mean annual precipitation ranges from 10 to 35 inches, about 35 percent falling as snow.

Soils are shallow to moderately deep, cobbly and very cobbly sandy loams and loams. Some have heavier textured loam and clay loam subsurface layers. Soils in granitic parent material are gravelly sandy loams and loamy sands. Productivity is low to moderate. Granitic soils are easily eroded but the remainder is more erosion resistant. Locally soils are susceptible to compaction and rutting.

Principal ecological concerns affecting soil quality are invasive weed species, wildfire and flooding.

Principal management activities with the potential to affect soil quality are roads, timber harvest, grazing, mining, an electrical transmission corridor, off highway vehicle use, and suburban and recreational development. Most of the Anaconda/Arco Mine superfund site is located within this subsection.

East Pioneer Mountains Subsection (M332Eb) – Block faulted mountains that formed predominantly in limestone. Alpine glaciation has modified part of the landscape. Elevations range from 6000 to 9500 feet. Drainage density is moderate. Mean annual precipitation ranges from 10 to 25 inches, about 20 percent falling as snow.

Soils are shallow and moderately deep, cobbly loams, silt loams, and sandy loams; some with heavier textured loam and clay loam subsurface layers. Productivity is low to moderate. Soils are moderately susceptible to erosion and some are susceptible to rutting and compaction.

Principal ecological concerns affecting soil quality are invasive weed species, wildfire and flooding.

Principal management activities with the potential to affect soil quality are roads, timber harvest, grazing, mining, off highway vehicle use, and recreational development.

West Pioneer Mountains Subsection (M332Ee) – Block faulted mountains formed in granite and a variety of sedimentary and metasedimentary rocks. Glaciation has modified part of the

landscape. Elevations range from 5500 to 10,200 feet. Drainage density is moderate to high. Mean annual precipitation ranges from 15 to 30 inches, about 35 percent falling as snow.

Soils are shallow to deep. They are gravelly sandy loams and loamy sands in the granite and cobbly sandy loams and loams elsewhere. Some have heavier textured subsurface layers. All soils are moderately productive. The granite soils are easily eroded. Locally, soils are susceptible to rutting, compaction, and slumping. Sizeable areas have soils with water tables at or near the surface.

Principal ecological concerns affecting soil quality are invasive weeds, wildfire and flooding.

Principal management activities with the potential to affect soil quality are roads, timber harvest, grazing, mining, off-highway vehicle use and recreational development.

Anaconda Mountains Subsection (M332Eg) – Block faulted mountains formed in monzonite and granodiorite. Alpine glaciation has altered the landscape. Elevations range from 6000 to 10,900 feet. Drainage density is moderate. Mean annual precipitation ranges from 20 to 30 inches, about 35 percent falling as snow.

Soils are shallow to deep, gravelly, cobbly, and stony sandy loams and loamy sands. Volcanic ash is mixed within a thin surface soil layer at higher elevations. Productivity ranges from low to moderate. Soils have low to moderate resistance to erosion. Sizable areas have soils with water tables at or near the surface and these soils are susceptible to rutting and compaction.

Principal ecological concerns affecting soil quality are wildfire and flooding.

Principal management activities with the potential to affect soil quality are roads, timber harvest, off highway vehicles, grazing, mining, and recreational development.

Beaverhead Mountains Subsection (M332Eh) – Block faulted mountains formed in Belt metasedimentary rocks. The mountains have been modified by alpine glaciation. Elevations range from 6800 to 10,600 feet. Drainage density is moderate. Mean annual precipitation ranges from 20 to 30 inches, about 35 percent falling as snow.

Soils are shallow to deep, cobbly and very cobbly sandy loams and loams. Volcanic ash is mixed within a thin surface soil layer at higher elevations. Productivity is low and moderate and soils are generally resistant to erosion and other soil impacts.

Principal ecological concerns affecting soil quality are wildfire and flooding.

Principal management activities with the potential to affect soil quality are roads, grazing, and recreational development.

Southern Beaverhead Mountains Subsection (M332Er) – Block faulted mountains formed in a variety of igneous, metamorphic and sedimentary rocks. Alpine glaciation and mass wasting have altered the landscape. Elevations range from 7000 to 10,200 feet. Drainage density is low to moderate. Mean annual precipitation ranges from 20 to 25 inches, about 50 percent falling as snow.

Soils are quite variable with the exception that most have developed under the influence of grassland vegetation and have a dark-colored, organic rich surface layer. Other soil attributes are too variable to list.

Principal ecological concerns affecting soil quality are invasive weeds, wildfire and flooding.

Principal management activities with potential to affect soil quality are roads, grazing, off highway vehicle use, and recreational development.

Southwest Montana Intermontane Basins and Valleys Subsection (M332Ej) - Intermontane basins and broad valleys formed in alluvium, glacial deposits, and Tertiary volcanic and sedimentary materials. Elevations range from 4700 to 7600 feet. Drainage density is low. Mean annual precipitation ranges from 9 to 20 inches, about 10 percent falling as snow.

Soils formed in glacial deposits are deep, cobbly and very cobbly sandy loams and loams. Productivity is low and moderate and soils are generally resistant to erosion and other soil impacts.

Other soils are deep and moderately deep, loams, clay loams and clay with variable, but generally low, amounts of gravels, cobbles, and stones. They have moderate productivity, are easily eroded, and are susceptible to rutting and compaction.

Principal ecological concerns affecting soil quality are invasive weeds, wildfire and flooding.

Principal management activities with the potential to affect soil quality are roads, grazing, mining, and recreational and suburban development.

Ruby/Tobacco Root Mountains Subsection (M332Ek) – Block faulted mountains formed mostly in gneiss with smaller areas of quartzite, granite, shale, sandstone and limestone. Alpine glaciation has modified much of the landscape. Elevations range from 5000 to 10,600 feet. Drainage density is moderate to high. Mean annual precipitation ranges from 13 to 45 inches, about 60 percent falling as snow.

Soils are shallow to deep, cobbly and very cobbly sandy loams and loams. Productivity is low and moderate and soils are generally resistant to erosion and other soil impacts.

Principal ecological concerns affecting soil quality are invasive weeds, wildfire and flooding.

Principal management activities with the potential to affect soil quality are roads, timber harvest, grazing, mining, and recreational development.

Gravelly/Snowcrest Mountains Subsection (M332En) – Block faulted mountains formed in shale, siltstone, sandstone and a variety of deposited materials. The landscape has been modified by glaciation and mass wasting. Elevations range from 5800 to 10600 feet. Drainage density is moderate to high. Mean annual precipitation ranges from 14 to 40 inches, about 60 percent falling as snow.

Soils are deep, clay loams and clays at lower and intermediate elevations in the Ruby River and West Fork Madison River drainages. Productivity is moderate and high and soils are susceptible to mass wasting, erosion, puddling and compaction.

Other soils are shallow to deep gravelly, cobbly and stony loams and sandy loams. Productivity is low on shallow soils and moderate elsewhere. Soils are resistant, or moderately susceptible, to erosion.

Principal ecological concerns affecting soil quality are invasive weeds, wildfire, flooding and mass wasting.

Principal management activities with the potential to affect soil quality are roads, timber harvest, grazing, mining, and recreational development.

Gallatin Foothills/Spanish Peaks Subsection (M331Am) – Steep dissected mountains and rolling foothills that formed in sedimentary and metamorphic rocks. Elevations range from 5000 to 10,500 feet. Drainage density is moderate to high. Mean annual precipitation ranges from 20 to 50 inches, about 60 percent falling as snow.

Soils on the Beaverhead-Deerlodge National Forest portion of this subsection are shallow to moderately deep, cobbly and very cobbly sandy loams, loamy sands and loams, some with heavier loam and clay loam subsurface layers. Productivity is low and moderate and soils are moderately resistant to erosion and other soil impacts

Principal ecological concerns affecting soil quality are wildfire and flooding.

Grazing is the principal management activity with the potential to affect soil quality. Other management activities have little potential to affect soil quality because almost all of this subsection is either wilderness or closed to motorized activity.

Madison Mountains Subsection (M331Ap) – Steep mountains formed predominantly in gneiss and sedimentary rock with small areas of volcanic rock. The landscape has been modified by alpine glaciation. Elevations range from 7500 to 11,200 feet. Drainage density is moderate. Lakes occur in the high elevation cirque basins. Mean annual precipitation ranges from 20 to 60 inches, about 65 percent falling as snow.

Soils on the Beaverhead-Deerlodge National Forest portion of this subsection are shallow to deep, cobbly and very cobbly sandy loams and loams. Productivity is low and moderate and soils are generally resistant to erosion and other soil impacts.

Principal ecological concerns affecting soil quality are wildfire and flooding.

Grazing is the principal management activity with the potential to affect soil quality. Other management activities have little potential to affect soil quality because almost all of this subsection is either wilderness or closed to motorized activity.

Boulder/Elkhorn Mountains Subsection (M332Dj) - Mountains formed in granitic and volcanic bedrock. Alpine and ice cap glaciation has modified part of the subsection. Elevations range from 4500 to 9400 feet. Drainage density is high. Mean annual precipitation ranges from 13 to 30 inches, about 20 percent falling as snow.

Soils in volcanic parent material are shallow to moderately deep, cobbly and very cobbly sandy loams and loams. Some have heavier textured loam and clay loam subsurface layers. Soils in granitic parent material are gravelly sandy loams and loamy sands. Productivity overall is low to moderate. Granitic soils are easily eroded but the remainder is more erosion resistant. Locally soils are susceptible to compaction and rutting.

Principal ecological concerns affecting soil quality are invasive weed species, wildfire and flooding.

Principal management activities with the potential to affect soil quality are roads, timber harvest, grazing, mining, an electrical transmission corridor, off highway vehicles, and suburban and recreational development.

North Tobacco Root Mountains and Foothills Subsection (M332Dn) – Complex faulted mountains and foothills formed in gneiss, volcanic and a variety of sedimentary bedrock.

Elevations range from 4200 to 8000 feet. Drainage density is moderate. Mean annual precipitation ranges from 20 to 25 inches, about 35 percent falling as snow.

Soils are shallow and moderately deep, cobbly sandy loams and loams with heavier loam and clay loam subsurface layers. Productivity is low and moderate and soils are moderately resistant to erosion. Locally soils are susceptible to rutting and compaction.

Principal ecological concerns affecting soil quality are invasive weed species, wildfire and flooding.

Principal management activities with potential to affect soil quality are roads, grazing, mining, off-highway vehicles, and recreational development.

Environmental Consequences

Summary of Effects by Alternative

Soil Quality Standards have been established in Region 1 to protect long term soil productivity. These standards apply to all alternatives. Therefore effects on soils are the same in all alternatives and detrimental soil disturbance risk is used for alternative evaluation.

Alternatives were also evaluated for risk of detrimental soil disturbance from management activities such as timber harvest, livestock grazing, mineral development, motorized recreation, and vegetation management. The potential for adverse impact is based on the amount of land available for those activities. Alternative 1 could produce the highest risk of adverse soil impacts because of more area for timber production and motorized use. Behind Alternative 1, in order, are Alternatives 4, 2, 5, and 6 in of highest to lowest potential risk for detrimental soil disturbance. Alternative 3 poses the least risk because it sets aside more acres of recommended wilderness, has no land suitable for timber production, and closes the most roads. Because of the Region 1 Soil Quality Standards however, the risk of adverse soil impacts, is slight for all alternatives.

In terms of travel management, Alternatives 1 and 2 have the highest risk of adverse impacts because routes are determined by the user as opposed to a designated system. The other alternatives close any unidentified, user created roads not identified as part of the designated system.

Direct and Indirect Effects

There is little variation in soil productivity effects by alternative so the risk of detrimental soil disturbance is used to compare alternatives. Six soil disturbance categories affect soil productivity and are listed in the Soil Quality Standards. They are soil compaction, rutting, displacement, severely burned soils, erosion, and organic matter loss. The Standards also define the detrimental disturbance threshold for each. Soil productivity maintenance assures that water quality and the hydrologic cycle are not disrupted by soil impacts.

Effects on Soils from Aquatic Resource Management

Key watersheds have been identified across the Forest and are subdivided into viability and restoration watersheds. Viability watersheds will be managed to maintain their existing good hydrologic condition while restoration watersheds will be managed to improve their hydrologic

condition. Both of these classifications will maintain or improve soil conditions. The viability watersheds will emphasize protection of riparian soils, while the restoration watersheds will improve riparian soils and damaged upland soil areas.

Alternative 3 has the largest number of key watersheds identified, 135, and will have the largest effect on protecting riparian soils and improving damaged riparian and upland soils. Alternative 5 has the next largest, 72, Alternative 6 is next with 71, and Alternative 4 has 57. No key watersheds are identified in Alternatives 1 and 2 so they will be least likely to provide the benefits discussed above.

Effects on Soils from IRAs and NWPS Additions

Wilderness recommendation may increase long term soil productivity because the allocation reduces acres available for management activities which could increase soil erosion risk. Therefore, Wilderness recommendations in all alternatives will have no adverse impact on soil productivity.

Effects on Soils from Livestock Grazing Management

Livestock grazing that meets grazing standards designed to maintain or improve forage production will provide the vegetative protection to maintain and improve soil production. Local exceptions will always exist on heavily used areas such as trails, salt grounds and water developments. These areas normally have bare, compacted soil and erosion which contribute to productivity reductions on small areas within range allotments. Some areas, still recovering from past heavy grazing, have additional areas of disturbance where vegetation is inadequate to protect the soil. Cattle tend to congregate throughout allotments and cause effects that, while not as obvious as described above, increase the risk of erosion. Therefore, acres of suitable rangeland are used to evaluate the risk of soil erosion by alternative. The assumption is that larger areas used for grazing cause a proportional increase in risk of detrimental soil disturbance.

Although the variance is slight, Alternatives 1, 2, and 4 have the same and highest acres of suitable rangeland with the highest risk of adverse impact. Acres in Alternatives 3, 5 and 6 are lower but similar enough to rank the same with better protection for soil than Alternatives 1, 2, and 4.

Effects on Soils from Minerals and Oil and Gas

Soil effects from minerals management consists of disturbance from roads, drill pads, open pit and underground mines, oil well fields and developments associated with these activities. The scale of impact varies considerably by activity. Exploratory drilling for locatable minerals can involve no more than a short temporary road and a very small pad open for a short time and rehabilitated. Likely soil productivity impacts are very low to non-existent.

Oil and gas drilling, open pit mines and other activities create impacts at a much larger scale where soil productivity is eliminated for periods of months to years. When the operations close, they are required to rehabilitate and adequately revegetate disturbed areas to prevent erosion and other soil impacts. Productivity may be either lower or higher than the original soil.

Effects from minerals management occur where these activities disturb the soil. Wilderness areas are withdrawn from mineral entry and oil and gas leasing. Since the amount of designated Wilderness is the same in all alternatives, lack of soil erosion risks in Wilderness areas from

locatable mineral activity, mineral materials and oil and gas leasing is the same in all alternatives.

A variable that could affect the area available for mineral activities and associated effects to soil is the area of recommended Wilderness. Lands recommended for Wilderness by the Forest Plan are not available for oil and gas leasing or mineral material operations. If congressional action is taken to add some or all recommendations to the Wilderness system during the life of the plan, these areas will be withdrawn from mineral entry for locatable minerals. With this assumption, the alternatives can be ranked based on the amount of recommended Wilderness. Alternative 3 (706,000 acres) would have the lowest erosion risk, followed by Alternatives 6 (331,000 acres), 5 (248,000 acres), 2 (195,000 acres), 1 (174,000 acres), and 4 with none.

The rest of the forest has potential for soil disturbance from mineral activity. The Oil and Gas Leasing Decision 1996 protected soil on slopes over 60%, areas of mass failure and areas prone to failure with slopes over 35% with a no surface occupancy stipulation. Soils in areas sensitive to soil compaction were protected with a controlled surface use stipulation. The Oil & Gas Leasing FEIS (USFS 1995c) has been reviewed and the analysis of soil effects remains valid. An updated map of soil areas with no surface occupancy and controlled surface use stipulations has been prepared and is available in the project file. Checks of past drill sites on the Beaverhead show that the sites have been restored and reclaimed. Potential soil impacts are analyzed and mitigated on a case-by case basis for locatable and mineral material proposals.

Effects on Soils from Recreation and Travel Management

Recreational and transportation developments such as campgrounds, ski areas, roads and trails remove areas from the productive soil base. Soil productivity impacts are accepted as a trade-off for the desirable attributes of the facilities. However, soil productivity for campgrounds and ski areas is still desired in order to maintain the vegetative environment that adds to the recreational experience even though soil productivity reductions are inevitable. These facilities affect small areas intensively managed to maintain the desired vegetative environment and prevent erosion and sediment production. They are not evaluated further in this analysis.

Roads and trails are more extensive; they have the potential to produce on- and off-site impacts on the productive soil base; and they vary from high standard low impact to low standard high impact. Motorized road and trail use, except snowmobiles, is the focus of this evaluation because this use typically has a wider travel way and more mechanical surface disturbance and therefore higher erosion risk than other types of use.

Road and trail vehicle access is necessary for the variety of uses on the Forest. The lower the mileage needed to achieve these ends the lower the impact on the productive soil base.

Road and trail surfaces are un-vegetated, compacted, and produce concentrated runoff. Road cuts and fills are more susceptible to erosion and produce more runoff than adjacent undisturbed soil. These attributes, if uncontrolled, have the potential to erode soil on site and off site and to deposit eroded material on soil below roads and trails.

High standard roads and trails (properly located with adequate drainage and surfacing, and with vegetated cuts and fills) have few soil effects other than on the travel way. Low standard roads and trails (many are user created) are generally in poor locations, have inadequate drainage and un-vegetated cuts and fills. They have the attributes described in the previous paragraph and produce soil impacts below roads and trails.

Roads and trails closed to motorized use have a much lower risk of erosion than those with motorized use because less bare soil is exposed and is subject to much less mechanical disturbance. Alternatives 3 through 6 designate a system of roads and trails open to motorized travel and will more effectively prevent proliferation of unauthorized routes. Roads and trails in Alternatives 1 and 2 are based on the 2001 OHV Amendment which uses a visual determination of legal routes and results in more user created trails and soil disturbance.

Therefore, Alternative 1 and 2 have the highest risk of detrimental soil disturbance because more miles of roads and trails are open to motorized use with the potential for increased user created routes. The others are similar. The potential for erosion risk as described in the introduction to Direct and Indirect effects are Alternatives 4, 6, 5, and 3, from most to least potential for impacts on soils.

Effects on Soils from Timber Production

There are differences between alternatives in the number of acres allocated to land suitable for timber production, Determination of soil effects assume detrimental soil disturbance will be from equipment used for harvest, yarding, and site preparation/slash disposal activities and from roads and skid trails. The risk for erosion is highest from roads and skid trails because they expose more bare soil and have the potential to concentrate runoff, thereby increasing the erosive force of runoff. This analysis assumes risks are proportional to the acres of land suitable for timber production (Timber Management, Revised Draft Plan).

Alternative 3 offers no acres of lands suitable for timber production and the least risk of detrimental soil disturbance. Alternative 1 has the largest amount of lands suitable for timber production and the highest risk. Alternatives 4, 2, 6, and 5 pose intermediate risks, ranked in order from high to low.

Effects on Soils from Vegetation Management

Since all alternatives have the same soil standard restricting detrimental soil disturbance to no more than 15 % of the affected area, the effects are the same for all alternatives. When compared to the No-Action Alternative (the existing condition), there is no effect.

However, the alternatives do vary in the allocation and the amount and type of vegetation treatments. Mechanical vegetation treatments are assumed to produce some detrimental soil disturbance from equipment used for harvesting, yarding, and slash disposal, although within the 15% standard.

Prescribed fire for fuel reduction and vegetation management is not likely to cause detrimental soil disturbance because burns are planned in the spring and fall to prevent effects from intense soil heating. Also, the area burned is relatively small and produces a mosaic of unburned to moderately burned surfaces with little potential for erosion. These burns have the potential to prevent undesired long term soil effects from intense soil heating and from exposing large areas to soil erosion as a result of wildfire in areas with excessive fuel loads.

Mechanical treatments for aspen restoration may occur on 67,000 acres under Alternative 6, and on approximately 13,000 to 67,000 acres under Alternatives 3, 4, and 5. Alternatives 1 and 2 have no objectives for treatment acreage although mechanical means are allowed. The risk of detrimental soil disturbance from these treatments is highest for Alternative 6. Alternatives 3, 4, and 5 have lower risk because they list a range of acreages equal to or lower than Alternative 6.

They all specify active aspen restoration objectives and allow mechanical treatment as well as prescribed fire. Alternatives 1 and 2 will have low risks because treatment objectives are not listed, therefore fewer acres will likely be treated mechanically.

Conifer encroachment reduction is a low risk for detrimental soil disturbance for all alternatives because prescribed fire is the dominant method used. Prescribed fire usually does not have detrimental soil effects and may even have some beneficial effects.

Retention of old growth forest types has no adverse soil effects, because no management activities are being proposed to maintain old growth. However, retaining areas as old growth may have beneficial effects on long term soil productivity because it reduces the area susceptible to erosion risk from management activities. Therefore Alternative 3 would have the most benefit, followed by Alternatives 4 through 6, followed by Alternative 2, with Alternative 1 having the least benefits.

Effects on Soils from Fire Management

Fire is a natural process in all ecosystems managed by the BDNF. Soils and landforms reflect effects from past wildfires to varying degrees.

Wildfire, by definition, is uncontrolled in terms of timing, intensity, and extent. Soil effects from wildfire are variable but the pattern usually leaves a mosaic of large areas of benign effects with small areas of damage from intense soil heating. Large areas can be exposed to erosion for varying time periods because the protective cover of vegetation, duff and litter are consumed.

Wildfire may continue to burn large acreages across the forest, and could even increase over the next 15 years. Uncharacteristic wildfires will cause detrimental soil disturbance directly proportional to the amount of high intensity heating and area of bare soil. Prescribed fire usually does not cause this degree of disturbance and may have beneficial effects.

From a soils perspective, wildland fire use as under AMR is similar to effects of wildfire. Therefore the amount of detrimental soil disturbances should be similar to wildfire. Allowing wildland fire use in conjunction with other fuel treatments may help reduce fuels and break up areas of fuel continuity so that over time the potential for uncharacteristic wildfire can be reduced. Therefore, the effects of using wildland fire as part of an overall fire and fuel reduction program is beneficial to soils.

Alternative 1 has approximately 2,770,000 acres of land available for wildland fire use. Alternative 2 reduces that amount to 2,250,000 which has more potential for impact on soil productivity. Again, based solely on acres available Alternative 3 provides the most benefit to soils with 3,360,000 acres followed by Alternative 6, 5, 4, and 2.

Effects on Soils from Wildlife Management

No adverse or beneficial soil effects are anticipated from wildlife management for any of the alternatives and are the same as the No Action Alternative (existing condition).

Cumulative Effects

Soil productivity effects are limited spatially to an activity area. No cumulative soil effects are expected from activities that occur adjacent to BDNF lands. Conversely, no cumulative effects from activities that take place on forest lands are likely to affect soils on adjacent land.

Cumulative effects on soils are only likely where more than one activity takes place in the same area, such as grazing in a timber harvest area. However, the effects are site-specific and cannot be addressed at the Forest Plan level.

Legal and Administrative Framework

Laws and Executive Orders

Organic Administration Act of 1897 – Provides that no national forest may be established except to improve and protect the forest, or to secure favorable conditions of water flows, and to furnish a continuous supply of timber. The act is not intended to authorize the inclusion, within national forests, of lands that are more valuable for mineral or agricultural purposes.

Multiple-Use Sustained-Yield Act of 1960 – Sets forth the secondary purpose of the establishment “for outdoor recreation, range, timber, watershed, and wildlife and fish purposes.” It also states that management of the National Forests must provide “sustained yields in perpetuity without impairment of the productivity of the land.”

Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) – Requires an assessment of the present and potential productivity of the land. Regulations are to specify guidelines for land management plans developed to achieve the goals of the program that . . . ensure that timber will be harvested from NFS lands only where soil, slope, or other watershed conditions will not be irreversibly damaged.

National Forest Management Act of 1976 – This act amended the 1974 act by the addition of a section stressing maintenance of productivity and the need to protect and improve soil and water resources, and avoids permanent impairment of land productivity.

Regulation and Policy

Forest Service Manual 2550 – Soil Management, WO Amendment 2500-90-2 – Provides the policy to manage forest and rangelands in a manner that will improve soil productivity, and to use appropriate soils information systems in support of all management activities affecting, or influenced by, the soil resource. It provides overall direction for soil management which includes inventories, support services, improvement, monitoring, and data management and analysis.

1999 Regional Soil Quality Standards – Policy, direction and standards are contained in both of the following:

Forest Service Handbook 2509-18, Chapter 2, WO Supplement 2509-18-91-1 – Directs forest supervisors to: 1) Ensure that management practices and prescriptions are applied to maintain inherent long-term soil productivity and 2) approve soil quality monitoring plans within the context of Forest Plan monitoring requirements. It provides definitions and directions for developing Soil Quality Standards and monitoring of them.

Forest Service Manual 2554, R-1 Supplement 2500-99-1 – Provides the objectives to meet direction in the National Forest Management Act of 1976 and other legal mandates, and to manage National Forest System lands under ecosystem management principles without permanent impairment of land productivity and to maintain or improve soil quality. It updates and defines Regional Soil Quality Standards.

Forest Service Handbook 2509.22, Soil and Water Conservation Handbook: - provides a non-point Source Management Strategy to develop site-specific conservation practices for activities on National Forest System lands to minimize effects on soil and water resources and protect water-related beneficial uses.

Changes Draft to Final

Changes were made in formatting and wording in WSAs for clarity.

Analysis Area

The analysis area includes lands on the Beaverhead-Deerlodge National Forest except the Elkhorn Mountains. The affected area for direct and indirect effects and cumulative effects varies by designation. While effects are generally limited to the surrounding counties, each of the designations belongs to a national system. The larger system of National Trails for instance, could be affected by management of trail sections or the lands around them. Cumulative effects, then, can be seen as both local and national.

Analysis Methods and Assumptions

Designations are intended to enhance or protect specific qualities over time, and to feature recreation opportunities, ecosystem protection, or historic preservation. Some special designations, such as National Rivers, National Historic and Scenic Trails, and Wilderness, are made only by Congress. For example, Forest Service Wilderness Study Areas and Wilderness are congressionally designated and follow national direction which is locally supplemented. Other designations, such as Research Natural Areas, National Recreation Trails, and Scenic Byways, are made by agencies. Once a designation is in place it does not usually change. Allocations are more temporary in nature. Recommended or proposed Wilderness is a forest plan allocation with local direction. Another example are eligible national rivers, protected by forest plan allocation until a suitability study is completed. After the study they are either included in the National River System by Congress as a designation or released from eligibility.

The team has not provided alternative ways to manage these designations and allocations. This section is to display effects from the alternatives to these designations. Each type is reviewed to see how well the alternatives maintain important characteristics, features, or values, for which they are, or could be designated. Alternatives are also reviewed for consequences which could affect these important qualities.

Effects Indicators

- ◆ Will the qualities which led to special designations be affected by management for other resources?
- ◆ How will recreation and other resource allocations on nearby lands affect Wilderness character and integrity?
- ◆ How might forestwide resource direction affect Wilderness character in wilderness study areas?
- ◆ Will eligible wild and scenic rivers be affected?

Affected Environment

National Roads and Trails

The Pioneer Mountain Scenic Byway was designated by the Forest Service in 1987. Its designation led to reconstruction and new construction of the road and recreation facilities along it. The road provides a paved scenic route from Wise River to Highway 278 between the east and west portions of the Pioneer Mountains. The Beaverhead Forest Plan was site-specifically amended to allow recreation developments, but was not amended to specifically acknowledge or manage the Byway as a national designation. Much of the Byway and right-of-way are under the jurisdiction of Beaverhead County.

Continental Divide National Scenic Trail (CDNST) - The BDNF contains the most NFS trail miles along the route. The Forest Service is the lead agency for management of the CDNST, which lies along the Continental Divide, with some sections on the forest and others on adjacent Forests, BLM, State, and private lands. Several sections of trail were constructed or re-constructed over the last 15 years. Two overland routes where there is no constructed trail remain on the Forest. These are being planned for completion.

Management of the CDNST is guided by the 1985 CDNST Management Plan, Montana CDNST EA (1989) and additional national policy. The most recent policy requires construction and management for non-motorized uses on all newly constructed sections of the CDNST, and includes as a long term goal a non-motorized route for the entire length of the trail.

Lewis and Clark National Historic Trail (LCNHT) - The road and trail follows a route from St. Louis, Missouri to the mouth of the Columbia River in Oregon following the approximate route of the Lewis and Clark Expedition. Two portions of the trail lie on the Forest; the Lemhi Pass portion of the east to west route, and the Gibbons Pass & Trail Creek portions of the return route.

The National Park Service is the lead agency for the management of the LCNHT, but with the least disturbed portions of the routes on National Forest lands, Forest Service interest and involvement is high. The **1982 LCNHT Comprehensive** Management Plan and further NEPA guides management of the trail. *See Heritage Resource Section for more about this trail.*

Nez Perce National Historic Trail (Nee Me Poo Trail or NPNHT) - The NPNHT is a 1170 mile route from the Wallowa Valley in Oregon to Chief Joseph Battleground of the Bear Paw State Monument in north-central Montana is on the BDNF. The Forest's section follows approximately the same route as the Trail Creek section of the Lewis and Clark Trail. Another part follows the Bloody Dick road to Horse Prairie. The Forest Service is the lead agency for management of the NPNHT. The NPNHT Comprehensive Management Plan was published in 1990, and guides management of the trail.

Both the Deerlodge Forest Plan MA3, pages III-8, III-9, and the Beaverhead Forest Plan MA 29, pages III-92 through III-95, provide guidance for the management of these three scenic and historic National Trails. They also require use of the direction which can be found in their respective comprehensive plans.

There are eight designated National Recreation Trails (NRTs) on the Forest. These trails are recognized as unique recreation opportunities on the Forest. The existing Forest Plans have no direction for their use because they were designated after the Plans were approved.

May Creek National Recreation Trail is a seven mile long non-motorized summer route and winter snowmobile route from May Creek Campground to the Continental Divide paralleling Highway 43 in the Big Hole Landscape.

Pioneer Loop National Recreation Trail is a 32 mile loop trail in through the West Pioneers with varied motorized and non-motorized designation.

Wise River Polaris National Recreation Trail provides a 30 mile snowmobile route over the Pioneer Mountains Scenic Byway.

Grasshopper Loop National Recreation Trail is a three mile non-motorized trail in the southern part of the Pioneers used in summer and winter

Haystack National Recreation Trail just west of Elk Park offers a three mile hike and 2000 ft elevation gain to the top of Haystack Mountain for outstanding views of the area.

Lodgepole National Recreation Trail is a three mile loop trail through varied mountain vegetation types north of Georgetown Lake providing summer OHV travel and winter cross-country ski opportunities.

Louise Lake National Recreation Trail is a one mile trail from the end of the South Boulder Road in the Tobacco Root landscape for a spectacular hike to this lake basin near the top of the range.

Lost Cabin Lake National Recreation Trail is a three mile trail from the end of the South Boulder Road in the Tobacco Root landscape for a spectacular hike to this high mountain lake.

Research Natural Area and Botanical Special Interest Areas

The purpose of a Research Natural Area (RNA) is to preserve a wide spectrum of pristine representative areas that typify important ecological areas. An area qualifies by containing forest, shrubland, grassland, alpine, aquatic, geological; and special or unique characteristics of scientific interest and importance. In combination, RNAs form a national network of ecological areas for research, education, and maintenance of biological diversity. The objectives for Research Natural Areas are to:

1. Preserve and maintain genetic diversity.
2. Protect against serious environmental disruptions.
3. Serve as reference areas for the study of succession.
4. Provide on-site and extension educational activities.
5. Serve as baseline areas for measuring long-term ecological changes.
6. Serve as control areas for comparing results from manipulative research.
7. Monitor effects of resource management techniques and practices.

Fourteen RNAs covering 17,993 acres, and one botanical Special Interest Area (SIA) of 486 acres, are designated on the BDNF. They represent specific plant community types for study and monitoring in areas where human influence and management is minimal. RNAs and the SIA serve to protect many of the 34 Region 1 Sensitive Plant Species listed in the Biological

Evaluation. Maintaining viable populations of rare local endemics, fringe of range species, and representative habitat types in a multiple use environment is a management challenge.

Proposed Research Natural Areas

Cattle Gulch Proposed RNA is designed to meet the *Cercocarpus ledifolius*/-*Agropyron spicatum* shrubland assignment of the R1 1996 Natural Areas Assessment. It also contains a population of *Arabis fecunda* an R1 sensitive plant classified as a Heritage rank G2 species that has a very specific metamorphosed limestone substrate as its habitat.

Elkhorn Lake Proposed RNA is designed to meet a *Pinus albicaulis*/*Vaccinium scoparius* vegetation type and an alpine lake. This fulfills a need for *Pinus albicaulis* and lakes in the 1996 Natural Areas assessment.

Wilderness

Anaconda-Pintler Wilderness - The high snow-covered peaks of this Wilderness are a focal point in view from the Big Hole and Flint Creek Valleys. It contains the Goat Flat RNA and East Fork RNA. About 74 percent of this Wilderness is on the Beaverhead-Deerlodge National Forest and the remaining 26 percent is on the Bitterroot National Forest.

Mystic Lake Cabin is its only administrative site. Trail vehicle access is non-motorized from trailheads on forest roads. On the south side, trailheads are provided at Seymour, and Pintler Campgrounds. A horse camp and trailhead are available near Mussigbrod Lake. Additional vehicle access is provided by Thompson, Johnson, La Marche, West Fork Fishtrap, Mudd, and Bender Creek roads and trails. Road to trail vehicle access is provided along the northern edge at Storm Lake, Copper and Meadow Creeks, and the Middle and East Forks of Rock Creek. The area trail system includes the Continental Divide National Scenic Trail on or near the divide, depending on terrain. The trail system as a whole, is considered in good condition, with annual maintenance.

The Anaconda-Pintler Wilderness Plan and Forest Plan Amendment of 2000 provide the current direction for managing this Wilderness.

Lee Metcalf Wilderness - About 40 percent of this Wilderness is on the BDNF and the remainder on the Gallatin NF and on the Butte district of the Bureau of Land Management. Divided into four physically separate areas, the Lee Metcalf Wilderness is positioned between the Gallatin and Madison Rivers, and encompasses most of the Madison Landscape portion of the Forest. Wild canyon country along the Madison River, forest and meadow areas, wildlife, glacially carved peaks, alpine lakes and meadows, and grizzly habitat are features of this Wilderness.

This Wilderness was established with P.L. 98-140 in 1983, and is managed according to the Lee Metcalf Wilderness Management Plan, 1987, the Beaverhead Forest Plan, and Gallatin NF and Butte BLM Land Management Plans also provide direction.

Wilderness Study Areas (WSAs)

The Montana Wilderness Study Act of 1977 (PL 95-150) (MWSA) required the study of certain lands to determine their suitability for designation as wilderness in accordance with the Wilderness Act of 1964. These lands are referred to as Wilderness Study Areas (WSAs). One of

the nine areas identified in MWSA two were on the BDNF, West Pioneer WSA and Sapphire Mountains WSA. After study, analysis, and evaluation of public comments, the West Pioneer Study Report and Draft Environmental Impact Statement was completed on September 19, 1980. This report was the administrative recommendation to Congress for the land allocation and management of the area. The report recommended that all of the West Pioneer Wilderness Study Area not be managed as wilderness. Congress has not yet acted on the recommendations contained in the Study Report and Draft Environmental Impact Statement.

Language in the 1977 Act required that the areas be managed to maintain their presently existing wilderness character and potential for inclusion in the National Wilderness Preservation System. In 1996 the Montana Wilderness Association (MWA) filed a complaint that this part of the Act had been violated. The wilderness characteristics of the West Pioneer and Sapphire Mountain WSAs were assessed and the findings were published in 2003 and 2006 respectively.

Both the West Pioneer and Sapphire assessments conclude that when comparing changes between 1977 and 2002 (West Pioneers) or 2005 (Sapphire Mountains), neither the wilderness character of the area nor the potential for inclusion in the National wilderness Preservation System has diminished when looking at the WSA as a whole. Site-specific changes in resource conditions have occurred, but overall the wilderness character of the study areas, as defined by the Wilderness Act, has not diminished.

A Settlement Agreement and Stipulation for Dismissal to the MWA lawsuit in March 2007 affirms that pending completion of site-specific travel management plans in 2009, the BDNF shall manage the Sapphire and West Pioneer WSAs in accordance with applicable law and policy including but not limited to the Montana Wilderness Study Act P.L. 95-150; 91 Stat. 1243 (1977) and Forest Service Manual Section 2329.

The Sapphire Mountains Wilderness Study Area includes 56415 acres of high elevation forests topped by the rugged mountain peaks of the Bitterroot Divide. Additional acres of this WSA are found on the Bitterroot National Forest. Some of the area vegetation was burned in the fires of 2000. With the exception of Frog Pond Basin and the Myers Creek road, this area contains wilderness attributes. This area provides summer non-motorized opportunities and winter snowmobiling. Elk security is high and the area is popular for big game hunting. Ross Fork of Rock Creek contains critical bull trout habitat. The Sapphire Research Natural Area; and Bentz, Metcalf, and Hendrick FS cabins are all within this WSA.

The West Pioneer Wilderness Study Area is a 153,759 acre mostly natural area with trails and a few roads, and with cattle grazing. The vegetation is a broad mosaic of moist meadow and shrub covered bottom land mixed with conifer forests. Uplands are forested with a few rocky peaks and upland meadows. The north end of the area includes one road and motorized summer trails. Recreation opportunities include a mix of back-country non-motorized and motorized trail activities. Horse packing, backpacking, and hiking are popular in summer and in fall hunting season. Popular snowmobile trails connect the Big Hole Valley via Warm Springs to the Scenic Byway. Additional features include parts of the Pioneer Loop and Grasshopper Loop National Recreation Trails, Foolhen Cabin, and the Skull-Odell Research Natural Area.

Eligible Wild and Scenic Rivers

Eligible rivers were allocated in the previous planning period for both Forests. The Deerlodge Forest Plan identified one eligible stream. The Beaverhead Forest Plan identified eight eligible

streams in an amendment to the plan. Suitability studies have not been undertaken on any of these rivers.

A review of rivers on the Deerlodge Unit was completed in 2003. No additional rivers were found eligible. The project file contains documentation of the analysis for rivers meeting free flowing criteria required for Wild and Scenic Rivers.

Table 152. Eligible River and Stream Segments on the Beaverhead-Deerlodge National Forest.

Segment	Outstandingly Remarkable Values	Potential Classification	Length in Miles
Browns Canyon	Genetically pure westslope cutthroat trout	Wild	4.3
Deadman Creek	Recreation, wildlife, National Historic Register Site	Wild	10.2
Canyon Creek	Geologic, recreation and wildlife values, and a stream dependent historic site	Wild Recreational	4.6 6.4
Wise River	Recreational and scenic values	Recreational	13.6
Warm Springs Creek	Geologic Feature	Recreational	5.2
Mill Creek	Stream dependent National Historic Register site.	Recreational	8.0
West Fork of Madison River	Fish recruitment to Madison River	Wild Scenic Recreational	8.2 7.4 6.5
Elk River	Fish recruitment to Madison River	Wild Scenic	9.2 5.2
Rock Creek	Nationally recognized Blue Ribbon Trout Stream	Recreational	Between Gilles Bridge and Lolo NF boundary.

Environmental Consequences

Summary of Effects by Alternative

National Roads and Trails

The alternatives were reviewed for potential effects to the routes listed above. All action alternatives would provide similar management of these routes, though Alternative 3 could be slightly less favorable for the Pioneer Loop NRT due to crowding on it as one of the few remaining long trails for motorized use. Only National Scenic and Historic Trails have direction for their management in current Plans, making Alternative 1 less favorable for managing these routes. All would have Forest Plan direction in Alternatives 2, 3, 4, 5, and 6.

Wilderness

Alternatives with non-motorized lands adjacent to boundaries would be beneficial to protecting wilderness ecosystems and qualities. The order of most to least beneficial is Alternative 3, 5, 6, 2, 1, 4, based on the amount and location of these non-motorized lands.

The same order of alternatives would benefit the National Wilderness System because it is the order of the most lands protected for future inclusion into the system.

Wilderness Study Areas

While WSAs will be conserved according to law under all alternatives, Alternative 3 poses the most potential problems because the WSA would remain open to certain motorized uses while other large areas are closed, which could lead to displacement of motorized recreation to the WSAs, and effects of overuse with required corrective actions to follow. Impacts from Alternatives 2, 4, 5, and 6 would all be similar.

Eligible Wild and Scenic Rivers

All Alternatives are about equal in their protection of eligible rivers.

Effects Common to All Action Alternatives

National Roads and Trails

In all action alternatives these routes will be included as uniquely managed features in the management areas containing them, and would be managed under umbrella national, forestwide direction, and management area direction. All are listed as Scenic Concern Level One, which provides protection from apparent disturbance in views from them. The Lewis and Clark and the Nee Me Poo National Historic Trails have additional direction protecting those routes while providing for historic interpretation and public enjoyment.

All alternatives would provide management area direction which emphasizes recreation and scenery along the Pioneer Mountains Scenic Byway corridor.

Wilderness

In all action alternatives, both the Anaconda Pinter Wilderness and the Lee Metcalf Wilderness are managed under their respective Wilderness Management Plans.

Wilderness Study Areas

In all action alternatives the Sapphire WSA and the West Pioneer WSA would be managed to protect wilderness character, as it existed in 1977, and allow activities which do not degrade wilderness character. Regardless of alternative the Forest Service is obligated to complete site-specific travel management plans for both WSAs in 2009 by the 2007 Settlement Agreement with the Montana Wilderness Association. Decisions to open or close areas, or trails, may be made through those travel management plans.

Eligible Wild and Scenic Rivers

All alternatives provide protections from direct effects for rivers eligible for the National Wild and Scenic River System by including them as separately managed features within place based

management areas. National standards for designated rivers are also included in all action alternatives as forestwide standards for these allocations.

Effects on Special Designations from Aquatic Resource Management

National roads and trails, Wilderness, Wilderness Study Areas, and eligible Wild and Scenic Rivers will not generally be affected by alternative for aquatic resource management.

Effects on Special Designations from IRAs and NWPS Additions

National Roads and Trails

Wilderness recommendations would not change the management of these routes under any alternative. All alternatives are about the same.

Wilderness

Alternatives 2, 3, 5 and 6 recommend adjacent F.S. lands as additions to the Lee Metcalf and Anaconda-Pintler Wilderness. The more recommended wilderness, which increase diversity of wilderness, the greater the benefit to the National Wilderness Preservation System. From best to worst the alternatives are 3, 6, 5, 2, 1, and 4.

Wilderness Study Areas

Wilderness recommendations and their management are not expected to affect the WSAs in any alternative. The Inventoried Roadless Areas which comprise the WSAs are protected from timber harvest and road construction by the 2001 Roadless Area Conservation Rule with few exceptions.

Eligible Wild and Scenic Rivers

Wilderness recommendations and their management are not expected to affect eligible rivers in any alternative.

Effects on Special Designations from Livestock Grazing

National roads and trails, Wilderness, Wilderness Study Areas, and eligible Wild and Scenic Rivers will not be affected differently under any of the alternative management for livestock grazing. No new areas are proposed for grazing, so pressure from grazing on these resources will remain fairly static..

Effects on Special Designations from Minerals Oil and Gas

National Roads and Trails

The No Surface Occupancy (NSO) oil and gas stipulations were reviewed and found sufficient for these routes. All designated routes are protected with Stipulations, compiled with a No Surface Occupancy ½ mile buffer for Scenic Concern Level One.

Wilderness

Direction for Oil and Gas leasing on the Beaverhead includes Wilderness as administratively unavailable for leasing. The direction has been reviewed and is considered adequate to protect Wilderness.

Wilderness Study Areas

Direction for Oil and Gas leasing on the Beaverhead includes Wilderness Study Areas as administratively unavailable for leasing. The direction was reviewed and is considered adequate to protect these resources.

Eligible Wild and Scenic Rivers

Oil and Gas leasing stipulations were reviewed for Wild and Scenic Rivers, which have a No Surface Occupancy buffer. This direction was found adequate for protecting these rivers.

Effects on Special Designations from Recreation and Travel Management

National Roads and Trails

None of the alternatives would directly change recreation or travel opportunities on these routes. One indirect effect could result from Alternative 3, which closes the most area on the forest to motorized travel. Since the Pioneer Loop trail within the WSA would remain open to motorcycle use, it may become more heavily used and the use lead to reduced opportunities for solitude in this Semi-primitive area. In all other respects all alternatives are the same for these routes, and are considered about equal.

Wilderness

Wilderness itself is equally treated under the alternatives. These areas, however, may be affected by management of adjacent lands, particularly with non-motorized allocations including recommended wilderness in Alternatives 2, 3, 5, and 6. Direction in these alternatives would add to the size of the protected area and further discourage motorized trespass into Wilderness (little occurs to date). Alternative 3 has the most non-motorized next to both the Anaconda Pintler and Lee Metcalf Wildernesses, and is the best for maintaining Wilderness. Alternative 5 and 6 are similar, and second best, with enlarged non-motorized Wilderness additions for both, and additional non-motorized allocations between the south edge of the Anaconda Pintler Wilderness and trailheads south of the Wilderness. Alternative 2 is the middle alternative, with non-motorized allocation for additions to both Wildernesses. Alternative 1 and 4 are about the same, and less beneficial than the other Alternatives.

Wilderness Study Areas

Recreation and travel in the WSAs does not change by alternative. Motorized use in place prior to 1977, as established by Wilderness Characteristic Assessments completed in 2003 and 2006 may continue as allowed by law. Management on other parts of the forest, however, may affect WSAs, particularly changes proposed in Alternative 3. Alternative 3 would close large areas including trails and low standard roads to motorized use in both summer and winter. This could lead to an increase in uses on motorized routes allowed in the WSAs and negative effects from noise, user density, and erosion, reducing Wilderness qualities. All other alternatives would be similar for the WSAs.

Eligible Wild and Scenic Rivers

These rivers are equally protected by alternatives, and effects of all alternatives would be the same.

Effects on Special Designations from Timber Management

Alternative 1 had suitable timber lands which conflict with management for the National Roads and Trails. The Wilderness, Wilderness Study Areas, and Eligible Wild and Scenic Rivers are all protected in Alternative 1 from effects of managing suitable timber.

Alternatives 2, 3, 4, 5, and 6 are all about equal with regard to these designations and allocations, because these areas have all been removed from the suitable timberland and are further protected from effects of harvest by standards for their specific designations and allocations.

Effects on Special Designations from Vegetation Management

National Roads and Trails

National Roads and Trails are protected from negative effects of managing vegetation because views from them are protected from visually dominant human disturbance by Scenic Concern Level 1 status. Alternatives 2, 3, 4, 5, and 6 are all about the same. Alternative 1 is slightly less desirable because National Recreation Trails are not recognized in forest plan direction.

Wilderness

Vegetation management in Wilderness is restricted to wildland fire use in all alternatives.

Wilderness Study Areas

Protection of Wilderness character in the WSAs prohibits highly visible levels of disturbance and adequately protects the WSAs from effects of vegetation management. Alternatives 2, 3, 4, 5, and 6 are about the same for Wilderness Study Areas. Alternative 1 is less favorable because these designations were not recognized in forest plan direction.

Eligible Wild and Scenic Rivers

Under all alternatives forest plan standards would protect these rivers and their outstandingly remarkable values from effects of vegetation management. All alternatives are about the same for wild and scenic rivers.

Effects on Special Designations from Fire Management

National Roads and Trails

Fire management under Alternatives 2, 3, 4, and 5 could affect nationally scenic or historic roads and trails. While the risk is low, wildland fire use could lower scenic attractiveness levels for several years if sections of these routes burned over.

Wilderness

Wildland fire would continue as reintroduced process in both Wildernesses under all alternatives. Fire control measures would be used if and where fuels and weather increase risk of unwanted fire in or coming out of Wilderness. All alternatives provide wildland fire use in wilderness, and would have similar effects.

Wilderness Study Areas

All alternatives include the use of wildland fire in the Sapphire and West Pioneer WSAs. As with Wilderness, fire as a natural process has been removed from these landscapes by past fire suppression. Bringing fire back into these ecosystems would help retain or enhance the Wilderness character of these areas.

Eligible Wild and Scenic Rivers

It is unlikely there will be effects to these rivers. The exceptions are Canyon Creek, Deadman Creek, and Mill Creek, where a wildland fire allowed to burn, could adversely affect the stream dependent historic features (these streams are eligible due to historic features as their outstandingly remarkable values).

Effects on Special Designations from Wildlife Habitat Management

Wildlife habitat management is not expected to affect these designations and allocations because they do not call for land disturbing activities. All alternatives are about the same.

Cumulative Effects

Cumulative effects to these routes, rivers, and areas are expected to be negligible because they are protected from management, which may reduce their quality and character, and managed to be consistent with national direction for these designations.

Legal and Administrative Framework

Laws and Executive Orders

National Forest Management Act of 1976, as amended (16 U.S.C. 1600) – Requires incorporation of Wilderness management direction in forest plans and sets minimum standards for the content of the plans. Wilderness management direction is prepared in the planning process as required by 36 CFR Part 219 and FSM 1922.

National Trails System Act of 1968 (82 Stat. 919, as amended, 16 U.S.C. 1241 (Note), 1241-1249) - Established a National Trail System containing national recreation, scenic, historic, and connecting or side trails for providing trail recreation opportunities. It prescribes administrative and development matters and encourages the use of volunteers in trail programs as well as provisions for agreements to carry out the purposes of the Act. (*FSM*

2353.01a –1) National Historic Trails and National Scenic Trails are designated by Congress, while National Recreation Trails are usually designated by managing agencies.

Montana Wilderness Study Act, P.L.95-150 - The law provides direction for the Forest Service to protect wilderness character and specifically allows but does not require the continuation of uses in place in 1977.

Wild and Scenic Rivers Act (82 Stat. 906, as amended; 16 U.S.C. 1271 (Note), 1271-1287) - Establishes the National Wild and Scenic River System, designates the rivers included in the System, establishes policy for managing designated rivers, and prescribes a process for designating additions to the system.

The Wilderness Act of 1964, as enacted September 3, 1964, and amended October 21, 1978 (16 U.S.C. 1131-1136), - Directs Congress to secure for the American people an enduring resource of wilderness for the enjoyment of present and future generations. It defines wildernesses as areas “untrammeled by man” that offer outstanding opportunities for solitude. It directs agencies to manage wilderness to preserve natural ecological conditions (section 2320.6).

Regulation and Policy

Forest Service Manual 1924 - Requires a river study to assess the *eligibility* of a river for designation as a unit of the National Wild and Scenic River System as a part of the forest planning process.

Forest Service Manual 1909.12, chapter 8 - Provides eligibility criteria and the river study process.

Policy described in FSM 2322.03 – Requires “management direction for each wilderness must be stated in the forest plan as management area prescriptions with associated standards and guidelines. Each wilderness is unique as established by law; therefore, each will be identified as a separate management area.”

Other

Memorandum of Understanding (April 1989) between the Federal Highway Administration and the Forest Service - Provides guidance on the applicability of 49 U.S.C 303 and 23 U.S.C. 138 to highways included in the National Forest Scenic Byways System.

Changes Draft to Final

Revised estimated historical timber outputs from 9 MMBF to 14 MMBF.

Added a table showing Spectrum modeled Allowable Sale Quantity and Long Term sustained Yield to Chapter 3.

Clarified distinction between lands where timber harvest is allowed on lands not suitable for timber production and lands suitable for timber production.

Clarified that timber harvest and vegetation management options are not confined to lands suitable for timber production.

Clarified projected outputs do not constrain timber harvest.

Included insect and disease in analysis.

Included salvage in the analysis.

Added effects analysis for key topics including fire.

Analysis Area

The analysis area for direct, and indirect, effects is all lands that comprise the BDNF. For cumulative effects the analysis area is all BDNF lands and the immediate market area (the eight-county economic impact area) served by timber sale offerings.

Analysis Methods and Assumptions

Timber Products from Lands Suitable for Timber Production

Defining suitable timber land is basically a subtraction process. Implementation regulations of the National Forest Management Act require Forests to identify lands not suitable for timber production when revising Forest Plans. Unsuitable lands include: non-forest lands, areas physically unsuited due to fragile soils, steep slopes, wetlands, areas where reforestation cannot be assured within 5 years, or areas withdrawn from timber production by an Act of Congress, the Secretary of Agriculture or the Chief of the Forest Service.

Those lands not excluded by the criteria above are considered available for timber production; otherwise known as “tentatively suitable lands”. Tentatively suitable timber lands were analyzed in 2004 using the protocols documented in the Northern Region Consistency Paper (USDA 2004d). On the BDNF we identified 1,489,148 acres as tentatively suitable and available for further assessment for timber production. As a range of alternatives with different objectives are developed, lands are identified as “not appropriate for timber production to meet objectives”. The remaining lands are considered suited for timber production. These are also called suitable timber lands or suitable base. Acres of suitable timber land vary between alternatives depending upon management objectives for all resources within the alternative. Timber production for each

alternative is a function of the number of suitable acres, the productivity of those acres, and the financial resources projected to be available annually to produce timber for that alternative.

Acres of suitable timberland were modeled for this analysis using GIS protocol, applying defined criteria to the 2004 tentatively suitable map. Project analysis will define the actual location of suitable acres by applying the criteria for whatever alternative is selected for the revised Plan using site-specific data.

The definition of suitable timberland came into question during public comment. An extensive comment from Ecosystem Research Group indicated that NFMA regulations are straight forward and do not offer discretion on how lands suitable for timber production are defined and that lands managed for forest health and integrity objectives using timber harvest as a tool should be classified as suitable timber.

Based on NFMA regulations at CFR 219.14, both the DEIS and FEIS define suitable timber lands as those where timber production is the management emphasis. “Timber Production” is defined in 36 CFR 219.3 as “the purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use.” While management intensities may vary, these are areas where growing timber is the main emphasis. Projects can be initiated on these areas for the purpose of harvesting timber.

NFMA regulation CFR219.14(c) allows alternatives to describe a range of lands not appropriate for timber production depending on each alternative’s management objectives for various resource uses. On these lands where other resource objectives are the main emphasis, harvest can still be used as a tool. Projects can be initiated on the ground for purposes such as fuels reduction, re-establishing a different mix of stand structures, or improving wildlife habitat for example. It is important to recognize in the following discussions that timber harvest and vegetation management options are not confined to suitable timber lands.

Allowable Sale Quantity (ASQ) is the maximum amount of timber that may be offered for sale each decade for a given alternative, shown to be sustainable over time. ASQ and Long Term Sustained Yield (LTSY) were modeled for suitable timber land using the SPECTRUM model (2004). Modeling an unconstrained ASQ provides us with an upper limit or benchmark for suitable timberlands. However, it has little relevancy to realistic projections of timber outputs based on foreseeable budgets *or* projections of harvest from other forest lands. (ASQ and LTSY apply only to suitable timberlands). We also used the SPECTRUM model to project ASQ for each alternative if it were constrained to realistic budget levels. This is discussed further in the Social and Economics Effects section.

Timber Products from Other Forested Lands

Timber harvest may also occur on BDNF lands, other than suitable timberlands, to protect resource values and to meet resource objectives such as reduction of fire risk through fuel treatments, vegetation objectives, aspen restoration, conifer encroachment, wildlife habitat and salvage objectives established in the forest plan. The volume produced from these lands would be incidental to other management objectives and not included in the ASQ. However, this volume does contribute to the forest timber sale program.

The potential level of harvest from these lands varies by alternative. The variation is due primarily to the acres of land allocated to recommended wilderness, non-motorized areas, and land suitable for timber production. An estimate of the volume produced from these lands alone is not made since it is largely unpredictable and depends upon site-specific analysis and other resources objectives. In this analysis the assumption is no harvest will occur in wilderness, recommended wilderness, wilderness study areas, research natural areas, or non-motorized areas.

Relationship between Estimated Timber Outputs for Alternatives and the Allowable Sale Quantity

Estimated timber outputs are displayed for each alternative. Estimated outputs are not to be confused with ASQ. These estimates are based on the BDNF record of timber offered, budget trends, and the constrained ASQ modeled for the suitable timber lands. We updated our estimate of outputs between the DEIS and the FEIS to include 2004 and 2005 data. Increased emphasis on fuel reduction projects is bringing the levels of timber the Forest offers up to 14 million board feet (mmbf) from the previous 5 year level of 9 mmbf. We anticipate these levels will stay at this level for the next 5 years, if not through the decade.

We received many public comments requesting we keep the Forest Plan projections within realistic budgets and staffing and we have done so. This does not mean that if Congress provides a higher level of funding for timber harvest, either on suitable lands or through meeting fuel reduction objectives, we cannot respond by producing more timber. The estimated outputs are just that, estimates. They are not constraints. The modeled allowable sale quantity (ASQ) without budget constraints and the long term sustained yield (LTSY) provide the legal constraints on output from suitable timber lands for each alternative.

ASQ does not apply to the outputs from other forested lands. While we used the SPECTRUM model to generate timber outputs from the suitable base, over a million acres of land outside of the suitable base are available for timber harvest to meet other management objectives and were not included in this model. We anticipate the national trend in funding to support fuel reduction will continue and a portion of the estimated timber outputs will come from these other forested lands, regardless of alternative.

Miscellaneous Forest Products

The BDNF also produces miscellaneous forest products such as posts and poles, firewood, and Christmas trees. These products come from all classes of forest lands, except those with a statutory or administrative prohibition on harvest. Because these products can come from many classifications of forest land we did not project changes in output by alternative.

Effects Indicators

- ◆ Acres of Suitable Timberland
- ◆ Output of Timber Products

Affected Environment

Past Timber Production and Harvest

Even before the Beaverhead and Deerlodge National Forests existed, timber was harvested in southwest Montana to meet the needs of people living in the area. In the Butte and Anaconda areas, harvest related to mining, mills, and settlements was very extensive. Like many other National Forests, timber harvest on the two forests greatly increased from the 1960s through the mid 1980s. Today's timber program differs dramatically from the program that existed 20 years ago when Forest Plans were developed. The changes can be attributed to several factors; including: evolving administrative and judicial interpretations of agency legal requirements, advances in scientific understanding of how ecosystems work, and shifting public attitudes concerning management priorities for National Forest lands. Whether measured in terms of volume offered, sold, or harvested, the size of the timber sale program on this Forest and nationwide has fallen markedly in recent years.

The Beaverhead and Deerlodge Forest Plans combined project an ASQ of 40.3 mmbf on 6,000 acres a year. That harvest level was met in 1988 and 1990 but never again, (BDNF Timber Sale Cut and Sold Reports 2004). Harvest dropped to 14.7 mmbf in 1991 and volume stayed around 11 mmbf ever since.

Timber offered for harvest over the past 10 years averaged 12 million board feet. This is an increase over the numbers reported in the DEIS because of the jump from 3.5 mmbf in 2003 to a decadal high of 21.5 mmbf in 2005. This increase is attributed to initiatives related to the National Fire Plan and other national programs. Timber offered for harvest from 2003 to 2005 averaged 14 mmbf. Along with that a higher percent of the forest budget went to timber harvest and fuel reduction. We assume the capacity for producing timber on the BDNF will remain near 14 mmbf with the trend toward stable or decreasing budgets.

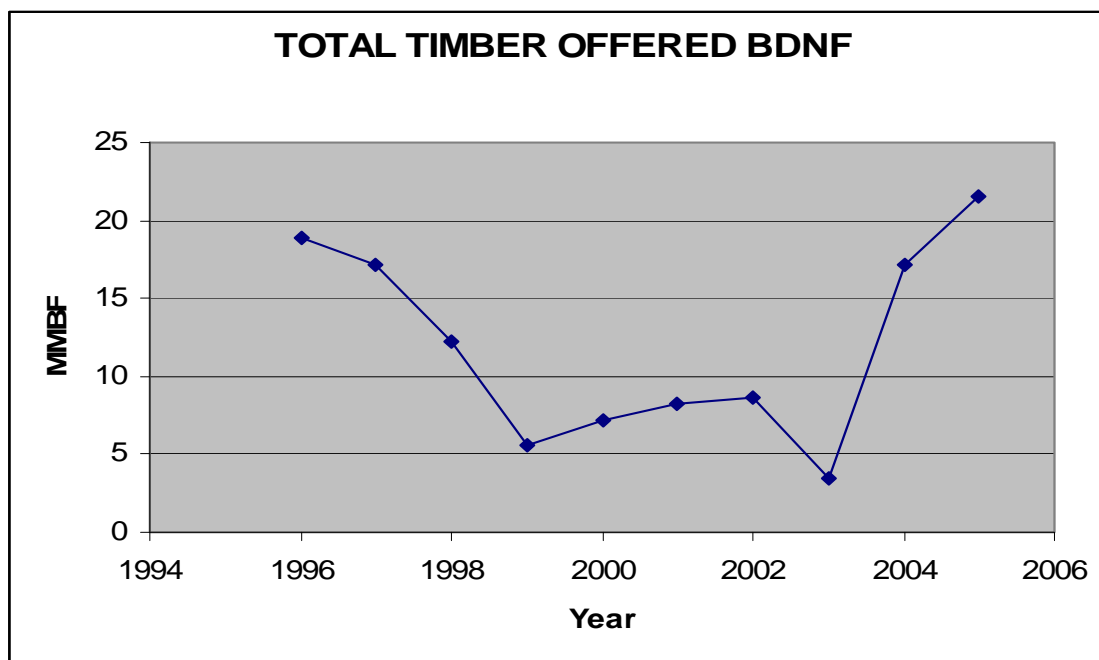


Figure 23. Timber Offered 1996 to 2005 (Source: BDNF Timber Sale Cut and Sold Reports)

Timber Management Practices and Prescriptions

The 1986 and 1987 Beaverhead and Deerlodge Forest Plans established a goal of developing healthier age and size class distributions of the timber resource through regulated non-declining flow of timber products from suitable lands. This was accomplished primarily through 40-acre clear-cuts in lodgepole pine stands to reduce mountain pine beetle infestations. Substantial volumes of timber were harvested this way in the 60s, 70s and 80s.

Clear-cutting has become increasingly controversial since the Plans were written. A 1992 policy decision was made to reduce use of this practice and clear-cut acres have steadily fallen. The 1991 Monitoring and Evaluation Report indicated 45% of harvested acres were clear-cut and 32% received selective or uneven-aged harvest. That trend has continued toward uneven-aged management and intermediate stand treatments, among others. These treatments produce lower volumes per acre than clear-cuts.

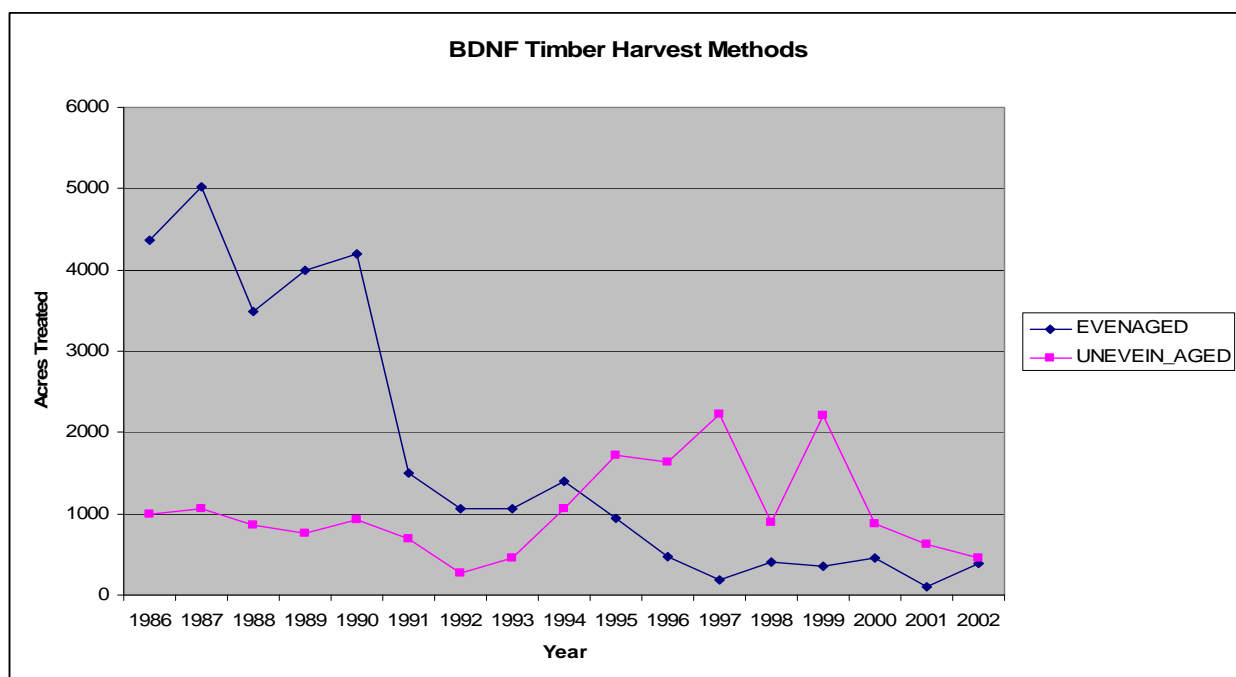


Figure 24. Timber Harvest Methods Chart (B. Schuelke query 9/04/03)

Natural and artificial regeneration methods are used. Natural regeneration methods are emphasized because they are cost-effective. Timber stand improvement (TSI) activities have been concentrated in timber sale areas to manage stand density and species composition in the sub-merchantable size classes.

Vegetation Management Practices

Landscape analyses since the last plans were written found most immediate forest health concerns result from lack of fire in aspen and Douglas-fir stands. Fire in conjunction with selective harvests is suggested as the primary tool to address these forest health concerns. Lack of disturbance in other vegetation cover types is also a concern. In 1994, the North Flints Landscape Ecology Project set the stage for the first ecosystem management based vegetation project on the forest. Since then, numerous small vegetation management projects were

conducted within the guidelines of the forest plans. Ecosystem management concepts were used to design treatment strategies in lodgepole pine, Douglas-fir, and sage/grass/aspen ecotones. About 49,000 acres of vegetation were burned for purposes other than timber production from 1989 to 1998. Seventy percent was burned in the last three years (FY98 Monitoring and Evaluation Report). Improvement of shrublands (23,127 acres) or Douglas-fir and aspen stands (10,964 acres) made up the majority of projects. These projects are scattered widely across the Forest.

Timber Supply and Demand

The Bureau of Business and Economic Research, University of Montana, prepared a report for the forest called “Capacity and Capability of Mills in the Beaverhead-Deerlodge National Forest Timber Processing Area” (Keegan et al. 2004). This report served to update the information provided in the 1986/87 plans and is the basis for the following discussion.

The BDNF has non-reserved timberland in seven Montana counties: Beaverhead, Anaconda-Deer Lodge, Granite, Jefferson, Madison, Butte-Silver Bow, and Powell. Less than 15 percent of the recent timber harvest in this seven-county area comes from this forest. Most (93 percent) of the timber harvested in these counties is from green (live) trees. Douglas-fir accounts for about 40 percent, lodgepole pine 27 percent, and spruce 12 percent of the harvest volume by species. Ponderosa pine accounts for 10 percent, while western larch and true firs combined account for about 10 percent of timber volume. Almost 90 percent of the timber harvested in these counties is used for lumber production. About 5 percent is used for veneer/plywood, 3 percent for house logs, and the remainder for post and pole and roundwood furniture manufacturers.

Timber products from the BDNF supply various industries in Beaverhead, Broadwater, Flathead, Gallatin, Granite, Jefferson, Lake, Lewis and Clark, Madison, Missoula, Park, Powell, Ravalli, and Butte-Silver Bow counties. Within these 14 counties there are 148 timber-processing facilities currently operating: 64 log home manufacturers, 38 sawmills, 25 post and pole plants, 18 log furniture manufacturers, and three plywood facilities.

According to the 30th Annual Montana Economic Outlook Seminar (2/3/05 at Butte, MT) raw material availability continues to constrain Montana’s industry. National forest timber offerings in Montana in fiscal year 2004 declined from 2003 levels.

Environmental Consequences

Summary of Alternatives

Because this forest plan projects outputs based on reasonable and foreseeable budgets there is no difference in our ability to produce timber products in Alternatives 1, 2, 5 and 6. Alternative 3 assumes the Forest will focus its limited budget on restoration activities and timber will be only a small output. Alternative 4 allocates a larger piece of the forest budget to timber production and shows an associated increase in timber outputs which may or may not be achievable based on the geo-political environment. Alternative 6 has the same projected output as Alternative 5 but allocates more suitable acres of timber. This means a higher percentage of the output (100%) could come from suitable timber lands.

Even though outputs are constrained in this analysis by budgets, all alternatives except Alternative 3 have the capacity to respond to unanticipated budget increases with a higher level of timber harvest. Alternatives 1, 2 and 4 can provide higher levels of timber production on suitable timber lands. Alternatives 1, 2, 4, 5, and 6 may supplement production with harvest from lands where timber harvest is allowed (see Revised Draft Plan Page 42)

On lands suitable for timber production there are few direct effects to timber product output from other resource management activity for all alternatives except Alternative 3 with large acres of recommended wilderness. In all others, budget constraints on timber output are more limiting than land allocations or resource objectives. On lands identified as not-suitable there are some differences in the potential outputs of timber products based on acreage where timber harvest may occur to meet other resource objectives as described in the timber protocol in the revised plan. This may change depending upon future changes in statutory or regulatory requirements in.

Direct and Indirect Effects

Effects on Timber Production from Aquatic Resource Management

Aquatic standards to protect bull trout west of the Continental Divide (INFSH) are incorporated in all alternatives. Aquatic effects are a reflection of key watershed designation by alternative. Suitable timberlands were not allocated in the fish emphasis watersheds, but there are suitable timberlands in some restoration emphasis watersheds. Alternatives 1 and 2 do not identify fish or restoration key watersheds. The watersheds were developed after the Proposed Action (2003) for the Draft EIS and therefore apply only to Alternatives 3 through 6 as displayed below.

Table 153. Number of Key Watersheds by Alternative

Key Watershed	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Fish	n/a	n/a	57	57	57	56
Restoration	n/a	n/a	78	0	15	15
Combined	0	0	135	57	72	71

There are no suitable timberlands in the fish emphasis watersheds, but there *are* in restoration emphasis watershed. Harvest by exception could occur in both but the volume harvested in these watersheds will be determined in site-specific analysis.

Effects on Timber Production from IRAs and NWPS Additions

Recommended wilderness affects timber by removing recommended acres from the suitable timber base and lands harvestable by exception to achieve other resource values. Alternative 4 proposes the most timber production with no recommended wilderness (Table 1), followed in order by Alternative 1, 2, 5, 6 and finally 3 with the most recommended wilderness and the most effect on timber production.

Effects on Timber Production from Timber Management

Lands Suitable for Timber Production

Lands suitable for timber production are managed to produce timber. These acres vary by alternative depending on the way other resource objective emphasis in alternatives affect the

suitability criteria outlined in the timber section of the plan. For example acres are reduced greatly in 3 and 6 because of acres of recommended wilderness or key watersheds.

While resource objectives vary the alternatives, the reasonably foreseeable budget allocated for timber production does not. Projections for outputs from these acres are constrained by budgets. Past budget experience allows us to make predictions based on a fairly static budget. Estimated production for the planning period is shown in the table below. Actual future production of timber products depends upon site-specific analysis, budget allocated for timber production, and volume produced by projects designed to meet other resource objectives.

Table 154. Estimate of Suitable Base Acres and Forest Products Output based on expected timber budgets

Estimates	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Suitable acres	676,000	346,000	0.0	484,000	216,000	299,000
Output (mmbf)	14	14	6	19.2	14	14

Outputs projected in the table above do not constrain harvest if Congress increases budgets for timber production or harvest for other resource objectives. The ASQ (no budget constraint) would limit the volume harvested off suitable lands. Project specific analysis would limit the volume harvested off of lands identified as not suitable for timber production. Forest product outputs could be higher than indicated in the table above for all alternatives except Alternative 3.

Table 155. Allowable Sale Quantity (ASQ) and Long Term Sustained Yield (LTSY) With and Without Budget Constraints on Suitable Timberlands in Million Board Feet.

Criteria	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
ASQ (No budget constraint)	30.5	16.7	0	22.7	10.7	13.9
LTSY (No budget constraint)	52.4	28.6	0	38.9	18.3	24.0
ASQ (\$1.8 million budget constraint)	15.7	15.7	0.0	15.7	10.4	13.2
LTSY (\$1.8 million budget constraint)	29.4	28.0	0.0	29.1	17.9	23.0
ASQ (\$2.2 million budget constraint)	Not modeled	Not modeled	0.0	19.2	Not modeled	Not modeled
LTSY (\$2.2 million budget constraint)	Not modeled	Not modeled	0.0	37.7	Not modeled	Not modeled

For alternatives 1, 2, and 4, there is more capacity to harvest on suitable lands (as indicated by the ASQ with no budget constraint) than predicted budgets will allow. The ASQ in Alternative 5 is lower than the projected output, therefore a portion of the output would come from lands not suitable but harvest is allowed by exception. The ASQ in Alternative 6 is very close to projected outputs constrained by budget. All of the timber harvest could come from lands suitable for timber production.

Lands Where Timber Harvest is Allowed

We did not estimate the volume of products that might be generated from harvest on lands **where timber harvest is allowed**. Projects designed to meet resource objectives other than timber production will vary widely and could produce a wide range of products and volumes. We discuss effects based on the variation in acres available for timber harvest between alternatives.

Table 156. Acres Where Timber Harvest is Allowed on Suitable and Unsuitable Lands

Criteria	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Suitable Timberland	676,000	346,000	0	484,000	216,000	299,000
Unsuitable Lands - Timber Harvest Allowed	768,000	1,085,000	1,259,000	1,005,000	1,197,000	1,614,000
TOTAL ACRES	1,444,000	1,431,000	1,259,000	1,489,000	1,413,000	1,913,000

Spectrum Modeled Long Term Sustained Yield and Allowable Sale Quantity with and without budget constraints on Suitable Timberlands

Total acres available for harvest vary little between Alternatives 1, 2, 4, and 5. Alternative 3 has the least. Alternative 6 has the greatest number of acres available for timber harvest because we include lands that may be the target of aspen restoration, whitebark pine restoration, or fuel reduction. This includes lands with less than 20 cubic feet of production and lands that may not be restocked with timber species.

Alternative 1 has 676,000 acres of suitable lands, 174,000 acres of recommended wilderness, and 768,000 of unsuitable lands harvestable by exception to meet other resource objectives such as aspen restoration, conifer encroachment reduction or fuel hazard reduction.

Alternative 2 has 346,000 of suitable timberlands, 195,000 acres of recommended wilderness, and 1,085,000 acres of unsuitable lands harvestable by exception to meet other resource objectives such as aspen restoration, conifer encroachment reduction or fuel hazard reduction.

Alternative 3 has no acres of suitable timberlands, 706,000 acres of recommended wilderness, and 1,259,000 acres of unsuitable lands harvestable by exception to meet other resource objectives such as aspen restoration, conifer encroachment reduction or fuel hazard reduction.

Alternative 4 has 484,000 acres of suitable timberlands, no acres of recommended wilderness, and 1,005,000 acres unsuitable lands harvestable by exception to meet other resource objectives such as aspen restoration, conifer encroachment reduction or fuel hazard reduction.

Alternative 5 has 216,000 acres of suitable timberlands, 248,000 acres of recommended wilderness, and 1,197,000 acres of unsuitable lands harvestable by exception to meet other resource objectives such as aspen restoration, conifer encroachment reduction or fuel hazard reduction.

Alternative 6 has 299,000 acres of suitable timberlands, 331,000 acres of recommended wilderness, and 1,614,000 acres of unsuitable lands harvestable by exception to meet other resource objectives such as aspen restoration, conifer encroachment reduction or fuel hazard reduction.

No effects on miscellaneous forest products are likely as a result of any alternative.

Effects on Timber Production from Livestock Grazing Management

Changes in livestock grazing by alternative will have no effect on timber production.

Effects on Timber Production from Minerals and Oil and Gas

The stipulations and mitigation for oil and gas leasing are silent about timber. Therefore, no direct effect to timber occurs from oil and gas leasing. It is possible that oil or gas leases issued in timbered areas could result in timber harvest through development of leased sites

Effects on Timber Production from Recreation and Travel Management

Recreation and travel management affect timber production by establishing resource objectives that preclude timber production, such as non-motorized allocations or areas with high scenery concerns. Effects vary based on the percentage of these allocations forestwide. Alternatives 1, 2, and 4 have the lowest percentage of land in these allocations (25, 22, and 31% respectively). Alternative 3 has the highest percentage at 54%. Alternatives 5 and 6 have 45% of the forest in recreation allocations that are not appropriate for timber production.

Designating a system of motorized roads and trails, or closing roads and trails to motorized use by area does not affect allocation of suitable timberlands or timber production from those lands.

Effects on Timber Production from Vegetation Management

Vegetation management varies by alternative in three ways: acres of aspen restoration, acres of conifer encroachment reduction, and percent of old growth retained. Effects are created when these objectives overlay with acres allocated as suitable timber. Conifer encroachment reduction will not affect acres of suitable timber as this is mostly sub-merchantable size class trees encroaching on shrublands and grasslands. It may contribute to timber harvest where biomass is harvested. This will be the case for all alternatives.

Alternative 1 has no active aspen restoration objectives or conifer reduction objectives. Therefore no effects are attributable to timber harvest or production from these objectives.

The 1986 and 1987 forest plans retain 10% of the Douglas fir and Englemann spruce type as old growth by timber compartment on the Beaverhead and 5% of *all* types by compartment on the Deerlodge as old growth. Timber in these old growth acreages is not available for harvest. The suitable timber base on the Beaverhead contains 10.9% of the Douglas-fir type and 5.5% of the Engleman spruce type. Since the Deerlodge standard applies to all forest types it retains 5% by compartment as old growth. Thus, up to 6.6 percent (1.6 on the BNF and 5% on the DNF.) of the suitable timber base in Alt 1 contains forested types that would not be harvested in order to meet the old growth standards in the 1986 and 1987 plans.

Alternative 2 emphasizes aspen restoration, allows conifer encroachment reduction but has no specific objectives and thus no specific effect on timber production. Harvest could increase in areas where merchantable timber are removed to enhance aspen but would likely decrease in the future due to suppression of coniferous species to enhance the aspen. Alternative 2 retains as old growth 8-10% of the Douglas-fir type, 10-15% of the lodgepole pine type, and all existing amounts of old growth in the remaining forest types. This alternative therefore maximizes retention of old growth on suitable timber lands or lands harvestable by exception thus reducing harvest potential the most.

Alternative 3 allocates no land suitable for timber production so old growth objectives will not constrain production. The alternative emphasizes natural processes and minimizes mechanical vegetation treatment, so even on lands which are not suitable but timber harvest is allowed, there will be low production and old growth is not likely to be constraining. Aspen and conifer encroachment objectives will be largely achieved through fire, insect and disease.

Alternative 4 and 5 have an aspen restoration objective of 13,340-66,700 acres. Harvest could increase when merchantable timber is removed to enhance aspen health. Both alternatives have an objective of 30,000 to 74,000 acres for conifer encroachment reduction. Alternative 4 and 5 retain 10% of five dominance types as old growth across the landscape. Because Alternatives 4 and 5 retain more old growth than 1, less old growth timber would be available for harvest under these alternatives, but more than 2 or 3.

Alternative 6 has an objective of 67,000 acres of aspen restoration, 74,000 acres of conifer encroachment and retention of 10% of the five dominance types existing old growth. The effects of alternative six are similar to Alternatives 4 and 5 except for the addition of 300 acres of aspen restoration and conifer encroachment reduction. The effects of old growth retention (10% by five dominance types) are the same as for alternatives 4 and 5.

Insect Infestations

The DEIS prompted a number of public comments and questions about the effect of timber harvest on current high levels of insect infestations and whether different alternatives might have more effect than others. See the Vegetation Affected Environment for a description of the extent of insect activity.

Natural events have had a strong impact on current levels of bark beetle infestation. Trees of several species notably lodgepole pine and whitebark pine grew into size classes that provide beetle breeding material while past drought and climatic conditions placed the trees at risk from moisture stress (Gibson & Aquino 2006). The epidemic has probably peaked in the Region and the BDNF (with 399,830 acres of beetle infestation in 2006 versus 408,900 in 2005) due to reduction of suitable breeding material (USDA/MTDNRC 2006d). Warm winters could continue infestations until either parasites or predators reduce beetle populations, breeding material is exhausted, or cold winters return.

Management activities such as timber harvest, prescribed fire or fuel reduction have been insignificant in altering the course of current bark beetle activity. This is illustrated by the current level of infestations and supported by research throughout the western U.S (Ayers & Lombardo 2000, Volney & Fleming 2000). Many of the conditions leading to insect population increases are beyond land manager's capability to control and are, for the most part, natural occurrences within forest stands (Campbell et al. 2005, Swetnam & Lynch 1993). Furniss & Carolin (1977) pointed out, thirty years ago, direct control by logging was of limited usefulness and generally uneconomical for controlling landscape level insect epidemics. More recently, Romme et al. (2006) reported findings that once an insect epidemic has begun management can not usually stop it.

Alternatives may affect the health of suitable timber stands on those acres where stand structure or age is modified through timber harvest. Modeling of timber stands on the BDNF by Ecosystem Research Group using SIMPPLLE 2.3, rather than SIMPPLLE 2.2 used in the DEIS, demonstrated some difference in controlling populations of lodgepole pine beetle if large enough

acreage could be treated over more than one decade. The difference resulted from an alternative that prescribed 51.3 mmbf harvest from 1,138,000 acres. However, even with 30.5 mmbf on 676,000 suitable acres under the current Plan (Alternative 1), budget, Federal laws, legal rulings, and public opinion have prevented us from treating the number of acres to achieve the result identified in that model.

While alternatives may vary some in effects on individual stand health (based on predicted timber outputs) changes in stand health resulting from logging are of limited usefulness in controlling landscape level insect epidemics.

Another public concern is being able to capture the value of timber killed by insects and disease. Under all alternatives, salvage is available as a tool on suitable timber lands and unsuitable lands where harvest is allowed.

Effects on Timber Production from Fire Management

The effect of fire on timber production depends on location and intensity. In some cases wildfire destroys timber when it burns over a timber production area. More often trees are scorched and killed but left standing. This timber is salvageable for a period of time after the burn.

Fire generally has more adverse effects on small size timber which are more susceptible to fire, such as plantations or naturally seeded regeneration sites, on suitable timberlands managed for growth and yield. In mature or old growth stands frequent low intensity understory burn will usually remove vegetation that could grow into ladder fuels putting the overstory at higher risk of a stand replacing fire in the canopy. Allowing understory and ladder fuels to accumulate in stands adapted to light understory burns such as Douglas-fir and ponderosa pine often results in the loss of the stands prior to desired harvest age. Thus low intensity burns may have a positive effect on these types of stands in fire adapted systems even on suitable timberland.

While location of wildfires across the landscape is unpredictable, the impact of wildfire on timber production will be greater for alternatives with higher acreage of suitable timber lands (see Table 1).

Effects of fire suppression will vary by conditions as much as by alternative. Fire line construction may destroy regeneration in a strip of seedlings, sapling stands, or older merchantable timber, but it's usually a small loss compared to burning up an entire stand. On suitable timberlands, suppression may be a desirable trade off.

Salvaging the value of timber stands after a wildfire is a public concern. All alternatives allow salvage on lands suitable for timber productions and lands not suitable but where harvest is allowed. Alternative 3 would likely result in the least salvage because of larger recommended wilderness acres, less road vehicle access, and few acres available for harvest. Alternatives 1 and 4 have less recommended wilderness, more road vehicle access and more acres of suitable timber where salvage might be desirable. Alternatives 2, 5 and 6 vary in acres of recommended wilderness, road vehicle access and suitable base, but the outcome for available salvage is likely similar. Whether salvaged or left to enhance soil productivity, or other resource needs, the decision is usually made by site-specific analysis and cannot be generalized in a forest plan.

There is little difference in alternatives regarding the effect of timber harvest on fire intensities. Modeling of timber stands on the BDNF by Ecosystem Research Group using SIMPPLLE 2.3

(2004) demonstrates that treatments in Alternative 1, Alternative 5 and a more aggressive treatment alternative do not show significant effects to fire occurrence.

Effects on Timber Production from Wildlife Habitat Management

No effects occur to timber production from wildlife habitat management under any alternatives. Allocations of non-motorized areas for wildlife security under Alternatives 3, 4, 5, and 6 are generally low elevation winter range or high elevation roadless habitat on the fringe of suitability for timber production. Open road density objectives vary by alternative. These objectives do not affect temporary vehicle access for logging or permanent roads if they remain closed to motorized recreation.

Wildlife considerations do affect the spatial distribution of suitable timber base in the Gravelly Landscape in which Alternatives 1 and 4 allocate land suitable for timber production. Alternatives 2, 3, 5, and 6 preclude timber production in favor of resource uses that may be incompatible with timber production: security for grizzly bear and a number of other species along with an emphasis on backcountry, undeveloped recreation.

Cumulative Effects

The analysis area for cumulative effects from timber production is the seven county area which contains the BDNF plus Broadwater County.

The DEIS identified the Lynx Conservation and Assessment Strategy (Ruediger et al. 2000) as a cumulative effect on thinning suitable timber stands. Since the DEIS was published, the Lynx FEIS and Record of Decision have been completed. The BDNF is not identified as occupied lynx territory therefore there is no cumulative effect on lynx from lynx habitat management.

As of 2004, less than 15 % of recent timber harvest in the analysis area came from the BDNF. Most of the timber harvested came from private, state, and BLM lands. Mills in this area are operating at 80% capacity (Keegan 2004). While the timber sale program has fallen markedly since plans were written in the mid-1980s, the volume has been fairly steady since 1997. Alternatives 1, 2, 5, and 6 would likely produce volumes similar to the past eight years. Alternative 3 would practically eliminate the 15% contribution. Alternative 4 could increase volume from the BDNF from 15 to 26 %. Production as a result of any alternative is not expected to exceed the capacity or capability of area mills.

Timber management on the BDNF will affect management on other lands in the analysis area. The BLM Dillon Field Office Record of Decision for the Resource Management Plan estimates an increase in timber volume. The Montana State Land Board increased the sustained yield on State Trust Lands in October 2004. These decisions, added to Alternatives 1, 2, 4, and 5 could positively affect the local timber industry. They may also ameliorate the negative effects in Alternative 3.

Timber management activities on adjacent lands may also affect BDMF management. Site-specific analysis for proposed sales considers reasonably foreseeable activities on private lands. Depending upon the level and location of such activities, BDNF management may have to be deferred, delayed or modified to meet watershed level objectives. This effect is assumed to be greatest with Alternative 4 which has the greatest amount of suitable lands, and therefore most likely to have treatments proposed in areas with adjacent timber management activity.

Legal and Administrative Framework

Laws and Executive Orders

The National Forest Management Act of 1976 - Requires identification of areas suitable and available for timber harvest and determination of the Allowable Sale Quantity (ASQ) from those lands, and the certification that harvested lands are reforested within five years of harvest.

The Forest and Rangeland Renewable Resources Planning Act (RPA) 1974 - Requires an assessment of the present and potential productivity of the land. Regulations are to specify guidelines for land management plans developed to achieve the goals of the program that “. . . insure that timber will be harvested from National Forest System lands only where . . . soil, slope, or other watershed conditions will not be irreversibly damage.”

Regulations and Policy

Chief of the Forest Service Statement, 1992 – Committed the Forest Service to the practice of ecosystem management, which is an ecological approach to managing national forests and grasslands for multiple uses.

Changes Draft to Final

1. Insect Infestation numbers were revised to accord with the 2005/2006 Bark Beetle Condition Report for the Northern Region prepared by the Forest Health Protection Missoula Field Office.
2. Forest scale Old Growth estimates based on the Region 1 Old Growth Algorithm applied to FIA data were revised to accord with changes made to the Algorithm in 2006. Cover types used in the DEIS were changed to Dominance Types as defined in the glossary using the Region 1 old growth algorithm definition.
3. Landscape old growth distribution was revised to accord with the 2006 re-run of the Region 1 old growth algorithm.
4. Current vegetation size classes for the Wildlife Ecosystem Diversity Matrix were revised using FIA data.
5. Clarified Ponderosa fire history conflict
6. Added climate change effects
7. All tables updated with current data.
8. Added current aspen research
9. Updated Biological Evaluation for Sensitive Plants

Analysis Area

The analysis area for direct and indirect effects includes all national forest lands within the Forest boundary.

Effects Indicators

- ◆ Percentage of forested types in early mid and late seral stages.
- ◆ Percentage of forested types in aspen woodland.
- ◆ Percentage of forested types in old-growth condition.
- ◆ Percentage of grassland/scrublands in early mid or late seral condition.
- ◆ Number and location of sensitive plant populations.

Analysis Methods and Assumptions

Analysts used Landscape Dynamic Simulation Model SIMPPLLE (Simulating Patterns and Processes at Landscape Scales) Version 2.2 to estimate the historic range of possible vegetative patterns that may have occurred on BDNF landscapes over the past 400 years (Chew et al. 2003).

SIMPPLLE uses a combination of habitat types, species, size class structures, and density with major ecological processes such as succession, fire, insects and disease to model potential changes in the landscape. The data inputs and procedures for SIMPPLLE are described in the User's Guide for SIMPPLLE V.2.2 (Chew et al. 2002). The Regional SILC3 vegetative cover map was used as the basis for the SIMPPLLE model. SILC3 is described in the glossary. Assumptions used in the SIMPPLLE model are reported in the project record.

Data outputs of historic range of variability (HRV) are extensive. The complete outputs and summary spreadsheets are available at the Supervisor's Office in Dillon. Please note historic numbers are based on assumptions and are not portrayed as fact. Estimates of trends are more important than actual acres. The model portrays what may have taken place about 400 years ago.

Current Vegetative Cover and Structure were obtained from Forest Inventory and Analysis (FIA) data for the BDNF.

Landscape assessments were done for nine landscapes during the 1990's. Data and estimates of trends in these assessments were compared with SIMPPLLE outputs

Scientific research articles and historic reports were reviewed and used to acquire the best available science to compare with modeled outputs.

Affected Environment

Of approximately 2000 native plant species in Montana (Shelly & Mantas 2002), 982 vascular plant species occur on the BDNF. The majority are grasses, forbs, and shrubs. Eighteen are considered trees with an additional 17 species of willow that sometimes reach tree height. Four species of ferns occur along with six species of horsetails or scouring rushes and one clubmoss and two Selaginella species were recorded from Ecodata Plots. In addition mosses and lichens are found in many habitats and more species will likely be discovered. Plant habitats range from the desert biome with species typical of the Great Basin Desert to the alpine tundra biome with coniferous forests and grasslands in between. Some species more common to the shortgrass plains to the east also occur in the inter-montane valleys.

These plant associations are largely the result of available habitats as influenced by climate. Climate oscillations result in decadal, century, and millennial vegetation responses. Studies in forests of the Sierra Nevada and the Great Basin by Millar (2003), suggest changes were quite abrupt rather than gradual and influenced successional processes. Mehringer (1996) reported that for Quaternary Vegetation systems worldwide, change has been continual and unpredictable. Under the influence of increased atmospheric carbon dioxide along with future climate scenarios that vegetation composition and structure is likely to alter from current conditions to something very different. Since a forest plan spans only 15 years it does not account for long-term responses. Within this context NEPA requires we analyze short term effects to vegetation, such as fire, insects, disease, and human activities.

In a review of historical influences in northwest forests Hessburg and Agee (2003) state “. . . fire was arguably the most important forest and rangeland disturbance process in the inland northwest United States for millennia.” Historical fire regimes occurred in southwestern Montana basins and ranges on a gradient from high severity in upper elevations to low severity in lower elevations. This includes substantial variability due to climate and slope/aspect factors.

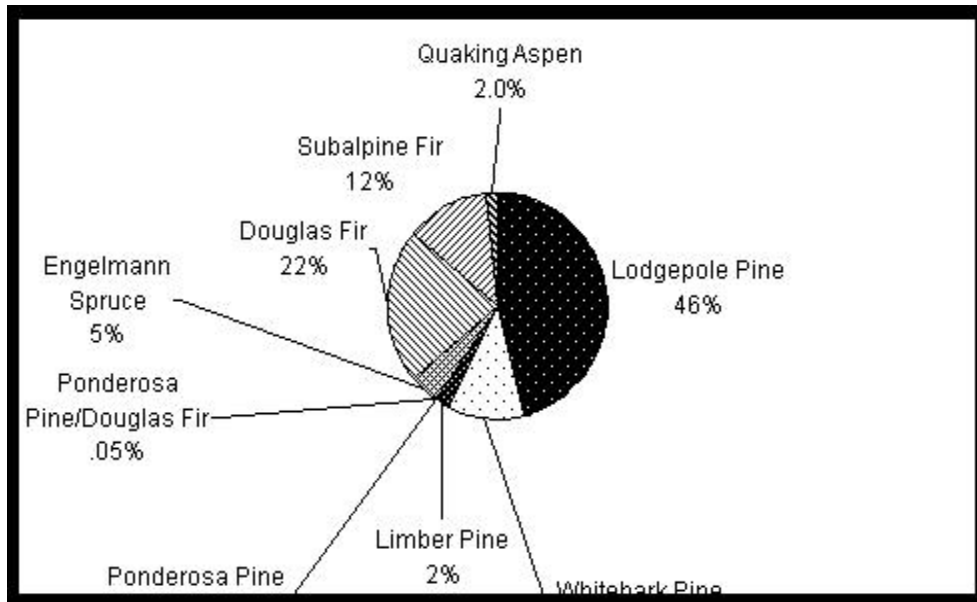


Figure 25. Approximation of Forested Types of the Beaverhead-Deerlodge National Forest

The major coniferous tree species are located in three primary zones. The Dry Foothills Zone is dominated by shrubs but includes limber pine, rocky mountain juniper and some Douglas-fir. The Cool Moist Conifer Zone is dominated by lodgepole pine, Douglas-fir, spruce, and subalpine fir. The Sub-Alpine Zone is dominated by subalpine fir, spruce and whitebark pine

The Pine sub-family is the most abundant type on the Beaverhead-Deerlodge. Four pine species and a pine/Douglas-fir mix are represented in those zones as follows.

Lodgepole pine <i>Pinus contorta</i> var <i>latifolia</i>	1,256,056 ac
Whitebark pine <i>Pinus albicaulis</i>	301,346 ac
Limber pine <i>Pinus flexilis</i>	49,855 ac
Ponderosa pine <i>Pinus ponderosa</i> var <i>ponderosa</i>	848 ac
Douglas-fir/Ponderosa pine	1435 ac
Total area of pine type	1,609,540 ac

Pines are generally fire adapted and often persist in late successional forests when fire occurs on a regular basis. Pines generally require a high light environment. Ponderosa pine is adapted to frequent low intensity fires. The Northern Region Overview (1998a) found the historical landscape structure of ponderosa pine fairly homogeneous, multi-aged, and lightly to moderately stocked. Fire regimes were typically non-lethal and at intervals of 5-40 years.

Current structural conditions are mid-seral, and densely stocked with small amounts of old growth and seedling/sapling size classes. Arno et al. (1995) suggests that restoration of Ponderosa pine stands will require reduction of dense under stories by mechanical means prior to reintroduction of fire. There is uncertainty in the fire history data for Ponderosa pine forests in general. Baker and Ehle (2001) recommend caution in applying prescribed fire to ponderosa pine forests until the fire history regime is well understood.

Other pines, such as lodgepole, tend to produce high fuel accumulations that contribute to stand replacing fires. Research by Barrett (1997) shows light or moderate intensity fires on this forest

occurred at intervals of 25-60 years and thinned many lodgepole stands without producing a stand replacement event. On cooler moist sites, longer interval fires of 150 –300 years did replace stands. About 18 percent of lodgepole types were subjected to stand replacement events.

Barrett's work also indicates one of the major changes from pre European settlement is lengthened fire intervals. From less than 50 years the intervals increased to 150 to 200 years. Barrett also showed burned areas in the lodgepole pine type decreased about 98 percent since 1900. In Trail Creek and Lemhi Passes, Losensky shows average fire frequencies of about 30-40 years in lodgepole pine types, mostly as underburns with mixed or stand replacement events every 75-100 years. He also concluded that fire had a major role in the postglacial period shaping vegetation and that noteworthy tree encroachment into grasslands occurred in the Big Hole Battlefield and Lemhi Pass areas (Losensky 2002).

Whitebark pine forms an extensive component of pine forests at most upper elevations. Arno (1989), reported wildfire is an important process for whitebark pine with fire return intervals of from 50-300 years in the Northern Rockies. Morgan et al. (1994) found that other conifers replace whitebark pine, in the absence of fire. It often survives low intensity fires but still benefits from stand replacing fire where regeneration is most successful. Keane and Arno (1993) reported that successional replacement of whitebark pine is an ongoing process enhanced by blister rust and beetle kill. This is true especially where fire exclusion reduces the opportunity for whitebark regeneration.

FIA data indicates very few whitebark stands are in the regeneration structural stage at present. There is a concern that introduced white pine blister rust (*Cronartium rubicola*) may infect and kill large numbers of the mid and late seral whitebark pines. In addition to mountain pine beetles (*Dendroctonus ponderosae*) blister rust may have adverse impacts on water and wildlife dependent on whitebark pine stands (USDA 2003). Although blister rust is found in a number of stands, mortality is not currently as high as in other Montana whitebark pine stands. The exception is moderate mortality in the southeastern portion of the forest, particularly the Gravelly Mountains. (Harry 2003).

More events than fire complicate the life cycle of whitebark pine. Arno et al. (1989) found seed dispersal is heavily dependent on birds, mainly Clark's nutcracker, to collect and cache their seeds. Grizzly bears, present in the Gravellys, make extensive use of whitebark pine nuts as an energy source usually raiding bird and squirrel seed caches

The following lists show the distribution of pine types by age classes as summarized by FIA data for the BDNF. The youngest stands represent the early seral or stand initiation phase of development. The middle class represents the mid seral component of the stands while the older class represents an approximation of the late seral stage

Lodgepole Pine

0-20 year old stands	97,072 acres	7.8%
20-120 year old stands	660,632 acres	52.6%
120+ year old stands	498,352 acres	39.6%

Limber Pine

0-20 year old stands	3,971 acres	8.0%
20-150 year old stands	33,366 acres	66.9%
150+ year old stands	12,518 acres	25.1%

Whitebark Pine

0-20 year old stands	5,885 acres	2%
20-160 year old stands	154,993 acres	51.4%
160+ year old stands	140,468 acres	46.4%

The data shows bulges in mid seral components of pine species. These stands are rather dense in number of stems per acre, often with close crown-to-crown spacing. While not unhealthy, crown-to-crown spacing places them at high risk of stand replacing fires when climate creates high burning conditions and susceptibility to insect or disease epidemics from stress related competition.

Estimates of the historic range of variability from the SIMPPLLE model reveal lodgepole pines currently exist on a much greater percentage of the landscape than estimated historic conditions. McGregor and Cole (1995) state that unmanaged lodgepole pine stands with average diameter at breast height (dbh) of 8 inches or greater, of which we have many; can sustain mountain pine beetle populations. Forest health surveys indicate recent mountain pine beetle expansion.

The spruce sub-family on the BDNF is represented by 121,982 acres of Engelmann spruce *Picea engelmannii* in cooler, moister, upper montane elevations. Pure Engelmann spruce stands are relatively rare as they are usually found in association with lodgepole pine and subalpine fir. Stringers of Engelmann spruce habitat type do occur along some montane and subalpine stream courses. This species has some of the oldest trees (461-480 years) on the forest.

Engelmann spruce by Age Class

0-20 year old stands	5,885 acres	4.8%
100-200 year old stands	97,508 acres	79.9%
200-220 year old stands	5,885 acres	4.8%
261-280 year old stands	6,834 acres	5.6%
461-480 year old stands	5,870 acres	4.8%

The larch sub-family is represented by 602,469 acres of the second most common vegetative type, Inland Douglas-fir, or Douglas-fir *Pseudotsuga menziesii* var *glauca*. This family includes subalpine larch *Larix lyallii*, a minor component in the subalpine zone. Notable stands of this tree occur above Storm Lake in the Anaconda range and in the Flint Range. .

Douglas-fir has been a major component of western montane forests since at least the mid-Pleistocene. The Northern Region Overview states, "Historical stand structures were primarily even-aged, single canopy stands on mesic sites and open grown, multi-aged stands on xeric sites.

Douglas-fir by Age Class

0-20 year old stands	18,554 acres	3%
21-200 year old stands	535,199 acres	89%
200+ year old stands	48,716 acres	8%

Landscape assessments indicate Douglas-fir; the major type in lower elevation dry forest zones is the primary conifer expanding into grasslands/ shrublands with the help of fire suppression. Work by Hansen, Wyckoff and Banfield (1995) indicates waves of Douglas-fir reproduction occurred in the Madison Range vicinity over the past century. They cite four major expansion events occurring about 1880, 1897, 1932, and 1951. These events occurred during the introduction of intense grazing, especially by sheep, to the ecosystem. The decline of many native grass species, replacement by non-natives and the interruption of natural fire cycles in shrub/grassland systems, produced conditions favorable to Douglas-fir, as well as limber pine and rocky mountain juniper.

Douglas-fir has become much denser than historic stands and is often arrayed where ladder fuels extend from ground level into the crowns of large trees. While many stands are healthy they are at risk of stand replacement fires. Competitive stress may also make them more susceptible to insect and disease epidemics.

Western spruce budworm *Choristoneura occidentalis* and Douglas-fir bark beetle *Dendroctonus pseudotsugae* are currently causing mortality in Douglas-fir. Forest health surveys in 2005 indicate western spruce budworm defoliated approximately 61,000 acres of Douglas-fir on the Beaverhead unit. Areas of Douglas-fir bark beetle infestation tend to be concentrated in areas that experienced recent fire, but are not completely mapped. The extent of infestation and mortality are related to drought and competitive stress on overly dense stands in the absence of fire.

Insect populations also vary chaotically in response to natural diseases, parasites, predators, and environmental influences. Reduction of the risk of extensive tree killing, where not desired, is a management challenge

The fir sub-family is represented by 327,852 acres of subalpine fir, (*Abies lasiocarpa*), the third most abundant type. It occurs in the cool-moist upper montane elevations and subalpine zone with whitebark pine forming the timberline tree species.

Subalpine fir by Age Class

0 - 20 year old stands	19,575 acres	5.9%
21 - 160 year old stands	193,514 acres	59%
160 + year old stands	114,961 acres	35%

The Forest Insect and Disease Report surveys indicate western balsam bark beetle *Dryocoetes confusus* in concert with the pathogenic fungus *Ophiostoma dryocoetidis* is causing considerable subalpine fir mortality on the Beaverhead unit (Gibson 2005, Gibson & Aquino 2006). Broom rusts are common on this species mostly in riparian areas but do not cause extensive tree killing.

Insect Activity in Coniferous Forests

Insect activity in coniferous forests at the landscape scale has increased substantially since the DEIS was published. Bark beetles account for the majority of this increase.

Table 157. Bark Beetle Infestation Summary, BDNF in 2005 (Gibson 2005, Gibson & Aquino 2006)

Insect	Acres infested to some degree in 2005	Acres Infested to some degree in 2006
Douglas-fir beetle	43,900	11,100
Mountain Pine Beetle	275,000	334,030
Western Pine Beetle	1800	0
Western Balsam bark beetle	88,300	54,700
Total	409,100 Approx. 15% of forested types	399,830 (Approx. 15% of forested types)

** The entire BDNF was not surveyed again in 2006. Portions were surveyed but as time moves on during insect epidemics accurate assessments become less reliable because it is difficult to distinguishing year of infestation from the air. The significant change during 2006, reported by Gibson, included approximately 60,000 acres of increased mountain pine beetle activity on the Deerlodge Unit mainly the Butte and Jefferson Ranger Districts. There were approximately 23,000 fewer infested acres on the Beaverhead unit than in 2005. Region wide Gibson reported a decreased level of activity for most bark beetle species.*

Furniss and Carolin (1977) state, “these beetles (native to the western forests) are preyed upon by a host of parasitic and predatory insects, nematodes and by birds and subzero temperatures may also kill beetle larvae.” They report about 300 species of clerid beetle occur in North America with the genera *Enoclerus* and *Thanasimus* containing important predators of western bark beetles. McGregor and Cole (1985) found northern three toed woodpeckers are one of the natural control agents, keeping mountain pine beetle populations at endemic levels. They recommend bird management as an important consideration.

Predators and parasites often lag the host build-up during epidemics leading to the appearance of widespread destruction of suitable host trees. Eventually natural controls catch up and the epidemics subside.

Prior to more in depth scientific analysis of insect epidemics it was often thought control measures must be instituted to avoid total loss of forests. Yet Furniss and Carolin (1977) pointed out, thirty years ago, direct control by logging was of limited usefulness and generally uneconomical for controlling landscape level insect epidemics. More recently Romme et al. (2006) reported findings that once an insect epidemic has begun management can not usually stop it

Controversy over logging and salvage logging of insect infested trees continues unabated at present. Especially those who consider biodiversity a primary value dispute the doctrine that insect and disease epidemics are always adverse to natural functions of forests. In a review of forest insects in Yellowstone National Park, Furniss and Renkin (2003) state, “should the diversity of Yellowstone’s insects be known in entirety, historical experience indicates that the vast majority are likely benign or beneficial to the Park’s forests in the long run.” Others see insect killed coniferous trees predominantly as a wood resource that should be used for economic reasons or a fuel hazard that should be abated.

It is unlikely that science will resolve these differences on a strategic level. Rather when the purpose and need for treatment occur on land designated for timber production, salvage of wood produced by beetle kill is appropriate. Where biodiversity is the primary purpose, insect activity would add to the dead and down wood components as well as providing niches and forage sources for a host of other organisms. Where fire hazard may exceed acceptable parameters fuel reductions may be warranted.

Modeled Historical Vegetation Cover Types

All vegetation types were either within or above the modeled historic range of variability or above 20% of the lower estimate of the historic range except for the aspen type.

Table 158 compares the current to historic variations in quaking aspen. It shows historic compared to current quaking aspen on the BDNF only. The table compares modeled quaking aspen and lodgepole pine types with current estimates. Quaking aspen and lodgepole pine are the major forest types where current conditions are outside the modeled historic range of variability. Aspen types are considerably below 20% of the modeled historic range.

Table 158. Quaking Aspen on BDNF Administered Lands by landscape

Landscape	Modeled Historic Quaking Aspen range of acres	Current acres	Low end of HRV by Percent
Madison	7,655 - 22,848	2,609	34%
Pioneer	171,881 - 252,889	1,792	1%
Tobacco root	0	27	270%
Upper Clark Fork	43,921 - 56,017	676	1.5%
Upper Rock Creek	70,132 - 102,654	132	0.1%
Lima-Tendoy	39,533 - 74,944	1,247	3%
Jefferson River	88,528 - 10,882	3,396	4%
Gravelly	49,739 - 83,295	49,721	99.9%
Clark Fork	74,404 - 119,277	1,628	2%
Big Hole	202,013 - 276,712	4,751	2.3%
Boulder River	68,055 - 114,753	671	1%
Total	815,861 - 1,207,272	66,700	8%

Table 159. Modeled Historic and Actual Current BDNF Acres of Quaking Aspen and Lodgepole Pine.

Type	Modeled Historic Acres (SIMPPLLE)	Historic Percent of Total Forest	Current Acres	Current Percent of total Forest
Quaking Aspen	815,861 - 1,207,272	23 - 34%	66,700	1.9%
Lodgepole Pine	174,401 - 405,937	5 - 12%	1,301,785	37%

SIMPPLLE model outputs were compared with estimates of aspen acres, and trends for landscape assessments. At the time landscape assessments were made it was difficult to accurately map and assess the amount of aspen present or determine historic ranges of variability. For example the use of remote sensing data used in SILC3 coverage and aerial photography fails to distinguish young or overtopped species such as declining aspen underneath conifer stands. See the glossary for information on development and assumptions of SILC3.

The Tobacco Root Landscape Assessment states in Ecological Land Unit-1, “Aspen has been mapped and is a small component.” Current field surveys show aspen in Douglas-fir stands that do not show up in aerial photos. Field surveys show that aspen exists in Douglas-fir stands but are not mapped. Neither the model nor the landscape assessment numbers are factual; however, they are useful for displaying effects in the range of alternatives.

The Assessment for the Madison Range found an increase in mature aspen and a simultaneous decrease in young aspen from 1845 to 1995. The assessment concludes an overall decline in aspen in all Ecological Land Units. Both measures are close, 2,777 acres in the landscape assessment and 2,609 acres in SILC3 coverage. The SIMPPLLE model 400 year HRV range compared to the current SILC3 estimate and the landscape assessment reach the same conclusion of declining aspen. The same is true for the Gravelly Landscape Assessment. Forest Service specialists agree on a decline in aspen health and distribution there also.

Gallant et al. (2003) modeled aspen and conifer aerial coverage on the Targhee N.F. adjacent to the BDNF on the south and obtained similar trends in aspen decline (from 37% to 8%) and conifer increase (from 15% to about 50%) for that forest during the modeled period of the mid 1800's to mid 1990's.

Forest Vegetation Structure

Vegetation structure and patterns often determine how animals use areas as habitat. Young conifer stands may provide habitat for more snowshoe hares than dense mid to late stands providing prey for bobcat and lynx, thus determining how many may exist in a given area. Old growth forest provides wintering areas and stands of willows for forage for Shiras moose, the kind that inhabit the BDNF. Some birds and other animals prefer a high proportion of unroaded forest in mature or old growth stages. Vegetation also provides migration corridors between summer and winter range for animals such as bighorn sheep, elk and deer.

Insects such as mountain pine or Douglas-fir bark beetles may kill large numbers of trees especially when stands are stressed by drought or fire. Dead trees and downed wood are used by species that tend to increase suddenly in response to specific disturbances, such as black backed or three toed woodpeckers. Standing dead trees serve as foraging and nesting habitats for a period of time then birds move on looking for new insect created habitat. Down logs also provide habitat for insects such as ants and provide extensive food sources for birds and bears. Aging coniferous stands age may provide aerial habitat for lichens, mosses, or other epiphytic plants. Old stands often produce cavities where some species of birds prefer to nest and fledge their young buffered from predators or parasites, boreal and great gray owls in particular.

Forests that maintain full niche occupancy tend to be stable in species composition. With the arrival of Caucasians in North America and the connection of continents by ship and aircraft, a wide variety of invasive species have entered the native ecosystems. They are often adapted to take competitive advantage of disturbed sites, especially those we create. Without natural parasites and predators these species have altered the composition of historic biological diversity. Table 160 shows the current estimate of vegetation structure by size class from the FIA Region 1 Summary database compared to the SIMPPLLE Modeled Historic Range of Variability by size classes. .

Table 160. Current Vegetation Size Class from FIA Data Compared to SIMPPLLE Modeled Size Class Historic Range of Variability

Measure	Size Class	Size Class	Size Class
FIA Size Class	0-5"	5-10"	10+"
FIA Current *	7.9%	42.5%	49.8%
SIMPPLLE Size Class	0-5"	5-9"	9+"

SIMPPLLE Modeled HRV	10.3-35.4%	7.6-29.5%	22.1-51.7%
Current compared to Modeled HRV	Current is 2.4% below lower estimate of HRV	Current is 13% above upper estimate of HRV	Current is within Range of Modeled HRV

* From Wildlife Ecosystem Diversity/Course Filter Matrix Final 01/10/06 – source data in project file.

Trends for the subalpine fir group and Douglas-fir type show more small structure in the modeled runs. This is in accord with fire suppression having allowed for more trees to advance into larger size classes. The modeled aspen type shows more mid and large structure trees and concurs with the cover type analysis that aspen has declined while lodgepole pine has increased in cover type with more smaller size classes than the modeled historic for the type.

The trends in the SIMPPLLE model and FIA are supported by data presented by Losensky (1993) from the 1930's timber inventories for Southwestern Montana that also show more seedling and sapling size classes than exist today as shown in the following table.

Table 161. Percent Acres by Size Class by Cover Type for Climatic Section 13 from Losensky.

Cover Type	Non-Stocked	Seedlings & Saplings	Poles	Immature	Mature	Potential Old Growth
Ponderosa pine	2.3	9.1	1.0	4.1	60.4	23.1
Larch/Douglas-fir	14.7	16.2	27.9	9.6	27.1	4.5
Douglas-fir	5.2	33.0	13.1	19.8	27.0	1.9
Engelmann spruce	4.1	8.3	3.7	20.3	59.2	4.4
Lodgepole pine	5.3	35.5	7.5	33.4	17.2	1.1
Average for Climatic zone 13	5.2	33.5	8.6	28.8	21.8	2.1

Lesica and Cooper (1997) reviewed the pre-settlement vegetation of southern Beaverhead County and concluded the vegetation is "much the same as it was during the 19th century" except for changes in such things as seral condition, and stand structure of forested, riparian, and shrubland/grassland communities due to agriculture, livestock grazing, and fire suppression.

Old Growth Forest Types

Old growth forests are distinguished by old trees and structural characteristics only time can develop. They are part of the biodiversity of the forest providing specialized wildlife habitats, aesthetic and recreational values, and industrial raw material.

Components of old growth below ground are just as important as those above. Approximately 95% of vascular plants are colonized by a number of fungi in symbiotic associations called mycorrhizae. Mycorrhizae, along with the trees above them, undergo succession. (Shaw et al. 2003) Certain species colonize new seedlings for a period of time, and then are replaced by other fungal species as the plant stand matures. It has also been determined that some fungi form very large interconnected mycelia (masses of interwoven hyphae). It seems reasonable that long lived stands may have very large underground mycorrhizal communities developed over the same time periods.

Mycorrhizal fungi may form associations with more than one species of plant at the same time. Mycorrhizae on coniferous trees also form mycorrhizae on members of the wintergreen family or Ericaceae. For example, two species on the BDNF, pinesap *Hypopitys monotropa*, and

candystick *Allotropa virgata* gain their nutrition via transfer by mycorrhizae from a photosynthesizing conifer. These plants are part of the old growth associated biodiversity.

Schneider (2001), states structural diversity and species richness is highest in old stands. The amount of old growth on a defined landscape depends on disturbance regimes including fire, insect, and disease epidemics. Determination of the historic amount of old growth is often very difficult. Constantly changing dynamics of disturbance regimes interact with autogenic processes of plant succession and tend to produce periods of stasis in a particular area followed by periods of rapid change. Events such as fire or wind may completely alter the stand structure of extant forest stages. Foster et al. (1996) illustrate this point, “ongoing climate change...will continue to generate changes in protected old growth forests.”

In southwest Montana, insects known to impact old growth trees and to provide some of the associated components of old growth such as snags and downed logs are mountain pine beetle that periodically erupt into epidemics in stands of lodgepole, whitebark, or ponderosa pines and Douglas-fir beetle that erupts in Douglas-fir. Epidemics often occur when trees are stressed by drought making them less able to resist beetle attacks with pitch. Since insects tend to occur in other than normally distributed populations they probably play a role in the clumpy distributions of old growth stands across the landscape.

The historic percentage of old growth on the forest remains undetermined. Lesica (1996) reported old growth occupied 20-50% of Northern Rocky Mountain Landscapes in pre-European settlement times in low and mid-elevation habitats. The study areas were well to the north of the BDNF and cannot be directly related to the types in SW Montana.

Our best estimate of current old growth comes from the Region 1 Vegetation Classification, Mapping, Inventory and Analysis Report 06-01 (project file). The report gives a probability estimate of the current percentage of forest-wide old growth by dominance type with a 90% confidence interval from current FIA data using the R1 old growth algorithm that incorporates age, diameter, and basal area definitions from Green et al. (1992); as displayed in Table 162. The results of Bush (2007) show 22.9% of total forested types are probable old growth on the BDNF. A comparison of old growth by Bush (2007) for national forests in the Northern Region shows the BDNF with the second highest percentage of old growth exceeded only by the Gallatin National Forest with 25.5%.

Table 162. Estimates of Probable Forestwide Old Growth by Dominance Type and Associated 90% Confidence Intervals

BDNF Dominance Group	Standard Error	90% Confidence Interval Lower Bound	Percent Old Growth	90% Confidence Interval Upper Bound	Total Number PSU	Number of Forested PSU
Douglas-fir, Ponderosa pine Limber Pine	3.0	15.6%	20.4%	25.4%	99	99
Engelmann Spruce/Subalpine fir	5.0	28.1%	36.1%	44.4%	57	57
Lodgepole pine	2.0	13.7%	17.0%	20.4%	204	204
Whitebark pine	5.3	26.0%	34.7%	43.6%	45	45
OTHER	5.6	18.6%	27.6%	36.9%	37	37

Source: Region 1 Vegetation Classification, Mapping, Inventory and Analysis Report, June 14, 2006.

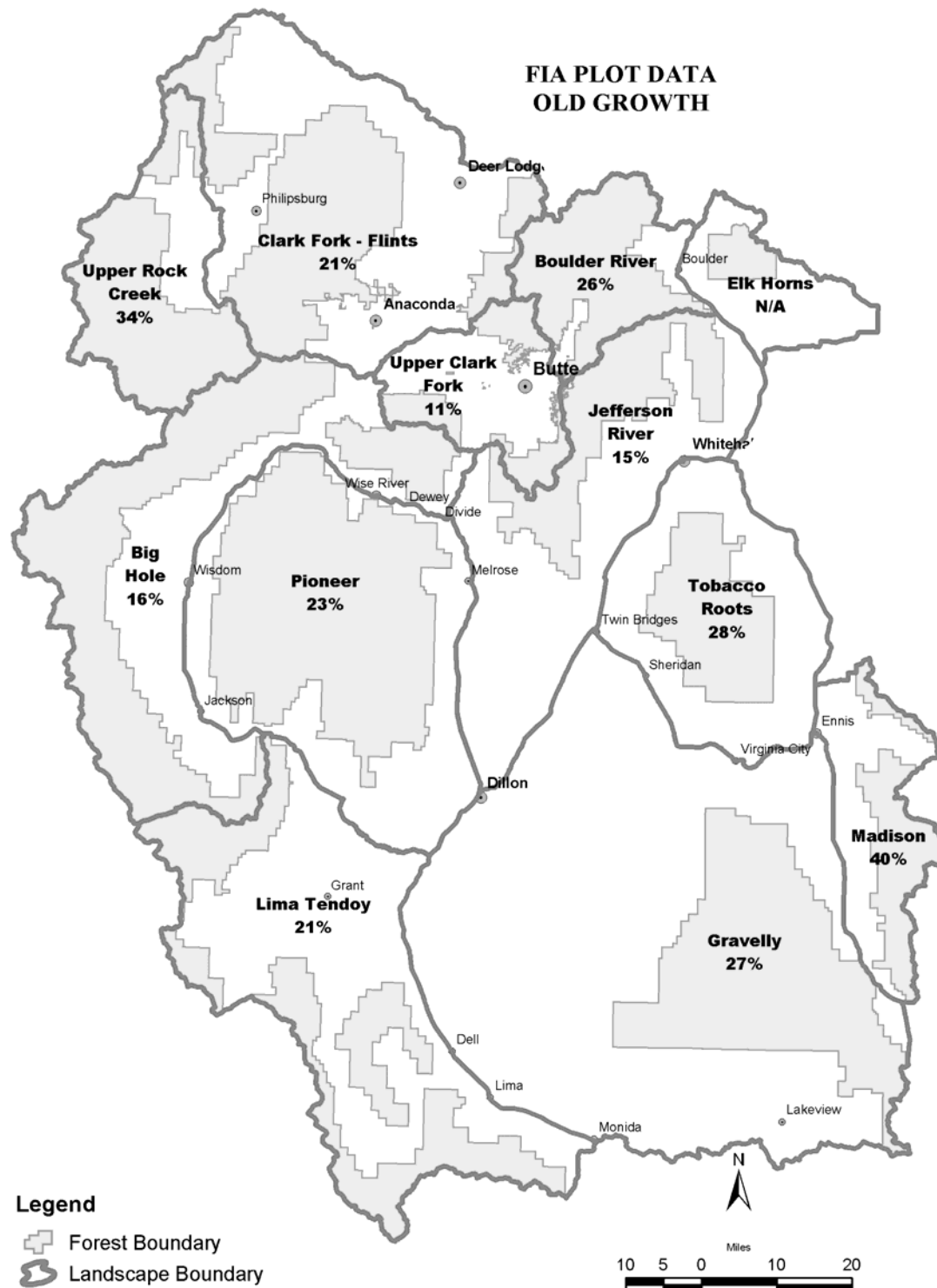


Figure 26. Definitions in Green, et al.. 1992, applied to FIA subplot data display estimates of total old growth forest types and estimated distribution displayed by landscape. The distribution indicates that old growth is present in all landscapes.

Woodlands

Juniper/Pine

Rocky mountain juniper *Juniperus scopulorum*, sometimes mixed with limber pine *Pinus flexilis*, occurs mostly in lower elevation dry sites and may be expanding into former shrublands in some areas. Miller and Rose (1995) indicate juniper in the west has historically contracted and expanded in range over long periods of time. Common juniper *J. communis* the most wide-ranging conifer on earth and usually not more than a shrub is quite common.

Quaking Aspen

Quaking aspen *Populus tremuloides* is the principal woodland of the Angiospermae or flowering plant type. FIA data did not adequately sample this aspen type but Forest SILC3 coverage currently estimates 121,267 acres of quaking aspen forestwide. The SIMPPLLE model estimated between 862,305 and 1,376,672 potential acres in the historic landscapes. (Note: this is a modeled output and is not portrayed as an actual historic range of aspen type on the BDNF). Lodgepole pine and several other conifers appear to have alternately occupied quaking aspen habitats. Comparison of the historic range of 10.3-16.5% from SIMPPLLE, with the current estimate of 1.5% of the landscape occupied by aspen, concurs with recent landscape assessments that show dramatic reductions in aspen stands.

This species exists primarily as clones with underground rootstocks surviving for long periods that regenerate stems following disturbances primarily by fire. They appear well able to survive disturbance events, such as fire, that often do not completely remove the sprout producing component, allowing the residual trees to feed the clone while it re-sprouts. New trees will grow from sprouts if they survive browsing. Recently aspen has become a concern because of notable declines and death of clones from repeated browsing by domestic livestock and wild ungulates. In landscape assessments and the 1999 Forest monitoring report aspen was found to have declined in all Madison Range ELUs. In the Gravelly Range, aspen have declined by 45% since 1945.

It appears from the assessments the number of ungulates is outside the historic range within which aspen stands are able to survive. Aspen stands have been observed to respond to fires with numerous sprouts but stems never reach maturity and evidence points to browsing.

Since the DEIS was published Brown et al. (2006) published a research article on aspen dynamics in the Greater Yellowstone Ecosystem that includes part of the BDNF. They reported that aspen occupies 1.4% of the GYE but found that aspen had declined less than suggested by previous studies. Their aspen estimate of 1.4% for the GYE is very close to the current estimate of 1.5% we found for the BDNF but the forest extends considerably outside the area analyzed for the GYE. They reported that aspen had declined in some areas but increased in others giving a net average of 10% loss for the GYE.

Invasion by conifers is also common in the western United States. This places additional competitive stress on the aspen (Miller & Rose 1995). Aspen is often considered to be a fire-induced species which gets replaced by conifers in the absence of repeated short interval fires. Managing for greater survival of aspen sprouts will be a great challenge in the next 10 to 15 years.

Grasslands and Shrublands

The Beaverhead-Deerlodge contains approximately 694,966 acres of grasslands and shrublands. These vegetation types are composed primarily of flowering plants with mixtures of grasses, sedges, forbs, and woody shrubs comprising the dominant vegetation. According to the World Resources Institute, grasslands cover approximately 40 percent of the land area of the earth (Amore 2004). Relatively few native types of grassland remain because most have been converted to agriculture or urbanized.

Grasses and sedges include annuals and perennials. Common perennial bunch grasses include Idaho fescue, *Festuca idahoensis*, bluebunch wheatgrass *Pseudoroegneria spicatus* and rough fescue *Festuca scabrella*.

Wet meadows often dominated by tufted hairgrass *Deschampsia caespitosa* and manna grass *Glyceria borealis* and *G. striata* are the other distinct grassland type important on the BDNF. The meristem (growing point) of grasses is located at or near ground level, sometimes buried in the clumps in the case of bunchgrasses. This accounts for the continued growth that occurs over a growing season when these plants are grazed or burned by light fires. Although protected and sometimes stimulated by light fires these meristems can be damaged by more intense fires occurring when fuels build up around them or are engulfed in their own dead leaves and stalks which accumulate over long periods without fire.

Late seral grasslands have declined in all landscapes compared to estimates of historic conditions using SIMPPLLE as shown in the following table.

Table 163. Forestwide Comparison of Current and Modeled Historic Late, Mid Seral, and Early Seral Grasslands using SIMPPLLE

Grassland Stage	Modeled range in acres	Current acres	Current percent of lower estimate of HRV
Late seral	258,450 - 270,416	69,217	26%
Mid seral	0 - 475	187,480	39,469%
Early seral	0 - 489	14,931	3,053%

Table 164. Summary of Changes in Grassland Seral Structure between Modeled and Current Acres

Structure	Modeled Historic Grasslands acres	Current Grasslands acres	Difference between minimum and maximum modeled historic to current acres
Late Seral	258,450 - 270,416	69,217	
Mid and Early Seral	0 - 964	202,415	
Total	258,450 - 271,380	271,632	13,182 - 252

The summary table above shows the acres of grassland changed very little in extent but have undergone a dramatic change from late seral to mid seral condition. Six landscapes have less than 20% of the modeled lower range of HRV in late seral condition.

Dry Foothills Grasslands and Shrublands

There are four principle types of dry grassland/shrublands on the Beaverhead-Deerlodge. The dry foothills type at lower elevations contains bunch grasses, forbs and shrubs (primarily big sagebrushes) in mosaics determined by disturbance regime such as fires, and grazing. The

Wyoming big sagebrush *Artemisia tridentata* ssp *wyomingensis* type is common at lower elevations in very dry habitats and provides much forage and cover for birds and animals such as the pronghorn and sage grouse. The basin big sage *Artemisia tridentata* ssp *tridentata* type (the largest of the sagebrushes) tends to occur primarily in well-drained deep soils of valley bottoms in this area. Although less palatable than the other sagebrushes it does produce good cover. The three tip sagebrush *Artemisia tripartita* type occurs primarily in southern portions of the forest. It is one of the sagebrushes that resprout following fire (FEIS 2003) Wax currant *Ribes cereum* and snowberry *Symphoricarpos alba* are other common shrubs found in this type.

Table 165. Comparison of Historic, and Current, Range of Xeric Shrubs.

Landscape	Modeled historic xeric shrubs range in acres	Current (acres)	Current percent of lower estimate of HRV
BDNF	38,131 - 61587	22,231	58%

Estimated current cover of xeric shrublands is 58% of the lower range of modeled historic occurrence. Conifer encroachment is a likely cause of this difference.

Montane grasslands and shrublands

The most abundant shrubs the Beaverhead-Deerlodge features are the mountain big sagebrush *Artemisia tridentata* ssp *vasseyana* of the montane (7000-9500') elevations. Mountain big sagebrushes generally do not re-sprout following fire (Frisina, 2001). However subalpine big sagebrush *Artemisia tridentata* ssp *spiciformis*, a relatively rare subspecies of Southwestern Montana, and silver sagebrush *Artemisia cana*, common on benches above riparian zones, do resprout after fires. In northern portions of the BDNF bitterbrush *Purshia tridentata* is a major species of montane shrublands. A report by Vale (1975) concluded shrubs constituted a dominant vegetative cover in much of the non-forested western U.S. prior to European settlement and the onset of intensive grazing. SIMPPLLE estimates of historic variability for shrubland types reveal relatively stable shrubland communities over the modeled 400-year historic period for most landscapes.

Mixed with the sagebrushes are a variety of other shrubs such as wax current *Ribes cereum*, woods rose *Rosa woodsii*, bitterbrush, snowberry *Symphoricarpos* sp. and rabbitbrush *Ericameria nauseosus*. Some of these shrubs do not sprout after fires but reproduce by seed in a dynamic competition with grasses for available niches, after disturbances. Others, particularly the currents and rabbitbrushes, resprout (Fire Effects Information System 2003). If grasses and forbs are grazed heavily woody shrubs have a competitive advantage and quickly capture a larger percentage of the mosaic. When niches in grasslands and shrublands are available these systems are at high risk for noxious weed infestations and colonization by new invasives. Grassland/shrubland types on the BDNF are at high risk of invasion by dalmatian toadflax *Linaria dalmatica*, spotted knapweed *Centaurea beiberstani*, diffuse knapweed *Centaurea diffusa*, Leafy spurge *Euphorbia esula*, and houndstongue *Cynoglossum officinale*.

Table 166. Modeled Range of Historic Montane Shrubs Compared to Current Acres.

Landscape	Modeled Historic Montane Shrubs - Range in acres	Current acres	Current Percent of Lower Estimate HRV
BDNF	219,633 - 267,446	186,582	84%

Current estimates show mountain shrublands occupy 84% of the lower range of modeled historic shrublands. Conifer encroachment into shrublands is a likely cause of this difference.

Alpine grasslands/Shrublands

A number of recognized alpine grasslands communities occur at higher elevations. These consist of turf communities on wet sites, and bunch-grass/sedge communities on dry sites. Some very specialized communities occur in these harsh environments including cushion plants on stoney soils exposed to high winds. Alpine wetland communities occur where high water tables exist and snowbed communities where snowfields tend to accumulate. Some shrubs such as arctic willow *Salix arctica*, wolf willow *Salix wolfii*, and snow willow *Salix nivalis* occur in the alpine. Most alpine communities are low profile plants that grow rapidly during the short summer season and go dormant early to escape the killing effects of wind and ice (Cooper et al. 1997).

Riparian Grasslands/Shrublands

The riparian types also were too minor in area coverage to be adequately sampled by the FIA system but are estimated to constitute 3 to 5 % of the forest. Detailed riparian and wetland vegetation types have been classified for Montana (Hansen et al.1995). Willow, alder, birch and red osier dogwood are among the most abundant shrub species in BDNF riparian zones..

Willow and alder communities are one of the primary stabilizers of riparian systems, developing strong deep root systems that hold soils in place. About 12 willow species, 2 species of alder, and 2 species of birch occur here. Elevation zones and slope determine which species occupies a given stream reach. Winward (2000), states that many cottonwoods, alder, birch, and willow require or regenerate better on disturbed or open ground. In this regard they behave like a colonizer but upon reaching maturity act as a stabilizer some species developing extensive rhizomatous root systems.

Willows are impacted by fire. They often survive light to moderate fire events by sprouting vigorously thus maintaining their living root systems that perform the stabilizing function in the riparian zones. Severe fires, very frequent fires, or those that tend to dwell in the organic layers may however kill the willows. Self-perpetuating willow communities will have several age classes indicating periods of stability punctuated by areas of disturbance where re-generation is occurring. Red osier dogwood *Cornus sericeus* forms a stabilizing shrub along many stream courses. Deep rooted grasses, sedges, rushes, and bulrushes with strong root masses form a major portion of the stabilizing herbaceous communities in riparian systems. In many areas the natives with root masses capable of withstanding high energy flow events have been replaced by species such as Kentucky blue grass, redtop, or smooth brome that hold soils in low energy situations but tend to fail with high energy events.

The riparian communities provide important forage and cover for wild ungulates such as moose. In addition they also provide habitat for neotropical migratory birds, as well as produce abundant insect life that function in the food chain of fish, birds, amphibians, and bats. However, if

regeneration is excessively browsed by wild and domestic ungulates the cycle of colonization and stability is interrupted. Conifer succession has occurred in many riparian shrubland communities producing shade that is stressing, or in some cases eliminating, willows and other riparian shrubs. The entire system can decline altering the hydrologic function and availability of food sources, and fish habitat.

Sensitive Vascular Plant Species

Southwestern Montana is noted for having the most local endemic vascular plant species in the state. Currently 34 vascular plants that occur on the BDNF are listed as sensitive. The southern portion of the forest lies at the boundary of the Great Basin Desert one of the largest biomes in the United States. Some of the Great Basin plant species such as wavy leafed balsamroot, *Balsamorhiza macrophylla*, California hellbore *Veratrum californicum*, spiny wire lettuce *Stephanomeria spinosa*, and Cusick's horsemint *Agastache cusickii* inhabit this northern fringe of their range. Others such as sapphire rockcress *Arabis fecunda*, Payson's bladderpod *Lesquerella paysoni*, Storm saxifrage *Saxifraga tempestiva* Missoula phlox *Phlox kelseyi* var *missoulensis*, and musk root *Adoxa moschatellina* exist as very small populations on specialized habitats (Walsh 1992, Shassberger 1991).

Several populations of *Botrychium*, members of the adderstongue family, occur on this forest. While they occupy a very small land area, these species are part of biodiversity identified at risk or needing special management emphasis to ensure viability.

Some invasive species have become pests, interfering with agriculture or putting native species at risk of losing competitive battles for niche occupancy. They pose a risk of displacing Region 1 sensitive plant species. The 2002 Beaverhead-Deerlodge Noxious Weed Control Final Environmental Impact Statement estimated that 23 species of noxious weeds infest 43,000 acres with some expanding at exponential rates. Maintaining full niche occupancy by desired native species is a major management challenge.

Unique Habitats

Unique habitats are minor components of the landscape but contain niches occupied by plants and animals particularly adapted to specialized local conditions. They provide life requirements of plant and animal species not met on the general landscape.

Peatlands: occur in cold, wet environments mostly the upper montane and subalpine zones. They are waterlogged areas containing peat accumulations (the remains of plants especially sphagnum moss and sedges where accumulation exceeds decomposition) more than 30 cm deep. Peat is created by the incomplete decomposition of the vegetable matter as a result of limited oxygen supply in waterlogged conditions. The Skull/Odell RNA in the Pioneer Mountains contains a notable peatland.

Vernal Pools: Vernal pools are ephemeral water bodies, usually small, that result from puddles of snowmelt or rainfall. The receding mud provides the habitat for certain plants often annuals that survive as seed banks that germinate and flower in the drying mud.

Aquatic Plant Communities: Approximately 12,637 acres of lakes and ponds on the BDNF host different kinds of aquatic plant communities. Pierce and Jensen (2002) recently classified six planmergent (plant body lies primarily on the surface) and 24 submergent (plant body is

primarily submerged) community types in the Northern Rocky Mountains. They report these plants produce oxygen, cycle nutrients, and maintain water quality while providing habitat for aquatic animals and forage for large ungulates such as moose.

Alpine Lakes: Lakes that fill depressions usually gouged by glaciers.

Ruderal Communities: Ruderal habitats are areas created by heavy disturbance and alteration of the native system by the hand of man. Road shoulders are the most prominent example. These areas are frequently colonized by non-native species, including noxious weeds, carried by vehicles. Small colonies provide seed sources that are spread further into the system by wild and domestic animals.

Springs and Seeps: Areas near springs and seeps are often colonized by disjunct plant communities.

Mountain mahogany: *Cercocarpus ledifolius* is a shrub or small tree that occurs on about 22,093 acres. Many stands are becoming old and decadent with inadequate surviving reproduction. This species is an extremely valuable browse species, especially for deer. Finding ways to maintain reproducing stands is a management challenge. One of the best stands of mountain mahogany known in Montana is located on limestone substrates in the Cattle Gulch vicinity proposed as an additional RNA.

Microbial Ecosystem

Ecosystems, of which we are a part and dependent upon for economic, aesthetic, and spiritual needs, come down to us from the past as dynamic conglomerations of living organisms surviving under constantly changing influences. Their components tend to stabilize areas. Sometimes there are long periods of time punctuated by disturbance events on a fine internal scale (a little erosion deposition area where willows regenerate) or medium scale (large wildfires, floods, wind-storms, insect epidemics). Sometimes they are broad scale disturbances like volcanic eruptions, asteroid impacts, agriculture, urbanization, that dramatically alter life forms and ways they make a living.

While macro-disturbances come and go, critical processes are constantly carried on by insects and microbial life, “little things that run the world,” as stated by E.O. Wilson (1987). Pollinating insects especially bees, wasps, butterflies, moths, and thrips are essential to flowering plants. Though tiny, the work of microbes is critical. For example, we depend on unseen gut flora for daily nutrition. Coniferous forests depend on mycorrhizal networks of fungi for water and nutrient transfer. Microbes are as essential as trees to the structural diversity of the forest. Maintaining the integrity and diversity of the microbial communities, insect communities, and soil structures is a management challenge during the planning period.

Vascular Plants as Management Indicator Species

The BDNF has no threatened or endangered vascular plant species that fall into the planning regulation category which need consideration as management indicator species.

There are sensitive vascular plant species that have specialized habitat needs on the BDNF. We considered Lemhi penstemon *Penstemon lemhiensis* as an MIS plant species since it is known to respond positively to burned areas primarily in the mountain big sagebrush/bluebunch wheatgrass habitats in the central portion of the forest. However our experience indicates it is heavily dependent upon natural precipitation particularly in May and June for growth. It thus is

not exclusively responding to management activities and does not occur widely across the forest and does not meet a reliable management indicator species for most of the forest. Other R1 sensitive species also have specialized habitat requirements that are found on a very limited portion of the forest. These species exist on very specialized soil types, alkaline seeps, hummocks, alpine tundra, algific (cold) slopes, or talus and not on areas of proposed management activities.

None occur across the forest in large enough populations to serve as management indicators of proposed actions in the forest plan.

Aspen was considered as a management indicator species but aspen occurs on many different habitat types and the causes of recently reported declines are not specific to known management actions. It is known to have a patchy distribution increasing in some areas while decreasing in others without specific managerial causes. It is not therefore a good management indicator species to apply across the forest.

Environmental Consequences

Summary of Effects by Alternative

Aspen Restoration

Quaking aspen was the only vegetation type to show a high level of downward departure from modeled historic to current vegetation conditions. Forestwide, current levels of aspen are less than 20% of the lower range of modeled historic range of variation. About 75% of existing tree sized aspen occurs in the Gravelly Landscape alone. The amount of habitat type loss that may contribute to a loss of viability of aspen dependant species is controversial and the science unsettled.

Fahrig (2001) reported modeled habitat loss extinction thresholds ranging from 1% to 99% depending upon species parameters. She also reported cell type declines below 20% of habitat amount as a threshold where effects from further fragmentation become increased and real. Fahrig (2002) however, does not specify whether this is 20% of the historic minimum.

In another study "Population size was largely determined by pure amount effect," (Flather & Bevers 2002). This research also suggests, when coverage was reduced below 30-50%, the deviation "coincided with a persistence threshold as indicated by a rapid decline in the probability of landscapes supporting viable populations."

When a high departure from the Historic Range of Variability occurs, the Northern Region Viability Consistency paper (2003a) recommends measures should be taken to trend the habitat towards Historic Range of Variability. The key assumption is that maintaining a set of communities of sufficient size, composition, structure, and distribution will provide for maintenance of the majority of all species. This concept goes along with Haufler's (1996) work on course filters. Noon et al. (2003) however, finds evidence there is a "poor concordance between species distributions predicted by vegetation models and observations from species surveys." Hunter et al. (2003) also finds communities are "only transitory assemblages or co-occurrences among plant taxa that have changed in abundance, distribution, and association in

response to large climate changes of the past 20,000 years.” This analysis uses the coarse filter in accordance with the Northern Regional Viability Consistency paper.

Alternative 1 has no specified objectives for active aspen restoration in either the Deerlodge or Beaverhead Forest Plans. While aspen restoration is not prohibited, there is no requirement to restore aspen for viability needs and no measure of attainment is specified. The effect of Alternative 1 on aspen restoration is largely left to chance events such as wildfire, and small scale projects.

Alternative 2 emphasizes aspen restoration as a unique habitat type but does not specify an amount of active restoration. This alternative would emphasize restoration to the range of historic variability by active mechanical means and fire use without specifying a target for attainment.

Alternative 3, 4, 5, and 6 have an active restoration objective in common to trend aspen upwards toward the historic range of variability. They share the goal of restoring any amount of existing acres up toward the 20% of the minimum modeled range of historic variability. Aspen restoration would occur outside the suitable timberland and thus have little effect on long term sustained yield of softwood timber. This would entail action to restore up to 66,700 additional acres of aspen forestwide. (Alternative 6 rounds the number to 67,000 acres) It would occur predominantly in uplands occupied by lodgepole pine and Douglas-fir where viable aspen clones remain. While 66,700 acres does not fully restore aspen to the lower end of HRV (an additional 96,500 acres would be needed), this amount is considered what might be practical to attempt in a 15 year planning cycle.

Alternative 3 relies mostly on fire as the agent of restoration while Alternative 4 emphasizes both mechanical treatments and fire. Alternative 4 has less area available for aspen restoration because it contains higher amounts of suitable timber land where regeneration to conifers would be emphasized instead of aspen restoration, however much of this area is not suitable for aspen to begin with so should not adversely influence the aspen objectives. Alternatives 4 and 5 both use fire and mechanical methods to remove conifers. In the long term, approximately 8% of the lodgepole pine forest would be converted to aspen under Alternatives 3, 4, 5, and 6 if the full 96,500 acres of aspen (the amount needed to reach 20% of minimum HRV) are successfully restored.

It is not certain, but aspen decline may be due to the effects of climate change. Browsing by wild and domestic ungulates and increased infection of new aspen sprouts by a variety of pathogens appears to be involved in recent recorded declines. A possible effect of conifer removal to encourage aspen may be the return of early seral stage conifers and the failure of aspen to sprout or remain viable in the face of excessive browsing.

An example of success was reported by Turner et al. (2003) in the aftermath of the 1988 Yellowstone fires. Aspen regenerated and survived where conifers burned and snags were left standing until they fell, forming a barrier to browsing, primarily by elk. With this protection, aspen sprouts were able to survive. Still, much of the system returned to lodgepole pine as a result of cone serotiny in that species. Aspen regenerating from seed right after the fires were killed by browsing.

Another influence on the success of aspen regeneration in the Yellowstone Ecosystem is reported by Ripple and Larsen (2000). Wolves positively affected aspen recruitment through modifying

herbivore behavior, particularly elk. From 1926 to 1995, when wolves were extirpated from Yellowstone cottonwood recruitment was greatly suppressed, particularly in riparian zones (Beschta 2003). With the reintroduction of wolves cottonwood seedlings became common and widely distributed with the potential for recovery of cottonwood forests in riparian zones.

Attempts to restore aspen in riparian zones on the BDNF have largely met with failure. It is likely excessive browsing is involved. It may be the case, as in Yellowstone, the recovery of riparian zone aspen forests requires the presence of a keystone predator to reduce numbers and push wild ungulates out of riparian zones. Removing conifers encroaching on healthy aspen clones has generally succeeded. In the Flint Range a large amount of conifers removed by logging led to substantial aspen return.

Over the previous 15 years attempts to restore aspen clones using combinations of burning, large decadent tree removal (with and without fire), cattle tight fencing, buck and pole fencing with barb wire to exclude deer, and combinations without fencing have led to mixed results. In the Big Hole landscape clear cuts in lodgepole pine met with considerable failure, and occasional success. Installation and maintenance of ungulate proof fencing is also expensive.

Aspen restoration on a large scale is presently considered experimental and uncertain. While Alternatives 3, 4, 5, and 6 attempt to retain existing aspen stands and trend some areas upward (based on site-specific analysis and budgetary constraints), a specific target can not be assured

Old Growth Retention

Old growth retention serves to meet societal needs for aesthetics, cultural values, wildlife habitat, and biodiversity. Old growth retention in the Northern Region and the BDNF is not specifically tied to vertebrate viability issues. It does meet in part the coarse filter viability requirement for retention of 9 inch + structural stages in the vegetation diversity matrix of forested types. Schneider (2001) states, “maintenance of old growth is critical to forest biodiversity.”

Foster et al. (1996) state “Ultimately conservation objectives (for old growth) must be recognized and selected as cultural values.” With the exception of processes directly controlled by humans such as logging or prescribed burning there appears to be no assurance existing old growth will remain at a given percentage of the landscape. It will more likely fluctuate with environmental conditions. Objectives of retaining 10% or 15% of the existing old growth by types recognizes that natural disturbance events will periodically destroy old stands and replace them with early seral forests. These processes will most likely result in loss of some of the existing old growth and retention of all old stands is an unlikely scenario. However, at any point old growth stands approach or drop to the lower standards, modification of management activities would be instituted to ensure no further loss was sustained because of factors under human control. Lesica (1996) stated that with a 10% retention standard it was likely that some old growth dependent species would be extirpated in Northwest Montana. However, no particular dependent species were listed by Lesica. While there is general agreement in the scientific literature and in the comments received for the DEIS that some level of old growth should be present on the landscape the amount to be retained is controversial.

Alternative 1 leaves in place the conservation of 10% of the Douglas-fir and spruce/fir by timber compartment on the Beaverhead unit and 5% on the Deerlodge unit. Current means of monitoring old growth retention and distribution by the FIA system are not statistically reliable at the compartment level thus monitoring old growth at this scale is not possible using the FIA

system for analysis in this alternative. Whenever a project occurs in a compartment, a re-inventory of old growth in the compartment would become necessary increasing the cost of every project. Old growth cover types, other than Douglas-fir and spruce, are not afforded any protection under Alternative 1. Destruction of the mycorrhizal associations that take long periods of time to develop and understory plants associated with old stands are not protected at all in this alternative for types other than Douglas-fir and spruce on the Beaverhead portion.

Alternative 2 sets an objective of retaining 8-10% of the Douglas-fir type and 10-15% of the lodgepole type in old growth condition. All old growth in other forested types including ponderosa pine, whitebark pine, spruce/fir, and limber pine will be retained and enhanced. Alternative 2 affords the most protection of the above ground and below ground old stand structures and mycorrhizal/plant associations from disturbances under Forest Service control of all alternatives. The Region 1 old growth algorithm used to calculate the estimate of old growth for the forest was re-run on only the suitable timberlands to estimate how much old growth occurred on these lands. Under this alternative, 1.3% of the old growth based on the forested acreage is located on lands suitable for timber harvest and could be cut. Harvest would reduce the total old growth by this amount.

Alternative 3 retains 15% of principal forested types in old growth condition forestwide. Alternative 3 anticipates some loss of old growth, except for lodgepole pine types, due to fire use, logging, or natural disturbances not under Forest Service control before forestwide standards would mandate management action to prevent further reductions at least until other late seral stands matured into old growth condition. This alternative has no suitable timber land, thus none of the old growth is subject to harvest for growth and yield management purposes.

Alternatives 4, 5, and 6 retain 10% of each forested type in old growth condition on a forestwide basis. These alternatives allow the most disturbances to existing old growth stands for activities under Forest Service control. Alternative 4 has 2.2% of the old growth based as a percentage of the total forested type lands located on suitable timber lands, and old growth could be reduced by this amount for timber production purposes. Alternative 5 has 0.95% of the old growth based as a percentage of total forested lands located on suitable timberlands that will be subject to harvest for timber production. Alternative 6 has 1.47% of the old growth based as a percentage of the total forested type on suitable timber lands.

All alternatives include the expectation that fire, insects, and disease processes will continue to affect the amount and composition of these stands. The FIA data reports show substantial numbers of stands are approaching old growth condition. These will likely replace old stands killed by fire, insects, disease or other factors not under Forest Service control.

Conifer Encroachment Reduction

Conifer encroachment, as used in this document, describes the succession of conifers into shrublands and grasslands where undesired. For the most part, the succession is related to lack of disturbance by processes such as fire and to some degree the absence of tree killing insect activity. Encroachment causes reductions in shrub, grass, and forb cover principally by shading under the conifer canopy and competition for moisture. Douglas-fir and lodgepole pine are the principal coniferous species encroaching on shrublands/grasslands of all types on the BDNF. Encroachment causes reduced forage production for wild and domestic animals and reduces deciduous riparian shrub habitat. In some cases it may eliminate sensitive plant habitat.

However, it does provide hiding and thermal cover, nesting and foraging habitat for birds and large ungulates. Most of the encroachment is in mountain, xeric, and riparian shrublands.

Conifer encroachment has never been mapped and ground verified on this forest. Several estimates were made during landscape assessments but difficulties were encountered. For example the Tobacco Root landscape assessment states: “The use of aerial photography in typing these sites has limitations in that only a certain phase of the succession can be determined. If the trees are at or below sagebrush height they don’t show up. If the succession has progressed they appear to be closed canopied Douglas-fir stand.”

The Tobacco Root Landscape Assessment found Douglas-fir encroachment stands have been typed for 8,176 acres. However, it concluded the acreage listed was very conservative and not a good indicator of the tremendous change going on in the vegetation type. The Boulder Landscape Assessment mentions Douglas-fir encroachment but gives no actual or estimated acreage or percentage. The Madison Range Landscape Assessment gives a variety of encroachment acres ranging from 30,699 to 23,042 acres. The Pioneer Landscape Assessment indicates 6,100 acres of Douglas-fir and 1,200 acres of lodgepole pine encroachment. The other landscape assessments mention encroachment of Douglas-fir into sagebrush, grasslands, and ponderosa pine savannahs, but do not give a quantitative amount of acreage.

Fire exclusion is reported to be the most likely cause of conifer encroachment into former grasslands and shrublands. It is clear site-specific analysis will be required to determine where and how much conifer encroachment exists and how much should be altered.

Alternative 1 does not address conifer encroachment by specific objectives. It does not prohibit reduction of encroachment by site-specific actions. Under Alternative 1, encroachment could be reduced following site-specific analysis.

Alternative 2 has an objective to restore a mosaic of species and age classes of shrubs, grasses, and forbs without providing target acres for treatment. Any amount of restoration, following site-specific analysis, could be allowed under this alternative.

Alternative 3 specifies an objective of conifer encroachment reduction of between 0 and 74,000 acres of grassland/shrublands. An estimate of 74,000 acres was derived by GIS of the acres on which conifers are likely to have encroached into sagebrush shrublands. The alternative describes a combination of mechanical treatments and prescribed fire to reduce up to 74,000 acres of conifer encroachment. Site-specific analysis is required to determine the location and amounts of reduction.

Alternative 4 has an objective to actively reduce conifer encroachment on between 30 acres-74,000 acres of grasslands/shrublands. Some reduction could be achieved by use of mechanical and prescribed fire treatments. Site-specific analysis would be required to determine the location and amount of reduction.

Alternative 5 has the objective of reducing conifer encroachment on between 30,000 to 74,000 acres of grasslands/shrublands. It differs from the other alternatives in having a higher minimum objective. Site-specific analysis would be required to determine the location and amount of reduction.

Alternative 6 has the objective of reducing conifer reduction on 74,000 acres of grassland/shrubland. It differs from Alternative 1 by specifying an active conifer objective and from alternative 5 by eliminating a range in favor of a specific objective.

Forest Vegetation Structure

Forest vegetation structure provides the basis for maintaining or restoring forested ecological communities of sufficient diversity to provide for the viability of the majority of species that occur or make use of the forested types on the BDNF. The maintenance of size class diversity is referred to as a coarse filter approach to providing for the habitat composition, distribution and structure that meet the needs of invertebrate, vertebrate, and plant species populations that have historically been present in these systems.

The coarse filter is just one of the methods designed to ensure viability of species. It assumes that by maintaining historic patterns and size class structure that viability is likely to be maintained for species that evolved in and became adapted to those local habitat conditions even though knowledge of all the specific biological requirements of those species is not fully known.

The coarse filter and the vegetation diversity matrix complies with the region 1 strategy for viability analysis and determination if departure from historic range of variability is indicative of the need for specific plan objectives. The strategy is found in the Region 1 *Consistency in Land and Resource Management Plans* for addressing requirements for viability final paper of 12/10/2003. The scientific support for this approach is noted in the consistency paper references.

The analysis of size class diversity using the SIMMPPLE model as the basis for HRV shows departure of the forested vegetation for small size class (0-4.9" dbh) to be 2.4% below the minimum HRV and 13% above for the mid size class (5-9" dbh) and within HRV for the large (9+ dbh). For purposes of viability based on size class distribution it is desirable to increase the smaller size class. We expect this to be accomplished by reducing the mid size class component.

Alternatives 1 -4 do not have specific objectives for any forest cover type to trend the forested ecosystems to come within the SIMMPPLE modeled historic range of size class as measured by current FIA size class data on a forestwide basis. These alternatives rely primarily on fire use, and timber harvest objectives to alter mid and large size classes (5" DBH and larger) to small (1-4.9" DBH) size classes to bring the forestwide vegetation into the small size class HRV.

Alternatives 5 and 6 have specific objectives to bring the Douglas-fir, lodgepole pine, and whitebark pine/subalpine fir cover types into SIMMPPLE modeled HRV for the small size class primarily by reducing the mid size class from 5-9" dbh to 0-4.9" dbh through fire and timber harvest.

Noxious Weed Management

In all alternatives the May 2002 EIS for noxious weed control is carried forward and remains in effect. Prevention of new infestations and suppression of existing populations of noxious weeds will continue under this direction.

Literature reviews and practical experience indicate the most critical means of preventing noxious weed expansion include maintaining barriers such as full niche occupancy by a diversity of desired plant species and reduction of spread corridors such as roads and trails. Assemblages that tend to repel invasive species include robust presence of plant guilds that occupy niches

similar to those that meet the needs of invaders. Research at the University of Minnesota (Fargione et al. 2004) recently reported work on the inhibitory effect of four plant guilds on invasive species. These included warm season grasses, cool season grasses, nitrogen fixers, and forbs. This work states “each guild was most effective at limiting the success of introduced plants from its own guild” while “warm season grasses had a strong inhibitory effect on introduced plants from all four guilds.”

While still in the early stages of incursion, noxious weeds are spreading. In 1996 the Forest Service estimated there were 17,000,000 acres infested on federal lands in the Western U.S. and that infestations were increasing at 8-12 percent per year (USDA 1998). The most current estimate of noxious weed infestation on the BDNF is 43,000 acres or approximately 1.3%. (USDA 2002). These infestations are not only contributing to the degradation of public lands by reducing available forage, displacing native vegetation including rare or sensitive plants, degrading wildlife habitat, and loss of soil stability, they are also providing seed sources that disperse to new areas via irrigation, vehicles, and airborne seeds to private agricultural lands.

Since the decision to update weed treatment in 2002 we have not been able to treat infestations of noxious weeds at the levels envisioned in the EIS. For example, treatment in the selected alternative was estimated for approximately 16,000 acres annually. Only 4,000 acres were treated in 2002, 5,600 acres in 2003, and 3,814 acres in 2004, primarily because of budget constraints. In the face of this situation it becomes essential that full occupancy by healthy and robust guilds of desired plants be maintained. In addition spread corridors need to be limited until such time as noxious weed infestations are much reduced if protection of lands both on and off forest is to be accomplished.

Alternative 1 has the most suitable timber (676,000 acres) and the highest ASQ from lands suitable for timber production. This alternative would disturb the most area for the purpose of timber extraction and would likely provide the most potential for additional noxious weed incursion. It also has the maximum number of suitable rangeland and closes the fewest areas to yearlong motorized use. Most grazing on the forest rangeland occurs in cool season grass guilds. Whenever standards are exceeded the capability of these guilds to repel invasive species incursions is reduced. Travel corridors would provide a known means of new introductions. Alternative 1 is likely to have the most detrimental impact on prevention of new noxious weed infestations.

Alternative 2 has fewer suitable timber acres (346,000 ac) and would have less adverse impact on occupancy of native plant guilds that repel noxious weeds than Alternative 1. Grazing acreage is the same, only 2% more travel corridors are closed. Alternative 2 also provides conditions with potential for new noxious weed incursions but at a lower level than Alternative 1.

Alternative 3 has the no suitable timber acres and the least amount of suitable grazing and closes the most travel corridors. This alternative is the most likely to provide full niche occupancy by native plants that competitively exclude noxious weeds, and hold the line against new weed incursions since it minimizes ground disturbances likely to create the habitat most favorable to weed seed germination and establishment.

Alternative 4 has 484,000 acres of suitable timberland and the same grazing acreages as Alternative 1. However it has slightly less motorized roads and trails and is likely to disturb occupied niches at a level similar to Alternative 1.

Alternative 5 and 6 are similar, in terms of resistance to noxious weed infestation and are both moderate in their capacity to repel noxious weeds by maintaining full niche occupancy and limiting travel corridors.

Sensitive Vascular Plant Species

Table 167. Forest Service Sensitive Vascular Plant Species Known BDNF Occurrences Based on the RI 2004 Sensitive Vascular Plant List

Forest Service Sensitive Species with Montana Natural Heritage Rank (RISK Factors)	Guild	Threats	Impacts from Alternatives
G1 - Critically imperiled due to extreme rarity, imminent threats, and or biological factors	None on the BDNF.		
G2 - Imperiled due to rarity or with very restricted range, or otherwise vulnerable to extinction			
Primula alcalina(Proposed)	Wetland-Calciphyte	Loss of hummock wetland habitat, noxious weeds	NI* in all
Arabis fecunda	Metamorphosed Limestone /silicate endemic	Destruction of limited habitat, Autogenic processes, noxious weeds especially spotted knapweed	NI in all
Botrychium paradoxum	Mesophyte	Noxious weeds, autogenic processes, recreational use of habitat., mining claims, road construction	NI in all
Lesquerella pulchella	Calciphyte	Native plant competition, noxious weeds	NI in all
Saxifraga tempestiva	Tundra	Climate warming	NI in all
Phlox kelseyi var missoulensis	Xerophyte	Noxious weeds	NI in all
G3 - Rare and local throughout its range, or with very restricted range, or otherwise vulnerable to extinction			
Agastache cusicki	Talus calciphyte	Noxious weeds	NI in all
Antennaria densifolia	Tundra	Climate warming	NI in all
Astragalus scaphoides	Mesophyte	Noxious weeds, road construction, herbivory, seed, predation, mining	MIIH** in all
Balsamorhiza macrophylla	Mesophyte	Noxious weeds, trampling, horse/bicycles off trail.	NI
Botrychium crenulatum	Mesophyte	Noxious weeds, autogenic processes	NI
Botrychium hesperium	Mesophyte	Noxious weeds, autogenic processes	NI
Lesquerella paysonii	Mesophyte	Noxious weeds	NI
Penstemon lemhiensis	Mesophyte	Fire absence, browsing after fire, noxious weeds	MIIH in all

Forest Service Sensitive Species with Montana Natural Heritage Rank (RISK Factors)	Guild	Threats	Impacts from Alternatives
<i>Suasurea weberi</i>	Tundra Talus	Climate warming	NI in all
<i>Thalictrum alpinum</i>	Mesophyte	Noxious weeds, especially Canada thistle, hydrologic alterations	NI in all
G4 - Apparently secure though frequently quite rare in parts of its range, especially at the periphery			
<i>Carex parryana</i> ssp idahoa	Hydrophyte	Hydrologic interruptions	NI in all
<i>Epipactis gigantea</i>	Mesophyte	Noxious weeds	NI in all
<i>Erigeron asperugenius</i>	Mesophyte	“	NI in all
<i>Gentianopsis simplex</i>	Mesophyte	“	NI in all
<i>Happlopappus macronema</i> var macronema	Mesophyte	“	NI in all
<i>Mimulus primuloides</i>	Mesophyte	“	NI in all
<i>Orogenia fusiformis</i>	Mesophyte	“	NI in all
<i>Ranunculus jovis</i>	Mesophyte	“	NI in al
G5 - Demonstrably secure though frequently quite rare in parts of its range			
<i>Adoxa moschatellina</i>	Mesophyte	Interruption of cold air drainage from rock slide areas	NI in all
<i>Allium acuminatum</i>	Mesophyte	Noxious weeds	NI in all
<i>Eleocharis rostellata</i>	Hydrophyte	“	NI in all
<i>Juncus halli</i>	Hydrophyte	“	NI in all
<i>Polygonum douglasii</i> austina	Mesophyte	“	NI in all
<i>Potentilla quinquefolia</i>	Mesophyte	Noxious weeds	NI in all
<i>Primula incana</i>	Hydrophyte	Hydrologic degradation, noxious weeds	NI in all
<i>Scirpus cespitosus</i>	Hydrophyte	Hydrologic degradation	NI in all
<i>Scheuchzeria palustris</i>	Hydrophyte	Hydrologic degradation	NI in all
<i>Veratrum californicum</i>	Hydrophyte	Hydrologic degradation	NI in all

* NI – No adverse impacts to plants or habitat from alternatives

** MIIH- May impact individuals or habitat but not cause a trend to federal listing.

Analysis of impacts to sensitive vascular plants is presented in the Biological Evaluation in the Appendix.

Direct and Indirect Effects

Effects on Vegetation from Aquatic Resource Management

Alternatives for Aquatics vary by the number of key watersheds allocated. Primary effects to vegetation from allocation of a Key Watershed are to promote the health of riparian, wetland,

and aquatic vegetation communities to provide the stability of stream channels, improve width/depth ratios, and filter sediments. They help create desired habitat conditions for aquatic species, and full occupancy of riparian vegetative communities by desired native plant species.

Non-natives, particularly redtop and Kentucky blue grass, have replaced the deep rooted native sedge, rush and grass species in riparian areas. These grasses do not have the stabilizing capability of native grass and place streams at risk from high energy flow events or overgrazing or trampling. In addition, riparian zones are being colonized by noxious weeds such as Canada thistle that also displace stabilizers. Being this close to watercourses they likely will seed water and invade additional areas downstream.

Key watersheds will likely have less ground disturbance that contributes to non-native vegetation establishment. They also provide protection to unique habitats such as seeps, springs, vernal pools, wetlands, peatlands, as well as lakes and riparian zones.

Key watersheds are not addressed in Alternatives 1 and 2 so no positive effects of such allocation and management will occur from these alternatives.

Alternative 3 allocates 135 key watersheds and provides the maximum benefit of monitoring, and managing watersheds for riparian vegetation health.

Alternative 4 allocates 57 key watersheds the least of the action alternatives and thus provides the least opportunity to maintain and enhance riparian vegetation communities.

Alternative 5 allocates 72 key watersheds and Alternative 6 allocates 71 key watersheds are thus intermediate in beneficial effects to aquatic and riparian vegetation.

Effects on Vegetation from IRAs and NWPS Additions

Wilderness recommendations vary by acres of recommended wilderness. The recommendations per se have no effect on vegetation. Keeping lands in unroaded condition, until congressionally designated as part of the Wilderness Preservation System, prevents road construction. Roads serve as corridors and establishment habitats for invasive species and noxious weeds. Wilderness recommended areas on the BDNF are largely occupied by native vegetation that is likely to prevent establishment of new weed infestations.

Effects on Vegetation from Livestock Grazing

Suitable rangelands vary by alternatives only slightly by suitable acres and acres in grazing allotments. It is doubtful that very much difference exists among the alternatives as for their effect on vegetation.

The largest effect on vegetation comes not from grazing per se but rather from grazing that exceeds standards designed to maintain the range forage plants in good health and fully occupying the available niches. The cool season grass guilds are among the most important on the Beaverhead-Deerlodge National Forest as these provide not only forage but are among the most effective at armoring the range against incursion by invasive plant species and noxious weeds. In riparian zones maintenance of sedge, rush and native grasses as well as willow, alder, red ozier dogwood, and aspen is often adversely effected if overgrazed or browsed. When grazing standards are exceeded, such that bare ground devoid of liter or healthy plants occurs, the system becomes susceptible to erosion and overland flow diminishing the soil capacity to

hold water. These openings and eroded areas are then the habitat suitable for invasion of noxious weeds as well as contributing to lowered productivity of forage.

Effects on Vegetation from Minerals and Oil and Gas

The analysis of effects on vegetation in the 1995 Oil and Gas FEIS was reviewed. The analysis remains valid and adequate as described for protection of sensitive vascular plant species under Part IX Mitigation which has been carried forward in the revised forest plan.

Effects on Vegetation from Recreation and Travel Management

Recreation alternatives vary by year-long wheeled vehicle motorized closures, winter motorized closures, miles of road closed and miles of trail closed. Trails and roads are primary connectivity corridors that serve to provide transport and establishment of invasive plant species particularly noxious weeds. A study by Montana State University (Sheeley 2002) showed a vehicle driven several feet in a knapweed infestation could pick up about 2000 seeds and transport them with 10% remaining on the vehicle after ten miles. Schmidt (Schmidt 1989, Hodgkinson&Thompson 1997) reported that a one year study of mud and sludge from a car driven in the vicinity of Gottengen, Germany produced 124 plant species and 3926 seedlings from the mud. While desirable, it often occurs that vehicles used for recreation purposes are not inspected and cleaned. Recreationists often do not have in mind the possibility that they will transport these invasive species. Minimizing connectivity corridors, transport vectors, and maintaining full niche occupancy by desired native and non-native plants is one of the primary ways in which invasive species can be prevented from further spread.

Summer motorized and non-motorized areas. If an area currently open to vehicles is closed it is considered a beneficial effect in limiting vehicles as a vector of noxious weed seed. If it is currently managed as non-motorized, but could become motorized, it is considered an adverse effect. The alternative comparisons were conducted for summer vehicle closures. This is the time of year that noxious weeds set seed and summer vehicles may catch plant parts and carry seed heads from one weed patch to uninfected areas.

Alternative 1 has a summer motorized vehicle closure on approximately 29% of the forest land but closes no roads or trails. This alternative creates the maximum possibility for invasive species to spread.

Alternative 2 has a summer wheeled motorized vehicle closure of approximately 39%. It thus has a higher probability of contributing to the prevention of invasive species incursions than Alternative 1.

Alternative 3 has approximately 59% of the forest closed in summer to motorized vehicle use. It has the highest probability of limiting future incursions of invasive species (provided the road and trail closures are inspected for noxious weeds and any existing populations are suppressed before closure.)

Alternative 4 has approximately 36% of the forest closed in summer to motorized vehicle use. This alternative presents a slight advantage to the prevention of invasive species incursion over Alternative 1.

Alternative 5 and 6 close 45% of the forest in the summer to motorized vehicles. They both have a higher capability to prevent future incursions of invasive species than Alternative 1.

Winter motorized and non-motorized Areas: Most noxious weeds will have released their seeds in areas off forest where winter vehicles originate. Also on forest weed patches will mostly have released their seeds before winter vehicle use could acquire them and spread from existing patches to new areas. While not impossible for weed seeds to be transported by winter vehicles it is unlikely that winter vehicle use has a measurable effect as a vector of noxious weed seed. Compared to other reasons causing noxious weed expansion there is unlikely to be a measurable effect to vegetation from any alternatives for winter motorized or non-motorized allocations.

Effects of identifying a designated system of roads and trails compared to the current condition of allowing travel on existing wheeled tracks: By identifying a designated system of roads and trails forest noxious weed personnel would be better able to inspect and treat new noxious weed infestations by knowing where to focus limited resources to the task. Signing of designated trails would alert users of the threat of weed transport and may improve user inspection of vehicles, horses, and visitor clothing for the presence of noxious weed seed especially those species such as hounds tongue, a serious emerging noxious weed threat on the BDNF, that are vectored by these means. This would have a beneficial impact on prevention and suppression of new weed species infestations vectored by road and trail users.

Designated roads and trails would also prevent damage to populations of rare or sensitive plant species that may occur due to user created trails where the off trail user is often unfamiliar with the habitats and identification of these species and the trail has not been surveyed and routed by personnel experienced in the identification of rare or sensitive species.

Effects on Vegetation from Timber Management

The alternatives vary by the acres allocated as suitable timberlands where growth and yield of forest products is the primary objective. The principal beneficial effect of harvesting timber is the economic value of the forest products, conversion of type where desired, and fuels reduction where desired. . Adverse effects include the production of road corridors that lead to incursion of invasive plant species, soil compaction, detrimental displacement, disturbance to the microbial organisms such as mycorrhizal fungi, production of high quantities of slash that increase fire hazards and may use up soil nutrients at a high rate during decomposition, and damage to residual trees that can allow pathogenic organisms to enter. These factors may decrease the productivity of the timberlands if not carefully managed. Management of suitable timberlands to minimize adverse effects of timber harvest is likely to have a greater effect than actual acres allocated. With proper site-specific silvicultural prescriptions, and harvest operations done with proper care and adherence to best management practices minimizing adverse effects can be mitigated to some degree.

Alternative 1 allocates the maximum number of suitable acres at 676,000. It also produces the maximum probability of adverse effects.

Alternative 2 allocates 346,000 acres of suitable timberland and would have adverse effects on much fewer acres.

Alternative 3 allocates 0 acres of suitable timberland giving no economic benefit but avoiding adverse effects entirely.

Alternative 4 allocates 484,000 acres of suitable timberlands and generating the most need for proper management of adverse effects.

Alternative 5 allocates 216,000 acres and Alternative 6 allocates 299,000 acres of suitable timberlands. They are intermediate between Alternative 3 and 4.

Effects on Vegetation from Vegetation Management

Alternatives 3, 4, 5 and 6 have the most likely beneficial effects on vegetation management for restoration of quaking aspen, the most practical approach for old growth retention, and set objectives for conifer encroachment reduction. These alternatives are more likely to ensure that sensitive plant populations do not trend towards federal listing. Alternative 1 has the least beneficial effect as it does not have objectives for aspen restoration or conifer encroachment reduction and retains only 2 species of old growth by compartment. Alternative 2 has slightly more beneficial effects than Alternative 1 but may be impractical for retention of old growth and does not specify objectives for aspen restoration or conifer encroachment reduction.

Effects on Vegetation from Fire Management

Fire, as an ecological process, has been a major influence on the vegetation systems on the BDNF probably over the extent of geological time. Many plant species have adapted specialized ways to survive fire or take advantage of the niches in a post burn environment. How and which plants survive or gain a competitive edge in the post fire environment often depends on the intensity of the burn and post burn precipitation events.

Light or moderate intensity fires may thin coniferous forests without removal of overstory trees thus maintaining an older age cohort that can survive, thus producing the late seral and old growth forests stages. High intensity burns can replace stands entirely sending the system back to early seral conditions. Soil seed banks that are released by heat may provide the first stage of re-vegetation or wind blown seed may enter the area. Serotinous cones such as those on the lodgepole pine usually open from the heat of fire and reseed the burn.

Woody shrubs are often killed by fire while perennial grasses with their ground level meristems may survive and prosper for a period of time. The absence of fire for long periods of time often allows woody vegetation to dominate and reproduce in abundance. If not thinned by a low intensity burn, the abundance can become fuel loading that leads to another stand replacement burn of high intensity.

Conifers, especially Douglas-fir and lodgepole pine, often expand into adjacent shrublands and grasslands in the absence of fire. Aspen stands are often succeeded by conifers without fire. For the most part fire can be considered a contingency of the wildland history that destroys some to many individuals while at the same time providing the conditions for rebirth of fire adapted species. For the most part fire is neither good nor bad. It is just a process that occurs in wildland. Because we are now part of the ecosystem, and have specific objectives we wish to attain for the forest, fire is a way to attain those objectives rather than leaving it to chance. It is becoming more apparent that fire is a climatically controlled event and we will likely not achieve complete control over the process of fire. We may instead nudge parts of the wildland system toward a desired condition while watching nature alter other areas above our limited power to intervene. Fire often produces conditions suitable for incursion by invasive plants and noxious weeds particularly where a burn is severe enough to suppress native plant occupancy of available niches.

Wildland Fire Use

Alternatives vary by the acres available for wildland fire use. Alternative 1 has 2,768,000 acres available. Recent records indicate that approximately 115,000 acres burned under escaped wild-fire in the past decade. Under this alternative escaped wildfire will still alter the system when climate and local weather produce burning conditions that overwhelm our suppression capabilities. However under this alternative the option of allowing natural ignition to change vegetation such as dense coniferous stands that have undergone succession into shrublands, grasslands, and aspen clones can not be used.

Alternative 2 and 4 allocates 2,251,000 and 2,385,000 acres respectively, available for wildland fire use. These alternative increases the constraint on fire managers to use natural ignition as a management tool but together with prescribed fire, escaped wildfire, or mechanical treatments, may not be used often enough to make a large change in vegetation.

Wildland fires at high elevations with no developed areas, in alternatives that include landscape level wildland fire use options, could restore the early seral stage of whitebark pine stands. These stands have advanced to mostly mid and late seral stages with little early regeneration. Since whitebark pine is known to be planted by Clark's nutcrackers and other animals with a preference for caching seeds in burns, this may allow for selection of blister rust resistant whitebark pines.

Alternative 5 with 2,841,000 and Alternatives 3 and 6, both with 3,355,000 propose the highest number of acres allocated for wild land fire use. Like Alternative 2, how often, and to what extent, the option of using natural ignition is exercised is uncertain. Again depending upon the extent wildland fire use is employed it may not make a large difference in the vegetation condition and effects are expected to be the same as Alternative 1. Still these alternatives have a higher potential to allow plants stored in soil seed banks dependant on the heat of fire, to regenerate.

On a landscape level, wildland fire use may benefit some fire dependent plants such as the R1 sensitive species Lemhi penstemon. This species germinates following fire but appears to require the dilution effect of large landscape level fires to mitigate the attraction of ungulates that browse heavily on small burns, and appear to be having an adverse impact on survival of seedlings. Larger landscape fires could also benefit the restoration of aspen clones undergoing succession by conifers and restoration of shrubland grasslands undergoing succession by conifers.

Effects on Vegetation from Wildlife Habitat Management

The principle effect on vegetation from proposed wildlife alternatives is related to open road density. Roads serve as one of the primary connectivity corridors for introduction of invasive species. The ruderal habitat created during road construction and maintenance is ideal for the establishment of noxious weeds transported by vehicles.

Alternative 1 does not specify open road density objectives so the effect on incursion by invasive plants and noxious weeds is indeterminate for this alternative. Observations and monitoring have revealed many noxious weed populations occur along existing roads. New populations have been reported frequently.

Alternative 2 has an open road density objective of 1.5 miles/square mile. This open road density affords some opportunity for invasive incursions but is likely to be less than Alternative 1.

Alternative 3 has an open road density objective of 1 mile per square mile and provides the least open road density. This alternative has the least probability of incursion by noxious weeds as it provides the least habitat for their establishment, as well as limiting the opportunity for vehicular transport.

Alternative 4 has the highest open road density objective at 2.5 mile per square mile and affords the most connectivity, habitat, and transport opportunity of any of the action alternatives. Thus, it has the highest probability of allowing new invasive and noxious weed transport and establishment

Alternatives 5 and 6 have a variable open road density objective of from 0 to 2 miles per square mile and thus a variable probability of contributing to incursion by invasive and noxious weeds. Where 1 mile per square mile is maintained, the effect would be the same as in Alternative 3.

Cumulative Effects

The analysis area for cumulative effects includes all ownerships in the eleven landscapes that comprise the BDNF. There are no cumulative effects from the decisions we are making in the revised forest plan except for past actions. Analysis of the vegetation cover types and structure indicates the net effect of past management activities such as fire suppression and logging have trended the forested vegetation to mid seral and mid size class primarily at the expense of early seral and small size class stages.

The vegetation objectives seek to retain existing aspen and creating an upward trend in cover and structure of aspen to bring it closer to the historic range of variation to provide habitat for vertebrate and invertebrate species on BDNF lands. This restoration activity is independent of any changes in trend on other ownerships and thus does not have a cumulative effect. If fire suppression and climate change continues to favor conifers on other ownerships then aspen across the landscape is expected to continue to decline. Successful aspen restoration on the BDNF could cumulatively offset loss on other ownerships since the habitat is likely to be used by species that are mobile.

Retention of old growth on BDNF lands is also independent of old growth loss or retention on adjacent ownerships since it is not connected to viability of other species that may cross ownership boundaries. There is no cumulative effect to retention of old growth on the BDNF. Reductions of conifer encroachment are based on the landowner desirability preference and are independent from other ownerships and do not have a cumulative effect.

Noxious weed incursions cross ownership boundaries by vehicle transport, animal transport, and wind/water transport. If any landowner allows noxious weeds to establish and produce viable seeds cumulative effects to other landowners even if they are successfully suppressing seed formation on their own lands are expected from reintroduction of transported seeds. Native ecosystems are likely to come under greater risk from introduced species which continue to enter our area from outside.

It is likely natural processes and agents including fire, insects, and pathogenic fungi will alter the existing vegetative conditions in episodic eruptions just as they have in the historic times. . Under the influence of changing climate, if droughts, and warmer winters continue, agents such as mountain pine beetle, Douglas-fir beetle, Western balsam bark beetle, and spruce beetle will

likely show increased levels of activity. Fires are likely to increase in intensity under climatic influence if droughts continue and weather favorable to high intensity fire develops.

Legal and Administrative Framework

Laws and Executive Orders

The Forest and Rangelands Renewable Resources Planning Act of 1974 - Provides for maintenance of land productivity and the need to protect and improve the soil and water resources.

The National Forest Management Act of 1976 – Requires that “Regulations shall provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple use objectives.”

Federal Noxious Weed Act of 1974: - Authorizes the Secretary to cooperate with other Federal and State agencies and individuals in carrying out measures to eradicate, suppress, control or prevent the spread of noxious weeds.

The Endangered species Act of 1973 - Requires federal agencies to conserve threatened and endangered species.

The Healthy Forest Restoration Act of 2003 - Requires forest plans to maintain or contribute toward the restoration of structure and composition of structurally complex old growth stands, according to the pre-fire suppression old growth characteristics of the forest type contribution of the stands to landscape fire adaptation, watershed health, and retention of large trees contributing to old growth structure.

Executive Order 13112 - Directs federal agencies whose actions may affect the status of invasive species to (1) prevent the introduction of invasive species, (2) detect and respond rapidly to and control populations of such species in a cost effective and environmentally sound manner, as appropriations allow.

Regulation and Policy

FSM 2080 - Contains numerous provisions related to suppression of noxious weeds.

FSM 4063 – Directs management of Research Natural Areas as part of a national network of ecological areas allocated in perpetuity for research and education and/or to maintain biological diversity on National Forest System lands.

FSM 4063.03 - Forest Plans shall include analysis of, and recommendations for, any proposed research natural areas establishment.

FSM 2670.22: - (1) Develop and implement management practices to ensure that species do not become threatened or endangered because of Forest Service actions; (2) maintain viable populations of all native and desired non-native wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System lands; (3) Develop and implement management objectives for populations and or habitats of sensitive species.

Departmental Regulation 9500-4: - Habitats for all native and desired non-native plants, fish, and wildlife species will be managed to maintain at least viable populations of such species. In achieving this objective, habitat must be provided for the number and distribution of reproductive individuals to ensure continued existence of a species throughout its geographic range.

Other

Beaverhead-Deerlodge National Forest Noxious Weed Control FEIS and Record of Decision 2002 – A new Noxious Weed Control Program was implemented in a 2002 Record of Decision that strengthens prevention, treatment, and control of noxious weed seed sources that adversely affect agriculture, wildlife habitat, and rare plants.

Region 1 Natural Areas Assessment 1996 - Provided an assessment of plant community types needed to fulfill the national spectrum of types to be placed in RNA status in region 1.

USDA Forest Service Position Statement on National Forest Old-Growth Values 10/11/89 - Recognizes the many values associated with old-growth forests, such as biological diversity, wildlife and fisheries habitat,

Chapter Three

Vegetation

recreation, aesthetics, soil productivity, water quality, and industrial raw material. Old-growth on the national forests will be managed to provide the foregoing values for present and future generations. Decisions on managing existing old-growth forest to provide these values will be made in the development and implementation of forest plans. These plans shall also provide for a succession of young forests into old-growth forests in light of their depletion due to natural events or harvest.

Changes Draft to Final

During the period between publication of the DEIS in 2005 and this publication the BDNF was determined unoccupied by Canada lynx, the grizzly bear and bald eagle were delisted as of August 8, 2007, and the goshawk was removed from the Region 1 Sensitive Species List. The analysis was updated to reflect these changes.

If the BDNF is determined to be occupied by lynx, the Northern Rockies Lynx Management Direction Record of Decision (USDA 2007) will apply.

Analysis Area

The analysis area for wildlife is wildlife habitat on National Forest System (NFS) lands administered by the Beaverhead-Deerlodge National Forest (BNDF). It is important the reader understands the Forest Service manages habitat while Montana Fish, Wildlife, and Parks manages species populations.

Effects Indicators

- Open road density
- Aspen regeneration
- Snag distribution

Affected Environment

Wildlife resources are extremely diverse because of the variety of habitat offered by the island mountain ranges which comprise the BDNF. Elevations range from cold desert at 5,000 to 6,500 feet to true alpine habitat types at more than 10,000 feet. The forest is home to approximately 346 terrestrial species for all or portions of their life cycle. This includes approximately 246 birds, 85 mammals, and 15 reptiles/amphibians according to the Eastside AMS in the project file.

As with the grizzly bear, wolves now occupy both forests and are expanding rapidly statewide. Six wolf pack ranges have been identified for portions of the forest. With the exception of the Boulder River Drainage and the northern portion of the Pintler Ranger District, wolves are classified as non-essential/experimental (10j rule). The dividing line runs along I-90 and I-15. (USFWS 2005)

The current endangered species list for the BDNF no longer shows the lynx (USDA 2005a). Consultation with the US Fish and Wildlife Service is no longer required for lynx.

Wolverines occur on the BDNF. Detections were recorded in the Pioneer Mountain Range during the winter of 2002 as part of the Rocky Mountain Research Station surveys. Additional sightings are documented in the Beaverhead and Madison ranges and the Boulder River Drainage, with new sightings in the Beaverhead Range during the winter of 2005. Elk, mountain

goats, and sage grouse also use forest lands. Sage grouse however, have no known breeding or nesting sites on BDNF lands

Resource use and exclusion of fire for almost 100 years changed some wildlife habitat. These changes benefit some species and are detrimental to others. Aspen communities are in decline because of browsing by wildlife and livestock and fire suppression. (Large fires since 2000 may create a notable upward trend in aspen.) Aspen stands are especially important for Neotropical migratory birds and many other species. The preferred alternative will treat 67,000 acres for active aspen restoration over the life of the forest plan.

Riparian shrub communities in portions of the forest are also declining. Many contributing factors include a lack of active beaver colonies, increased browsing pressure from moose and livestock, and shading as a result of fire suppression.

Conifers are encroaching on sage brush communities. The preferred alternative will treat 74,000 acres at the conifer/sagebrush ecotone to rejuvenate early seral stage grasslands and sagebrush. Sage grouse, dependent on sage brush habitat, is in decline throughout the Interior West. The bird is on the Northern Region Sensitive Species List (2005a), but is not warranted for listing under the Endangered Species Act. The BDNF encompasses approximately 175,000 acres of predicted sage grouse habitat (Hart 2001) which amounts to approximately half of 1 percent (0.54%) of NFS lands predicted for the grouse in the Northern Region, and 1.5% of the habitat in Montana.

Sage grouse habitat has been modeled 18 kilometers (11 miles) from all known active and inactive leks, regardless of land ownership, using SILC data. The 18 kilometer radius is based on recommendations from Connelly (2000) for migratory sage grouse populations. This radius exceeds the radius of 2 miles for 66% of nesting from leks in central Montana as noted in the Management Plan and Conservation Strategies for Sage Grouse in Montana Final (2005). Based on Forest Service modeling, there are approximately 335,750 acres of habitat on BDNF lands. This represents an increase over acres predicted by Hart (2001), but the BDNF is very much a minority stakeholder in terms of sage grouse conservation in southwest Montana. There are no known active or inactive leks anywhere on BDNF lands. Although there is some upslope summer and fall dispersal of sage grouse onto the National Forest, the important challenges for sage grouse habitat management in southwest Montana are found on private, state, and Bureau of Land Management (BLM) ownerships.

Old growth forests are distinguished by structural characteristics only time can develop. Old growth forests also provide important aesthetic and recreational values, and high quality wood. While there are wildlife species with a preference for old growth in portions of their life cycles, there are no old growth obligate species identified for the BDNF.

As displayed in Table 168 the BDNF has a large percentage of forest types in old growth. See the Vegetation Management section for distribution of forest types.

Table 168. Estimates of probable Forestwide Old Growth by Dominance Type and Associated 90% Confidence Intervals

BDNF Dominance Group	Standard Error	90% Confidence Interval Lower Bound	Percent Old Growth	90% Confidence Interval Upper Bound	Total Number PSU	Number Forested PSU
Douglas-fir, Ponderosa pine Limber Pine	3.0	15.6%	20.4%	25.4%	99	99
Engelmann Spruce/Subalpine fir	5.0	28.1%	36.1%	44.4%	57	57
Lodgepole pine	2.0	13.7%	17.0%	20.4%	204	204
Whitebark pine	5.3	26.0%	34.7%	43.6%	45	45
OTHER	5.6	18.6%	27.6%	36.9%	37	37

Source: Bush, Lundberg and Berglund 2006.

Important big game species are mule deer, white-tailed deer, black bear, moose, elk, bighorn sheep, mountain goat and some antelope. Most antelope inhabit mixed ownerships outside the forest boundary. Elk are the most sought after by hunters giving southwest Montana the highest hunting use in the state.

The BDNF is part of the Greater Yellowstone Ecosystem where grizzly bear populations have been expanding, and the Yellowstone Distinct Population Segment was delisted (Federal Register Final Rule, March 29, 2007). The Gravelly Range landscape is now considered partially occupied (129,000 acres outside the primary conservation area) by grizzlies (Figure 27). The Grizzly Bear Amendment (USDA 2006a) projects a 4% annual range expansion. The Amendment applies only to the Beaverhead portion of the forest. The Primary Conservation Area (PCA) does not change and still includes only the Lee Mctcalf Wilderness. Specific goals, standards, and guidelines outside the PCA are found in the ROD (USDA 2006b) incorporated as Appendix C of the Revised Draft Forest Plan.



Figure 27. Grizzly Bear Distinct Population Segment Habitat (inside red line-on-screen, black solid-print)

Grizzlies can move long distances and occupy home ranges in excess of 1000 square miles. Grizzly bear and human conflicts are commonly fatal for bears, making space and isolation from human development essential. Allocations, varying by alternative, of proposed wilderness, open motorized road densities, and inventoried roadless areas would result in variable benefits based on bears avoiding vehicles in particular. See the effects discussions under wilderness and travel management.

Secure habitat greater than 10 acres is mapped using a 1/3 mile buffer from open motorized roads and trails. Mapping is based on the definition in the 2006 Yellowstone Grizzly Bear Amendment. The 1/3 of a mile buffer used in the plan is approximately 145 feet wider than the 500-meter grizzly bear buffer in the amendment, and the 500 meter threat response buffer for elk noted in Wisdom et al. (2004). This 1/3 mile modification was developed with recreation managers to accommodate mapping for quiet recreation. Consequently, the wider buffer identifies less secure habitat than the 500 meters described in the Grizzly Bear Amendment. These secure areas also provide undisturbed habitat for large ungulates and carnivores.

Elk are a premier wildlife species for hunters in addition to people who enjoy seeing wildlife. Southwestern Montana is home to over 40% of the state elk population and gets the bulk of hunting pressure and harvest (MTFWP 2003a). Some landscapes are among the most heavily hunted in Montana.

Spring calving, summer and fall range occurs primarily on this forest. Based on Christensen et al. (1993), the primary BDNF management tool for elk is vehicle access management. Open, motorized roads and trails are the greatest consideration on summer range relating to habitat effectiveness (Christensen et al. 1993). Open road density and season of use is another primary elk vulnerability consideration, as hunting is the primary source of elk mortality (Christensen et al. 1993). The alternatives address travel management by providing a range of motorized roads/trail densities (open miles/square mile) by MTFWP hunting unit and forest

landscape scales, both are limited to only BDNF lands. See the effects discussion under travel management.

The 2005 State Elk Management Plan advocates maintaining elk security during fall hunting season by limiting road vehicle access. State population objectives clearly seek to reduce the number of elk through hunting regulations. None of the alternatives address elk numbers because that is a State responsibility. Population trends across the forest, however, are stable to increasing. The alternatives do, display a range of road densities across the landscape to promote elk security in support of MTFWP management goals. Some State objectives may not be met on the northern part of the forest (hunting unit 318 in particular), because of existing high road densities as a result of past mining and logging affecting habitat effectiveness. Elk are also selected as Management Indicator Species (MIS) to help determine effects of road density management forest-wide.

Managing for lower open motorized road densities may allow large mammals to move across the forest without major disturbance from vehicles. Secure areas address concerns about “linkages” across large landscapes. Forest roads do not produce the physical impediments, such as fences and traffic, to large animal movement that Interstates 90 and 15 pose. Secure habitat in this EIS is defined as anything larger than 10 acres, more than 1/3 of a mile from an open motorized road or trail.

Wolverine was selected as wildlife MIS to measure the effectiveness of maintaining winter denning habitat secure from snowmobile impacts. Mountain goats were also selected as a MIS to help assess management of high elevation snowmobile use. Public comments revealed concerns about adverse impacts to this species at a stressful time of year.

Maintaining linkages and connectivity is not entirely beneficial. The scientific community debates the desirability of creating isolated bioreserves to “wall off” biodiversity hotspots in order to prevent species loss (Meyer 2004). Noxious weed spread is also identified as a major threat on National Forest System lands (Bosworth 2003). Houndstongue (*Cynoglossum officinale*) seeds stick to anything and can be spread by wild animals. Chronic Wasting Disease (CWD) is known in free-ranging elk and mule deer in Wyoming (APHIS 2002b). Montana Fish, Wildlife, and Parks biologists have aggressively sampled for CWD since 1998 and are concerned about transmission to deer and elk in Montana. Debate continues about the possible transmission of brucellosis from Yellowstone bison into surrounding livestock. The only known *Brucella abortus* infection left in the nation is in bison and elk in the Greater Yellowstone Area (APHIS 2002a). These are just a few examples of adverse implications for connectivity across landscapes.

While there are maps published to show linkages for large vertebrates, such as the 2003 Northern Rockies Lynx Amendment and the 2005 American Wildlands Safe Passages Map, empirical data to support movement between landscapes or delineate specific corridors or buffer zones does not exist for the Beaverhead-Deerlodge NF. Nevertheless, there is considerable support for linkage between the Greater Yellowstone Ecosystem and the Northern Continental Divide (Noss et al. 2001, ICST 2004, Walker & Craighead 1997). Discussion in these reports focuses on least-cost pathways across the larger landscapes and managing for road crossings across major highways such as I-15 and I-90. Walker and Craighead (1997) note that “a secondary route for bears, far inferior to the primary in this analysis, is comprised primarily of the Taylor-Hilgard, Gravelly, Tobacco Route, Whitetail/O’Neil, and Boulder Mountain Ranges” on the Beaverhead-Deerlodge

NF. They discuss the best potential corridor for bears being east of the Beaverhead-Deerlodge through the Gallatin, Bridger, and Big Belt mountain ranges. They also note another potential corridor from the south end of the Madison Range along the continental divide through the Centennial Mountains. They acknowledge that while there is debate over the value of corridors, “individual animals disperse over long distances from their natal areas.” “These movements constitute gene flow and demographic interchange between populations.”

Forest plan objectives focus on secure (USDA 2006a) habitat to provide landscapes more permeable to wildlife movement. Concerns about connections between BDNF landscapes appear to focus on major highway and interstate crossings not in Forest Service ownership. Forest staff can work with conservation groups and Montana Department of Transportation to manage crossings where Forest Service ownership extends to right-of-way boundaries. See the effects discussions under recreation and travel management and maps beginning on page 529 for a display of secure habitat that can contribute to linkages/corridors.

Some comments on the DEIS suggested a better science based logic be displayed regarding the negative aspects of connectivity. Those comments appeared to focus on public land management as the causative agent for negative aspects of connectivity. Ascribing negative aspects solely to undefined public land management is simplistic. Human intervention encompasses all land ownerships.

A startlingly under-appreciated change is discussed by Knopf in Mac et al. (1998). Native grasslands represent the largest vegetative province in North America. The Great Plains have been significantly altered by mineral exploration, urbanization, grain cultivation, and tree planting (Settlers brought trees to provide shade, windbreaks and aesthetic reminders of eastern forest areas from which they emigrated.) in the dry central and western Great Plains. As forested habitat has increased, grassland birds have been replaced locally by eastern species moving into windbreaks and developing riparian forests along the streambeds of short-grass prairies.

A local example of the negative aspects of connectivity is the threat to native west-slope cutthroat trout (WCT) from crossbreeding with rainbow trout to create hybrids. State and Forest Service fisheries biologists are working to isolate genetically pure west-slope cutthroats (sensitive species) from rainbow populations to maintain WCT integrity. Rainbow trout were introduced from hatchery stocks into most suitable habitat in the state, beginning in 1889, and was viewed as socially desirable and benign.

Meyer (2004) expands on the large scale effect of various types of human intervention. He suggests the world we live in is more connected than ever before with some potentially dire consequences. The result includes the spread of cheatgrass throughout the American West, global warming threatening polar bear populations, and the spread of noxious weeds – a substantial problem. Montana Fish, Wildlife and Parks staff are also very concerned about the spread of chronic wasting disease. *“From the perspective of disease ecology, however, Montana’s deer herds should be considered as one continuous population. Geological or geographic barriers may slow the spread of the disease, but without adequate prevention and management, CWD may ultimately affect deer and/or elk throughout the state.”* (MTFWP 2005)

Samson (2006a) notes “. . . increases in intermediate-aged forests and connectivity threaten key remaining elements of biodiversity, such as areas of old growth, as these areas no longer persist in fire-protected refugia but are embedded in a well-connected matrix of intermediate-aged forest

that permits the rapid spread of fire and insect outbreaks with a spatial-temporal pattern unlike the historic landscape."

The narrative displays that "connectivity" is not without negative aspects based on scientific concern. Public lands management is far from exclusively culpable for negative effects.

Big Game

The BDNF contains all or portions of 29 hunting units.

Table 169. State Elk Management Statistics and Objectives by Hunting Unit on the BDNF

BDNF Hunting Districts	2005 Montana State Elk Management Plan Objective	MTFWP 2006 Population Estimates $\pm 10\%$
210	725 $\pm 20\%$	952
211	600 $\pm 20\%$	485
212	850 $\pm 20\%$	1074
213	650 $\pm 20\%$	689
214	200 $\pm 20\%$	270
215	1000 $\pm 20\%$	1144
216	325 $\pm 20\%$	288
300	700-900 $\pm 20\%$	1137
302	550-700 $\pm 20\%$	736
311	2700 $\pm 20\%$	3100
318	500 $\pm 20\%$	383
319	1100 Max	936
320	1000 $\pm 20\%$	942
333	for both	470
321	None stated approx 1000 migrate to Idaho	No winter elk
327	Gravelly EMU 7000 $\pm 15\%$	No winter elk
323		2682
324		2500
330		1132
Total for all 4 units		6314
328	550-700	650
329	900 Max	683
331	1400 Max	896
332	900 Max	600
340	1600 $\pm 20\%$ combined for all	557
350		268
370		192
Total for all 3 units		1017
341	600 Max	494
360	2200 $\pm 20\%$	1914

BDNF Hunting Districts	2005 Montana State Elk Management Plan Objective	MTFWP 2006 Population Estimates $\pm 10\%$
362	2500 $\pm 20\%$	3629
TOTAL	30,575	28803

Table 170: Hunting Recreation Use -By Elk Management Unit

Elk Management Unit	Current Estimated Recreation Days MTFWP	State Objective For Recreation Days
Deer Lodge	31,448	28,100
Flint Creek	21,337	15,000
Sapphire	60,140	50,000
Highland	25,548	17,000
Gravelly	62,580	34,700
Fleecer	21,396	19,000
Madison	26,621	23,700
Tobacco Root	14,590	8,700
Pioneer	38,569	35,000
Tendoy	17,556	8,500
Elkhorn	24,328	23,000 to 25,000
Rock Creek	27,739	21,359 (estimate)
Totals	371,852	284,059 to 286,059

The BDNF is highly popular for elk hunting. This region receives the greatest hunting pressure for elk in the State. While hunter recreation day objectives are not measured by the Forest Service, the total recreation days (Table 170) amount to approximately 24% of the all recreation use on the Forest. The Beaverhead-Deerlodge NF plan will not reduce hunter recreation days on any elk management units. The State is the responsible agency managing hunter pressure.

Coordination with the Montana State Elk Management Plan is inherent, to the extent possible, in all alternatives. The preferred alternative (Alternative 6) provides fall open motorized road & trail densities that are compatible with the MTFWP Elk Plan with only one hunting unit with an open road density objective above 1.5 mi/sq mile.

The bulk of recreational impact occurs over a five week time span during general hunting season. It affects infrastructure, travel management, and use of available habitat by elk. Road densities are highest in hunting unit 318 in the Deerlodge Elk Management Unit (EMU). Motorized recreation in this EMU is displacing elk from traditional winter ranges on public land to range on private land where they are not welcome. MTFWP instituted unrestricted antlerless elk hunting over most of southwestern Montana during the 2004 hunting season to reduce populations.

Elk predominantly use calving areas and summer and fall range on NFS lands. If 80% of the estimated populations for EMUs (Table 169) summer on the BDNF, it means 20,738 to 25, 346

elk spend the majority of their life cycle here. Winter range carrying capacity on NFS is not as high since the majority of winter range is in private ownership. While elk are the predominant big game species, mule deer, moose, black bear, big horn sheep, mountain lion, and mountain goats are also important.

Threatened or Endangered Species

Federally listed wildlife is limited to the gray wolf. With the exception of the Boulder River Drainage and the northern portion of the Pintler Ranger District where it is listed as threatened, the wolf is classified as non-essential/experimental (10j rule) on the forest. Interstate 90 and 15 constitute the dividing line. The effects on the gray wolf are disclosed in the biological assessment. All alternatives are in compliance with the Endangered Species Act.

The bald eagle and Yellowstone distinct population segment of the grizzly bear have been delisted. The Canada lynx is not present on the Beaverhead-Deerlodge NF. The only Endangered Species Act (ESA) consultation requirement will be the effects to the gray wolf in all alternatives.

Management direction for bald eagles is provided by the National Bald Eagle Management Guidelines (USDI 2007) with grizzly bear management guidance provided by the Record of Decision for the Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests (USDA 2006b). This direction is supplemented by the Montana Grizzly Bear Management Plan for Southwestern Montana (MTFWP 2002) because the grizzly bear amendment does not include the Deerlodge portion of the forest.

Secure habitat for bears is analyzed based on the definition in the Final Conservation Strategy for the Grizzly Bear in the Yellowstone Ecosystem and Grizzly Bear Amendment (USDA 2006b). The definition includes any habitat (exclusive of lakes) that is 10 acres or larger and 500 meters or more from a road. The 10-acre polygon includes all terrestrial habitats regardless of vegetative cover. The FEIS retains the minimum 10-acre polygon, but extends the road buffer to 1/3 mile (536 meters) from all motorized roads and trails. This buffer represents a synthesis of the grizzly bear amendment specification and the distance used by recreation specialists to assess scenic integrity values. The resulting secure areas produce a picture of the extent and percentage that forest landscapes provide for bears and potential connectivity and linkage across the Forest for large ungulates and carnivores.

Landbirds

As noted in the general overview, birds constitute the greatest number of terrestrial/avian wildlife species. Forest personnel have been participating in the Region 1 Landbird Monitoring Program, in partnership with the University of Montana, since 1994. More than 2,900 points have been sampled in this area since the program began. Data can be found on the internet at <http://biology.dbs.umt.edu/landbird/data.htm>. Landbird data is used for site-specific project analysis.

Management Indicator Species

Management Indicator Species (MIS) are species selected to indicate effects of management on habitat because their population changes are believed to indicate the effects of management activities. They are not always listed species and an MIS designation does not convey special protection. This section addresses only wildlife MIS.

Wolverine is a Northern Region Sensitive Species which was selected as an MIS to indicate changes in winter denning habitat security related to motorized disturbance. While wolverines are normally found at low densities throughout its range, they have been documented in most forest landscapes based on a sampling protocol developed by the Rocky Mountain Research Station at Missoula.

Comments suggested other MIS in addition to wolverines. Rocky Mountain Elk, the most important commonly hunted big game species were added as MIS. Elk are widespread, are found in all vegetation types at all elevations up to 10,000 ft. MTPFW produces annual elk survey information, by hunting district, which facilitates elk monitoring.

Mountain goats are another commonly hunted species occupying a high elevation niche subject to motorized disturbance in the winter. MTFWP also surveys this species by hunting district, facilitating monitoring the effectiveness of secure habitat for this species.

Sensitive Species

The Montana Gap Analysis indicates no “priority” concern areas on the BDNF for bird and mammal species at risk. Concern areas were developed by Dr. Roland Redmond, Director of the Wildlife Spatial Analysis Lab at the University of Montana. The Northern Region sensitive species list was revised in 2005 and is contained in the biological evaluation in Appendix B. All fourteen avian and terrestrial wildlife sensitive species are analyzed in the wildlife biological evaluation. Aquatic sensitive species are analyzed in the fisheries biological evaluation. Forest plan implementation will not threaten the viability of any of the fourteen wildlife species nor cause a trend towards Federal listing.

The peregrine falcon was delisted in 1999, but remains on the sensitive species list due to cooperative state, conservation organizations, other federal agency, and MTFWP monitoring efforts to detect any future decline in the species. The cooperative monitoring plan is expected to continue until 2015 (USDI 2003a)

De-listing of the bald eagle and grizzly bear shifted these species to the BDNF sensitive species list. The biological evaluation analyses in detail the effects of the preferred alternative on all the sensitive wildlife species.

Snags

Snags are an important habitat component for a multitude of wildlife species, particularly woodpeckers. Snags provide nesting habitat and foraging substrate at all stages of their “life cycle” from hard recently dead snags to soft snags in advanced stages of decomposition. They provide large dead and down material on the forest floor which provides habitat for invertebrates which in turn become food for grizzly and black bears.

Large snags are well distributed forestwide as seen in Figure 28. However, the Upper Clark Fork Landscape contains the lowest number of large snags. This is likely because of heavy logging around Butte in the heyday of copper mining.

The preferred alternative establishes snag densities at a minimum of 4 snags per acre as measured by FIA forestwide, in forested habitat type, equal to or greater than 10 inches DBH. Of those at least one is 15 inches DBH or greater. FIA shows snags are well distributed forestwide and by landscapes. These densities are compatible with the Northern Region Snag Protocol (2000) vegetation response units (VRU) for warm, dry ponderosa pine, Douglas-fir (1-2

>20"dbh) and high elevation spruce/fir/lodgepole pine (5-10 >10" dbh). The same diameters are also compatible with the Samson (2006a) assessment for the pileated (>15"dbh) and black-backed woodpeckers (>10"dbh) for nest trees.

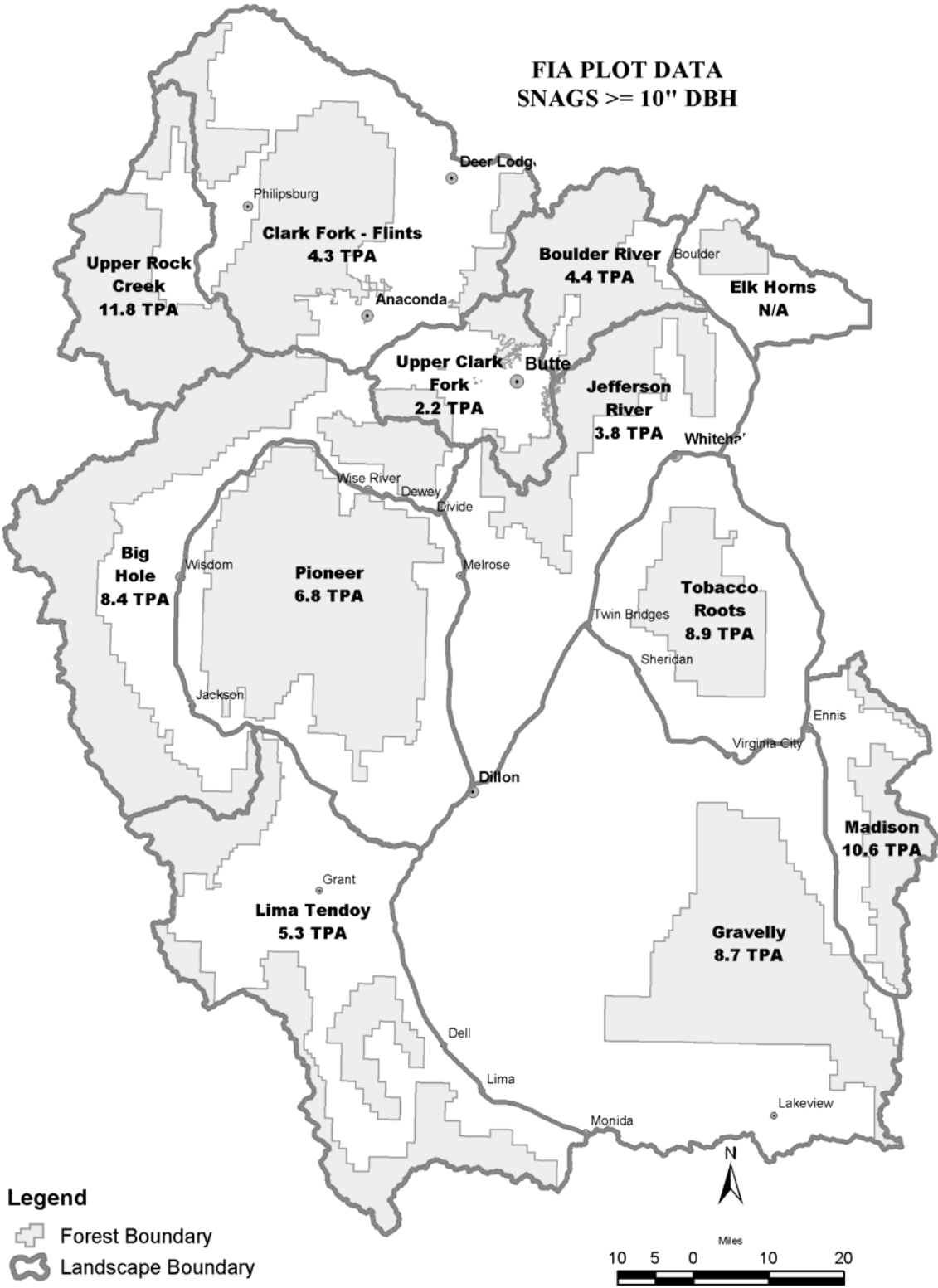


Figure 28. Map of Large Snag Distribution Based on FIA Data

Environmental Consequences

This section contains the analysis of direct and indirect effects by alternative for each resource area. Cumulative effects are addressed at the end.

Summary of Effects by Alternative

Alternative 1 represents no change from the current condition. There are no opportunities to reduce road densities to enhance secure habitat and promote connectivity and linkage for large carnivores. There would be no emphasis to actively treat conifer encroachment to enhance grassland/sagebrush habitat, and active aspen restoration would not be emphasized. Old growth retention would be the least of all alternatives. Recommended wilderness acres (174,000 acres) which can enhance secure habitat, connectivity, and potential linkage would remain unchanged. Management direction for elk would continue to focus on units (EHROGAs) that are not recognized by Montana Elk Plan (MTFWP 2005) and would not take advantage of advances of new science in elk management. The amount of acres available for wildland fire use which can be used to effectively manage for the historic range of natural vegetation is the second highest of the six alternatives. All direction for federally listed and Forest Service sensitive species would be met.

The number of grazing allotments would not change.

Forest-wide summer secure habitat is 50% at the landscape scale which is the lowest of all alternatives. The forest-wide fall secure habitat is 57% at the hunting unit scale which is the lowest of the six alternatives.

Alternative 2 applies a road density objective of 1.5 miles/sq. mile at the landscape scale. This alternative closes the second highest number of road miles at both the landscape and hunting unit scale.

Active aspen restoration and conifer encroachment are allowed, but there is no particular emphasis in proactively treating these areas. This alternative does not update the definition of secure habitat or use new science in assessing the threat response of elk to motorized disturbance.

The acres of wildland fire use available for habitat management is the least of all 6 alternatives.

This alternative would maintain the 15-20 year old basic parameter of a ½ mile buffer and forested blocks of 250 acres or more over 30% of a hunting unit in determining effective habitat management for elk. Many of the hunting units on the southern portion of the forest are not 30% forested now nor have ever been, and still support large numbers of elk compatible with Montana Elk Plan (MTFWP 2005) objectives. Newer science in managing for elk and large carnivores is not applied.

All old growth in the Englemann spruce/sub-alpine fir, whitebark pine, and “other” dominance types would be retained. Old growth lodgepole and Douglas fir/ponderosa pine would be retained at 10-15% and 8-10% respectively. Overall, this is the highest retention of old growth. However, there are no identified old growth dependent wildlife species on the Beaverhead-Deerlodge NF.

Acres of recommended wilderness that can enhance secure habitat increases to 195,000 acres. This is the 4th highest recommendation for potentially secure wilderness habitat.

Forest-wide summer secure habitat is 52% at the landscape which is the third highest of all alternatives. The forest-wide fall secure habitat is 59% at the hunting unit scale which is tied for the second highest with alternatives 5 and 6.

Alternative 3 applies a road density objective of 1.0 miles/sq. mile at the landscape scale. This is superior to all alternatives at forest-wide scale in the miles of road that would be closed to actively manage road densities for secure wildlife habitat.

It is superior to alternatives 1 & 2, equal to alternatives 4 & 5 in managing for a definite range of aspen restoration, but provides for a lesser discrete target than Alternative 6.

Managing for conifer encroachment is allowed, but the range of potential acres from 0 to 74000 opens the potential for no acres treated. This alternative represents virtually a middle ground in treating conifer encroachment, potentially treating more acres than Alternatives 1 & 2 but less than Alternatives 4, 5 & 6.

This alternative does update the definition of secure habitat and employs new science in assessing the threat response of elk to motorized disturbance.

The acres of wildland fire use available for habitat management is equal to alternative 6 at the maximum numbers of available acres for all alternatives.

This alternative retains the maximum amount of old growth forestwide. All forest dominance types, with the exception of lodgepole pine, are retained at 15%. Lodgepole is retained at 14%.

Acres of recommended wilderness that can enhance secure habitat increases to 706,000 acres. This is the highest recommendation for potentially secure wilderness habitat.

This alternative updates the definition of secure habitat using the latest available science regarding elk threat response to motorized vehicles and secure habitat for grizzly bears. Forest-wide summer secure habitat is 58% at the landscape scale which is the highest of all alternatives. The forest-wide fall secure habitat is 63% at the hunting unit scale which is also the highest for all alternatives.

Alternative 4 applies a road density objective of 2.5 miles/sq. mile at the landscape scale. This alternative would provide no road closures to actively manage road densities for secure wildlife habitat. The existing road closures under the Southwest Montana Travel Map would remain unchanged. This alternative is virtually identical to Alternative 1 regarding travel management.

Alternative 4 is superior to alternatives 1 & 2, equal to alternatives 3 & 5 in managing for a definite range of aspen restoration, but provides for a less discrete target than Alternative 6.

Managing conifer encroachment is allowed, with a range of 30000 to 74000 acres to be treated over the life of the plan. This is the second highest level of treatment, equal to Alternative 5 which potentially treats more acres than alternatives 1, 2, & 3 but less than Alternative 6.

This alternative does update the definition of secure habitat and employs new science in assessing the threat response of elk to motorized disturbance.

The acres of wildland fire use available for habitat management is the fourth highest of the six alternatives. It ranks behind Alternatives 6, 3, & 5 in respective acres available for wildland fire use that can enhance wildlife habitat.

This alternative retains 10% of old growth for all dominance types across the forest. This is the third highest old growth retention, being equal to alternatives 5 & 6. The 10% retention, however, amounts to approximately 50% of the existing FIA inventory of old growth across forestwide. This retention reflects the potential losses in old growth that can occur due to fire, insect, and disease outbreaks.

There is no recommended wilderness in this alternative.

Alternative 4 updates the definition of secure habitat using the latest available science regarding elk threat response to motorized vehicles and secure habitat for grizzly bears. Forestwide summer secure habitat is 50% at the landscape scale which is equal to Alternative 1 (no change), the current condition. Forestwide fall secure habitat is 58% at the hunting unit scale which ranks behind alternatives 3, 5, 6, & 2.

Alternative 5 applies a variable road density standard at the landscape scale with objectives ranging from 1.0 – 2.0 mi/sq mile outside the Madison wilderness landscape. This alternative is virtually identical to alternative 6 in miles reduced by landscape. It ranks third with alternative 6 behind alternative 3, and 2 in miles of roads closed at the landscape scale. At the hunting unit scale it ranks fourth.

It is superior to alternatives 1 & 2, equal to alternatives 3 & 4 in managing for a definite range of aspen restoration, but provides for a lesser discrete target than alternative 6.

Managing conifer encroachment is allowed, with a range of 30000 – 74000 acres to be treated over the life of the plan. This is the second highest level of treatment, equal to alternative 4. This alternative potentially treats more acres than alternatives 1, 2, & 3 but less than Alternative 6.

This alternative does update the definition of secure habitat and employs new science in assessing the threat response of elk to motorized disturbance.

The acres of wildland fire use available for habitat management is the second highest of the six alternatives. It ranks behind alternatives 6, and 3 in respective acres available for wildland fire use that can enhance wildlife habitat.

This alternative retains the 10% of old growth for all dominance types across the forest. This is the third highest old growth retention, being equal to alternatives 4 & 6. The 10% retention, however, amounts to approximately 50% of the existing FIA inventory of old growth across the forest. This retention reflects the potential losses in old growth that can occur due to fire, insect, and disease outbreaks.

There are 248,000 acres of recommended wilderness in this alternative that can enhance secure habitat and potential connectivity/linkage. This is the third highest level of wilderness recommendation.

This alternative updates the definition of secure habitat using the latest available science regarding elk threat response to motorized vehicles and secure habitat for grizzly bears. Forestwide summer secure habitat is 53% at the landscape scale, which is the second highest level. The forest-wide fall secure habitat is 59% which is also the second highest level, being equal to alternatives 6 & 2.

Alternative 6 also applies a variable road density standard at the landscape scale with objectives ranging from 1.0 – 2.0 mi/sq mile outside the Madison wilderness landscape. This alternative is virtually identical to alternative 5 in miles reduced by landscape. It ranks third with alternative 5 behind alternative 3, and 2 in miles of roads reduced by landscape. At the hunting unit scale it ranks third.

This alternative provides the highest acreage for both aspen restoration and reduction of conifer encroachment. It provides a discrete target acreage that is at the maximum level of the treatment range in alternatives 3, 4 & 5, displaying the greatest commitment to proactive treatment to restore aspen and grassland/sagebrush habitats.

This alternative does update the definition of secure habitat and employs new science in assessing the threat response of elk to motorized disturbance.

The acres of wildland fire use available for habitat management is the highest of the six alternatives, equal to alternative 3 in using fire as a habitat treatment tool.

This alternative retains the 10% of old growth for all dominance types across the forest. This is the third highest old growth retention, being equal to alternatives 4 & 5. The 10% retention, however, amounts to approximately 50% of the existing FIA inventory of old growth across the forest. This retention reflects the potential losses in old growth that can occur due to fire, insect, and disease outbreaks.

There are 331,000 acres of recommended wilderness in this alternative that can enhance secure habitat and potential connectivity/linkage. This is the second highest level of wilderness recommendation.

This alternative updates the definition of secure habitat using the latest available science regarding elk threat response to motorized vehicles and secure habitat for grizzly bears. Forest-wide summer secure habitat is 52% at the landscape scale which is the third highest level. The forest-wide fall secure habitat is 59% which is the second highest level, being equal to alternatives 5 & 2.

The alternatives have varying effects on wildlife species. It is impossible to apply management techniques for the same effects on all species. Some will benefit more than others. Managing vegetation within the Historic Range of Variation (HRV) would provide the components necessary for all terrestrial species inhabiting the forest. However, severe disturbance in other locations can adversely affect species that live here. Neotropical migratory birds for instance, can be affected by vegetation management practices in wintering habitat in other countries.

The alternatives display a range of aspen restoration needed to develop an upward trend for the next 10 or 15 years. Aspen is so far below the minimum 20% of HRV acres that none of the alternatives can achieve the minimum (163,172 – 241,454) acres of treatments considering constraints on staff, location of restoration areas, and the budget forecast.

Effects on Wildlife Habitat from Aquatic Management

Alternative 3, would provide the most benefits to wildlife from Aquatic Species Management because it has the greatest number of key fish and restoration emphasis watersheds. The subsequent fish/restoration emphasis would provide the greatest benefits from aquatic systems improvement and potential road closures or decommissioning that would increase secure areas for wildlife. Secure habitat provides for grizzly bear and large carnivore movement,

improvements in potential habitat linkage across the landscapes, and reductions in vehicle disturbance to wildlife.

Aquatic species management focuses on restoration activities in stream channels to restore riparian vegetation. Larger area watershed restoration is likely to involve road decommissioning. To the extent roads are decommissioned, road density objectives could be met and would reduce disturbance to wildlife and increased security for large carnivores and elk. Improvements in water quality and riparian condition driven by key watersheds would benefit birds dependent on riparian areas.

The number of key watersheds in an alternative affect the amount of benefit for species that forage on riparian shrubs. As displayed in this table Alternative 3 provides the most potential for increased wildlife security and riparian habitat improvement due to the greater number of key watersheds that could have road decommissioning as a restoration treatment. Alternatives 5, 6, 4 provide less potential in that order. Alternatives 2 and 1 are the same with no key watersheds to drive habitat improvement.

Table 171. Number of Key Watersheds by Alternative

Key Watersheds	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Fish Emphasis	None	None	57	57	57	57
Restoration Emphasis	None	None	78	0	15	15
Total	0	0	135	57	72	71

This potential for improvement is particularly important north of Butte which has high road densities in the Boulder River drainage. High road densities are identified in the Montana Statewide Elk Management Plan (2005) as a potential barrier for achieving elk management objectives in the Boulder River drainage. Increases in secure wildlife habitat are important for potential linkages and connectivity to adjacent forests.

Alternatives 1 and 2 do not identify key watersheds and provide no direction to produce increased benefits for species dependent on riparian areas. Direction is also not provided for improving riparian shrubs to help reduce localized browsing pressure by moose, or reductions in road densities through decommissioning roads adversely effecting fish and water quality.

Alternative 3 provides the most opportunities to decommission roads and could improve security for large carnivores and elk by helping to reduce open road densities. Potential opportunities are particularly evident north of Butte which has higher road densities in the Boulder River drainage. The higher road densities in the Boulder River area are identified in the Montana Elk Plan (MTFWP 2004) as a potential problem for the State in achieving elk management objectives in the drainage. With 16 restoration and 4 fish emphasis watersheds, this alternative provides more potential wildlife security within the Boulder River landscape and subsequent linkage to the Helena National Forest. Riparian related species would receive the greatest potential benefits under this alternative also. In addition, the reduction of adverse impacts forestwide, on willow communities from wildlife browsing, is potentially greatest under this alternative.

Alternative 4 provides fewer opportunities for road decommissioning and riparian habitat improvement than Alternative 3, 5 or 6. There are no restoration emphasis watersheds under this

alternative to benefit wildlife secure areas and riparian dependent species. There are four fish emphasis watersheds north of Butte that may provide limited opportunities to decommission roads to benefit wildlife moving between the Beaverhead-Deerlodge and the Helena National Forests.

Alternative 5 identifies three restoration emphasis watersheds north of Butte and four fish emphasis watersheds. These key watersheds would provide wildlife benefits in the Boulder River landscape between Butte and the Helena National Forest. Potential benefits to wildlife from riparian habitat improvement and road decommissioning are more extensive forestwide than Alternative 1, 2, and 4, but less than Alternative 3.

Alternative 6 is virtually identical to alternative 5 with the same benefits.

Effects on Wildlife Habitat from IRAs and NPWS Additions

Species that prefer large blocks of undisturbed habitat would benefit from additional acres of recommended wilderness which provides large areas through which grizzly bears, large ungulates, and carnivores can move across southwest Montana from neighboring forests, Yellowstone National Park, and Idaho

Terrestrial wildlife habitat in recommended wilderness would potentially be protected from human disturbance. Little direct habitat improvement would occur, but some small, non-mechanized projects might take place. Overall these areas will remain fundamentally undisturbed by human intervention. Recommended wilderness provides secure areas for wildlife by prohibitions on motorized use. Alternatives 3 and 6 provide the most secure habitat by providing linkages in wilderness study areas on the BDNF and adjacent forests and BLM land in southwest Montana.

The order of alternatives is based on acres of secure habitat provided through recommended wilderness. As shown in the table below Alternative 3 provides the most acres of secure habitat, followed by 6, 5, 2, 1, and last 4 which recommends none.

Table 172. Acres of Recommended Wilderness

Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
174,000	195,000	706,000	0	248,000	331,000

In recommended wilderness terrestrial wildlife habitat would potentially be protected from man-caused disturbance. Little direct habitat improvement would occur, but some small, non-mechanized projects might be implemented. Forested lands will remain forested and continue to progress until affected by natural processes. Wilderness designation as a favorable habitat for potential grizzly bear dispersal would be greatest under Alternative 3 and least under Alternative 4. None of the alternatives propose wilderness for the Gravelly landscape, which currently meets the definitions for grizzly bear occupancy.

Recommended wilderness areas would provide more areas for wildlife secure from motorized disturbance year long. Higher altitude areas would provide wolverine denning security, although recommended wilderness is not the only mechanism to achieve protection from motorized disturbance.

In these designations terrestrial wildlife habitat would potentially be protected from man-caused disturbance. Little direct habitat improvement would take place, but some small, non-

mechanized projects might be implemented. Natural processes such as wildland fire, drought, and disease outbreaks would be the primary change agents. Forested lands will remain forested and continue to grow until affected by natural processes.

Recommended wilderness, coupled with adjacent low road densities areas can help provide secure areas for wildlife with low resistance to movement across the landscape. Species that can benefit from secure areas and reduced vehicle disturbance include, but are not limited to, wolverines, grizzly bears, carnivores, and elk.

In Alternative 1 existing recommend wilderness can link the Southwest portion of the BDNF to the Italian Peaks recommended wilderness on the Targhee National Forest in Idaho. A large portion of the west Big Hole is also proposed to provide secure areas next to the Salmon National Forest. A large portion of the Pioneer Range contains a wilderness study area and a proposed recommended wilderness blocks. Coupled with existing Anaconda-Pintler Wilderness and the Sapphire Wilderness Study Area on the Lolo, this alternative helps provide low resistance to movement along the western border of the forest. There are no wilderness recommendations that would help promote low resistance to movement along the eastern half of the forest.

Alternative 2 is similar to alternative one regarding lower resistance to movement along the western border of the Forest. With the exception of small blocks recommended to consolidate the existing Lee-Metcalf Wilderness, and additions in the Mt Jefferson area, there are no recommendations that could enhance wildlife movement along the eastern half of the forest.

Alternative 3 expands recommended areas along the western half of the Forest, including large increases along the shared border with the Targhee. Notable additional recommendations are made for the Gravelly Range, Tobacco Roots, South Highlands, and the northwest portion of HD318, identified as a linkage challenge adjacent to the Helena NF based on road densities in the travel management discussion. The northwest portion of HD 318 borders the Electric Peak recommended wilderness on the Helena National Forest. This alternative is also compatible with providing linkages with BLM wilderness study areas on the Centennial Divide and the Blacktail Range. It provides the least resistance to wildlife movement across the entire Forest and is the only alternative with wilderness recommendations that would facilitate wildlife movement through the eastern half of the forest.

Alternative 4, with no recommended wilderness, provides no benefit or help for wildlife movement across the forest.

Alternative 5 is similar to Alternatives 1 and 2, but recommends wilderness adjacent to the Electric Peak area on the Helena NF. This is the same area recommended in Alternative 3 in HD 318 and can promote more “secure” habitat at this juncture with the Helena National Forest.

Alternative 6 is similar to alternative 5 but recommends Wilderness next to Lolo National Forest Stony Mountain recommended wilderness at the northwest corner of the BDNF. The area adjacent to Electric Peak on the Helena is not recommended. Potential connectivity and linkage, along the northwest portion of the forest, is enhanced by this proposal. Removing the Electric Peak recommendation will not promote more potentially secure habitat for hunting unit 318.

Effects on Wildlife Habitat from Livestock Grazing Management

Potential livestock grazing impacts include displacement of wildlife, changes in plant composition, disease transmission, and impacts to federally listed species. Many managers made the prevention of *Pasturella* induced pneumonia transmission from domestic sheep to Rocky Mountain bighorns a priority (Dubay & deVos 2003). This consideration is highest in the Gravelly range where there are five active sheep allotments and in the Tendoy Mountains where there are two.

No alternatives present major changes in livestock grazing and therefore will have little or no effects on wildlife by alternative. Alternatives 3, 4, 5, and 6, however, provide less risk for depredations by grizzly bears by not restocking sheep in vacated sheep allotments.

Montana Fish, Wildlife & Parks regularly monitors local bighorn sheep populations for possible disease transmission from domestic sheep. The State has managed local bighorn sheep populations without advocating reductions in the BDNF sheep-grazing program. Six active sheep allotments remain on the forest, and Montana Fish, Wildlife, and Parks is managing for bighorn sheep with the current sheep grazing. While the State has implemented some lethal control of bighorns to limit disease, their comments to the DEIS were silent on changing sheep grazing.

The Grizzly Bear Amendment for National Forests in the Greater Yellowstone Area (USDA 2006a) specifically calls for phasing out active sheep allotments with *willing* permittees in the Primary Conservation Area (PCA). It does not call for a mandatory phase out of allotments. Grizzly bear depredations on livestock have yet to become a problem in southwest Montana, but it is reasonable to expect they may increase. Detailed analysis of the effects on grizzly bears is found in the biological evaluation.

Gray wolves also occupy portions of the forest with an increasing number of sightings. Packs have established themselves in the Gravelly and Madison ranges, Boulder River Drainage, and the Big Hole Landscape. Numbers have varied over the years, and wolves are subject to relocation or lethal control if they kill livestock. The wolf is classified as both threatened and non-essential/experimental (10(j)) on the BDNF. Lethal control has been required and is likely to continue after delisting, depending on wolf behavior. The revised Forest Plan will follow direction in the Northern Rocky Mountain Wolf Recovery Plan (USDI 1987) and the Montana Gray Wolf Conservation and Management Plan (MTFWP 2004). None of the grazing alternatives will affect wolf management. Detailed analysis of the effects on wolves is found in the biological assessment.

Sage grouse habitat is found on the BDNF, but breeding sites (leks) are not documented anywhere on BDNF lands. All known active and inactive breeding sites are located on State, BLM, or private ownerships. At best there is limited upslope movement during the summer when birds move up onto the BDNF after nesting season.

Using the latest SILC3 (glossary) information, we modeled all potential sage grouse habitat within 18km for migratory sage grouse per the Connelly et al. (2000) guidelines for migratory populations. Most of the modeled nesting habitat is at higher elevations which do not meet sage grouse needs during their normal nesting period. This is a result of the modeled nesting habitat being snow-covered and/or herbaceous vegetation green-up not occurring when the birds are ready to nest.

Table 173. Southwest Montana Sage Grouse Habitat Distribution in an 18 Kilometer* Radius of All Known Active and Inactive Sage Grouse Leaks

Elevation Screen	Habitat Component	Ownership	Total Acres
Below 7500' Elevation	Nesting Habitat	BLM	484,150
		Bureau of Reclamation	1,380
		National Parks and Monuments	240
		National Wildlife Refuge	13,455
		Private	752,290
		State Lands	195,870
		US Forest Service (8.1% of low elevation nesting habitat)	128,315
	Nesting Habitat Total		1,575,700
	Brood Rearing Habitat	BLM	17,320
		Bureau of Reclamation	195
		National Parks and Monuments	200
		National Wildlife Refuge	7,885
		Private	159,510
		State Lands	13,325
		US Forest Service (18.3% of low elevation brood rearing)	44,340
	Brood Rearing Habitat Total		242,775
Below 7500' Elevation Total			1,818,475
7600-8500' Elevation	Nesting Habitat	BLM	79,890
		National Wildlife Refuge	45
		Private	53,190
		State Lands	61,215
		US Forest Service (4% of high elevation nesting)	130,975
	Nesting Habitat Total		325,315
	Brood Rearing Habitat	BLM	4,685
		National Wildlife Refuge	5
		Private	4,780
		State Lands	5,440
		US Forest Service (68.3% of high elevation brood rearing)	32,120
Brood Rearing Habitat Total			47,030

Elevation Screen	Habitat Component	Ownership	Total Acres
7600-8500' Elevation Total			372,345
Grand Total			2,190,820

* The 18 Km radius is based on Connelly et al. (2000) migratory sage grouse populations.

Table 174. BDNF Forestwide Summary of Sage Grouse Habitat – 18km Model

Habitat	Acres in All Ownerships	BDNF Acres / Percent of Total Habitat	Percent of the BDNF
Nesting	1,901,015	259,290 / 13.6%	7.7%
Brood Rearing	289,805	76,460 / 26.4%	2.3%

Challenges related to sage grouse management in southwest Montana are clearly greatest on State, BLM and private lands. None of the grazing alternatives will have a practical effect on sage grouse nesting in southwest Montana because grazing fundamentally begins after nesting season. See the biological evaluation for detailed analysis of sage grouse. Connelly et al. 2000 guidelines have been applied consistently on allotments with sage grouse considerations.

Effects on Wildlife Habitat from Minerals and Oil and Gas

Minerals

All mining operations, regardless of scale are addressed by site-specific analysis and plans of operation. Current operations involve little more than small scale test pits and boring holes to determine mineral content.

Oil and Gas Leasing

New wildlife information has been developed since the 1995 Beaverhead Oil and Gas leasing FEIS. Since the 1995 Beaverhead NF Oil and Gas leasing FEIS and Record of Decision, the gray wolf has been added to the list of federally listed Threatened and Endangered Species on the forest. The wolf on the Beaverhead portion, however, is classified as non-essential experimental (10j rule). There are approximately 6 packs on the Beaverhead portion. Under the final 10(j) rule for the Western Distinct Population segment (Federal Register / Vol. 70, No. 4 / Thursday, January 6, 2005) Montana Fish, Wildlife and Parks is now the lead agency for wolf management in southwest Montana. The U.S. Fish and Wildlife Service recognized the Montana Wolf Management Plan is sufficient to maintain gray wolves above recovery goals in the 10(j) area. While some packs did establish territories in backcountry areas, most preferred lower elevations (MTWP 2003b). More information is available on the MTFWP website.

The lower elevations of the analysis area encompass a wide range of habitat from riparian stringers, hayfields, timber-grassland-ecotones, and sagebrush-steppe. The latter in particular is characteristic of the southern portions of the forest. Ownerships encompass federal, state, and private lands.

Due to the wolf's apparent generalist nature, oil and gas leasing is not expected to adversely affect the species. However, forest staff will continue to coordinate with both the State and US Fish and Wildlife Service managers to ensure oil and gas leasing does not conflict with recovery of the species.

Sage grouse, a sensitive species is found throughout southwest Montana. As supported by Montana Fish, Wildlife and Parks and conservation group survey information, there are no breeding sites on the BDNF. Because of this oil and gas leasing on BDNF lands is not expected to adversely influence sage grouse breeding.

Ferruginous hawks were noted as a species of management concern by the BLM in the 1995 Oil and Gas leasing FEIS. The Dillon Field Office Resource Management Plan retains this hawk on its sensitive species list. This species is not a concern on NFS lands anywhere in Montana. The species is not classified as threatened or endangered under the Endangered Species Act, nor is it classified as a sensitive species on the Northern Region Sensitive Species List (2005a). Leasing activities are not a concern for this species on the Beaverhead-Deerlodge National Forest.

Oil and gas leasing on the Forest will not affect lynx because the BDNF is not considered occupied habitat. The lynx no longer is noted on the Fish and Wildlife Service species list (8/08/2007) for ESA species on the Beaverhead-Deerlodge NF

Grizzly bears, wolves, and bald eagles were addressed in the 1995 Oil and Gas FEIS with stipulations identified at P.6 of the 1996 ROD. The Gravelly Range is now considered partially occupied by grizzly bears, which is the biggest distribution change since the 1995 FEIS. The decision required a controlled surface use stipulation for Situation II grizzly bear habitat.. The occupied portion of the Gravelly Range still falls under the definition of MS-II habitat in the Grizzly Bear Amendment FEIS, Appendix B. Existing stipulations and direction under the Oil and Gas decision is still valid for grizzlies, wolves, peregrine falcons, and bald eagles and is common to all alternatives.

Since the delisting of the Yellowstone Distinct Population Segment of grizzly bears, it has been added to the Northern Region Sensitive Species List. The bald eagle was also delisted and was added to the list. As grizzly bear range expands, impacts will continue to be addressed in biological evaluations but consultation with the US Fish and Wildlife Service will not be required for this species. Appendix B contains detailed analysis of formerly listed species.

Effects on Wildlife Habitat from Recreation and Travel Management

Alternative 1 maintains the current open motorized road/trail condition with permanent and seasonal closures based on the 1996 Southwest Montana Interagency Visitor/Travel Map. Cross-country, wheeled, motorized travel is prohibited across the Beaverhead-Deerlodge NF as per the 2001 Northern Region Off-Highway Vehicle Environmental Impact Statement. Public motorized use of the Forest is allowed in summer and winter contingent on seasonal restrictions. Snowmobile cross-country use is allowed subject to seasonal area and road restrictions to protect wildlife. Motorized use in designated wilderness is prohibited at all times. Recommended wilderness areas will also be closed to motorized use. Summer and winter non-motorized allocations are maintained at 29% and 16% respectively, with summer and fall secure habitat maintained at 50% and 57% respectively.

Alternative 2 establishes an open motorized road/trail density objective of 1.5 mi/sq miles at the landscape and hunting unit scale. Embedded in this objectives is forested security habitat needs of 30% of each FWP hunting district of 250 acres or more (where available) at least 1/2 mile from motorized roads and trails. Summer and winter non-motorized allocations increase over the current condition to 39% and 22% respectively. Secure habitat during summer and fall increase

to 52% and 59% respectively. This alternative slightly improves secure habitat over the current condition.

Alternative 3 is the best alternative for wildlife security based on reductions in vehicle related disturbance (Table 174). With an open motorized road/trail density objective of 1.0 mile per square mile (mi./sq.mi), summer and winter motorized area closures of 59% and 45% respectively, and the greatest mileage of closed motorized trails and roads, this alternative provides for the greatest amount of secure areas for wildlife. Summer and fall secure habitat at 58% and 71% respectively is the greatest under this alternative. Secure areas provide for resident wildlife needs as well as easier wildlife movement across the Forest, facilitating connectivity and linkage to adjacent public lands.

Alternative 4 establishes and open motorized road/trail density objectives of 2.5 mi/sq mile. This alternative does not close roads but does provide virtually the same amount of secure habitat as alternative 1. Summer and winter secure habitat averages 50% and 58% respectively. The non-motorized allocations for summer and winter are 36% and 15% respectively. This enhances potential connectivity and linkage slightly better than alternative 1, but ranks fifth overall of the six alternatives.

ALTERNATIVE 5 establishes variable open motorized road/trail landscape densities ranging from summer densities of 1.0 to 2.0 mi/sq mile outside the Madison wilderness landscape. At the hunting unit scale fall densities range from 0.5 to 2.0 mi/sq mile. Secure habitat as a result increases to 53% at the forest-wide landscape scale and 59% at the forest-wide hunting unit scale. This amount of secure habitat is the second highest of all alternatives.

Non-motorized allocations for summer and winter increase to 45% and 37% respectively. This is second only to alternative 3 for both categories.

ALTERNATIVE 6 also establishes variable open motorized road/trail landscape densities ranging from summer densities of 0.9 to 2.0 mi/sq mile outside the Madison wilderness landscape. At the hunting unit scale fall densities range from 0.4 to 1.8 mi/sq mile. Secure habitat as a result increases to 52% at the forest-wide landscape scale and 59% at the forest-wide hunting unit scale. This amount of secure habitat is virtually the same as alternative at second highest of all alternatives.

Non-motorized allocations for summer and winter increase to 40% and 39% respectively. This is second only to alternative 3 for both categories. This alternative is second only to alternative in the amount of winter non-motorized allocations that can enhance denning habitat for wolverines and help reduce motorized impacts to big game winter range.

Potential impacts from open motorized roads and trails come from fragmentation of habitat and displacement of wildlife. The amount of displacement is a function of use on the road or trail, open road density, timing of use, and species of wildlife. Some species are more sensitive to disturbance by vehicles and people than others. The distance at which species exhibit a flight response to motorized activity is variable by species and activity, as shown in Table 179. We acknowledge that elk populations Forest-wide have fundamentally met or exceeded State objectives with the current motorized roads/trails footprint across the BDNF.

The primary effect on wildlife in all alternatives is disturbance and displacement from open motorized roads and trails. *For analysis purposes motorized roads and trails are included together.* Open road density objectives range from 1.0 - 2.5 miles per square mile. Alternatives 3,

4 and 5 consider *all* habitat greater than 10 acres beyond 1/3 mile as secure for grizzly bears and elk. The security definition for acres is based on the Final Conservation Strategy For The Grizzly Bear In The Yellowstone Ecosystem (ICST 2003). These secure areas also help display where other species can more easily move across the Forest relatively undisturbed by motorized activity. The 1/3 mile buffer is a synthesis of new information for elk road buffers (Wisdom et al. 2004), grizzly bear road buffers (ICST 2003), and the ROS buffer for motorized/non-motorized recreation settings. The EIS decision will direct travel management not only by routes but by areas. The amount of secure habitat available for wildlife varies by alternative as shown in Tables 175 and 177. Alternative 3 closes the most roads and provides the most secure habitat for wildlife.

Table 175. Open Road Density for Wildlife

	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt 5	Alt 6 Preferred
Objective	Variable, not consistent in 1986 and 1987 plans	1.5 miles/sq. mi. w/ 1/2 mile buffer at the hunting district scale. 30% of hunting district in forested security blocks \geq 250 acres	1.0 miles/sq. mile w/1/3 mile buffer for secure areas	2.5 miles/sq. mi. w/ 1/3 mi. buffer for secure areas.	Variable open road density objectives at the hunting district and landscape scale w/ 1/3 mi. buffer for secure areas.	Variable open road density objectives at the hunting district and landscape scale w/ 1/3 mi. buffer for secure areas.
Summer Allocation Yearlong BDNF closure to wheeled x- country travel	29%	39%	59%	36%	45%	45%
Winter Allocation Includes wilderness, natural areas, winter game range	16%	22%	45%	15%	37%	39%
Summer/Fall secure habitat	50% / 57%	52% / 59%	58% / 63%	50% / 58%	53% / 59%	52% / 59%
Miles of roads closed Landscape/ Hunting Unit	0 / 0	479 / 151	1308 / 678	0 / 0	66 / 82	67 / 145

Motorized winter recreation can adversely affect wildlife by causing them to move away when demands on their energy reserves are highest. Monitoring already shows moose displaced from parts of the West Fork Madison River by increased snowmobile use. This use is expected to increase as users are displaced from Yellowstone National Park. The State Draft Elk Plan also notes that snowmobile use has also displaced elk from traditional public land winter range at

Berkins Flat on the Jefferson Ranger District. Wolverine winter denning habitat in high mountain basins is increasingly vehicle accessible to snowmobiles as technological improvements enable snowmobiles to reach areas previously considered impossible.

Table 176. National Forest Big Game Winter Range Closed to Motorized Travel. Includes Elk, Moose Bighorn Sheep, Mountain Goats, Mule Deer, and Whitetail Deer

<i>Landscape</i>	<i>Alt 1 % of total closed under SW MT Travel Plan</i>	<i>Alt 2 Percent of Total</i>	<i>Alt 3 Per Cent of Total</i>	<i>Alt 4 Per Cent of Total</i>	<i>Alt 5 Per Cent of Total</i>	<i>Alt 6 Preferred Per Cent of Total</i>
Big Hole	38%	38%	42%	37%	38%	38%
Boulder River	15%	15%	25%	15%	25%	44%
Clark Fork-Flints	13%	13%	36%	13%	25%	26%
Gravelly	19%	19%	65%	19%	49%	49%
Jefferson River	0%	0%	20%	0%	20%	43%
Lima Tendoy	17%	17%	55%	17%	32%	37%
Madison	92%	92%	100%	92%	100%	100%
Pioneer	20%	20%	34%	20%	25%	25%
Tobacco Roots	7%	7%	59%	7%	55%	52%
Upper Clark Fork	16%	16%	32%	16%	35%	35%
Upper Rock Creek	57%	57%	69%	57%	63%	67%
Forest-wide total	26%	26%	48%	26%	39%	43%

Table 177. National Forest Wolverine Denning Habitat Closed to Snowmobiles

Landscape	Alternative 1 Per Cent of Total (existing SW MT Travel Plan)	Alternative 2 Percent of Total	Alternative 3 Per Cent of Total	Alternative 4 Per Cent of Total	Alternative 5 Per Cent of Total	Alternative 6 Per Cent of Total
Big Hole	38%	76%	91%	38%	67%	67%
Boulder River	0%	0%	49%	0%	54%	55%
Clark Fork-Flints	10%	25%	62%	10%	38%	42%
Gravelly	25%	40%	95%	25%	79%	79%
Jefferson River	0%	92%	98%	0%	94%	99%
Lima Tendoy	38%	38%	69%	38%	54%	65%
Madison	96%	98%	99%	96%	99%	98%
Pioneer	2%	52%	61%	2%	60%	60%
Tobacco Roots	16%	16%	77%	16%	66%	63%

Landscape	Alternative 1 Per Cent of Total (existing SW MT Travel Plan)	Alternative 2 Percent of Total	Alternative 3 Per Cent of Total	Alternative 4 Per Cent of Total	Alternative 5 Per Cent of Total	Alternative 6 Per Cent of Total
Upper Clark Fork	0%	0%	0%	0%	8%	8%
Upper Rock Creek	79%	79%	83%	79%	79%	87%
Forestwide Total	36%	56%	80%	36%	69%	71%

Table 178. Percent of Fall Secure Habitat by Hunting Unit – *October 15 to December 1*. Secure habitat objectives for all alternatives exceed the neighboring secure habitat for the Henry's Lake bear management unit in the Yellowstone Grizzly Bear Primary Conservation Area.

Hunting District	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
210	56%	56%	61%	56%	56%	56%
211	72%	72%	76%	71%	74%	73%
212	44%	44%	50%	44%	44%	45%
213	38%	41%	46%	38%	39%	41%
214	50%	50%	50%	50%	50%	50%
215	29%	29%	30%	29%	29%	29%
216	59%	59%	66%	59%	62%	63%
300	66%	66%	71%	66%	66%	66%
302	36%	36%	46%	36%	44%	41%
311	93%	93%	93%	93%	93%	93%
318	32%	32%	33%	32%	32%	32%
319	67%	67%	70%	67%	69%	69%
320	61%	62%	63%	61%	61%	61%
321	52%	56%	65%	53%	61%	60%
323	73%	76%	77%	73%	73%	73%
324	72%	77%	80%	72%	76%	75%
327	54%	54%	68%	54%	54%	54%
328	50%	53%	70%	53%	59%	58%
329	52%	54%	58%	54%	55%	55%
330	63%	63%	71%	63%	63%	63%
331	49%	52%	55%	49%	52%	53%
332	62%	62%	66%	62%	63%	63%
333	50%	54%	66%	51%	51%	50%
340	42%	47%	47%	42%	45%	43%
341	61%	61%	63%	61%	61%	61%

Hunting District	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
350	51%	54%	57%	53%	53%	55%
360	96%	96%	96%	96%	96%	96%
362	97%	97%	97%	97%	97%	97%
370	54%	55%	57%	55%	57%	55%
Forest-wide average	57%	59%	63%	58%	59%	59%

Lynx Conservation Assessment and Strategy

The Northern Rockies Lynx Management Direction Record of Decision (USDA 2007) classifies the Beaverhead-Deerlodge NF as unoccupied for Canada lynx.. Consequently, there is no requirement for ESA consultation on this species. The Record of Decision specifically directs that unoccupied forests are not required to follow the management direction (current Conservation Agreement) until such time as they are occupied by Canada lynx. The Record of Decision further states that the Forest Service will work with the FWS to develop and complete an acceptable protocol to survey currently unoccupied lynx habitat in secondary areas which include the Beaverhead-Deerlodge NF. This protocol is to be established within 18 months of the biological opinion of the Northern Rockies Lynx Management Direction.

Big Game Winter Range

Alternatives 1, 2 and 4 present the greatest possibility of adverse winter effects on wildlife with 74% of the forest's winter range open to motorized use. Twenty-six per cent of big game winter range is closed to winter motorized use under these alternatives (Table 176). Assuming increased snowmobile use, animals on big game winter range would be increasingly stressed by motorized use during the time of the year they are most vulnerable to depletion of their energy reserves. The percentages can be deceiving; however, as the total area that may be open to snowmobiles is further limited by steep topography and dense timber stands. Increased use in the southeastern part of the Forest is already occurring as users are displaced from Yellowstone National Park. Increases are expected in general as snowmobile use is increasing across nationwide. Snowmobile registrations are up by 43% since the 1980s (International Snowmobile Manufacturers Association 2004)

Alternatives 3, 6, and 5 provide progressively less open area to snowmobiles. The former closes almost half (48%) of big game winter range on the BDNF to snowmobiles, while Alternative 5 would prohibit snowmobile use on 39% of winter range. Alternative 6 closes 46% of winter range to snowmobiles, second only to alternative 2. Under all alternatives there are likely to be terrain and vegetation conditions that can restrict snowmobiles. Vegetation limitations can be substantially changed, however, by massive events such as wildfire. Large fires can open terrain previously considered invehicle accessible to snowmobiles.

Wolverine Denning Habitat

Alternatives 1 and 4 provide the least seclusion from snowmobile disturbance to wolverine denning habitat with similar prohibitions on snowmobile use on 36% of wolverine denning habitat which is 2% of the total forest land base. Most of which is on typically north-facing high

basins and steep talus slopes, has been invehicle accessible to snowmobiles. Advances in snowmobile technology enable snowmobilers to ride many of these steep slopes and high basins. Wolverines use these areas during the February-April berthing and whelping period. There is increasing evidence females are negatively impacted by human disturbance near their den sites (Heinemeyer et al. 2001). This species lives at low densities under the best of circumstances; hence disturbance during this critical period can have adverse effects on survival of young wolverines.

Alternative 2 provides seclusion from motorized disturbance over 56% of National Forest denning habitat. This amounts to approximately 3.1% of the total forest land base.

Alternative 3 provides the most seclusion from snowmobile disturbance with approximately 80% of National Forest denning habitat off-limits to snowmobiles. This amounts to approximately 4.3% of all forest acres.

Alternative 5, at 69%, provides the third highest protection from snowmobile disturbance to denning habitat. This is approximately 3.7% of the total forest land base off-limits based on wolverine denning habitat.

Alternative 6 provides the second highest degree of protection at 71% of denning habitat excluded from snowmobile disturbance.

Wildlife Security and Potential Connectivity

Secure areas for elk and grizzly bears are directly impacted by motorized vehicle disturbance. Both species will avoid vehicles, thereby reducing habitat otherwise available to them. Secure areas for these species can also provide relatively secure movement areas for other ungulates and forest carnivores. Secure areas for elk and grizzly bears can also provide core areas, linkage, and connectivity across forest landscapes. Without telemetry showing precise movement patterns, we cannot identify specific crossings for large ungulates or forest carnivores. As noted in the introduction under general effects, wildlife connectivity can also have negative implications when animals are exposed to disease and face competition by invasive species.

Table 179. Estimated Probabilities of Flight Response by Elk and Mule Deer (Wisdom et al. 2004)

Distance	ATV Rider Probability	Bike Rider Probability	Horse Rider Probability	Hiker Probability
100 meters (109 yards) from elk	0.62 (0.52-0.73)	0.58 (0.46-0.68)	0.50 (0.40-0.59)	0.52 (0.42-0.64)
500 meters (545 yards) from elk	0.43 (0.36-0.49)	0.31 (0.26-0.35)	0.22 (0.19-0.26)	0.15 (0.12-0.18)
1000 meters (1090 yards) from elk	0.25 (0.20-0.30)	0.13 (0.10-0.16)	0.07 (0.05-0.08)	0.06 (0.04-0.08)
All distances from elk	0.19 (0.17-0.21)	0.14 (0.12-0.16)	0.11 (0.09-0.12)	.08 (0.07-0.10)
100 meters (109 yards) from deer	0.06 (0.01-0.11)	0.08 (0.02-0.14)	0.11 (0.03-0.19)	0.10 (0.04-0.17)
500 meters (545 yards) from deer	0.05 (0.02-0.07)	0.07 (0.04-0.10)	0.05 (0.03-0.07)	0.04 (0.02-0.05)

Distance	ATV Rider Probability	Bike Rider Probability	Horse Rider Probability	Hiker Probability
1000 meters (1090 yards) from deer	0.03 (0.01-0.06)	0.06 (0.03-0.08)	0.04 (0.02-0.06)	0.04 (0.02-0.06)
All distances from deer	0.03 (0.02-0.05)	0.05 (0.04-0.07)	0.04 (0.03-0.05)	0.04 (0.03-0.06)

On average 128 deer or elk telemetry locations were obtained during a given day of each off-road activity (treatment periods). Flight response is shown as a function of distance between animals and humans by type of transportation. Probability range is shown in parentheses

Objectives for open motorized road and trail densities range from 0 to 2.5 miles per square mile, by landscape and hunting unit across the six alternatives. Road density objectives represent a ceiling. For those hunting districts that exceed objectives, open motorized roads and trails will be reduced to meet the objective. Tables 180 AND 181 show greater details based on landscapes and hunting units. Figures 29 thru 42 display secure areas by alternative.

Table 180. Total Summer Open Motorized and Trail Density Objectives by Landscape (Figures in parenthesis indicate miles of road that would need to be closed to meet the objective)

Landscape	Alt 1 No Objective	Alt 2 1.5 mi/sq.mi	Alt 3 1.0 mi/sq.mi	Alt 4* 2.5 mi/sq.mi	Alt 5 Variable Objectives	Alt 6 Variable Objectives
Big Hole	Existing 1.3 mi/sq mi	1.5	1.0	2.5	1.5	1.2
Boulder River	2.0	1.5 (153)	1.0 (306)	2.5	2.0	1.9 (34)
Clark Fork - Flints	1.8	1.5 (185)	1.0 (469)	2.5	2.0	1.9
Gravelly	0.7	1.5	1.0	2.5	1.0	0.7
Jefferson River	1.8	1.5 (65)	1.0 (231)	2.5	1.5 (66)	1.6 (33)
Lima Tendoy	1.1	1.5	1.0	2.5	1.0	1.0
Madison	0.0	0.0	0.0	0.0	0.0	0.0
Pioneer	1.3	1.5	1.0 (182)	2.5	1.5	1.5
Tobacco Roots	1.2	1.5	1.0	2.5	1.5	1.3
Upper Clark Fork	2.0	1.5 (76)	1.0 (120)	2.5	2.0	2.0
Upper Rock Creek	0.9	1.5	1.0	2.5	1.0	0.9
Total miles to close to meet objective	0	479	1308	0	66	67

**Alternative 4 does not meet national direction to reduce roads.*

Landscapes are shown in Figure 29 on the next page. Wildlife security and potential connectivity are best provided by Alternatives 3, 2, 5, and 6 in order. Alternatives 1 and 4 have no objectives for road closures.



Figure 29. Landscape Map

Table 181. Fall (10/1 through 12/15) Open Motorized Roads and Trails Density Objectives by Hunting District
(Parentheses indicate number of miles to close to meet the objective)

Hunting Unit	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
210	0.9	1.5	1.0	2.5	1.0	0.9
211	0.6	1.5	1.0	2.5	1.0	0.5
212	1.3	1.5	1.0 (56)	2.5	1.5	1.4
213	1.5	1.5	1.0 (33)	2.5	2.0	1.4
214	1.6	1.5 (11)	1.0 (66)	2.5	2.0	1.6
215	1.9	1.5 (52)	1.0 (104)	2.5	1.5 (52)	1.5 (52)
216	0.9	1.5	1.0	2.5	1.0	0.8
300	0.7	1.5	1.0	2.5	0.5 (24)	0.6 (12)
302	1.2	1.5	1.0	2.5	1.0	1.0 (11)
311	0.0	0.0	0.0	0.0	0.0	0.0
318	1.9	1.5 (88)	1.0 (198)	2.5	2.0	1.8 (22)
319	0.7	1.5	1.0	2.5	1.0	0.6
320	0.7	1.5	1.0	2.5	1.0	0.8
321	1.1	1.5	1.0	2.5	1.5	1.1
323	0.5	1.5	1.0	2.5	0.5	0.5
324	0.5	1.5	1.0	2.5	0.5	0.4
327	0.8	1.5	1.0	2.5	1.0	0.8
328	1.0	1.5	1.0	2.5	1.0	0.8
329	1.0	1.5	1.0	2.5	1.0	1.1
330	0.7	1.5	1.0	2.5	1.0	0.7
331	1.4	1.5	1.0 (92)	2.5	1.5	1.5
332	0.8	1.5	1.0	2.5	1.0	0.8
333	1.0	1.5	1.0	2.5	1.0	0.9 (16)
340	1.5	1.5	1.0 (51)	2.5	1.5	1.4
341	0.6	1.5	1.0	2.5	0.5 (6)	0.5 (6)
350	1.5	1.5	1.0 (78)	2.5	1.5	1.3 (26)
360	0.0	0.0	0.0	0.0	0.0	0.0
362	0.0	0.0	0.0	0.0	0.0	0.0
370	0.9	1.5	1.0	2.5	1.0	1.0
Forestwide Miles to close	0.0	151	678	0	82	145

Hunting Districts are shown on the following page in Figure 30.

By hunting unit the most wildlife security and potential connectivity are provided by Alternatives 3, 2, 6, and 5 in order. Alternative 1 and 4 have no objectives and rank last.

While motorized winter recreation can create localized disturbance to wildlife, general hunting season in the fall poses the greatest potential human disturbance that could adversely affect

connectivity and secure areas forest-wide. There is a huge pulse of dispersed recreation activity related to deer/elk hunting unmatched at other times of the year. Southwestern Montana receives approximately 45% of the elk hunting pressure in the State, with the bulk of it focused on hunting districts on the BDNF.

Spring recreation use is light and dominated by local residents. Many roads not otherwise administratively closed are invehicle accessible because of snow and mud. The majority of summer recreation is concentrated along main roads and around developed sites. Backcountry use accounts for a small part of summer visitors.

Management of open motorized roads and trails in the will provide for wildlife connectivity and secure habitat particularly during the general big-game hunting season. See the following seasonal secure habitat maps.

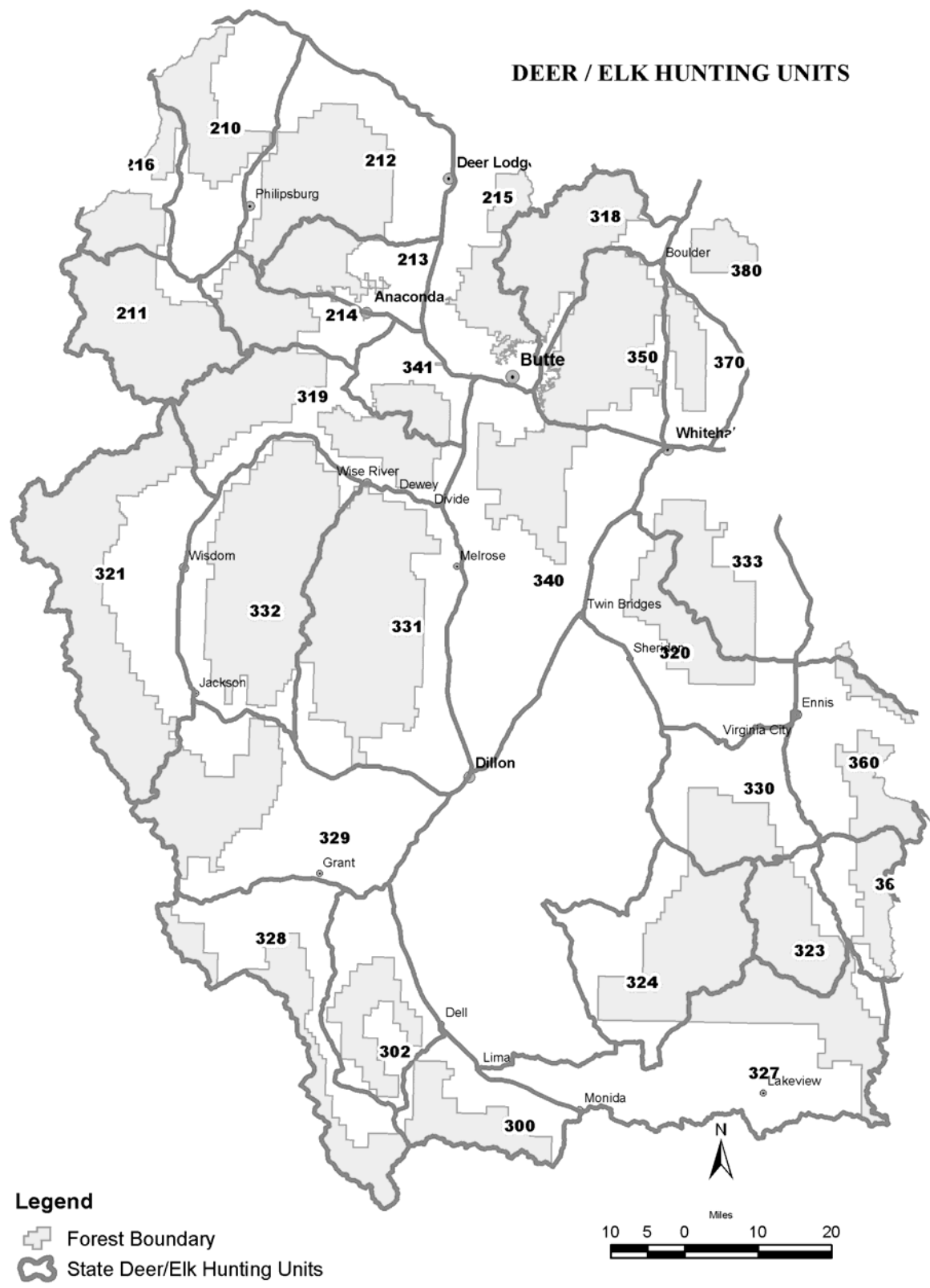


Figure 30. BDNF Deer and Elk Hunting Unit locations

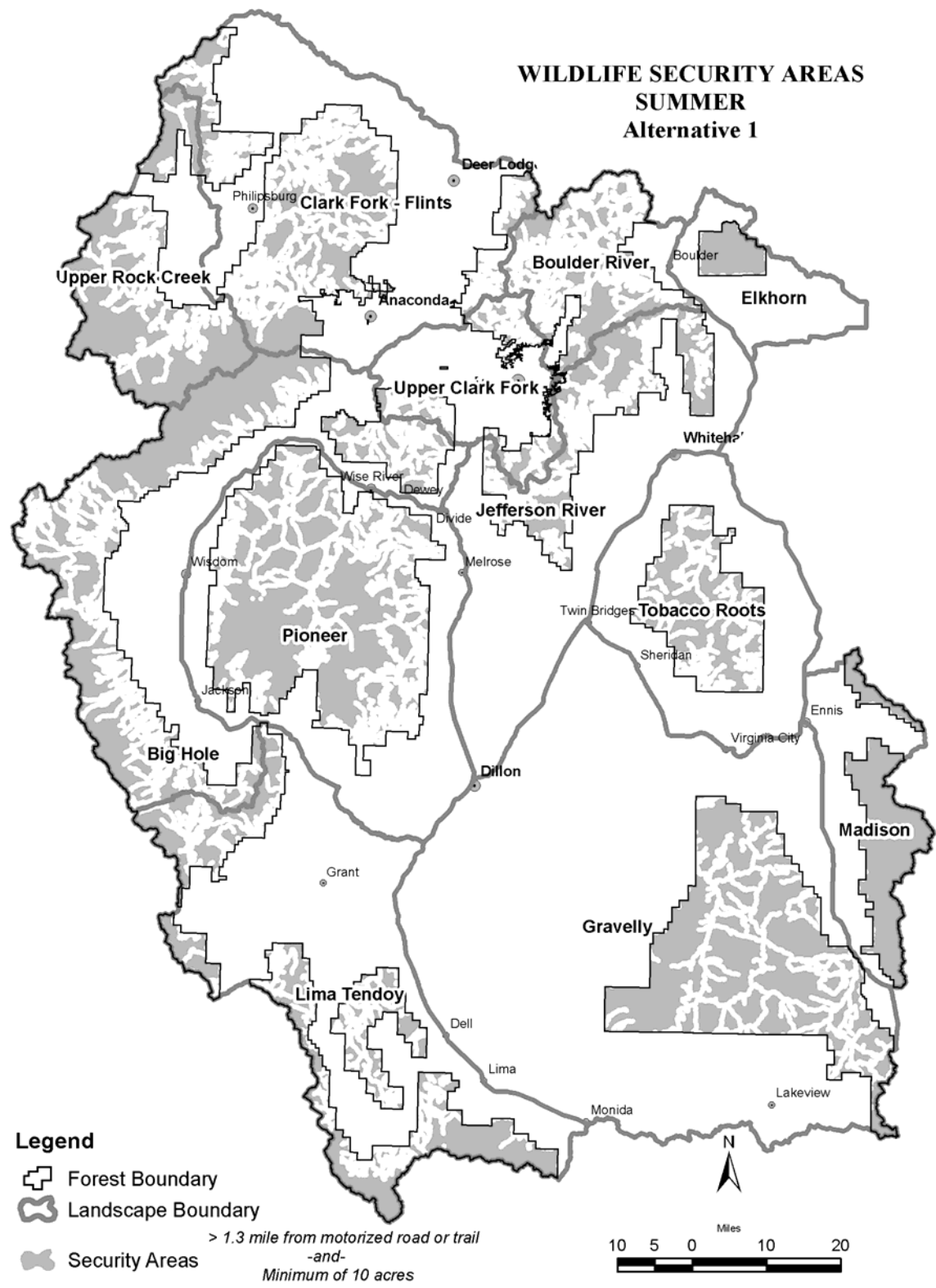


Figure 31. Alternative 1 – Summer Wildlife Security Areas

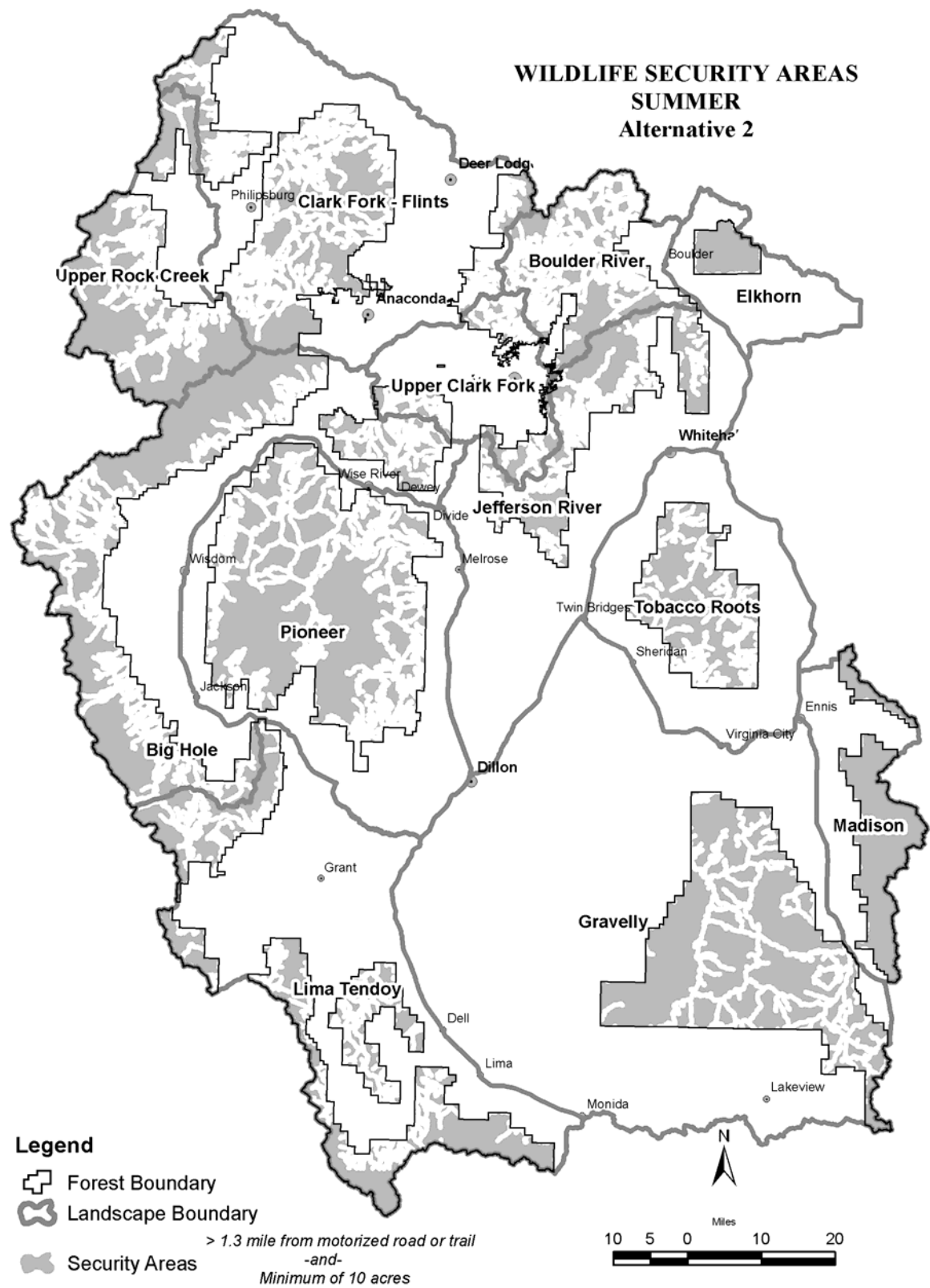


Figure 32. Alternative 2 – Summer Wildlife Security Areas.

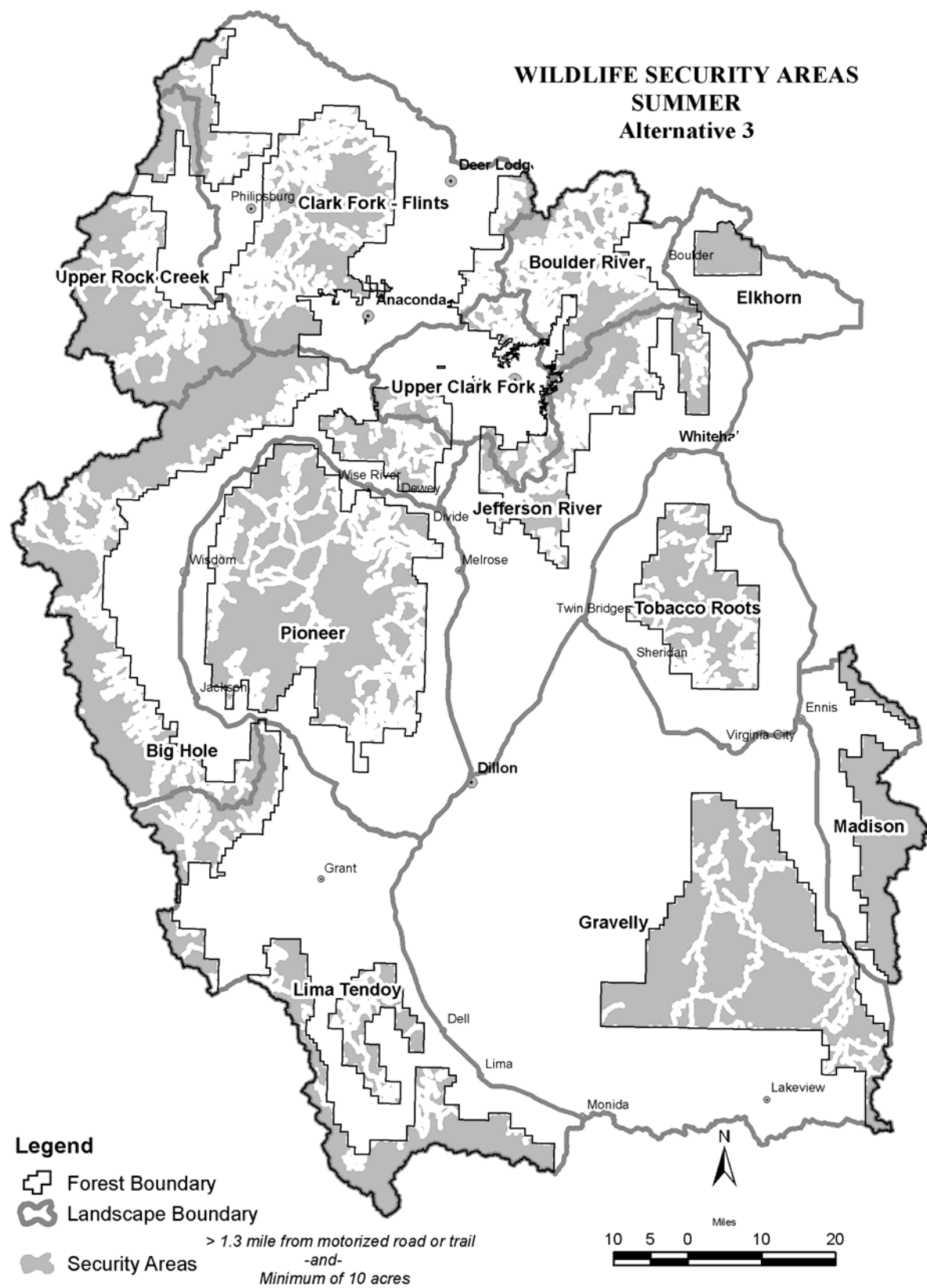


Figure 33. Alternative 3 – Summer Wildlife Security Areas

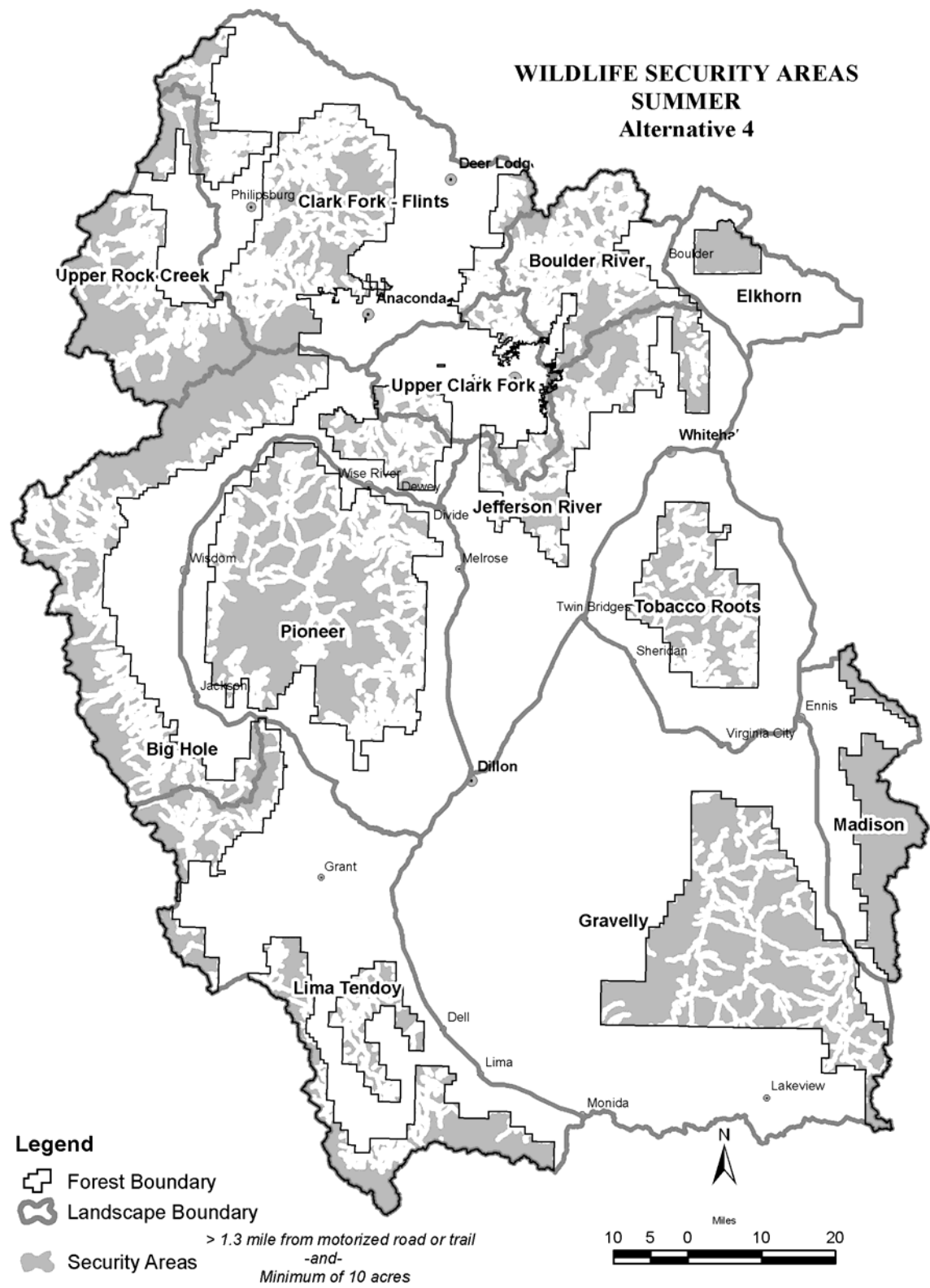


Figure 34. Alternative 4 – Summer Wildlife Security Areas

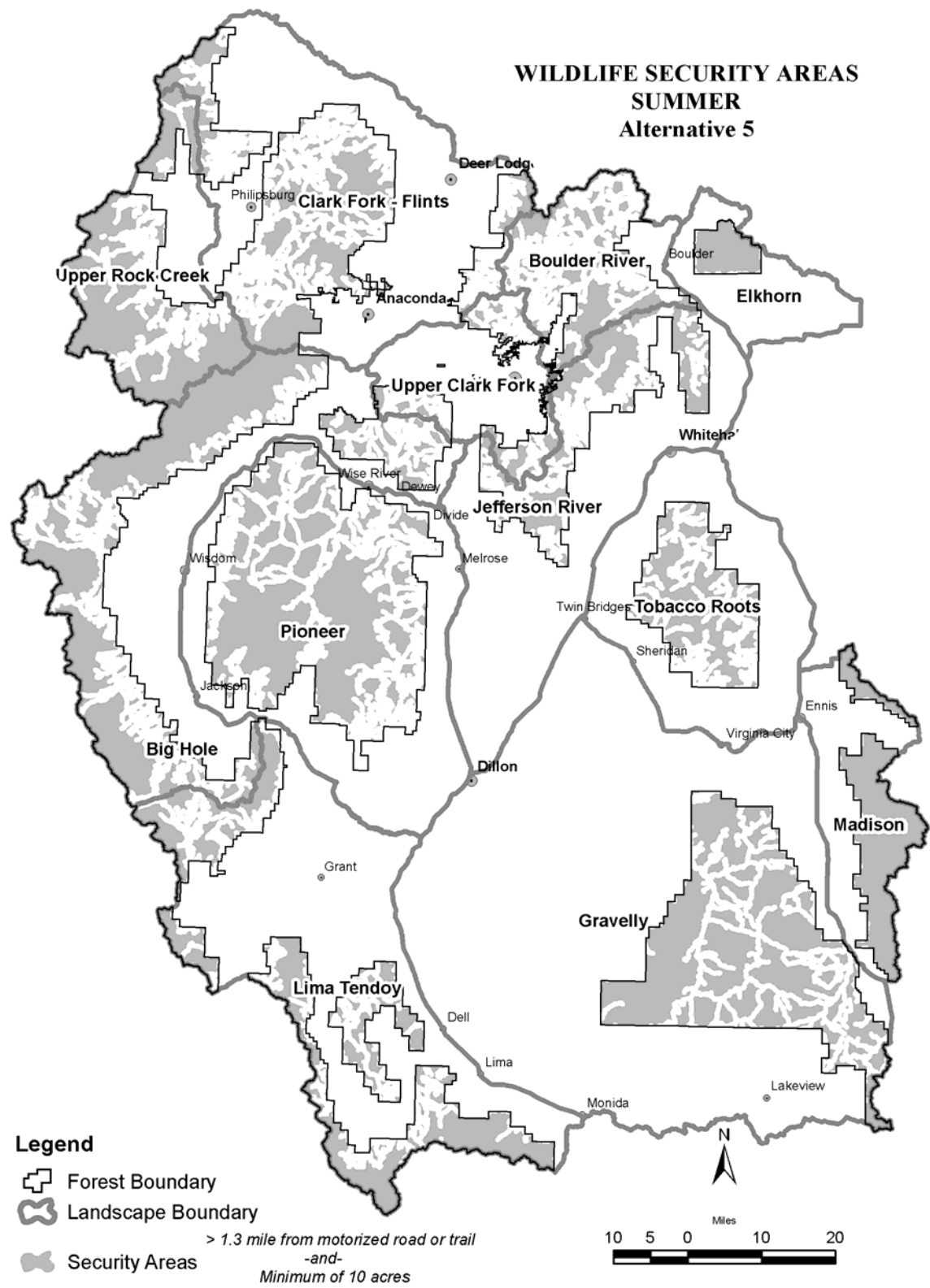


Figure 35. Alternative 5 – Summer Wildlife Security Areas

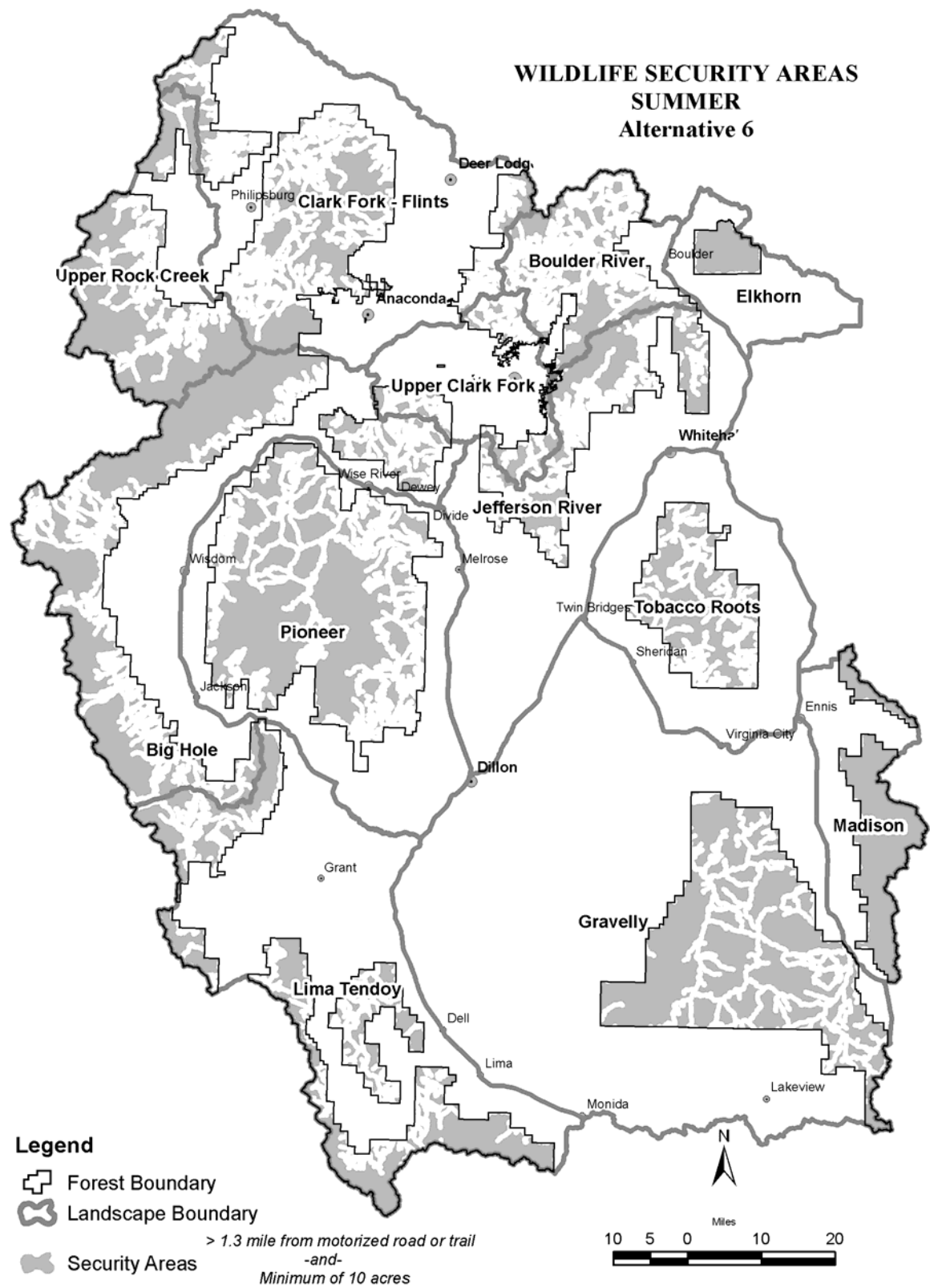


Figure 36. Alternative 6 – Summer Wildlife Security Areas

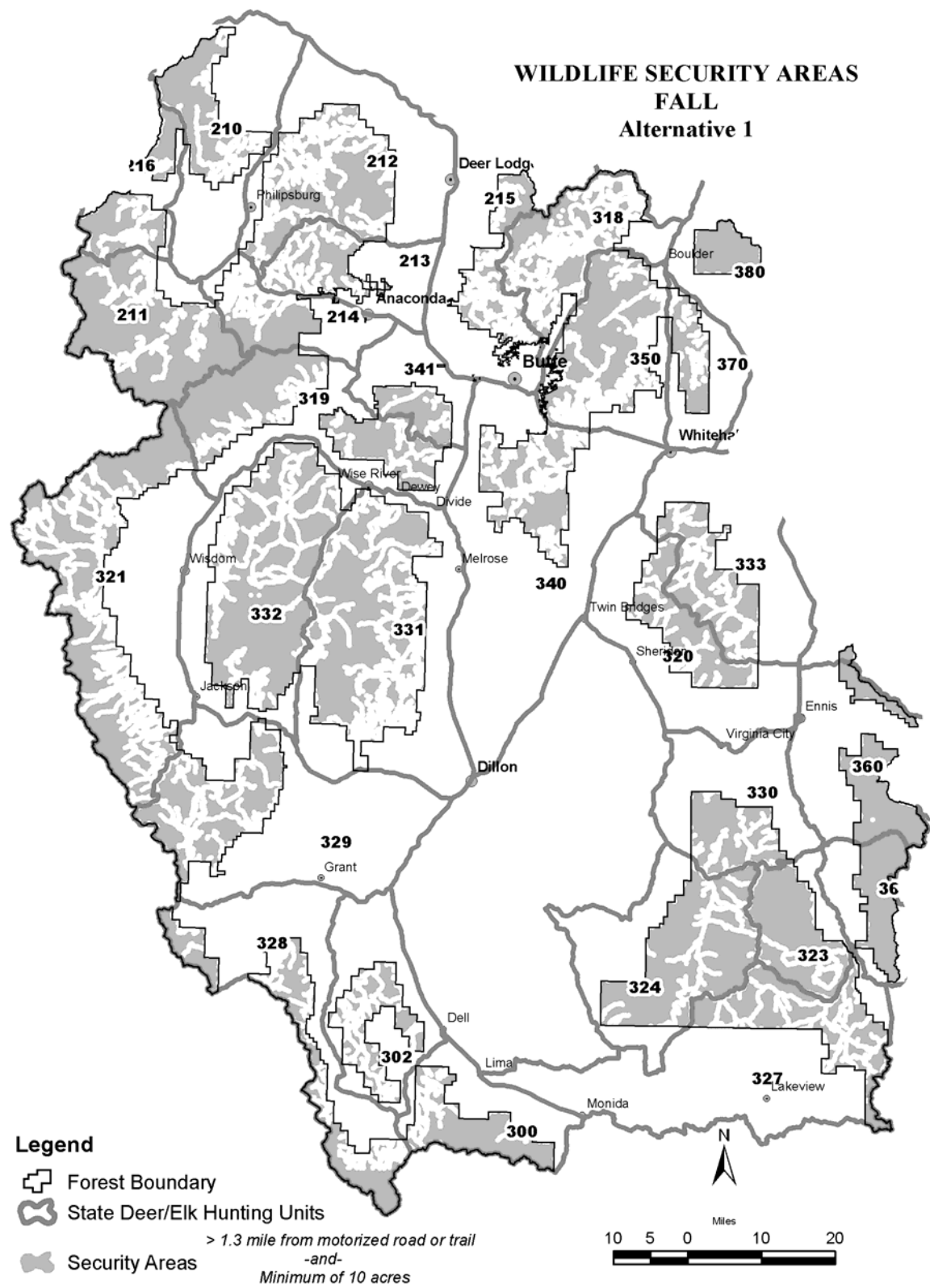


Figure 37. Alternative 1 – Fall Wildlife Security Areas

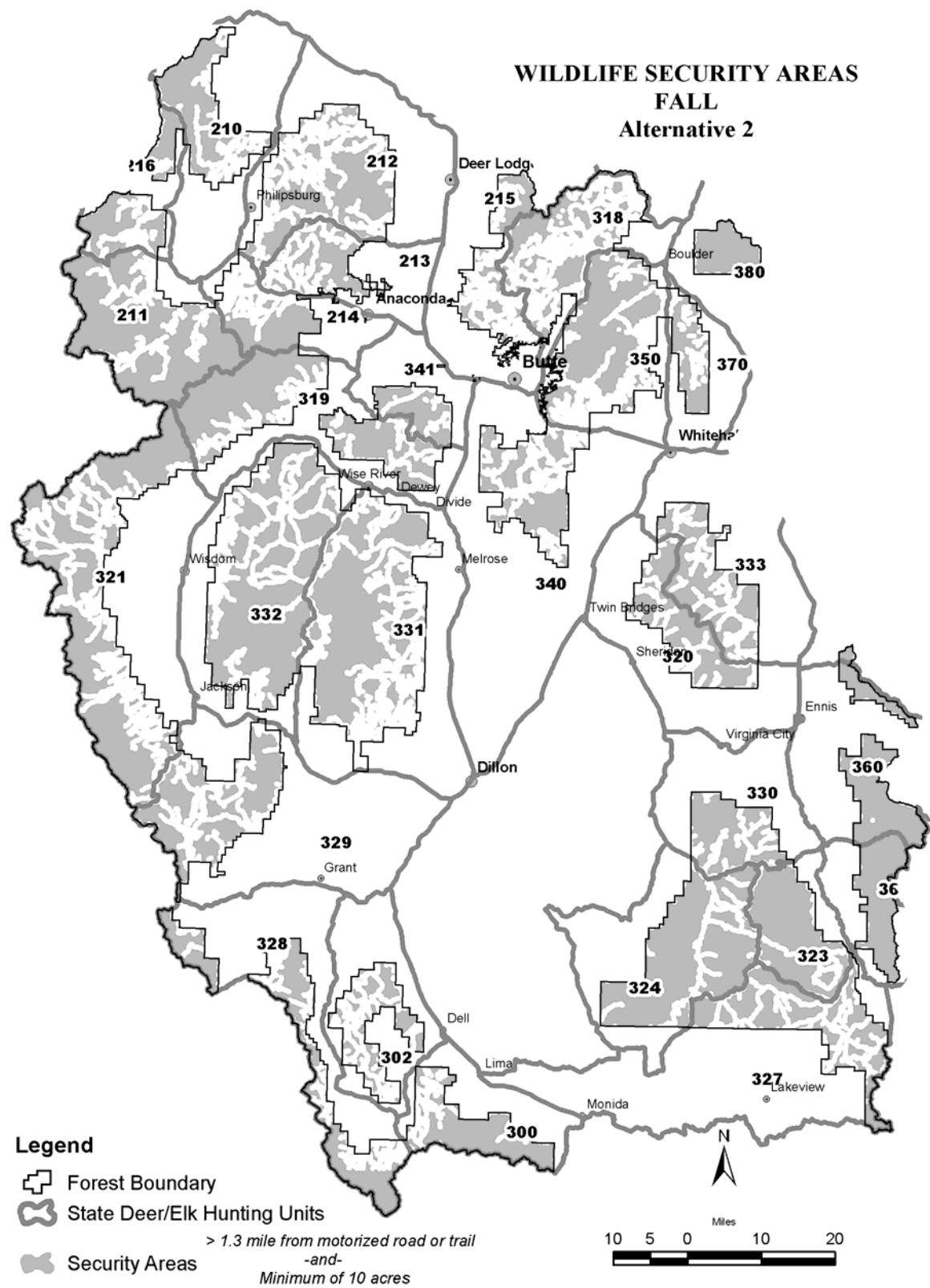


Figure 38. Alternative 2 - Fall Wildlife Security Areas

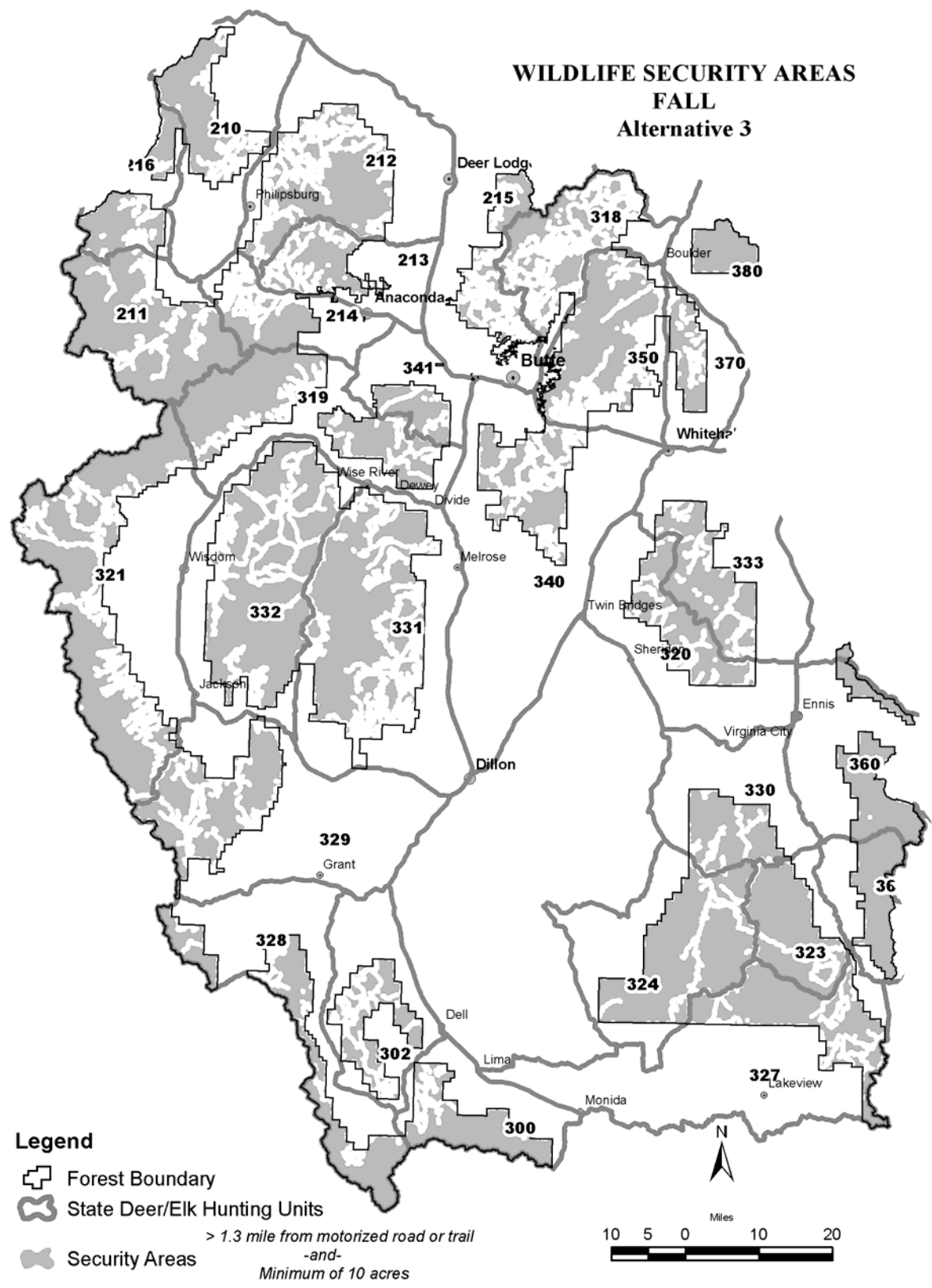


Figure 39. Alternative 3- Fall Wildlife Security Areas

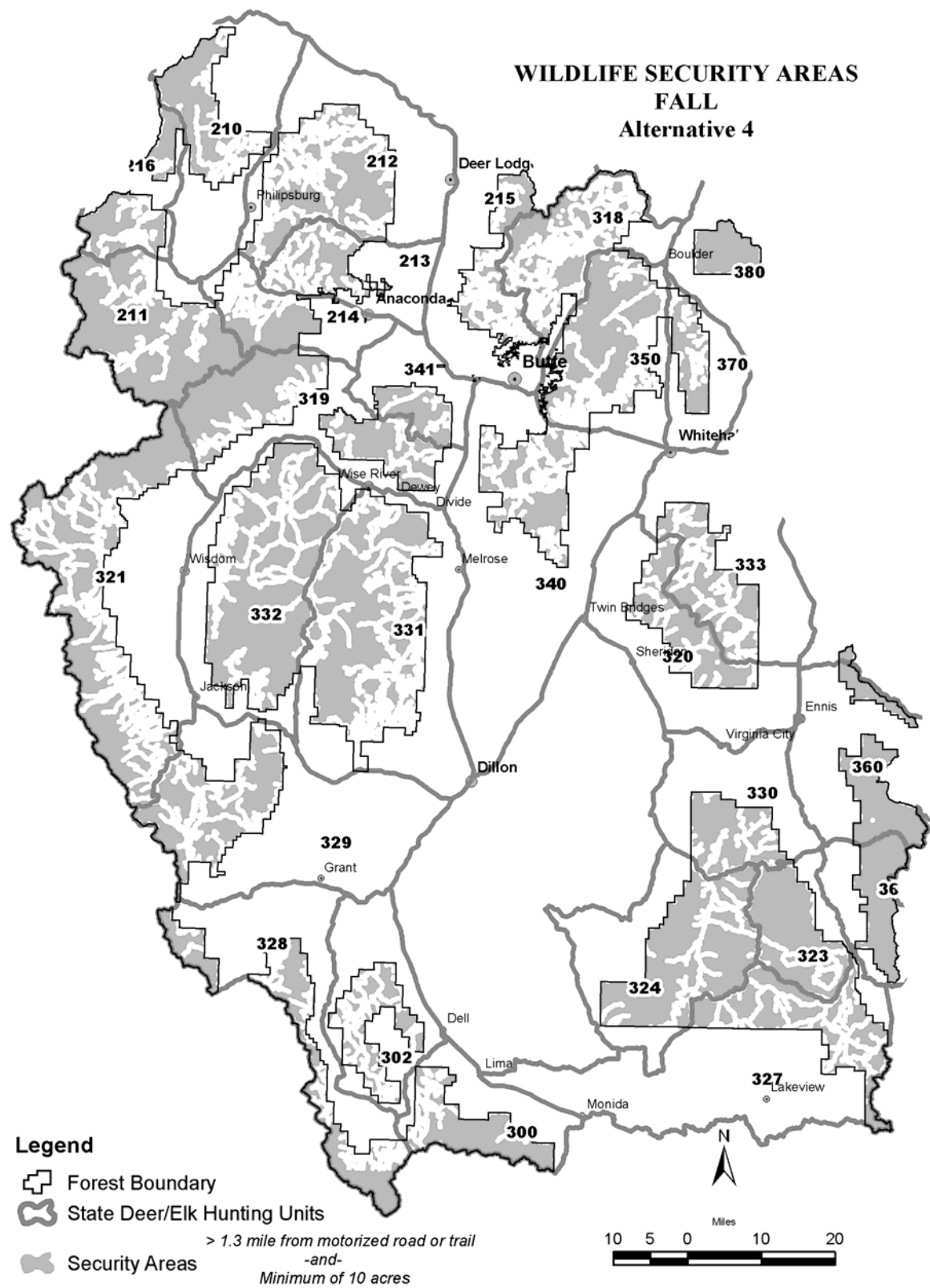


Figure 40. Alternative 4 - Fall Wildlife Security Areas

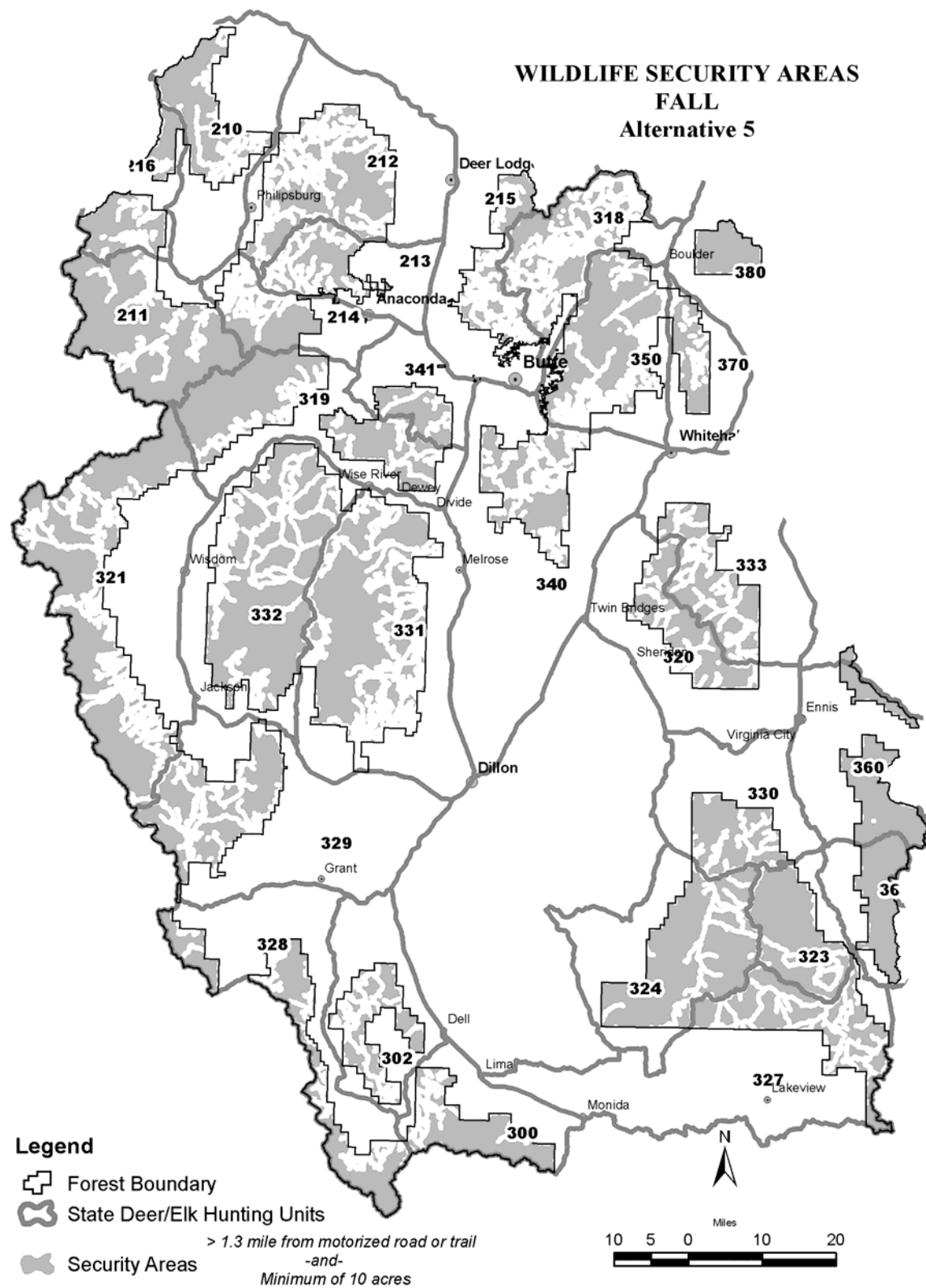


Figure 41. Alternative 5-Fall Wildlife Security Areas

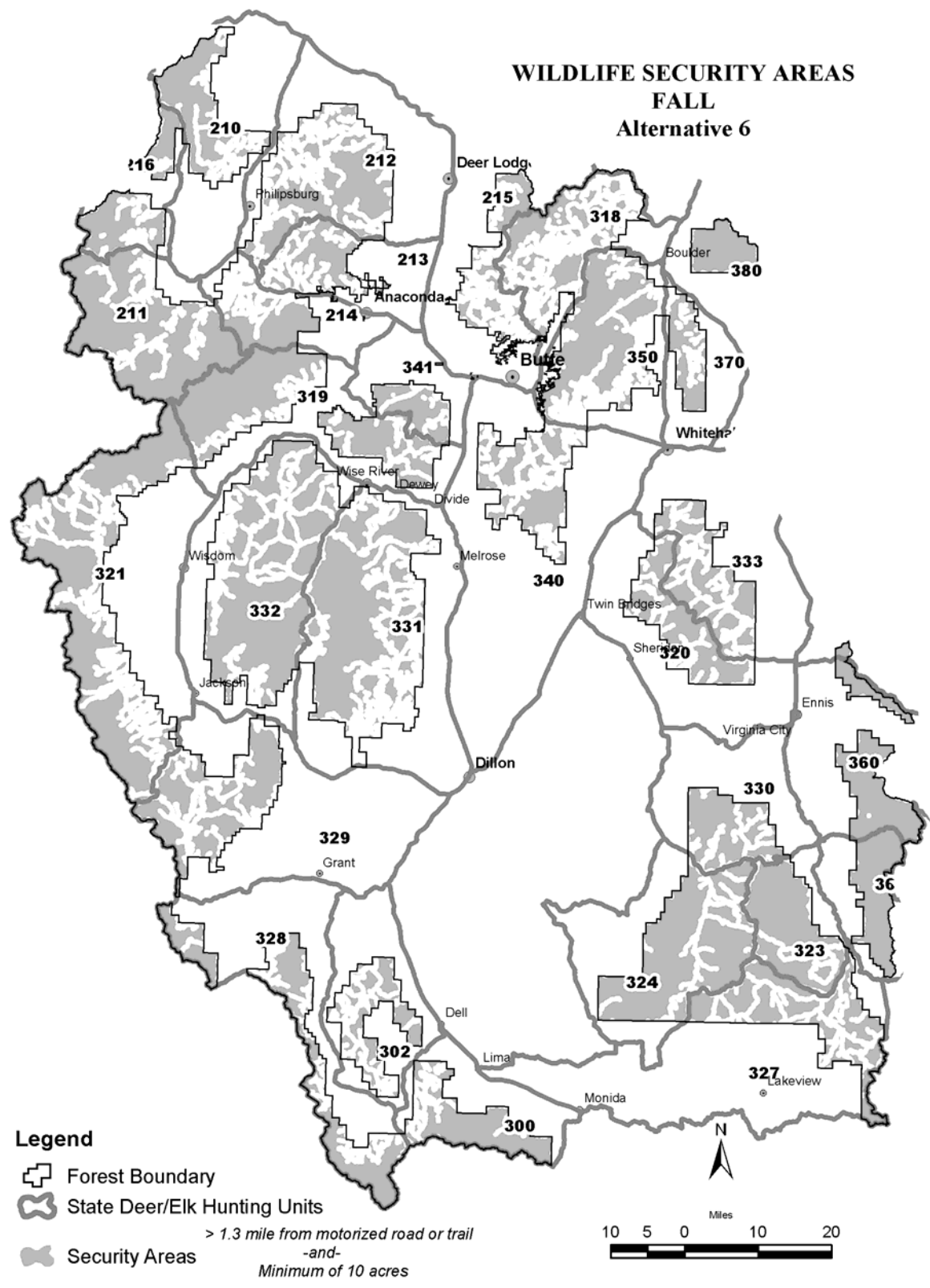


Figure 42. - Fall Wildlife Security Areas

Effects on Wildlife Habitat from Timber Production

With the low probability of extensive timber management for timber production and a goal to maintain vegetation within the Historic Range of Variation, wildlife populations should experience little effect from timber management. Major changes are more likely to occur through fire management effects as discussed previously. While there are changes in the amount of suitable timberland across the alternatives, no substantial change from the amount of historical production is projected.

Potential impacts include displacement from harvest activity and fragmentation due to changes in vegetation age, size, and patch size. Old growth is currently well represented in forested types as noted in Table 168.

Timber harvest on lands suitable for timber production or lands where timber harvest is allowed (see Revised Draft Plan Page 43) can contribute to aspen regeneration, an important habitat type in serious decline. As shown in the following table none of the alternatives are expected to have a considerable positive or negative effect on wildlife from management on lands suitable for timber production.

Table 182. Suitable Timberland in Acres and Percent of BDNF

Measure	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Land Suitable for Timber Production	745,000	346,000	0	484,000	216,000	299,000
Percent of BDNF	22%	10.3%	0%	14.4%	6.4%	8.9%

Benefits in the context of producing habitat for species that prefer earlier seral stages, using intensive timber management as a tool, are greatest in Alternative 1. Alternatives decrease after Alternative 1 in this order Alternative 4, 2, 6, 5 and 3.

Species that prefer mature and old growth would see reduced habitat proportional to the amount of timber harvest prescriptions. Regardless of alternative, an abundance of habitat for species which benefit from older age classes would be available because of current conditions and the relatively small acreage available for timber production. There are no identified old-growth obligate wildlife species on the BDNF.

The possibility of higher to lower resistance to movement by large animals (grizzly bears, elk) because of timber management activity is ranked by alternative in this order; Alternative 1, 4, 2, 6, 5, and 3.

All of these alternatives exhibit similar possibilities for barriers to movement in Hunting Unit 318, north of Butte adjacent to the Helena National Forest. The travel management discussion made note of high road density challenges in this hunting unit.

Higher resistance to movement based on potential timber management is also found in hunting district 321 in the Johnson Creek/Tie Creek area north of Hwy 43. This area has extensive seasonal motorized use restrictions that reduce disturbance. Regardless of the amount of suitable timber in alternatives, the greatest challenge to maintaining secure areas for wildlife movement lies in the Boulder River area (HU 318) between the Beaverhead-Deerlodge and Helena national

forests. The single greatest hindrance is Interstate 15 on the southeastern border of the hunting unit 318.

Effects on Wildlife Habitat Management from Vegetation Management

Alternative 6 provides the best overall vegetation management for wildlife. While there is a slight reduction in the minimum percentage of old growth retention compared to alternative 3, the active restoration of aspen and conifer encroachment reduction at 67,000 and 74,000 acres respectively displays the greatest commitment to vegetation restoration.

Vegetation structure and patterns often determine how animals use habitat. Young lodgepole stands may provide habitat for more prey species such as snowshoe hares than dense mid to late seral stands. Old forest provides wintering areas and stands of willows provide forage for moose. At the landscape scale, sparsely populated coniferous forest is preferred by wolverines. Sagebrush-grasslands provide summer habitat for sage grouse and winter range forage for elk and deer. Vegetation management is expected to produce changes in age class, structure, and species composition. Wood products can be produced, but the focus will be on active aspen restoration and reduction of conifer encroachment into sagebrush/grassland ecotones.

A particular focus in vegetation management will be restoration of quaking aspen; the single forest type considerably below the HRV as noted under general effects. The expectation is that blocks of mature lodgepole pine will be set back to early seral stages to promote regeneration of aspen clones. Treatment may include cutting of aspen and coniferous ecotones and use of prescribed fire to also stimulate aspen regeneration. Such treatment may be unfavorable to forest carnivores such as, martens, weasels, and wolverine, at the same time it may be beneficial to species like ruffed grouse, downy woodpeckers, and dusky flycatchers.

Table 183. Vegetation Management by Alternative (Source: Bush et al. 2006)

Alte 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Aspen restoration <i>Not measured</i>	Emphasized	13,340 - 66,700 acres	13,340 - 66,700 acres	13,340-66,700 acres	67,000
Douglas-fir encroachment reduction <i>Not measured</i>	Allowed	0 - 74,000 acres	0 - 74,000 acres	30,000 - 74,000 acres	74,000
Old growth-all species: 10% DF & ES retained by compartment on Beaverhead NF 5% retained by compartment for all types on Deerlodge National Forest	DF 8-10% LP 10-15% ES existing SAF existing WBP existing Limber Pine existing	15% (min) 14% 15% 15% 15%	10% (min) 10% 10% 10% 10%	10% (min) 10% 10% 10% 10%	10% (min) 10% 10% 10% 10%

Alternatives 1 and 2 do not take an active approach towards aspen restoration. Neither alternative will focus vegetation management on promoting an upward trend towards the minimum 20% of HRV for aspen and those species, particularly birds that depend on aspen for nesting.

Alternatives 3, 4 and 5 are equally proactive by setting a range for active restoration of aspen and

developing an upward trend for this habitat type and wildlife species, notably the birds that depend on it.

Alternatives 1 and 2 also do not promote an active approach towards reversing the loss of grasslands/sagebrush at the Douglas-fir ecotone. Alternative 3 while providing up to 74,000 acres of Douglas-fir treatment, displays the potential for no active treatment as well.

Alternatives 4 & 5 target a minimum level of Douglas-fir treatment acres, making these alternatives more proactive within the parameters of budget, staffing, and location of treatment.

Alternatives 4 & 5 are more proactive than alternatives 1 – 3 in treating aspen and the conifer/grassland/sagebrush ecotone to benefit wildlife. Upland game birds, neotropical migrants, small mammals, and big game would benefit more from the combined range of vegetation treatments under these alternatives.

Alternative 6 is the most proactive alternative in treating the aspen and conifer/ grassland/ sagebrush ecotone to benefit wildlife. It is particularly the most proactive alternative in treating aspen which is the single vegetation type that is severely outside its historic range. This alternative will develop the strongest upward trend in this important wildlife habitat type.

Old growth levels displayed in Table 168 reflect the current condition from existing FIA data. Alternative 2 would essentially maintain the current amounts of old growth for all coniferous forest types except for Douglas-fir. The latter would be reduced below the lower bound 90% confidence level of 15 %. This would have the most adverse effect on species that prefer old growth Douglas-fir. Alternative 2 retains the most old growth forestwide, being the most beneficial for species that prefer older seral stages. Alternative 3 maintains Douglas-fir within the low bound confidence level and lodgepole at the point estimate. All other forest types would be maintained at approximately half of the current FIA point estimate. This alternative is superior to Alternatives 1, 4, and 5 regarding old growth retention, but retains less old growth than Alternative 2.

Alternatives 4, 5, and 6 retain identical amounts of old growth. Minimum old growth is retained by species at the following approximate current point estimates: Lodgepole - 59%, Douglas-fir/PP/PF - 50%, whitebark pine - 29%, subalpine fir /Engelmann spruce at 28%. Other old growth is 36%. These alternatives are superior to Alternative 1 regarding old growth retention, but are inferior to alternatives 2 and 3.

Effects on Wildlife Habitat Management from Fire Management

Alternatives 3 and 6 may provide the greatest benefits to wildlife considering almost the entire forest could be available for wildland fire use. Depending on severity, wildfire can cause stand replacement events that generate early seral stages, favoring species that use younger age classes. Fire management in this context, however, refers to wildland fire use which means allowing lightning ignitions to burn under certain pre-established conditions specified in a fire plan.

Table 184. Acres Available for Wildland Fire Use

Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
2,768,000	2,251,000	3,355,000	2,385,000	2,841,000	3,355,000/AMR

Wildland fire use has the greatest potential to alter vegetation within the HRV. Aspen regeneration following fire would be the single biggest benefit to wildlife. Fire provides the most effective tool to generate large-scale increases in the aspen component. It is also the best for generating early seral stage vegetation that can provide superior habitat for snowshoe hares, and to expand grasslands lost to conifer encroachment in the /sagebrush-bunchgrass ecotone. However, the location of natural ignitions can not be determined and there is no certainty they will generate positive trends in aspen regeneration.

The potential for fire use to create an upward trend for aspen is greatest under Alternatives 3 and 6 because most of the forest is identified available for wildland fire use. The potential for upward trends in aspen is least under Alternative 2 simply because of the least amount of acres available. Alternative 5 provides the second highest amount of land base available for fire use. Alternative 6 allows appropriate management response which includes fire use.

Effects on Wildlife Habitat from Wildlife Habitat Management

Wildlife management objectives focus on managing motorized vehicle access to provide habitat effectiveness for elk, secure areas for grizzly bears, and address “connectivity” and “linkage” across the Forest. The primary purpose of forestwide road density objectives addressed under Recreation and Travel Management is wildlife security, elk in particular. Roads are the greatest consideration on summer range (Christensen et al., 1993).

In addition the science for managing elk has changed. The existing situation displayed in Alternative 1 would continue to focus on Elk Hunting Recreation Opportunity Geographic Areas (EHROGAs) which are not recognized by the Montana Statewide Elk Management Plan (2005). All other alternatives would take advantage of advances in new elk management science. The plan incorporates management by hunting units providing a better scale at which to manage habitat for elk and use monitoring information gathered by MTFWP.

Alternative 3 is the best alternative for wildlife security. By providing the largest amount of secure habitat (58% summer and 71% fall), this alternative meets security needs for grizzly bears, elk, and carnivores. Alternative 3 provides the most potential for animals to move across large blocks of habitat without motorized disturbance. Alternative 5 provides 53%, the second highest amount of summer secure habitat followed closely by Alternatives 6 and 4, with 52%. Alternatives 1 and 4 with 50 % each provide the least amount of summer secure habitat to meet the secure habitat definition.

Alternatives 3 through 6 establish snag densities at a minimum of 4 snags per acre as measured by FIA forestwide, in forested habitat type, equal to or greater than 10 inches DBH. Of those at least one is 15 inches DBH or greater. FIA shows snags are well distributed forestwide and by landscapes. These densities are compatible with the Northern Region Snag Protocol (2000) vegetation response units (VRU) for warm, dry ponderosa pine, Douglas-fir and high elevation spruce/fir/lodgepole pine. The same densities are also compatible with the Samson (2006) assessment for the pileated and black-backed woodpeckers. Use of FIA data maintains consistency with this effects indicator along with habitat security and road density objectives at the landscape scale

Alternative 2 is virtually identical to 3 through 6 with the exception of 5 snags per acre. It also does not track snags by landscape using FIA science.

Under Alternative 1 the Deerlodge Unit doesn't require snag monitoring while the Beaverhead Unit does, by project area. Neither plan requires use of the best available science represented by FIA. The plans leave fewer snags per acre than Alternatives 3 through 6 and do not manage the snag component by landscape.

Alternative 3 maximizes fall secure habitat by hunting unit at 63%. Alternatives 6, 5, and 2 are the same at 59% followed by Alternatives 4 and 1 at 58% and 57% respectively.

Cumulative Effects

The analysis area for cumulative effects is all the seven counties in southwest Montana including BLM, State, and private lands as well as parts of the Greater Yellowstone Ecosystem including parts of the Gallatin, Caribou-Targhee, Bridger-Teton, Shoshone, and Custer National Forests.

Forest Service management activities can change habitat for all wildlife species, especially big game and can bring about localized changes in big game species populations and herd compositions. Substantial changes in habitat and related herd sizes, however, can be affected by factors outside the control of the Forest Service. Examples are the major fires of 2000 and 2003, insect outbreaks, and drought.

Subtle but longer term impacts can occur from the development of lands adjacent to the National Forest. Many key winter ranges are in private ownership and subject to pressures to subdivide for residential development. The Madison River Valley provides the best example of subdivision pressures on winter range on private land. Alternative 3, by providing the greatest amount of secure area could help reduce future impacts to wildlife range from private development pressures.

Cumulative effects will vary depending on the individual needs and habitat of individual species and impacts from resource use outside Forest boundaries. Cumulative effects to wildlife are also based on the cumulative effects described for vegetation, watersheds, and aquatic resources, in their respective sections in this chapter.

Past impacts have included commercial and firewood harvest of timber and extensive mining in the Butte basin. Higher road densities around Butte are the result of extensive logging for fuel and timbers used in the Butte mines. While structure in some forested stands has been altered, mature overstory canopies remain.

There will be a positive cumulative effect from restricting motorized vehicle access. More secure area will be available forestwide under all alternatives as a result of restrictions. Alternative 3 provides the greatest positive cumulative effect for wildlife secure areas within the forest and across Southwest Montana by providing for roadless areas and wilderness recommendations that tie into similar designations on BLM land (Humbug Spires, Blacktail Range, and Centennial Mountains). These combined designations also mesh well with the MTFWP wildlife management areas at Mt Haggin, Blacktail/Robb-Ledford, Wall Creek, Fleecer Mountain, and the Red Rock Lakes National Wildlife Refuge. These combinations also provide large areas through which grizzly bears, large ungulates, and carnivores can move across southwest Montana from neighboring forests, Yellowstone National Park, and Idaho. Alternative 4 produces the most potentially adverse cumulative effects on wildlife security with the potentially highest road densities and lack of wilderness recommendations,

The BDNF is the largest forest in Montana. Because of location and low population density (1.7/sq.mi, Census 2000), undeveloped private ranch lands are a valuable component in maintaining wildlife habitat connectivity. It is not clear if there is a “break point” at which grazing management practices may cause permittees to withdraw or change the focus of their operations such that they would sell their base ranches.

While grazing management changes have occurred and will continue to improve riparian conditions, recovery may not occur at a rate substantial enough to affect a change in the long run, particularly in terms of vegetative conditions. Watershed and fisheries projects are designed to improve these habitats. Key watersheds for both fisheries emphasis and water quality emphasis were identified during alternative development. The greatest positive cumulative effect for wildlife dependent on riparian shrub communities would occur under Alternative 3 with the largest number of key watersheds that would receive either fish or . Alternatives 6, 5 and 4 would follow in relative order. Alternatives 1 and 2 do not have key watersheds.

The lack of younger seral conditions is a concern from a diversity of habitat standpoint. Management directed at striving for the historic range of variability would provide improved habitat for many species. Of particular concern is developing an upward trend in aspen. Early seral stages created by regenerating stands for aspen restoration can also provide snowshoe hare habitat, the primary prey species for Canada lynx. Alternatives 3, 4, and 5 are equally valuable for cumulatively developing an upward trend for aspen. Alternative 6 by providing a discrete target for aspen restoration and reduction of conifers into the grassland/sagebrush ecotone at the upper range of alternatives 3 - 5 provides the most benefit towards generating an upward trend in these vegetation types. As noted under the effects from Vegetation Management, the aspen forest type is dramatically below its historic range as a component of the Beaverhead-Deerlodge.

Prescribed fire, wildland fire use, mechanical fuels treatment, and commercial harvest, would be used to diversify structural stages in all alternatives. However, we anticipate the proposed level of activity will not be enough to bring the aspen community within HRV over the next several decades. This would be the case because we may not be able to accomplish an adequate volume of treatment. As noted in the general effects, the aspen departure from HRV is so large our goal can only be to produce an upward trend given budget constraints. Vegetation treatments may become dependent on prescribed fire and wildland fire use to produce meaningful upward trends in HRV.

While development of roads was paramount throughout the 1960's, vehicle vehicle access management is more likely to focus on restrictions by type and extent of motorized use. Some habitat may be improved as roads are decommissioned. However potential gains are unknown. We do project, however, that the ability of wildlife to use available habitat with fewer disturbances from motorized activity will cumulatively increase. Secure habitat is expected to increase under Alternatives 2, 3, 4, 5 and 6. Alternative 3 provides the greatest amount of non-motorized area. Alternatives 5 & 6 are virtually equal in providing secure habitat for potential connectivity and linkage into the future and second only to alternative 3.

Beneficial effects on wide-ranging species, such as wolverine, are expected given the amount of secure habitat that would be available under all alternatives. Secure habitat and related connectivity also present the possibility of increased adverse cumulative effects through diseases introduction such as chronic wasting disease and brucellosis. We will work cooperatively with the State to assess habitat and potential impacts.

The State of Montana regulates sustainability of wildlife species subject to hunting or trapping, like big game and game birds. Severe winters effects would be harder on big game species because of reductions in the amount and quality of winter range, primarily on areas adjacent the BDNF.

Regional risk trends for many species date from westward expansion and settlement. For example, the American bison which used to range freely in great herds across Southwest Montana are now severely limited in their distribution. Another example is the greater sage grouse. Extensive habitat losses have occurred off-Forest which adversely affect summer sage grouse populations.

Region wide effects to the Interior West sagebrush habitat are documented in the Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats (Connelly et al. 2004). Tables 35 and 36 display how both positive and adverse effects to this species are likely to drive activities outside the Forest in Southwest Montana. Little habitat lies on the forest within the Connelly et al. (2000) recommended management radius from leks (18km). With all known breeding sites and the huge majority of nesting habitat occurring outside the Forest, long-term viability of this species in Southwest Montana is fundamentally beyond the scope of National Forest management to affect. None of the alternatives will affect breeding or nesting habitat.

While cumulative impacts inside the Forest boundary may affect some species, Forest plan implementation is expected to conserve existing habitat, provide upward trends in key habitat, and provide self-sustaining populations. By managing within the vegetation range of historic variation and properly functioning aquatic conditions it is expected that all species will be sustained in the long term.

Cumulative Effects from Nearby Lands

Activities on lands outside forest boundaries are not subject to Forest Service requirements. The cumulative effects for wildlife resources, however, also consider actions on adjoining private, state, BLM and other National Forest lands. As noted in the preceding paragraphs concerning sage grouse, while the amount of BDNF sage-grouse habitat is relatively minor it does provide for dispersing grouse in late summer and fall. Maintaining such habitat for grouse can be particularly important for dispersing grouse as they move upslope in search of moist areas for food.

Fire suppression activities on neighboring Federal, State lands, and private lands are routinely coordinated. Lightning caused fire starts are more likely to occur on Forest lands with potential to move off the forest to adjoining lands. Given the likelihood of increasing populations in surrounding communities, fire management is expected to be increasingly influenced by public concerns about threats to investments, air quality, and aesthetics. The extent of this influence will be driven by public perceptions which will be variable and not quantifiable by alternative. There is a distinct possibility that wildland fire use for resource management on the Forest, could be trumped by adverse public perceptions to fires allowed to burn under a wildland prescription.

Growing demand for motorized recreation, snowmobiling in particular, includes all ownerships adjacent to the forest. Some displacement of big game from winter range already occurs from this use (see Travel Management). "User built" trails are made by OHV users expanding play areas. Permitted ski hills on the forest are experiencing modest growth, and permittees are expected to further develop their facilities to meet demand. While all alternatives increase

motorized closures, the amount of area open to motorized use is still quite large. Conflicts are likely to arise, however, as snowmobile and OHV ownership increases. Trespass into areas closed to motorized use is likely to increase. Potential for trespass will increase under the more restrictive alternatives (Alternatives 3, 6, 5, 2 and 4 in descending order). This will increase the demands to control such trespass on restricted big game winter ranges, denning habitat, and wildlife secure areas.

Urban expansion, both locally and regionally, also increases public concerns that National Forests also function as biological reserves and provide wildlife habitat connectivity at broad scales.

Increased use of National Forest is also expected to facilitate expansion of noxious weeds and other undesirable or non-native vegetation species. Noxious weed populations are already established and are spreading on the BDNF with obvious spread occurring along roads. Local counties manage an aggressive weed control program, and some local ranches in the State Block Management Program are limiting hunters to foot and horseback to help limit the spread of noxious weeds. Alternative 3 provides the greatest potential to reduce this adverse cumulative threat by promoting the greatest restriction to motorized vehicle access. In descending order Alternatives 6, 5, 2, and 4 provide lessening degrees of motorized restrictions that reduce the cumulative effect of noxious weed spread.

As the human population increases, water demands increase. This could generate increased pressure on public land for water diversions and the subsequent reduction of in-stream flows to the detriment of riparian habitat.

To the extent possible, we coordinate with State agencies for strategic management plans such as the Montana State Elk Management Plan and the State Comprehensive Wildlife Plan. For example, the Forest is actively engaged with State biologists in project design and evaluation.

Connectivity or Linkage Areas

Connections to other public and private lands at this point have mostly been challenged by development of adjacent land. The forest is characterized by mountainous island landscapes separated by broad valleys in mixed private, State and BLM ownerships. State management and the Dillon Resource Area draft management plan are generally compatible with maintaining habitat linkage to the island landscapes and neighboring public lands. Development of private lands will present the greatest challenges to maintaining habitat linkages to public lands. The Madison Valley is a good example of historic winter range for the Gravelly and Madison landscapes that is under increasing pressure to develop rural subdivisions. Private land use along the eastern portions of the forest could present the greatest challenge to linkage along the Gravelly-Tobacco Roots-Boulder River axis.

As previously noted, habitat connectivity has not been fundamentally compromised by management actions. Some small scale habitat change has occurred due to timber harvest, road development, and recreation site development. Road densities, however, are quite low at the landscape and hunting district scales (Tables 25 through 32) providing large areas through which wildlife can move with little to no vehicle disturbance. Adjoining State Wildlife Management Areas, BLM wilderness recommendations, and The Red Rock Lakes NWR provide exemplary connectivity between agency lands. Undeveloped private ranchlands across southwest Montana help bolster connections across the entirety of Southwest Montana.

The BDNF features natural diversity with a mosaic of habitats including sagebrush steppe, true alpine, riparian, grasslands, deciduous forest, and coniferous forest types. Although lodgepole pine, aspen, and late seral grasslands depart from the historic range of variability, the departures are the result primarily of fire suppression. None of the departures are irreversible.

A high degree of structural and age class diversity was historically likely. This again may have been due to more natural fire regimes. Although losses of some species such as the , wolf, and grizzly bear have occurred, harvesting, trapping, and human development were the fundamental pressures, rather than an increase in habitat fragmentation.

Two interstate highways (I-15, I-90) traverse the area with approximately only 13 miles of right-of-way on national forest land. State Highways 1, 12, 43, and 278 encompass an approximate total of 30 miles of right-of-way. Other than these paved highways and small utility corridors, the Forest remains largely intact compared to its original composition. All of the Alternatives maintain options to address wildlife crossing concerns as they develop.

As noted in the introduction under general effects, linkage can also develop challenges related to disease introductions and the spread of noxious weeds. The latter negative connotation for “linkage” is addressed in alternatives through restriction of motorized vehicle access. In descending order Alternatives 3, 5, 2, and 4 provide for lesser degrees of motorized restrictions that reduce the cumulative effect of noxious weed spread.

For some species such as neo-tropical migratory birds, impacts from far distant areas may have much greater effects than forest management activities. An example is the severe mortality in Swainson’s hawks from pesticide poisoning on wintering areas in Argentina documented at <http://www.natureserve.org/explorer/>.

Legal and Administrative Framework

Laws and Executive Orders

Endangered Species Act of December 28, 1973, (87 Stat. 884 as amended; 16 U.S.C 1531, 1532, 1533, 1536, 1540) - Declares “...all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.”

Migratory Bird Treaty Act of July 3, 1918, (16 U.S.C. 703-712) - Controls the taking, killing, possessing, transportation, and importation of migratory birds.

Bald and Golden Eagle Protection Act of June 8, 1940, (16 U.S.C. 688-668-d) - Provides protection to bald and golden eagles.

Sikes Act of September 16, 1960, (16 U.S.C. 670a) - Provides for carrying out wildlife and fish conservation programs on Federal lands including authority for cooperative state and federal plans and the authority to enter into agreements with states to collect fees to fund programs identified in those plans.

Executive Order 13186, January 10, 2001 – Requires federal agencies to protect migratory birds.

Policy and Regulations

Wildlife policy and direction are outlined throughout Forest Service Manual 2600. The 2670 portion of the manual provides direction on sensitive species management. These species are to be managed ensure that they do not become threatened or endangered because of Forest Service actions. Sensitive species lists are specific to each Forest Service region and are established by the Regional Forester.

CHAPTER FOUR

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DOCUMENT DISTRIBUTION

Federal Agencies

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National Park Service

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USDA Office of Civil Rights

U.S. Department of Interior

Office of Environmental Affairs

U.S. Fish and Wildlife Service

Bureau of Land Management

Environmental Protection Agency

Washington Office

Denver Office-Region VIII

Montana State Office

American Indian Tribes

Blackfeet Tribe

Confederated Salish & Kootenai Tribes

Nez Perce Tribe

Shoshone-Bannock Tribe

Montana State Government

Max Baucus US Senate

Jon Tester US Senate

Denny Rehberg, US Representative

Governor's Clearing House

Montana Department Environmental Quality

Montana Department of Natural Resources

Montana Fish, Wildlife, and Parks

Idaho State Government

Mike Simpson, US Representative
Senator Bart M. Davis, State Senator
Lenore Hardy-Barrett, State Senator
Joan E Wood, State Representative

Universities

The University of Montana
The University of Montana Western
Montana State University

County Governments

Anaconda-Deerlodge County Commission
Beaverhead County Commission
Butte-Silverbow County Commission
Granite County Commission
Jefferson County Commission
Madison County Commission
Powell County Commission

Cooperating Agencies

USDI Bureau of Land Management
Beaverhead and Madison Counties
Montana Fish, Wildlife, and Parks

Libraries

Anaconda Public Library
Butte Public Library
Dillon Public Library
Drummond Public Library
Ennis Public Library
Sheridan Public Library
Twin Bridges Public Library
Whitehall Public Library

Individuals, Businesses and Organizations

Over 1472 interested or affected individuals, businesses and organizations received a notice regarding the Final Environmental Impact Statement and Proposed Forest Plan availability.

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CHAPTER FIVE

PUBLIC CONCERN SUMMARY

The following is a list of summarized of public comments received by the US Department of Agriculture, Forest Service, regarding revision of Land and Resource Management Plans for the Beaverhead and Deerlodge National Forests into a single new Plan. The Draft Environmental Impact Statement and Draft Forest plan were published for public review in May of 2005 with a 90 day comment period that was extended one more month until October 31, 2005. The Forest Service received 9,507 responses; of which 8,129 were form letters or petitions and 1,378 were original responses. The responses were received via email, fax, and mail delivery. They were analyzed using a process called content analysis, which is described in the Content Analysis Process section.

Content Analysis Process

Content analysis is a method commonly used by specialists to gather information regarding various types of messages. The method used for this project was based on the Content Analysis Team analysis process for analyzing public comment on federal rules, policies, plans, or actions. It is a systematic process designed to provide a list of respondents, and categorize specific comments by topic. It allows us to evaluate similar comments from different people and summarize like comments in specific public concern statements. It also provides a relational database capable of reporting various types of information while linking comments to original letters.

Through the content analysis process, analysts strive to identify all relevant issues, even those expressed by just one comment. It is the breadth, depth, and rationale of each comment they look for, not the volume. In addition to capturing relevant factual input, analysts try to capture the relative emotion and strength of public sentiment behind particular comments in order to represent the public's viewpoints and concerns as fairly as possible. Resource specialists read the database and wrote the summary of concern statements from the database. Those statements are organized by major topic area to facilitate systematic review and response by decision makers.

Although the summary attempts to capture the full range of public issues and concerns, readers should know respondents are self-selected; therefore, their comments do not necessarily represent the sentiments of the general public as a whole. The concern list does however attempt to provide a complete and fair representation of the wide range of views submitted. In considering these views, it is important for readers and decision makers to understand this process makes no attempt to treat input as if it were a vote. Instead, the content analysis process ensures that every comment is considered at some point in the decision process.

Project Background

Management plans for the Beaverhead and Deerlodge National Forests are over 19 years old. Revision brings both plans up to date in one management plan for the combined 3.38 million-acre Beaverhead-Deerlodge National Forest.

Since January 2002, the planning team attended well over 140 meetings with interested groups and public officials. The meetings helped produce five alternative forest management strategies released in May 2005 in the Draft Environmental Impact Statement. The preferred alternative was fleshed out as a Draft Plan. This summary reflects the comments received on the Draft EIS and Plan which are incorporated in the final Plan and EIS.

Several months after the analysis was finished a proposal came from a coalition of 4 logging companies, Smurfit-Stone Container, the Montana Wilderness Association, National Wildlife Foundation, and Trout Unlimited. The proposal was incomplete, additional data requested was not provided and there was no support from motorized recreation groups or the Beaverhead and Madison County Commissioners. The Regional Forester directed the proposal considered but not analyzed in detail.

A surge of email and letters protesting the exclusion of mountain bikes in recommended wilderness in response to the large amount of recommended wilderness in the partnership proposal also came long after the comment period closed. Those concerns are already contained in similar sentiments expressed by mountain bike enthusiasts who wrote during the comment period.

SUMMARY OF PUBLIC CONCERNS

Aquatic Resources

Amphibians/Reptiles

AQ-1. The FEIS should consider the value of upland habitat and risk of habitat fragmentation for boreal toads.

The FEIS considers potential management effects on boreal toads from impacts on upland habitats in the effects analyses for amphibians in Chapter 3, Aquatic Resource Management, Amphibians and Aquatic Species Management.

AQ-2. The FEIS should acknowledge there are no reptiles in the plan area in danger of extirpation.

The Regional Forester has not listed any reptiles as sensitive species on the BDNF. Sensitive species are those we are most concerned about maintaining viability.

AQ-3. The FEIS spends too much time on frogs and toads; instead of timber, water and range.

Based on appeals and legal challenges we've recently had, and public comments received during this planning process, we believe, the revised Plan gives an appropriate level of attention to frogs and toads.

Objectives

AQ-4. The FEIS should define what is meant by "maintenance of metapopulations" under Riparian Habitat Objectives.

“Metapopulations” are defined in the glossary to the FEIS. “Maintenance of metapopulations” requires us to maintain connected habitats and the populations exhibiting migratory life histories.

AQ-5. The FEIS should evaluated management scenarios to see if meeting aquatic strategy objectives and standards is feasible?

Determination of whether aquatic strategy objectives and standards are feasible is an important part of the planning process. We have done this through discussions during the ID Team process, and with BDNF and Regional FS decision makers. However, evaluation of scenarios to see if they work within the FEIS is not appropriate.

AQ-6. The revised Forest Plan should not have an "objective" to establish riparian mgmt objectives."

At first look, this does seem inappropriate. The Revised Plan establishes a set of Riparian Management Objectives to be applied to all streams East and West of the continental divide, Chapter 3, Aquatic Resource Management, Objectives, page 18. This is an interim step until new objectives are developed through watershed or other site-specific analysis. While they are appropriate for many of our streams, we recognize there are situations where not all of them would be attained even in relatively undisturbed areas. For this reason, the plan encourages development of site-specific objectives where ever they would be more appropriate.

AQ-7. The revised Forest Plan should provide performance standards for aquatic habitats and fish pops; otherwise there is no yardstick for assessing progress.

Montana Fish, Wildlife and Parks is responsible for managing fish populations. It would be inappropriate for the BDNF to establish population objectives as performance standards in the Revised Plan. We are responsible for the condition of aquatic habitats on the BDNF.

AQ-8. The revised Forest Plan should retain the timetable to evaluate all ongoing activities in fish key watersheds by 2009.

The revised Plan retains a timetable for evaluating all ongoing activities in Fish key watersheds, but it has been modified to say “within 3 years” instead of “2009” to compensate for delays in finalizing the Plan. It has also been changed from an objective to Standard 28. .

AQ-9. The revised Forest Plan should base Riparian Management Objectives on actual stream morphologies, rather than Rosgen’s methodology.

The riparian management objectives (RMOs) were derived from data collected in streams with relatively low impacts from management. Rosgen's stream classification was used to categorize the RMOs so they are applied appropriately to streams that should exhibit similar physical tendencies.

AQ-10. The revised Forest Plan should reduce the number of aquatic strategy objectives and standards in a better layout.

We believe the number of aquatic strategy goals, objectives and standards in the Plan are appropriate. The layout was simplified between the Draft and Final.

Standards

AQ-11. The revised Forest Plan should retain aquatic direction described in Alternatives 3 and 5.

The Plan, which implements Alternative 6, essentially retains the aquatic direction from Alternative 5. Some adjustments were made in wording and the layout. In some cases standards became objectives or objectives became standard. The modifications help clarify the intent of INFISH, facilitate consistency in its application, reduce conflicts with recent policy and regulation decisions, and customize resource management objectives to improve its applicability to stream systems east of the continental divide.

AQ-12. The revised Forest Plan should provide a meaningful definition for measurable impacts in key watersheds.

This comment relates to Standard 9 in the Draft 2005 Plan is now Standard 8. Site-specific analysis will determine and define measurable effects.

AQ-13. The revised Forest Plan should make INFISH standards the minimum level of protection.

INFISH protection measures have been incorporated into the Forest Plan, applying in their entirety to the west side and to the east side with some modifications. A cross reference has been provided with the INFISH numbering system so the reader can track these measures.

AQ-14. The revised Forest Plan should strengthen standards to prevent effects to native species or TES.

This Plan substantially strengthens standards and should minimize effects to native species and TES. See the FEIS, Aquatic Resources, Direct and Indirect effects comparison of Alternative 6 to the current Plan, Alternative 1.

AQ-15. The FEIS should not direct the use of planned restoration as a substitute for preventing habitat degradation.

We believe Standard 9, Aquatic Resources, in the Plan addresses this concern. It requires “restoration projects should correct existing problems, not mitigate effects created by proposed activities”.

AQ-16. The revised Forest Plan should allow management action to cause habitat degradation as long as planned restoration offsets the impacts.

Restoration projects are intended to correct existing problems, not mitigate effects created by proposed activities, see Standard 9, Aquatic Resources, in the Plan. Standard 8, however, does clarify that short term negative effects are acceptable if outweighed by long term benefits.

AQ-17. The revised Forest Plan should prohibit hydroelectric facilities in RCAs containing TES, grayling or WCT.

Legislation directing the establishment of hydroelectric facilities does not allow us to do this. Standard 13, Aquatic Resources establishes limits on these facilities to minimize impacts.

AQ-18. The revised Forest Plan should retain direction for leasable mineral provided in the Draft.

We assume this comment is directed at Oil and Gas. The Plan implementing Alternative 6 essentially retains and refines the basic direction (stipulations) for oil and gas presented for Alternative 5 in the 2005 Draft Plan, see Appendix B. Also see the Plan, Aquatic Resources, Standards 17-20. The format of the Aquatic Resources section changed between Draft and Final.

AQ-19. The revised Forest Plan should prohibit sand and gravel mining in any RCA bordering a stream occupied by WCT bull trout grayling or other aquatic sensitive species.

Standard 20, Aquatic Resources, prohibits sand and gravel mining in all RCAs.

AQ-20. The revised Forest Plan should provide clearer and more stringent direction to prevent sediment delivery to streams from roads.

The Plan includes two goals, two objectives, and two standards providing specific direction for road design, construction and maintenance in as they affect streams and fish. This direction applies forestwide and is much stronger than direction in the current Plans (Alternative 1). See the FEIS, Effects to Watersheds and Riparian Areas.

AQ-21. The revised Forest Plan should not require installation of 100-year corrugated steel pipe. This may reduce incentive for new roads and conflict with desired conditions for WUI, timber harvest, community economics, fish passage, and uncrowded recreation.

The Plan states this as a Goal for improving stream crossings, not a standard.

AQ-22. The revised Forest Plan should prohibit road and landing locations in RCAs.

The Plan, Aquatic Standard 22 requires watershed analysis prior to constructing roads or landings in RCAs within key watersheds. Standard 1 adds force to Standard 22 by require activities in RCAs to enhance, restore or maintain stream function with explicit instructions.

Livestock

AQ-23. The revised Forest Plan should clearly specify how the status of grazing standard compliance will be measured and the interval at which those evaluations will be carried out.

Allotment compliance standards will be measured on a project by project (AMP by AMP) basis. This is based on compliance with annual operating plans. Section 1 of the Beaverhead-Deerlodge Supplement No. 2209.13-98-1 to the Grazing permit Administration Handbook Title 2209.13, guides the action that is to be taken when livestock grazing is out of compliance.

AQ-24. The FEIS should consider the effects of livestock grazing on watershed condition.

The FEIS addresses effects of livestock grazing on watershed condition in Chapter 3, Aquatic Resource Management, Effects on Watersheds and Riparian Areas from Livestock Grazing and Effects on Aquatic Species from Livestock Grazing.

AQ-25. The revised Forest Plan should require habitat and riparian standards be met or grazing in riparian areas will be eliminated.

Section 1 of the Beaverhead-Deerlodge Supplement No. 2209.13-98-1 to the Grazing permit Administration Handbook Title 2209.13, guides the action that is to be taken when livestock grazing is out of compliance.

AQ-26. The revised Forest Plan should close Municipal Watersheds to Livestock Grazing for sanitation purposes.

Water from municipal watersheds that is used by the public must meet stringent water quality requirements. Standard 4 provides for that protection. If livestock are not currently threatening attainment of those requirements, then there is no basis for doing this.

AQ-27. The FEIS should consider the impact of all animals, not just cows, in riparian areas.

Riparian condition reflects the results of all activities, including wildlife browsing. The BDNF does not have the authority to manage wildlife. However, recognize the concern and the Plan includes a goal “Ungulate Impacts” to address the impact of wild ungulates in addition to permitted livestock impacts.

AQ-28. The revised Forest Plan should not allow grazing without updated Allotment Management Plans to continue without change where watersheds are in poor condition.

The forest is operating under a schedule to revise and update allotment management plans that is not driven by the forest plan. The Plan, however, does prescribe interim grazing standards that apply to livestock grazing operations unless or until specific long-term objectives, prescriptions, or allowable use levels have been designed through individual allotment management plans.

AQ-29. The revised Forest Plan should require reduction of impacts from livestock grazing on streamside areas w/in 5 years.

The standards for livestock grazing in the revised Plan apply to all allotments that are not under an Allotment Management Plan. They will go into effect when the Plan is final. Where existing management direction is more lenient, a reduction in livestock impacts should occur immediately.

AQ-30. The revised Forest Plan should require written approval from resource advisors for locating incident bases in riparian areas.

Standard 10, Aquatics Resources, addresses location of incident bases and other fire activities within RCAs. This standard specifies approval and direction by a line officer based on review and recommendation by a resource advisor.

AQ-31. The revised Forest Plan should require monitoring of water quality and aquatic resources as soon as possible after delivery of chemical retardant, with considerations for safety.

We have included this in the Plan, Standard 11 under Aquatic Resources.

AQ-32. The revised Forest Plan should not include standard GM-1a. It allows eminent and widespread permit suspensions.

Standard GM-1a as proposed in the Draft Plan has been dropped. Standard 14 replaces it. The statement requiring suspension of grazing permits was dropped from that standard. Standard 7, however, does require permit action for non-compliance in Fish Key Watersheds.

AQ-33. The revised Forest Plan should include suspension of grazing on the east side of the Continental Divide if objectives are not met on - as it is included for the west side.

Standard GM-1a as proposed in the Draft Plan has been dropped. Standard 14 replaces it. The statement requiring suspension of grazing permits was dropped from that standard but it is now applied to both the east and west side. It is our intent to attain objectives within the life of the Plan.

AQ-34. The revised Forest Plan should require modification of or eliminate grazing practices in known and suspected TES fish and spawning areas to reduce trampling of redds.

This is required by the USFWS in the Biological Opinion for grazing allotments on the Forest where trampling of redds is likely to cause adverse effects on bull trout. Standard 16 provides similar protections for WCT. This is not considered to be a significant concern for grayling on the Forest. A “Spawning Area” objective in Aquatic Resources applies the GM-4 protection from INFISH.

AQ-35. The revised Forest Plan should specify the time frame in which corrective action would be taken on grazing allotments, should they be out of compliance.

There is direction for this in Section 1 of the Beaverhead-Deerlodge Supplement No. 2209.13-98-1 to the Grazing permit Administration Handbook Title 2209.13.

AQ-36. The revised Forest Plan should provide clear direction for replacing natural barriers to livestock movement removed by fire or timber harvest.

Post fire analysis or project NEPA (Timber) will show the risks to aquatic resources from livestock and proposed appropriate alternatives for resolving any issues in compliance with the forest plan.

Restoration Key Watersheds

AQ-37. The FEIS should explain how key restoration watersheds were defined.

The FEIS describes watershed condition and aquatic restoration priorities in Chapter 3, Aquatic Resource Management, at the end of the Affected Environment Chapter. The actual ranking process is located in the project file but described here in general terms.

The selection of key restoration watersheds was based on a ranking process developed by Forest specialists with peer review in the Regional Office. The process was designed as an unbiased, repeatable, and risk-based way to rank watersheds based on primary anthropogenic (human caused) factors that influence watershed condition. Specialists identified those anthropogenic activities most likely to negatively influence watershed condition or reflect watershed concerns (e.g., 303(d) reaches) and determined how they link together to create an additive influence on the water resource.

The actual ranking is based on the sum of quartile rank values for the individual activities analyses by watershed. Once an activity is analyzed in relation to other HUC's at the forest scale, the results are divided into quartiles, to give an indication an idea of the relative importance across the Forest continuum. The potential effects for all anthropogenic activities will be analyzed by cumulating the percentile ranking for each of the identified anthropogenic activities. For every analysis, each of the 6th HUC intersecting the National Forest were assigned an ordinal value of 0, 1, 2, 3, or 4.

Once all watersheds have been evaluated and ranked for all evaluation criteria, a cumulative score is assigned to that watershed. The cumulative score for all watersheds at the forest-scale are again divided into quartiles with the highest scores being assigned to those watersheds with the highest risk of degraded watershed conditions.

The watersheds selected for further analysis and called key restoration watersheds were selected from this ranked list.

AQ-38. The revised Forest Plan should protect the forest's waters and restore impaired watersheds.

The BDNF draft forest plan recognizes that the forest contains some of the most important headwater streams and aquatic habitat in Montana. Therefore, the draft forest plan emphasizes the importance of watersheds as a key management unit.

- State of the art Forest Plan guidelines that maintain high quality aquatic ecosystems
- BDNF Forestwide Aquatic Conservation Strategy that provides a consistent and integrated strategy for the protection of streams and riparian areas
- Restoration strategy to improve water quality and watershed condition

Key restoration watersheds were established to identify and prioritize actions for fish conservation and to restore water quality, riparian functions, and watershed conditions to fully support beneficial uses.

In terms of impaired waters, the draft forest plan states, "Where waters are listed as impaired and TMDLs and Water Quality Restoration Plans are not yet established, ensure management actions do not further degrade waters, but promote water quality restoration to support beneficial uses." Draft Forest Plan page 11.

AQ-39. The revised Forest Plan should make the Boulder River landscape a restoration priority.

The concept of restoration watersheds is built around the prioritization, assessment, and treatment of 6th code watersheds. 6th code watersheds are small enough that cumulative impacts can be adequately identified and addressed within a limited amount of time. The Boulder River landscape is comprised of many 6th code watersheds. Therefore, it would be impractical to identify all 6th code watersheds located within the Boulder River watershed as having a restoration priority. The draft forest plan uses a scientific and unbiased approach to identify watersheds with the highest need for restoration and from that list watersheds with the highest probability for successful restoration have been selected for assessment and treatment during this planning period. Within the Boulder River landscape the 3 watersheds have been selected for assessment and treatment during the life of this forest plan.

AQ-40. The revised Forest Plan should select Alternative 3 because it provides more opportunities for watershed restoration.

Thank you. Other public comments we've received have showed preference for different alternatives. The Record of Decision will document the rationale for selecting the preferred alternative.

AQ-41. The FEIS should consider degraded conditions on private lands in the analysis of alternatives.

Conditions on private lands are considered as part of site-specific NEPA analyses for project implementation. Land managers are expected to address how past, proposed, and likely future activities (on both Federal and private lands) will cumulative impact natural resources. The principles of cumulative effects analysis include past, present, and future actions; and all federal, non-federal, and private actions; focus on ecosystem function; and identify truly meaningful effects in the analysis of alternatives.

AQ-42. The FEIS should consider the natural role of fire in creating and maintaining watersheds.

The FEIS refers to the natural role of fire at several places in the Affected Environment discussion in Chapter 3, Aquatic Resource Management.

AQ-43. The FEIS should address sediment in streams caused by long term fire suppression. Suppression allows conifer encroachment, reducing shrubs and grasses on open hillslopes which results in significantly more soil movement and sedimentation than roads.

The FEIS, Chapter 3, Aquatic Resource Management addresses conifers and water outputs. We have not seen data that supports conifer encroachment generating more soil movement and sediment than roads.

Streams

AQ-44. The Forest Service should use peer reviewed stream data to define stream standards.

The data used to define the forest riparian management objectives (RMO's) came from geomorphic data collected on nearly 200 reference reaches on the Beaverhead-Deerlodge National Forest and from streams in the greater Yellowstone ecosystem. The data has been presented in peer reviewed documents, symposia posters, and internal working documents by Pete Bengeyfield (Forest hydrologist, retired) over the last several years. The forest believes that the RMO's presented in the draft forest plan result from the use of the best science available to us to determine the desired physical condition of streams across the forest.

AQ-45. The FEIS should assume that more streams are impaired than those listed on the State 303(d) list.

The draft forest plan is designed to protect or restore all streams whether they are listed on the state 303(d) list or not. As new streams are added to the state 303(d) list, the forest will work closely with the Department of Environmental Quality to address any specific concerns on

National Forest System lands to ensure that water quality standards are met and beneficial uses are fully protected

AQ-46. The FEIS should compare the impacts of fire versus timber harvest on stream conditions.

The FEIS describes the effects of fire and timber management in general under the Aquatic Resources Affected Environment section “Human Influences on Aquatic Systems” and by alternative under Environmental Effects, “Effects on Watersheds and Riparian Areas from Vegetation and Timber Management” and “Effects on Watersheds and Riparian Areas from Fire Management”..

AQ-47. The FEIS should use direct measurements of watershed condition rather than the Rosgen stream classification system.

The draft forest plan uses both direct measurements and the Rosgen classification system to define the riparian management objectives (draft forest plan pages 18 and 19). The Rosgen classification is an effective and well recognized technique with which to organize streams into functional groups. Streams in each functional group have a range of morphological characteristics that allow us to: predict a rivers behavior by its appearance; develop hydraulic and sediment relations; extrapolate data from one stream to another; and to consistently apply this information across the landscape. Streams within a functional group have been shown to respond similarly to stressors such as mechanical disturbance and sediment thereby making it a useful tool in the management and prediction of response to management activities.

AQ-48. The revised Forest Plan should ensure that management does not further impair streams on the 303(d) list.

Baseline stream conditions are described in the draft analysis of the management situation (AMS).

AQ-49. The FEIS should disclose the baseline stream conditions.

On page 15 and 18, under the heading of “Total Maximum Daily Loads”, the draft forest plan specifically addresses how the forest intends to manage streams on the state 303(d) list.

AQ-50. The FEIS should consider the effects of recreation on watershed condition.

The FEIS does this under “Effects on Watersheds and Riparian Areas from Recreation and Travel Management.

AQ-51. The FEIS should have a “full watershed priority alternative”.

Alternative 3 is considered to be the closest to a full watershed priority alternative evaluated in the draft forest plan. Alternative 3 would result in the greatest amount of watershed protection and restoration; highest level of fisheries and wildlife conservation and protection; increased limitations on motorized uses and reductions in road density to protect resources; and increased protection for more pristine areas with unique resource values.

Fish Conservation Key Watersheds

AQ-52. The revised Forest Plan should carry forward the fish key watershed concept and protection for native species.

We have done that, see Plan, Chapter 3, Aquatic Resource Management.

AQ-53. The FEIS should acknowledge the value undeveloped areas have for spawning habitat and nationally important fisheries.

The FEIS acknowledges the benefit to fisheries of wilderness recommendations and undeveloped areas for recreation in Chapter 3, Aquatic Resource Management, Effects on Aquatic Species from IRAs and NWPS Additions and Effects on Aquatic Species from Recreation and Travel.

AQ-54. The Forest Service should apply the principles of conservation biology to identify and protect aquatic strongholds.

This has been done through a series of fish Key watersheds; see FEIS, Chapter 3, Aquatic Resource Management, “Effects on Aquatic Species from Aquatic Management”.

AQ-55. The revised Forest Plan should include direction to restore all 135 watersheds to the quality of fisheries they once were.

The number of key restoration watersheds selected for Alternative 6 is based on the number we felt was realistic to accomplish and fund. There is nothing in the Plan that prevents us from doing restoration work in more watersheds if funds become available.

AQ-56. The revised Forest Plan should add Fishtrap/Mt Haggin and LaMarche, Harvey Creek as fish key watersheds.

Criteria to evaluate sub-watersheds were established so the strength and importance of WCT and bull trout populations could be determined. A set of fish key watersheds were identified which provides an adequate distribution of the stronger populations across the Forest. Sub-watersheds not included either did not meet certain criteria; or they did not provide the distribution we were looking for.

AQ-57. The revised Forest Plan should include Forest add Elk River, Wigwam Creek and Tepee Creek as restoration key watersheds.

Criteria to evaluate restoration sub-watersheds were established and a screening process was used to determine key watersheds. Sub-watersheds not included, varied by alternative. Alternative 3 included this list. The effects of Alternative 3 are compared to alternatives not including these watersheds in the FEIS, Chapter 3, Aquatic Resource Management.

AQ-58. The revised Forest Plan should include key watersheds for the Centennial portion of the Gravelly Range.

Alternative 3 included designation of 5 watersheds on the Centennial side of the Gravelly Range as key restoration watersheds. Alternative 5 included 1 watershed. The FEIS compares the effects of these alternatives to the preferred alternative (6) in Chapter 3, Aquatic Resource Management. The strongest populations of WCT in this area occur on BLM lands. We believe those populations are probably the highest conservation priority for WCT in the Centennial drainage.

AQ-59. The revised Forest Plan should extend key watershed protection to areas of suspected TES fish species.

The Plan expands INFISH protections designed for bull trout to the entire Forest; see FEIS, Aquatic Resource Management, Direct and Indirect Effects, “Conservation of TES Fish. Aquatic standards in the revised plan broaden protections for all aquatic resources, including suspected TES fish species, over the previous Forest Plans.

AQ-60. The revised Forest Plan should ensure the resulting network of watersheds expand and reconnect healthier aquatic habitats.

The Revised Plan is designed to promote properly functioning streams and riparian areas. It also allows for connecting habitats where ever this is desirable (in and outside of key watersheds). Connecting habitats may not be desirable where it might result in non-native competition and the possibility of hybridization

Native Species

AQ-61. The FEIS should address viability of desired non-native fish in the planning area.

This has been done in Chapter 3 under the Effects to Aquatic Resource Management section.

AQ-62. The revised Forest Plan should adopt measurable goals for restoring pops of native fish.

The restoration of native fish populations is the responsibility of MFWP. Goals and objectives for restoration are laid out in Conservation/restoration plans that are the responsibility of the State. The BDNF has been a partner in the development and implementation of Plans for WCT and Grayling. We have tried to ensure this Forest Plan is complementary to existing and potential future elements that would be present in any restoration plan for aquatic species.

AQ-63. The DEIS did not adequately disclose and discuss that grayling are largely extirpated within their remaining range in the Big Hole area.

This is now noted in the FEIS, Chapter 3, Aquatic Resource Management, Affected Environment. Chapter 2, Elements Common to all Alternatives describes how grayling are addressed.

AQ-64. The revised Forest Plan should provide the same protection for fluvial arctic grayling as Threatened, Endangered, Sensitive and other native fish.

Chapter 2 of the FEIS, Elements Common to All Action Alternatives describes how grayling are treated in this analysis. Except for grayling in the upper Ruby River, fluvial grayling populations within the analysis area are mostly downstream of the Forest boundary. In those areas, the greatest benefit that can be provided by the BDNF is to ensure Forest streams are properly functioning so the quality of water provided downstream encourages conservation, see FEIS, Chapter 3, Aquatic Resource Management. We believe the direction in the Plan is consistent with this. The Plan provides the same direction for grayling on the Forest as it does for WCT conservation populations outside of fish key watersheds.

AQ-65. The revised Forest Plan should include a grazing management standard specifically to protect arctic grayling.

Grayling are treated as a sensitive species with objectives and standards to meet their habitat requirements as part of all alternatives, see Chapter 2, Elements Common to All Alternatives.

We believe the grazing standards in the Plan, are adequate to protect grayling and other fisheries across the Forest.

AQ-66. The revised Forest Plan should provide fish key watershed for fluvial arctic grayling.

The rationale for not doing this is summarized in Chapter 2 of the FEIS, Elements Common to All Alternatives, "Arctic Grayling". The primary difference between grayling and WCT and bull trout is that preferred habitat for grayling is most often in larger streams and rivers that are below our Forest boundary. One exception to this is the upper Ruby River, where grayling have been introduced in an effort to expand their distribution. If fish key watersheds were established for fluvial grayling it would most appropriately be there. There are complications, however, with establishing key watersheds for a species that primarily occupies the main river, but not its tributary streams. They are two-fold. First, grayling primarily occupy the mainstem Ruby River. Fish key watersheds in the Revised Plan are assigned on a "sub-watershed" (6th HUC) scale. The sub-watersheds in the upper Ruby are essentially the drainages of tributaries to the main River. To add protections for grayling in the Ruby River by assigning key watersheds, drainages of all tributary streams above Vigilante Guard Station would have to be included. As such, restrictions in management would apply to many streams that grayling don't inhabit. Second, Restoration efforts in the Ruby have been ongoing since for several years. While there are some positive signs regarding their reintroduction, results have been inconclusive enough that it is uncertain grayling can be successfully established there. The protections provided in the goals, objectives and standards which apply to the Ruby River are the same as those for WCT streams outside of fish Key watersheds. We believe they provide adequate protection and are compatible with restoration objectives FWP has for grayling in the upper Ruby.

AQ-67. The revised Forest Plan should consider grayling populations in Lower Bobcat, Schweinegar, and Odell Lakes or in Odell and Wyman Creeks and Wise River.

Chapter 2 of the FEIS, Elements Common to All Action Alternatives describes how grayling are treated in this analysis. The Plan considers these and all other fish populations by establishing a comprehensive set of goals, objectives and standards that will be applied across the Forest. We believe they will adequately protect the grayling populations you describe.

AQ-68. The revised Forest Plan should include measurable goals for restoring native fish pops including plans to connect pops through habitat restoration.

Restoring native fish populations not listed under the Endangered Species Act is the responsibility of MFWP. Restoration responsibilities for listed species are with the US Fish and Wildlife Service. Likewise, the development of restoration plans (which are the appropriate documents to establish restoration goals), are the responsibility of those agencies. The BDNF has provided input in the development of restoration plans and has been a partner in helping implement Restoration/Conservation Plans for different species. We believe the Revised Plan is complementary to existing and future elements that would be present in restoration plans for aquatic species. The Plan addresses habitat restoration through Restoration Key Watershed allocations.

AQ-69. The revised Forest Plan should prohibit off road vehicles in watersheds with native fish.

The Plan prohibits cross country travel by OHVs in ALL watersheds, implementing the Tri-State OHV Decision, Chapter 3, Recreation and Travel Management, Standard 3. We believe these restrictions along with decisions made in this plan strike an appropriate balance in protecting fisheries resources and allowing motorized recreational use.

AQ-70. The revised Forest Plan should remove the "inland" from "Inland Native Fish."

We have done this except as it refers to the "Inland Native Fish Strategy".

AQ-71. The revised Forest Plan should provide direction for Yellowstone cutthroat trout.

Because Yellowstone cutthroat is not a native species on the BDNF (it is native to the Yellowstone River Drainage) it is not mentioned specifically. However, management effects on this cutthroat and other species like brook, rainbow and brown trout are described in the FEIS, Chapter 3, Aquatic Resource Management, as a "change in the quality and/or quantity of fisheries resources". Management direction in the revised Plan is provided through the goals, objectives and standards that will be applied to all aquatic systems.

AQ-72. The revised Forest Plan should ensure the genetic integrity of all native species is retained in key watershed networks.

Under Standard #8 in the Plan requires that new management actions in Fish Key watersheds will have a beneficial or no measurable negative effect on WCT or bull trout. As such, the project level NEPA will have to consider effects that may threaten the genetic integrity of those populations.

AQ-73. The FEIS should explain the scientific basis for selecting the mayfly as an MIS to represent other aquatic species, such as native fish.

The most widespread impact to aquatic resources and the biological communities across the forest are related to sediment introduction from management actions. *Drunella dodsii* is a species that is widespread and occurs at elevations that are generally consistent with the forest boundary and are sensitive to sediment introductions. We believe it is the most appropriate species to indicate impacts from most of our land management activities. Many other aquatic species, like westslope cutthroat trout and bull trout experience impacts from other current or past management activities not directed by the national forest (like non-native species introductions, disease, and angling). These impacts cannot be separated from our actions to determine the extent of our effects on those species.

TES

AQ-74. The revised Forest Plan should apply the fish key watersheds direction, "new projects should have beneficial or no effect on WCT and/or bull trout," to all WCT and bull trout streams.

A fundamental purpose for establishing fish key watersheds on the BDNF is to help ensure we maintain WCT and bull trout viability across the Forest. The fish key watersheds represent a Forestwide distribution of our strongest WCT and bull trout populations. The remaining populations are also important and we believe the goals, objectives and other standards provide adequate protections. We think applying this direction to WCT and bull trout streams outside fish key watersheds is unnecessarily restrictive.

AQ-75. The FEIS should add *Margaritifera falcata* to named species of concern.

The term "species of concern" is used by the State of Montana. "Sensitive species" is a designation used by the Forest Service. We are not able to designate species for the sensitive species list through this Forest Plan revision process. Review of species for addition to; or deletion from the sensitive species list, is done periodically, and designation is done by the Regional Forester.

AQ-76. The revised Forest Plan should extend protections provided for 90% pure WCT to bull trout, grayling and *Margaritifera falcata*.

We believe the Plan provides appropriate protections for bull trout, grayling and *M. falcata* because INFISH protections have been broadened to include the whole Forest, see Plan Objectives and Standards for Aquatic Resources.

AQ-77. The FEIS should consider effects of activities on the forest as they relate to effects off forest on *Margaritifera falcata*, westslope cutthroat trout, grayling and bull trout.

The effects management on the Forest will have on resources off the Forest are in the Cumulative Effects portion of Chapter 3 of the EIS.

AQ-78. The revised Forest Plan should adopt measurable goals to restore populations of native fish; especially WCT and bull trout.

Restoring native fish populations not listed under the Endangered Species Act is the responsibility of MFWP. Restoration responsibilities for listed species are with the US Fish and Wildlife Service. Likewise, the development of restoration plans (which are the appropriate documents to establish restoration goals), are the responsibility of those agencies. The BDNF has provided input in the development of restoration plans and has been a partner in helping implement Restoration/Conservation Plans for different species. We have tried to ensure the Revised Plan is complementary to existing and future elements that would be present in any restoration plan for aquatic species.

AQ-79. The revised Forest Plan should require connection of isolated populations of WCT and bull trout through restoration that fixes damaged habitat.

The entire Aquatics Resource section of the Plan, through its Goals Objectives and Standards emphasizes the protection of aquatic habitats and improvement of damaged habitat, Chapter 3. However, habitat conditions on National Forest present a nominal impediment to connectivity compared to other issues that are outside our jurisdiction. The lack of connection for bull trout populations tend to be associated with water quality conditions and fish passage barriers downstream of National Forest lands. For westslope cutthroat trout, the presence of non-native species prevent connection of most populations.

AQ-80. The FEIS should disclose that WCT face an extremely high probability of extinction.

This is disclosed in chapter 3 of the draft and final EIS under the westslope cutthroat trout portion of the "Status, Distribution and Life History Requirements of Selected Fish Species" section where it states "Shepard et. al. (1998) assessed extinction risk for 144 known populations, on federally managed lands, east of the Continental Divide, using a 'customized'

Bayesian viability assessment procedure. Results indicated 90% of the populations were at a high, to very high risk of extinction over the next 100 years."

AQ-81. The revised Forest Plan should retain All INFISH standards and enhance them to protect TES watersheds by restoring clear, complex and connected nature of their habitat.

INFISH protections have been retained within the revised Forest Plan. The Plan implements these through its goals and objectives and standards. INFISH protections are identified in the document by their original INFISH numbering system; example would be **FM-1** for fire management protection #1. Additional protections such as key watersheds have also been applied.

AQ-82. The revised Forest Plan should prioritize restoration activities for WCT, bull trout and fluvial arctic grayling.

We believe, prioritization of restoration activities for WCT, bull trout and fluvial grayling should not be done in the plan because priorities change over time, or money available for restoration has certain limitations which may not fit exactly with what's been previously prioritized. Obviously, restoration which benefits these species is important, as is emphasized by Aquatic Goals and Objectives in the Plan.

AQ-83. The FEIS should consider bull trout and westslope cutthroat trout in the effects analysis of anything affecting the Sapphire Wilderness Study Area and Stony Mountain Inventoried Roadless Area.

Effects to inventoried roadless areas, including the Sapphire and Stony Mountain IRAs, included an analysis of ecological needs for wilderness based on the Region 1 Wilderness Needs Assessment. Bull trout and westslope cutthroat trout were both noted as species of interest for ecological protection and considered in the effects analysis in Appendix C.

General Fish Species

AQ-84. The revised Forest Plan should direct stocking of fish in all alpine lakes.

This is outside the authority of the BDNF. Montana Fish, Wildlife and Parks is responsible for stocking fish in mountain lakes.

AQ-85. The FEIS should consider anadromous fish in the North Fork of the Salmon River listed under ESA.

The NF of the Salmon River is outside the Analysis Area.

Fish Passage

AQ-86. The revised Forest Plan should ensure elimination of road crossings that block fish movement.

In the Revised Plan this is addressed by Standard #21 under Aquatic Resources. This standard directs elimination of road crossing barriers, where it is appropriate and allows us to do it in a time frame that is compatible with fluctuations in budget levels.

AQ-87. The revised Forest Plan should carry forward the objective to provide and maintain fish passage unless necessary to protect native species.

In the Revised Plan this is addressed by Standard #21 under Aquatic Resources.

AQ-88. The revised Forest Plan should not require culverts large enough to pass 100 yr flood event because it may create barriers to fish movement.

Maintaining fish passage and requiring culverts to pass 100 year flood events are not necessarily in conflict with each other. Biologists have begun using a fish passage model to determine specific characteristics of individual culverts and channels that promote successful passage for desired fish species. In problematic situations, characteristics of the natural channel may have to be simulated within the culvert.

AQ-89. The revised Forest Plan should require problems with trail stream crossings be fixed rather than closing motorized trails because of WCT.

No motorized trails were closed under Alternative 6 or in the associated plan as a result of concerns over crossings on WCT streams. The Plan, Chapter 4, Management Areas, includes objectives for some areas with a motorized emphasis to mitigate resource concerns from motorized use rather than close opportunities, example, South Fleecer.

Riparian Conservation Areas (RCA)

AQ-90. The revised Forest Plan should retain Inland Native Fish Habitat (INFISH) RCA buffers for all streams.

The revised Plan does this.

AQ-91. The FEIS should consider fish habitat; population characteristics and species present in the evaluation of riparian function.

Riparian function refers to the composition and health of riparian vegetation and how it promotes/restricts desired physical processes within the aquatic system it interacts with. Fish population characteristics and the species present in a stream can change substantially without regard for riparian function. Disease, non-native fish competition and over-angling can all impact populations independently of riparian vegetation or aquatic processes, see FEIS, Aquatic Resources, "Status, Distribution and Life History Requirements of Selected Fish Species.". For this reason, we think it appropriate to consider the biological elements in relation to (and not as part of) riparian function.

AQ-92. The revised Forest Plan should remove all language citing numeric standards targeting optimum channel conditions and use natural disturbance and recovery regimes to define desired fisheries habitat.

The numbers we used represent the best available science, local desired aquatic condition, or represent properly functioning condition.

AQ-93. The revised Forest Plan should ensure Management in RCAs doesn't compromise instream processes and function.

We believe, the objectives and standards in the Plan which implements Alternative 6 do this.

AQ-94. The revised Forest Plan should establish measurable objectives for aquatic species and riparian areas.

Because Montana Fish, Wildlife and Parks is responsible for managing fish and wildlife populations, establishing measurable objectives for aquatic species would not be appropriate in this Plan. We have tried to ensure this Forest Plan is complementary to existing and potential future elements that would be present in any restoration plan for aquatic species. Measurable objectives for riparian areas are included in the Plan, Chapter 3, Aquatic Resource Management, “Riparian Management Objectives”.

AQ-95. The revised Forest Plan should only allow restorative management in RCAs when conditions are below objectives.

This is required under Aquatic Resources Standard 1.

AQ-96. The revised Forest Plan should restore beaver habitat.

The revised forest plan encourages restoration activities. Restoration of beaver habitat would be identified at the site-specific project or watershed assessment level.

AQ-97. The revised Forest Plan should prohibit road construction, mining and logging in RCAs.

We believe the Revised Plan provides protections in RCAs which will achieve desired conditions without unduly restricting the availability of management opportunities the public expects. Eight different standards apply to these three activities; see Plan, Chapter 3, Aquatic Resource Management.

AQ-98. The revised Forest Plan should include all potentially unstable areas, wetlands and lakes which should be at least 300 feet, in RCAs. Any adjustment for smaller streams should be done based on Erman et al. 1996.

The buffer widths are consistent with INFISH, which has been broadly accepted as adequate.

AQ-99. The revised Forest Plan should support timber management in RCAs for watershed improvement, increased hardwood component, increase stream flows, and reduce risk of large scale fire.

The FEIS and revised forest plan allows for the treatment of vegetation in riparian areas as long as it is consistent with restoration of aquatic system, (see revised forest plan Forestwide Direction, Aquatic, Standard 1)

AQ-100. The revised Forest Plan should prevent management in riparian zones except for restoration from impacts of past mgmt.

The revised forest plan provides protection of riparian areas and limits activities which enhance, restore, or maintains biological characteristics of the RCA, (See revised forest plan, forestwide direction, aquatic standards).

AQ-101. The revised Forest Plan should protect riparian areas.

The draft forest plan implementing Alternative 6 goes to great lengths to protect and restore riparian ecosystems. For example, the Aquatic Strategy has 43 objectives and standards aimed

specifically at maintaining and restoring riparian ecosystems. These objectives and standards begin on page 15 of the draft forest plan and continue on to page 23.

AQ-102. The FEIS should address conifer encroachment in riparian area.

The FEIS and revised forest plan allows for the treatment of conifer encroachment into riparian areas as long as it is consistent with restoration of aquatic system, (see revised forest plan Forestwide Direction, Aquatic, Standard 1)

Upland Management

AQ-103. The revised Forest Plan should not allow management in uplands to degrade riparian or aquatic resources.

The establishment of RCA buffers was done with the intent that direct impacts to riparian areas and streams would not be significant; and also that there is adequate vegetation around streams to protect against impacts from actions in the uplands. NEPA for individual projects will require evaluation of risks to riparian areas from activities in the uplands; see Aquatic Resources, Standard 1.

AQ-104. The FEIS should recognize that conifer encroachment reduces stream flow and groundwater.

This has been done in Chapter 3 under the effects to aquatics section. The draft forest plan does not specifically address unnaturally high conifer cover in the uplands as it pertains to watershed condition. However, through a watershed analysis, any changes in stream conditions resulting from changes in vegetation condition will be identified and addressed.

AQ-105. The FEIS should address how unnaturally high conifer coverage in the uplands affects stream conditions.

The FEIS, Chapter 3, Aquatic Resource Management, addresses conifers and water outputs.

Watersheds

AQ-106. The FEIS should define how watershed condition is determined.

The FEIS describes how watershed condition is determined and how priority watersheds are selected in the FEIS, under “Watershed Conditions” and Aquatic Restoration Priorities” at the end of the Aquatic Resources Affected Environment section.

AQ-107. The revised Forest Plan should “prohibit” impacts instead of “avoid” them in the Aquatic Conservation Strategy.

Standards are designed to prohibit management actions, impacts can not be prohibited. The use of the term “avoid impacts” was used rather than “prohibit impacts” to allow for the rare case when impacts may be unavoidable. When significant impacts are likely, the forest will prepare an Environmental Impact Statement disclosing the impacts to the public stating what the impacts are likely to be and how long they could last. At that time, the public will have an opportunity to comment on the impacts and evaluate any alternatives.

AQ-108. The revised Forest Plan should include NSO or CSU stipulations for key watersheds.

The preferred alternative does have NSO stipulations in fish key watersheds.

AQ-109. The revised Forest Plan should not increase restrictions on management due to watershed conditions.

Water quality is a major environmental concern; see Draft AMS and Chapter 1 Revision Topics. Therefore, society has passed many laws intended to prevent water pollution and protect the quality of our waters. The Forest Service is expected to comply with all federal and state water quality laws while meeting the multiple use mandates of National Forest System lands. Land management activities such as logging, fire, and livestock grazing are possible sources of pollution, but through careful design and implementation the threat to water quality from these activities can be eliminated or dramatically reduced. The standards in the draft forest plan are intended to protect water quality and aquatic habitats on National Forest System lands while still permitting authorized uses of the National Forest. Alternative 6 strives to seek a balance in protection and production.

AQ-110. The FEIS should consider the effects of mining on watershed condition.

The FEIS describes the effects of mining on watershed condition under Aquatic Resources, Environmental Effects, Effects on Watersheds and Riparian Areas from Minerals and Oil and Gas.

AQ-111. The FEIS should consider the effects of roads and trails on watershed condition.

The FEIS addresses this under “Human Influences” in the Affected Environment for Aquatic Resources and in Environmental Effects, Effects on Watersheds and Riparian Areas from Recreation and Travel Management and Effects on Watersheds and Riparian Areas from Vegetation management. The draft plan specifically outlines how roads and trails should be managed in order to prevent or reduce their impact on watershed condition, Standards, Aquatic Resources.

AQ-112. The FEIS should use watershed analysis to make informed decisions regarding watershed condition.

Watershed analysis is a key component of the draft forest plan Aquatic Strategy. The draft forest plan defines Watershed Analysis as, “...a systematic procedure for characterizing watershed and ecological processes to meet specific management and social objectives. This information may then be used to:

- determine changes in Riparian Management Objectives,
- identify and prioritize restoration activities within the watershed,
- identify management activities that are consistent with the processes that create and maintain high quality aquatic habitats, and
- reveal the most useful indicators for monitoring environmental change.”

In brief, watershed analysis is a set of technically rigorous and defensible procedures designed to provide information on what processes are active within a watershed (6th code), how those processes are distributed in time and space, what the current upland and riparian conditions of the watershed are, and how all of these factors influence riparian habitat and other beneficial uses. The analysis is conducted by an interdisciplinary team.

AQ-113. The revised Forest Plan should reduce road density objectives to protect fish and water resources.

The draft forest plan addresses how roads interact with the stream and aquatic ecosystem in a functional manner rather than a procedural manner. For example, the effect of roads on the aquatic ecosystem is not merely a function of road density but is more dependent upon the spatial arrangement of roads within the watershed. A watershed with a high density of roads located away from the stream network is at less risk than a watershed with a low density of roads in close proximity to the stream network. Objectives and Standards for road management can be found in the draft forest plan Aquatic Strategy pages 16 through 18. Road density objectives are also presented in the Wildlife section.

AQ-114. The revised Forest Plan should provide a stringent aquatic strategy to insure protection for fish and water quality given the continuation of grazing on the BDNF.

We believe we have done this. We are implementing an INFISH approach to all aquatic systems; and have a "key watershed" complex that will provide for viability of TES fish; and restore degraded watersheds.

AQ-115. The BDNF revision team should coordinate with Lolo National Forest staff to ensure the primary management goal for Rock Creek watershed is protection of water quality and fisheries.

The Forest did coordinate with the Lolo NF during the Planning process. The ability to make management for Rock Creek completely consistent across Forest boundaries is difficult due to the fact they are under a newer set of Planning Regulations. Because many of the BDNF fish key watersheds occur in Rock Creek, see Plan, Map of Fisheries Key Watersheds, increased water quality and fisheries protection is present in more of that drainage than in others across the Forest.

AQ-116. The revised Forest Plan should protect municipal watersheds.

We felt the goal "Municipal Watersheds" and Standard 4 in the Plan protect municipal watersheds. Standard 4 states that streams with an A-closed or A-1 water quality designation shall be managed to meet state water quality standards and management should be consistent with applicable Source Water Protection Plans (Draft Forest Plan page 12).

AQ-117. The FEIS should state the goal of watershed management.

The goal of watershed management is stated on page 15 of the Plan, to "Maintain and restore watersheds to ensure water quality, timing, and yields necessary for healthy riparian, aquatic ecosystems, and wetlands."

AQ-118. The FEIS should specify how many total key watersheds there are and how many on each landscape in the alternative comparisons.

The number of key watersheds is listed by alternative in Chapter 2, the Table "Comparison of Design Criteria by Alternative."

AQ-119. The revised Forest Plan should provide a replacement campsite for every campsite closed due to aquatic effects.

This is a site-specific decision that will be made if or when campsites are closed.

Economics and Social Values

Analysis

EC-1. The FEIS needs to consider the economic impact of the plan on surrounding counties.

In the Economics and Social Values section of Chapter 3 in the FEIS, we analyze the impact of the Plan on employment and labor income within the 8 counties influenced by the BDNF. We addressed economic diversity and the dependency of these counties on federal lands, the effect on federal payments to county governments, and the effect to specific industries important to the counties (logging, grazing, oil and gas leasing, and recreation). In addition, we added an analysis of the economic effects to the Island Park region of Fremont County between the DEIS and FEIS.

EC-2. The FEIS must adequately evaluate the economic and social impacts of the proposed action (esp. wood products, grazing, and motorized recreation).

Comments to the DEIS identified an inadequacy in our analysis. The DEIS confined the economic impact analysis to counties in Montana so did not consider the economic and social impacts to the Island Park Region of Idaho. We have added that information to the FEIS, Chapter under both economic impacts and social impacts discussions. In addition, we beefed up our discussion of social impacts to motorized users from travel management decisions. We feel our analysis now adequately considers all of the impacts of the alternatives, particularly changing management of wood products, grazing, and motorized recreation.

EC-3. The Forest should complete an Economic Impact Statement before making a travel management decision of this magnitude.

We conducted an economic impact analysis (as described in Forest Service Handbook 1909.17, Chapter 20) to estimate the effects of a range of alternative travel management options. This impact analysis is documented in the Economics and Social Values section of Chapter 3 in the FEIS. A separate “Economic Impact Statement” is not required by NEPA or our planning regulations.

Environmental Justice

EC-4. The FEIS should consider the social impacts of motorized closures on motorized recreationists under the Environmental Justice Act and according to the FS own Social Impact Analysis process.

The FEIS describes the potential social impacts of alternative motorized closures on motorized recreationists in the Economic and Social Values section of Chapter 3, under “Effects to the Social Environment from Recreation and Travel Management” and under “Cumulative Effects – Recreation Lifestyles”. Our analysis of social impacts for the FEIS follows the guidance provided in Forest Service Handbook 1909.17, Chapter 30. Based on comments to the DEIS, we have added a discussion about the social impacts of closing Mt. Jefferson to snowmobiling (see also “Special Places” under Direct and Indirect Effects to the Social Environment) and improved our discussion of the social impacts of reduced motorized opportunities under “Effects from Recreation and Travel” and “Cumulative Effects”.

Executive Order 12898 is described in the FEIS, Chapter 3, Economics and Social Values, Environmental Justice. The Order spells out who is protected and for what types of federal decisions. Motorized users as a class do not fit within the definition of minorities or low income. However, the Order also addresses the fair and meaningful involvement of people of all races, cultures and incomes with respect to implementation of programs and policies. The FEIS addresses the meaningful involvement of all people affected by our decision, including motorized users, loggers and ranchers in the Effects section of Economic and Social Values, Environmental Justice.

Forest Service Budget

EC-5. The FEIS must include a realistic assessment of what staff resources and budget are needed to implement the Plan.

We assume that Forest Service budgets and employment will remain static over the planning period (FEIS, Ch.3, Economics and Social Values, Analysis Methods and Assumptions and Effects Common to All Alternatives). This constrains our prediction of outputs and expenditures under all alternatives. We feel this is as realistic an assessment as we are capable of making, not knowing how national priorities may change over the next decade.

Grazing

EC-6. The revised Forest Plan should emphasize livestock grazing because it contributes enormously to the local economy while recreation costs far out weigh the economic gain.

The FEIS considers the effects of a range of alternatives, all of which include grazing to different degrees. The economic analysis of these alternative displays the difference between alternatives as well as the difference between forest programs According to the IMPLAN analysis using 2003 census data, livestock grazing does not contribute as much to local economies as recreation. As the FEIS states under Effects to the Economic Environment from Livestock Grazing, “this is because ranching tends to be a lower wage and less intensive industry than either timber or recreation”. The decision maker (Regional Forester) will look at those effects and determine which alternative will form the basis of the Revised Forest Plan through the Record of Decision.

Island Park

EC-7. The FEIS needs to include an evaluation of the economic impacts to Island Park from closing Mt Jefferson to snowmobiling because Yellowstone Park closures have already affected the area.

We agree. An evaluation of the economic impacts to Island Park was added to Chapter 3, Economics and Social Values, Effects to the Economic Environment from Recreation and Travel.

EC-8. The FEIS needs to recognize that closing Mt Jefferson to snowmobiling would not result in lost revenue that translates into a reduced standard of living and stifled property values in surrounding areas.

An evaluation of the economic impacts to Island Park was added since the DEIS, see Chapter 3, Economics and Social Values, Effects to the Economic Environment from Recreation and Travel. We conclude from our analysis that there will be some small economic impact from

closing all of Mount Jefferson under Alternatives 2, 3, and 5 (estimated loss of one job and \$22,000 labor income).

EC-9. The FEIS should apply the same determination of economic impacts to Island Park, from snowmobile closures in Mt Jefferson as it did to impacts to Jackson from similar closures in the West Big Hole area.

An evaluation of the economic impacts to Island Park was added since the DEIS, see Chapter 3, Economics and Social Values, Effects to the Economic Environment from Recreation and Travel. This analysis is more detailed than the discussion of similar closures in the West Big Hole area.

EC-10. The FEIS economic analysis should revisit the economic analysis to see if restrictions on snowmobiles actually do impact local businesses that were viable before snowmobiling became popular and consider the vast area available for snowmobiling in the Island Park area.

An analysis of the economic impacts to Island Park was added since the DEIS, see Chapter 3, Economics and Social Values, Effects to the Economic Environment from Recreation and Travel. The evaluation takes into consideration the number of jobs available in Fremont County as well as other opportunities available for snowmobiling in the Island Park area.

EC-11. The FEIS should recognize the economic value of wilderness, inventoried roadless areas and undeveloped lands and their contribution to local economies.

The FEIS recognizes the value of protected lands in relation to the economy in the FEIS, Chapter 3, Affected Environment introduction to Economy and under Effects to the Economic Environment from Wilderness Recommendations.

Recreation

EC-12. The FEIS should take into account the future economy of Montana will increasingly depend on tourism and vast, diverse public lands.

The FEIS addresses this concern specifically in the Affected Environment for Economic and Social Values in the first four paragraphs under the heading “Economy”.

EC-13. The FEIS needs to provide protection and enhancement for fish and wildlife because of their importance to the changing cultural and economic future of SW Montana.

The FEIS considers the social and economic impacts of alternatives which provide a range of protection and enhancement for fish and wildlife. Alternative 3 provides the greatest protection. See discussions about Alternative 3 in Chapter 3, Economics and Social Values, under Effects from Wildlife Habitat Management and Effects from Aquatic Resource Management.

EC-14. The FEIS needs to use actual recreation use data to examine direct and cumulative social and economic impacts to individual motorized recreationists from loss of nearby opportunities.

The economic impact analysis in the FEIS utilizes actual recreation visitor use data collected in 2005 on the BDNF during the National Visitor Use Survey (NVUM) to estimate direct effects.

Use of this data is described on in Chapter 3, Economic and Social Values, Affected Environment, Recreation and Tourism and Effects to the Economic Environment from Recreation and Travel. Where NVUM data could not be broken out for a specific area (Mt Jefferson), and trail count data was not available, we relied on Island Park Ranger District estimates based on winter patrols (same section listed above). Social impacts were based on the degree of effects generated from these same numbers. Since there are no actual numbers available for upcoming travel decisions being made by the Bureau of Land Management, Gallatin, Bitterroot and Lolo National Forests, we have to estimate the cumulative impacts to motorized recreationists using the best information available.

EC-15. The FEIS needs to consider that OHV recreation contributes to local economies.

The FEIS estimates the effect changing OHV and snowmobile travel by alternative may have on the area economies, Chapter 3, Economics and Social Values, Effects to the Economic Environment from Recreation and Travel.

EC-16. The FEIS needs to consider the impact continual loss of motorized access has on degrading the local culture and quality of life.

Based on comments to the DEIS, we have added to our discussion of the social impacts of loss of motorized opportunities under Effects to the Social Environment from Recreation and Travel Management, Also see Cumulative Social Impacts.

EC-17. The FEIS needs to evaluate economic benefits to the area from snowmobiling and the impact of closure on local economics.

The FEIS shows current contribution to the area economies from recreation in the table “Forest Service Related Contributions to the Area Economy”, and how much of recreation use is attributable to snowmobiles in the table “Primary Recreation Activities on the BDNF and Participation Rates. Actual expenditure data used for snowmobiling compared to other recreational activities is disclosed in the project file under “FEIS0507_Assumptions for Recreation_Economics”. The impact of closures is described in Chapter 3, Economics and Social Values, Effects to the Economic Environment from Recreation and Travel. In response to comments on the DEIS, we have added an analysis of the impacts of snowmobile closures on the Island Park economy in that same section

EC-18. The FEIS should recognize some adverse economic impact to local communities from reduced mountain biking opportunities.

In response to comments on the DEIS, we considered adding impacts from loss of mountain biking opportunities to our economic impact analysis and added a discussion of effects in Chapter 3, Economics and Social Values, Effects to the Economic Environment from Recreation and Travel.

EC-19. The FEIS needs to recognize that the presence of cows in recreation areas like high mountain lakes has a negative affect on tourism businesses.

See Recreation R-11.

Timber Harvest

EC-20. The revised Forest Plan should emphasize products which will contribute jobs to local communities while solving forest health issues.

The FEIS considers the effects of a range of alternatives, some of which emphasize products which contribute jobs while solving forest health issues, some of which don't. Alternative 4 was developed to represent commodities and jobs, Chapter 2, Alternative Development. The decision maker (Regional Forester) will look at those effects and determine which alternative will form the basis of the Revised Forest Plan through the Record of Decision.

EC-21. The revised Forest Plan should be based on Alternative 4, the only alternative that shows any substantial positive economic impact because it emphasizes resource extraction.

The FEIS analyzes the effects of Alternative 4 compared to five other alternatives. The decision maker (Regional Forester) will look at those effects and determine which alternative will form the basis of the Revised Forest Plan through the Record of Decision.

EC-22. The FEIS should recognize that designation of roadless areas with the future intent of wilderness designation will negatively impact the economic health of the area by decreasing natural and renewable resource use.

We have no data that shows wilderness recommendations will negatively impact the economic health of the area by decreasing natural and renewable resource use. As stated in the FEIS, Effects to the Economic Environment from Timber Management, "projections for outputs (from the Forest) are constrained by reasonably foreseeable Forest Service budgets and as a result don't vary much. This analysis assumes Forest Service budgets will remain fairly constant over the planning period constraining outputs to 9 million board feet". In other words, the Forest Service budget limits the amount of timber we can put up for sale more than the acres available for harvest. Alternative 3 has the lowest economic contribution, not because it has the strictest protection for roadless areas, but because it minimizes mechanical vegetation treatment on ALL lands.

EC-23. The revised Forest Plan should provide for active uneven-aged management of National Forest to maintain economic viability of the timber industry and enhance recreation opportunities in healthy forests.

The FEIS considers the effects of a range of alternatives, some of which emphasize products which contribute jobs while solving forest health issues, some of which don't. The AMS, page 59, documents the issues that have evolved around clearcutting and the trend toward uneven-aged management. The decision maker (Regional Forester) will look at those effects and determine which alternative will form the basis of the Revised Forest Plan through the Record of Decision.

EC-24. The FEIS must include information on the costs of planned logging and burning and how these activities can be demonstrated as a net public benefit.

The DEIS analyzed net public benefit of planned Forest activities and displayed results by program, on page 434 and 435 under Effects on Economic Efficiency. The analysis is based on timber values derived from the SPECTRUM model and costs derived using a 3-year average of actual BDNF budget expenditures. The FEIS also analyzes net public benefit, but the results in

the updated spreadsheet are not displayed by program because the PNV spreadsheet template was modified. The timber data entered is based on the same sources.

EC-25. The revised Forest Plan must include specific economic goals and objectives on which the wood products industry can rely and maintain their infrastructure.

Between the Draft and Final Plan, Economic Goals were added to the Plan. Specific levels of outputs were not incorporated as standards or objectives. This was problematic in the last plan; see AMS, page 56 and page 62, “What Needs to Change”.

EC-26. The FEIS must consider all tentatively suitable timber acres, (including those in IRA’s, etc) to accurately depict social and economic opportunity costs.

Economic opportunity costs of various levels of timber harvest are compared in a Benchmark Analysis located in Chapter 2 of the Forest Plan. The opportunity cost for maximizing wilderness and roadless protection can be displayed by comparing the maximum PNV to the timber PNV for Alternative 3, which does not allocate any suitable timber base and harvests timber on a minimal basis related to salvage and providing products like posts, poles, and firewood. The opportunity cost to the American public is approximately 90 million dollars; see FEIS, Chapter 3, Economics and Social Values, Effects on Economic Efficiency.

EC-27. The FEIS should consider the economic tradeoffs of burning products rather than harvesting them to achieve desired conditions.

Comparing Alternative 3 to Alternative 4 in the FEIS shows the economic tradeoffs of burning products rather than harvesting them. Alternative 3 minimizes mechanical treatment of vegetation and assumes achieving desired conditions through natural processes, such as fire, Chapter 2, Alternative Development. Economic tradeoffs of that approach are displayed in the four tables under Chapter 3, Economics and Social Values, Direct and Indirect effects to the Economic Environment, under the Timber Program row.

EC-28. The revised Forest Plan should provide enough timber to avoid industry boom/bust cycles as long as the economic opportunities are consistent with maintaining wildlife, aquatic life, and non-motorized protections in Alt 5.

The FEIS considers the effects of a range of alternatives which provide variable levels of timber harvest, wildlife, aquatic and non-motorized protections. Alternative 6 was developed to try and balance those options, Chapter 2, Alternative Development. The decision maker (Regional Forester) will look at those effects and determine which alternative will form the basis of the Revised Forest Plan through the Record of Decision.

Fire Management

Fuels

F-1. The revised Forest Plan should reduce fuels through prescribed fire, protect sagebrush, and reduce conifer encroachment.

The Forest Plan will adhere to National Fire Policy which allows for “Appropriate Management Response” for fire management which encourages the allowing fire to play its role in fire

dependent ecosystems where appropriate and is allowed under federal, state and local agreements.

F-2. The revised Forest Plan should address high hazard areas (bug kill), allow harvest of marketable trees prior to fuels treatments, treat fuels in rested pastures and use mechanical treatment methods.

Forest plan will allow a variety of fuels treatments and fire management activities to restore and maintain fire dependent ecosystems where appropriate.

F-3. The revised Forest Plan should emphasize aggressive thinning over fire use for economic, scenic, and public health considerations.

Forest plan will allow a variety of fuels treatments and fire management activities to restore and maintain fire dependent ecosystems where appropriate, with consideration given to all concerns including economic, scenic and public health considerations on a landscape or project basis.

F-4. The FEIS should consider effect of fuel loading in terms of wildfire and the public health risk from smoke and protect public health by using thinning and salvage to reduce fuel loads instead of prescribed or wildfire.

All fire management activities described in the FEIS will comply with the Federal Clean Act and with the State of Montana DEQ in the Memorandum of Understanding for Cooperative Smoke Management in Montana and Idaho to protect public health.

F-5. The revised Forest Plan should clearly define Wildland Urban Interface in relation to fuels reduction projects.

Individual Fuels Reduction Projects and their relationships to WUI are defined on a project basis, the guidelines for WUI and fuels prioritization will follow the National Fire Plan and Healthy Forests Restoration Act-PL108-148.

F-6. The FEIS should address budget constraints on fuels management.

Federal Budgets Allocation Process and USFS Fuels Allocation Process are outside the purpose and scope of the FEIS.

Fire Use

F-7. The revised Forest Plan should prohibit or limit fire use.

Wildland Fire Use is a tool or fire management option used to achieve resource objectives in fire dependent ecosystems and implemented according to national fire policy using the “Wildland Fire Use Implementation Reference Guide” September 2006.

F-8. The revised Forest Plan should implement the expanded role of wildland fire use to reduce costs and restore fire dependent ecosystems.

Wildland Fire Use is a tool or fire management option used to achieve resource objectives in fire dependent ecosystems and implemented according to national fire policy using the “Wildland Fire Use Implementation Reference Guide” September 2006.

F-9. The revised Forest Plan should not allow fire use in the Wildland Urban Interface to protect property and air quality.

Wildland Fire Use is a tool or fire management option used to achieve resource objectives in fire dependent ecosystems and implemented according to national fire policy using the “Wildland Fire Use Implementation Reference Guide” September 2006.

F-10. The revised Forest Plan should continue fire suppression to protect human life and property.

Forest Plan will follow national fire policy direction to protect human life and property through Appropriate Management Response fire management activities including all types of fire suppression activities, prescribed fire and wildland fire use. (Federal Review and Update of the 1995 Federal Wildland Fire Management Policy and Program Review, January, 2001 and the Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy, June 2003.)

F-11. The revised Forest Plan should promote expanded use of fire as a management and restoration tool.

Wildland Fire Use is a tool or fire management option used to achieve resource objectives in fire dependent ecosystems and implemented according to national fire policy using the “Wildland Fire Use Implementation Reference Guide” September 2006.

F-12. The revised Forest Plan should provide more positive direction on wildland fire use and education of the public and local governments about role of fire and personal property protection.

Education of the public, local governments and partners on fire management is always a goal of the Beaverhead-Deerlodge National Forest.

F-13. The revised Forest Plan should adopt the concept of Protection Zones to delineate the Wildland Urban Interface.

Public safety and protection of values at risk including the WUI is a goal of AMR fire management and the Forest Plan and would not be limited to predetermined “Protection Zones.”

F-14. The FEIS should disclose fire history methodology.

We based fire methodology on work by Baker (2002), Barrett (1997), and Heyerdahl (2006). See FEIS Affected Environment.

F-15. The FEIS should address climate change as a component of increased fire risk in comparison to decades of fire suppression.

The effects of climate change on the BDNF are unknown. It may result in wetter summers and dryer winters, or warmer dryer climates. We can't tell at the writing of this document. The appropriate management response strategy allows fire staff to respond in the most appropriate manner depending on the situation. The objective for Fire in the forest plan is to move ecosystems toward condition classes that are more resistant to uncharacteristic fire events regardless of climate change.

F-16. The revised Forest Plan should include buffer zones between wilderness or recommended wilderness and private property when identifying fire use areas.

Public safety and protection of values at risk including the WUI is a goal of AMR fire management and the Forest Plan. Forest Plan will follow the Implementation Procedures Reference Guide, February 2005, which includes a risk assessment and decision criteria including impacts to private property.

F-17. The revised Forest Plan should clearly define “appropriate management response” and associated actions.

Forest Plan will adhere to the National Fire Policy including its definition for appropriate management response and associated actions (Federal Review and Update of the 1995 Federal Wildland Fire Management Policy and Program Review, January, 2001 and the Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy, June 2003.)

F-18. The revised Forest Plan should direct integration of management activities with natural processes to produce a range of natural structural conditions.

The Forest Plan will allow fire to play its role in fire dependent ecosystems to help restore natural processes and natural structural conditions.

F-19. The revised Forest Plan should incorporate wildland fire use because it requires minimal management and saves taxpayer dollars.

Wildland Fire Use is a tool or fire management option used to achieve resource objectives in fire dependent ecosystems and implemented according to national fire policy using the “Wildland Fire Use Implementation Reference Guide” September 2006.

F-20. The FEIS should consider impacts of wildland fire use on tourism and agriculture.

Short term effects like smoke, road and area closures are detrimental to tourism. In the long term it creates forage which helps move deer and elk off of private pastures onto NFS. In the long term, burned areas lead to increased diversity in vegetation and wildlife which have greater appeal to visitors.

F-21. The FEIS should define risk assessment and decision criteria for wildland fire use.

Wildland Fire Use will be implemented according to national fire policy using the “Wildland Fire Use Implementation Reference Guide” September 2006 which includes a risk assessment process and decision criteria.

F-22. The revised Forest Plan should include wildland fire use plans as part of the revised forest plan.

The Revised Forest Plan includes Appropriate Management Response as part of its fire management; wildland fire use is a part of AMR and will be used to achieve resource objectives for the forest.

F-23. The FEIS should consider the negative effects the “let burn” policy has on bringing in new residents and building on private property.

The FEIS does not consider a “Let Burn Policy”, all fires will be managed according to fire policy of “Appropriate Management Response” as defined in the Federal Review and Update of the 1995 Federal Wildland Fire Management Policy and Program Review, the Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy, June 2003.

Prescribed Fire

F-24. The revised Forest Plan should limit prescribed fire because of adverse impacts especially on sagebrush.

Prescribed Burn activities will follow the Memorandum of Understanding between USDA-FS, Beaverhead-Deerlodge NF and the State of Montana, Region 3 Montana Fish, Wildlife and Parks.

F-25. The revised Forest Plan should require the evaluation of impacts of past management activities on wildlife before planning new logging and burning projects.

Impacts to wildlife will address on a project basis through the cumulative effects analysis in the NEPA process.

Suppression

F-26. The FEIS should recognize the relationship of human caused fire starts in relation to roads.

Human caused fire starts are associated with all types of human activities including a variety of recreation activities including hiking, hunting and camping; fire management addresses human caused starts through prevention activities.

F-27. The revised Forest Plan should incorporate the Beaverhead County Wildfire Plan.

Community Wildfire Protection Plans are incorporated into prioritizing and collaboration of fuel projects and prevention programs between federal, state, county agencies and private individuals.

F-28. The FEIS should address effects of fire and fire suppression activity.

The effects of wildfire are a natural process and not a management action. The FEIS discusses the effects of management action. Fire suppression is an emergency action. Fire suppression is an action taken in response to a wildfire regardless of alternatives. The FEIS did not identify fire suppression as a revision topic or an issue to be evaluated.

F-29. The revised Forest Plan should reduce emphasis on fire suppression and allow remote fires to burn.

The Forest Plan will adhere to National Fire Policy which allows for “Appropriate Management Response” for fire management which encourages the allowing fire to play its role in fire dependent ecosystems where appropriate.

F-30. The FEIS should discuss air quality effects of wildfire.

Response: Air quality impacts associated with wild fire and prescribed fire are discussed in the FEIS, Chapter 3, Air Quality, "Effects to Air Quality from Fire Management". All smoke management activities are coordinated through the Montana/Idaho Smoke Management unit in close coordination with MT DEQ Air Resources Management Bureau. More information regarding the MT/ID Smoke Unit can be found at <http://www.smokemu.org>.

Lands

L-1. The revised Forest Plan should support the acquisition of rights of way or private land to secure access to public land which is presently blocked.

The acquisition of rights of way and private lands to secure public access to National Forest System lands is largely dependent on funding and is subject to not only a Forest priority of work but a National competitive process to establish those acquisitions that are in the best interest of the public. This process is also governed by declining budgets to fund and maintain skilled personnel to complete such actions.

L-2. The revised Forest Plan should require access or right-of-way to public lands as a part of any land exchange between private and public entities.

A fundamental goal of any land exchange where a public access issue exists as a problem is to resolve the lack of public access upon completion of the exchange.

L-3. The revised Forest Plan should protect existing prescriptive easements for access to National Forest Lands.

The Forests ability to pursue prescriptive rights for access to National Forest System lands is dependent on a continually decline in Forest Budget. The Forest is forced to prioritize Lands work and therefore can only pursue this work with a greatly reduced and limited effort. There is no way to protect a prescriptive right is prescriptive action has not been perused where by a prescriptive right has been granted per court action.

L-4. The revised Forest Plan should emphasize acquisition of inholdings to prevent development inside National Forest land.

The acquisition of in holdings within the Forest is a goal subject to a limited amount of funding available at a National level to do so. Such Forest acquisitions compete at a National level for priority to receive funding making completion for local purchases cases more difficult.

L-5. The Forest Service should consider the purchase of Lockhart Meadows.

At present Lockhart Meadows is not for sale. Should it become available this purchase would compete in normal fashion for purchase both at the Forest level and then at the National level.

L-6. The revised Forest Plan is not consistent with the BLM regarding a transmission line crossing the Idaho/Montana border near Lemhi Pass. The BLM would consider proposals on a case by case basis while the USFS would prohibit.

This is correct. Because of the significant resources on Forest lands, this areas was not identified as appropriate for increasing utility facilities

L-7. The revised Forest Plan should not permit sale or exchanges of land in buffer zones around roadless areas or wilderness.

Concerns such as these are always part of the analysis process for any land exchange to be considered as feasible or not.

L-8. The revised Forest Plan should contain a standard which closes Forest lands, roads, and trails, to motorized use by adjacent land owners, who deny public access across private lands.

This would be considered in a specific road by road, travel management decision, thorough travel planning.

Livestock Management

Social and Economic

LG-1. The revised Forest Plan should prohibit livestock grazing in campgrounds.

Livestock grazing is generally prohibited in campgrounds. Chapter 3, Livestock Grazing, Standard 2 states “domestic livestock grazing will not be allowed in developed campgrounds unless specifically permitted”.

LG-2. The revised Forest Plan should continue provision of forage for local ranchers.

The revised Forest Plan does provide forage for the domestic livestock. See Chapter 3, Livestock Grazing, Goals.

LG-3. The FEIS should address the negative impacts of Threatened and Endangered Species requirements on grazing permit holders.

The FEIS displays the estimated AUM production from alternatives. Each alternative addresses Threatened and Endangered species management.

LG-4. The FEIS should address the impact of the revised plan on individual ranchers.

The revised plan does not address how each grazing permit holder (permittee) will cooperatively implement the revised Forest Plan with local Forest officials. This may require site-specific environmental analysis that is beyond the scope of this document.

LG-5. The FEIS should consider private water rights that originate on federal land.

There is nothing in the forest plan that will alter any private water right.

LG-6. The FEIS should quantify the resources made available to ranchers under the Taylor Grazing Act of 1934.

The Taylor Grazing applies to lands administered by the Secretary of Interior. The National Forest System is under the Secretary of Agriculture. Therefore you won't see a reference to the Taylor Grazing Act in this FEIS of the Beaverhead-Deerlodge National Forest.

LG-7. The FEIS should include changes in current and future Animal Unit Months to disclose the economic impact on schools and road funding.

The FEIS does estimate AUM changes and the effects of AUM changes on payments to Counties. See Chapter 4.

LG-8. The FEIS should not use actual livestock use during drought years as a base to predict effects on livestock grazing.

We used the best data available, averaging 3 years worth of data. A prediction is not a decision on future use levels.

LG-9. The FEIS should reconsider livestock grazing on public lands because of weed spread, damaged streambanks and springs, disease transmission to wildlife, trampling, need for predator control, proliferation of fences, and cost of allotment management.

Alternative 6 of the Beaverhead Forest Plan Riparian Amendment analyzed no grazing in riparian areas and was not the chosen alternative. We thought that analyzing no grazing on the Beaverhead-Deerlodge NF would have a similar result.

Grazing impacts

LG-10. The revised Forest Plan should require the reduction or removal of cattle if grazing does not comply with the Clean Water Act and Endangered Species Act.

A watershed analysis will be done for key watersheds. If grazing is determined to be a contributor to the watersheds deteriorated condition, then adjustments in livestock grazing will be made. If the grazing permittee does not manage their livestock so watershed condition can improve, their permit can be suspended or cancelled as needed, see Forest Plan, Chapter 3, Aquatic Resource Management, Standard 8.

LG-11. The revised Forest Plan should prohibit grazing in municipal watersheds.

The revised plan closes Class A municipal watersheds to grazing. see Forest Plan, Chapter 3, Aquatic Resource Management, Standard 4.

LG-12. The revised Forest Plan should prohibit grazing in fragile alpine areas.

Most fragile alpine areas have previously been closed to livestock grazing. Fragile areas not closed will be examined in future allotment analysis and the decision to graze or not graze will be made after a site-specific analysis.

LG-13. The revised Forest Plan should have more restrictive standards on grazing and more punitive consequences when permit requirements are not met.

The revised Forest Plan does have more restrictive standards and punitive consequences in key watersheds. See Chapter 3, Livestock Grazing, Standard 6.

LG-14. The revised Forest Plan should increase livestock grazing during high forage producing years or when more forage results from prescribed burning or timber harvest.

In our opinion these types of decisions should be made on an allotment by allotment basis and on a year to year basis.

LG-15. The revised Forest Plan should maintain acres suitable for livestock grazing through vegetation management.

The revised Forest Plan will reduce conifer encroachment by 74,000 acres. See Chapter 3 Vegetation, Objectives for Grassland/Shrubland/Riparian. Depending on slope and distance to water these treated acres may be suitable for livestock grazing.

LG-16. The revised Forest Plan should require improvement of areas in poor range condition.

Site-specific analysis will identify areas of poor condition or low seral stages of vegetation. Allotment plans will describe how poor condition range will be managed.

LG-17. The revised Forest Plan should close allotments on lands not capable for livestock grazing.

Most of the lands not capable of livestock grazing have all ready been closed. The decision to close lands capable but not suitable for grazing will be made through site-specific analysis of allotments.

LG-18. The revised Forest Plan should reduce or eliminate grazing in watersheds where the geology and hydrology make it unsuitable for grazing.

Allotments will include some unsuitable areas exposed to livestock grazing. If unacceptable impacts are incurred we usually fence out the unsuitable area or close the pasture. In other cases the season of use may have to be adjusted. Overall these issues are best addressed in site-specific allotment plan analysis.

Grazing Allotments

LG-19. The revised Forest Plan should include the measures of standard compliance for livestock grazing and the timeframe for corrective action.

This direction is provided in Forest Service handbook (FSH 2209.13) and is further emphasized for key watersheds. See Chapter 3, Aquatic Resource Management, Standard 8.

LG-20. The revised Forest Plan should revise the antiquated public lands grazing system.

Revision of public lands grazing management is multiple agency national issue and is not in the decision space for this analysis.

LG-21. The revised Forest Plan should require monitoring of past grazing impacts as a determining factor in current stocking numbers.

Monitoring provides the basis for changes in current livestock numbers. Long term monitoring is generally recorded in 5 year increments. Short term monitoring looks at end of the grazing season conditions. See Standard 8 in the Aquatic Resource section of the Plan.

LG-22. The FEIS should disclose how many allotments have updated plans and due dates for the remainder.

Since the 1986 and 87 plans were completed 146 Allotment Management Plans (AMPs) have been updated. Generally we are able to update 5 to 10 AMPs a year depending on complexity of the analysis and cost. We anticipate completion of the remaining 58 AMPs by 2015.

LG-23. The revised Forest Plan should require that all special use permits and allotment management plans may not have standards less restrictive than the grazing standards in the revised Plan. (DEIS-page 33.)

Allotment conditions are evaluated on a case by case basis. Some conditions don't require more restrictive standards because of a number of reasons such as, better management, more resilient soils, season of use, etc.

LG-24. The revised Forest Plan should clarify the requirements for the base property standard.

That is true and we did in Chapter 3 of the Forest Plan, under Livestock Grazing, Standard 5.

LG-25. The FEIS should define adaptive management as used in Allotment Management Plans.

Point taken; we added adaptive management to the glossary.

LG-26. The revised Forest Plan should decrease livestock numbers in old harvest units, where initial increases were made to take advantage of increased production after harvest, when the areas becomes restocked with seedlings.

Some adjustments were made prior to Forest Plan Revision. In our opinion adjustments are this is best done through site-specific analysis of allotment(s) during allotment planning. The revised Forest Plan projections account for the loss of AUMS from these restocked areas and consequent declining forage.

LG-27. The FEIS should include the economic and environmental costs of livestock grazing in addition to traditional economic factors.

The economic cost of the grazing program is analyzed, along with other forest resource programs in the FEIS, Economic and Social Values, Direct and Indirect Effects, "Effects on Economic Efficiency". Costs and revenues of each program and the combined programs are compared between alternatives. The environmental costs and benefits of various programs are described in the various resource sections, i.e. "Effects to Aquatic Species from Livestock Grazing."

LG-28. The standard concerning the sheep allotments in the Gravelly Landscape is not clear. What is the intent of this standard?

This standard has been modified to better clarify its intent. This standard intends to allow the existing sheep permits in the Gravelly Landscape to continue. It is intended to allow for the sale of or transfer of the existing permits. However, if the permittee turns the permit back to the Forest, (allotment becomes vacant), the permit would not be offered up as a sheep allotment. The allotment could be combined with the other existing sheep allotment, but without the additional AUMs assigned for that allotment. This allows continued use of the permit, but also minimizes grizzly bear conflict in the future, should the opportunity arise.

Riparian Concerns

LG-29. The revised Forest Plan should apply stronger language in range management direction to protect Riparian Conservation Areas.

Thank you for writing your concern. We have applied stronger standards in key watersheds and believe that the emphasis is appropriate.

LG-30. The revised Forest Plan should establish a higher streambank disturbance standard.

The standards are based on undisturbed reference reaches to determine the amount of natural streambank disturbance. Hydrologists used these baseline evaluations to determine how much disturbance the stream could withstand and still function. Until further monitoring and evaluation shows differently, 30% has been determined adequate to maintain or improve stream function.

LG-31. The revised Forest Plan should establish a lower streambank disturbance standard.

The standards are based on undisturbed reference reaches to determine the amount of natural streambank disturbance. Hydrologists used these baseline evaluations to determine how much disturbance the stream could withstand and still function. Until further monitoring and evaluation shows differently, 30% has been determined adequate to maintain or improve stream function.

LG-32. The revised Forest Plan should increase and enforce allotment management requirements to protect Threatened, Endangered and Sensitive fish species habitat.

This is required in Aquatic Resources, Standard 8 in the Forest Plan.

LG-33. The revised Forest Plan should include a requirement for range improvements to protect watersheds and fish.

This concern is addressed in Chapter 3 of the Forest Plan under Aquatic Resource Management, see Standards 7 and 8 and for Riparian Habitat Conservation Areas Livestock Grazing.

LG-34. The revised Forest Plan should require reduction of livestock grazing impacts within 5 years.

The Forest Plan works to reduce negative impacts of livestock grazing. Specific time frames are developed through site-specific analysis such as allotment planning.

Wildlife

LG-35. The EIS should analyze the impacts of fences and water tanks on wildlife.

Much of this analysis has been done through monitoring and adjustments over the last 50 years. In most cases the negative effects to wildlife are fairly minimal due to adjustments in fence and tank installation standards or operational requirements. Examples are animal escape ramps in water tanks, and requiring that gates be left open on elk winter range.

LG-36. The revised Forest Plan should make provisions for elk summer forage/habitat and wildlife reserves.

Several of the allotments officially closed through Forest Plan Revision considered elk summer range as one of the factors to close the allotments. In our opinion, this issue is more appropriately dealt with during site-specific analysis of one or several allotments.

LG-37. The revised Forest Plan should ensure the needs of wildlife needs are met before allowing livestock grazing.

Wildlife needs are identified during site-specific analysis. If issues are raised, adjustments in livestock management are made as necessary.

LG-38. The revised Forest Plan should require forage improvement so big game stays on the Forest lands longer and on private land less.

A Forest Plan objective is to reduce conifer encroachment on 74,000 acres. See Forest Plan, Chapter 3, Vegetation, Objectives.

LG-39. The revised Forest Plan should address Brucellosis.

The Forest Plan does not address Brucellosis. Forest Service Manual 2255 addresses Cooperation on Animal Diseases.

LG-40. The revised Forest Plan should address conflicts between wildlife and livestock.

The Forest Plan sets goals, objectives, and standards for wildlife and livestock grazing. Site-specific analysis identifies issues and areas of conflict for the decision maker to resolve.

LG-41. The revised Forest Plan should address the Unlawful Enclosures Act and the effect fences on wildlife, especially fences on private land.

Our fence specifications have evolved over the years and in general have minimal effect on wildlife. If measurable effects are anticipated, the fence specifications are adjusted or operational requirements are made.

Sheep

LG-42. The revised Forest Plan should remove or reduce sheep numbers on allotments in grizzly bear habitat.

The direction in the 2006 Grizzly Bear Amendment to Forest Plans states “ Inside the Primary Conservation Area, do not create new active commercial livestock allotments, do not increase permitted sheep animal months from the identified 1998 baseline, and phase out existing sheep allotments as opportunities arise with willing permittees.” For Outside the Primary Conservation Area in areas identified in state management plans as biologically suitable and socially acceptable for grizzly bear occupancy, livestock allotments, or portions of allotments with recurring conflicts that cannot be resolved through modification of grazing practices, maybe retired as opportunities arise with willing permittees.

LG-43. The FEIS should address trespass of domestic sheep on bighorn sheep habitat.

In our opinion this should be addressed when conflicts arise and on an allotment by allotment basis. Potential conflicts should be addressed during the public involvement process for proposals to re-introduce bighorn sheep into a mountain range.

LG-44. The revised Forest Plan should continue grazing on sheep allotments regardless of grizzly bears or other animals.

Thank you for your opinion but to do this would put us out of compliance with the Threatened and Endangered Species Act.

LG-45. The revised Forest Plan should reconsider replacing sheep with cattle in the Gravelly Landscape because of the greater impact of cows.

An allotment(s) analysis will be conducted before sheep are replaced by cattle. In some cases the topography or soils may not be suitable for cattle grazing, see Forest Plan, Chapter 3, Livestock Grazing, Standard 4.

LG-46. The revised Forest Plan should allow existing permittees to use vacant allotments without increasing permitted numbers.

This is provided for in Standard 4 of the section on Livestock Grazing in Chapter 3 of the Forest Plan.

LG-47. The revised Forest Plan should consider and preserve sheep grazing as a historic use and range management tool.

The Forest Plan does identify lands suitable for livestock grazing, including sheep. The Forest Plan does identify a goal to provide for sustainable grazing of livestock, which would include sheep. However, the Forest Plan does not include preservation of particular species of livestock.

Minerals

M-1. The FEIS should address the availability of mineral resources under all alternatives.

This has been done with regard to recommended wilderness under alternatives.

M-2. The revised Forest Plan should protect against development of the molybdenum mine in the East Pioneer Mountains.

This area is open to locatable mineral development under the mining law. Any mineral development would have to be done under all applicable resource protection laws and regulations. We would have no basis to attempt to withdraw the area from mineral entry.

M-3. The revised Forest Plan should require reclamation of mining-related roads in riparian areas at the earliest possible opportunity.

This is already required by our surface use regulations.

M-4. The revised Forest Plan should require all monitoring and reclamation to pre-mining conditions costs are born by the miners.

This is already required by both Forest Service and State regulations, to the extent that such costs can be anticipated into the future.

M-5. The Forest Service should ensure that mining reclamation bonds are adequate to return impacted areas to pre-mining conditions.

It is not always possible to return an area to pre-mining conditions. Regulations from both the Forest Service and State require reclamation to a satisfactory, usable condition, as near to pre-mining as practicable.

M-6. The revised Forest Plan should not allow placement of mine waste inside Riparian Conservation Areas.

Protection of riparian areas is of prime concern. It is highly unlikely that placement of any significant quantity of mine waste would ever be allowed in a riparian area. Such placement would only be allowed if there was no feasible alternative and adequate measures could be devised to protect the riparian environment.

M-7. The revised Forest Plan should include a No Significant Occupation stipulation for Riparian Conservation Areas in the oil & gas standards.

This is already covered by a standard notice attached to oil & gas leases.

M-8. The revised Forest Plan should not allow sand and gravel mining in Riparian Conservation Areas under any circumstances.

Permitting mining of sand and gravel is discretionary, and any proposal for such mining in a riparian area would have to undergo full NEPA analysis. It is highly unlikely that any such proposal would be approved unless full reclamation to a desirable condition could be guaranteed.

M-9. The FEIS should address the impacts of other resource allocations on availability of land for mineral exploration and development.

Unless withdrawn from mineral entry, lands will remain open to operation of the mining law. Reasonable protection measures will be based upon potential impacts to the affected resources.

M-10. The FEIS should better address the mineral resources on the Beaverhead-Deerlodge National Forest, which are to be shared and enjoyed by all the people of the United States.

Mineral potential studies by both the U.S. Geological Survey and the former U.S. Bureau of Mines have been utilized in consideration of the mineral potential of the Forest.

M-11. The revised Forest Plan should have standards for oil and gas on the Deerlodge portion as well as the Beaverhead portion.

Oil and gas potential studies by the U.S. Geological Survey show very little land with moderate potential on the Deerlodge portion of the Forest, and there has been no recent interest expressed in obtaining leases in this area so we've chosen not to make a decision on the Deerlodge portion at this time.

M-12. The revised Forest Plan should require that the legal rights for mineral development exist before plans can be approved (specifically the proposal in the Sheep Mtn. – Vipond Park area), and the bond amounts are adequate to fully reclaim mining-related disturbances.

This area is open to location under the mining law; therefore legal rights for development exist. Bond amounts are determined jointly by the State and Forest Service and we are careful to ensure that the bonds are large enough to reclaim disturbances.

M-13. The revised Forest Plan should replace “Mineral uses continue with minimal impact to the environment” in the Forestwide “Niche” statement with a statement that more accurately reflects the impacts of mining on the forest environment.

This statement has been changed. The "Niche" statement does not reflect impacts, but identifies activities that take place and are likely to take place in the future because of the resources the forest has.

M-14. The revised Forest Plan should strengthen the aquatic resource protection language with accurately reflects the impacts of mining on the forest environment regard to mineral development.

Under Federal and State laws and regulations, all pertinent and reasonable measures will be applied to assure aquatic resource protection.

M-15. The revised Forest Plan should establish a standard that mining-related roads be closed within one year of cessation of mining activity, defined as two years following completion of activities covered within Forest-approved plans and/or State-approved permits.

Already required by 36 CFR 228.8 (f)(4) & (g).

M-16. The FEIS should better address mineral resource potential and the ability of the transportation system to provide resource development.

See response to M-10. It is not reasonable or practical to attempt to anticipate future access needs for mineral development. Any such needs will be addressed when/if proposals for development are received.

M-17. The revised Forest Plan should establish specific environmental rules and regulations prior to permitting large mine or oil and gas exploration.

These are established by Federal and State laws and regulations.

M-18. The revised Forest Plan should allow mining activity while maintaining careful federal oversight to limit disruption to the ecosystem.

Mining activity is allowed and provided for in the Forest Plan. Also see response to M-18.

M-19. The revised Forest Plan should withdraw lands proposed for wilderness from mineral entry.

This must be done by Congress.

M-20. The revised Forest Plan should not withdraw any more land from mineral entry, and instead encourage mineral exploration and facilitate the permitting process.

The Forest Plan does not withdraw land from mineral entry. Responsible mineral exploration and development is encouraged, and permitting will be handled as expeditiously as our resources allow.

Planning

P-1. The revised Forest Plan should include language to explain the revised plan does not supplant direction in the existing plans, as much as it overlays that direction.

The revised forest plan will neither supplement direction in the current Forest Plans nor will it overlay that direction. The revised Forest Plan will replace the existing Forest Plans.

P-2. The Forest Service should consider using a regional advisory group to draft a better alternative.

The Forest has no authority to establish a regional advisory group. This authority is with Congress.

P-3. The revised Forest Plan should have separate goals and objectives for management on the east and west sides of the Continental Divide, because of greater use impacts to roadless areas on the east side and PacFish which only applies on the west.

The revised forest plan established Desired Conditions, Goals, Objectives, and Standards for the Forest. In some instances, it does distinguish between and east and west of the Continental Divide. See Chapter 3 of the Forest Plan, Aquatic Goals, Objectives and Standards.

P-4. The revised Forest Plan should follow direction in the 1897 Organic Act regarding water and timber harvest.

The Revised Forest Plan does meet applicable direction in the 1897 Organic Act, as well as, all other applicable laws.

P-5. The Forest Service should adhere to the full public disclosure mandated by the National Environmental Protection Act in developing alternatives.

The revision process has fully disclosed all information required by the National Environmental Protection Act, including alternative development. See the FEIS, Chapter 1, under the heading “Public Involvement”. The revision process has also disclosed other information, which is not required to be disclosed. An example is the publication of the Draft Analysis of Management Situation.

P-6. The Forest Service should follow direction in 36 CFR 219.2(a) which specifies “the priority for planning to guide management of the National Forest System is to maintain or restore ecological sustainability....”

The reference to 36 CFR 219.2(a) which specifies “the priority for planning to guide management of the National Forest System is to maintain or restore ecological sustainability....” is in the 2000 planning regulation. This revision process is being conducted according to the 1982 planning regulations. See Chapter 1 of the FEIS for a description of the regulation this revision process is being conducted under.

P-7. The Forest Service should not use the new planning regulations because they contradict the National Forest Management Act.

This revision process is not being conducted under the 2000 planning regulations as amended in 2004. See Chapter 1 of the FEIS for a description of the regulation this revision process is being conducted under.

P-8. The FEIS should clarify how the BDNF revision fits under which planning regulations.

See Chapter 1 of the FEIS for a description of the regulation this revision process is being conducted under.

P-9. The revised Forest Plan should acknowledge the mandate of the Healthy Forest Initiative and Healthy Forest Restoration Act and actively manage the timber resource.

The Healthy Forest Restoration Act and the Healthy Forest Initiative are acknowledged in Chapter 3, Fire Management section. There is nothing in any of the alternatives of the FEIS that violate the Act or restricts the forest from implementing the Act or the initiative.

P-10. The revised Forest Plan should remain the same as the existing plans.

This comment is represented by Alternative 1 which is the “No Action” alternative. No Action is defined as maintaining the existing plan. The AMS documents the need to change the existing plans.

P-11. The Forest Service should recognize that National Forests are not National Parks or Wilderness Areas.

National Forests do include wilderness areas, which were established by Congress, to be managed by the Forest Service according to the Wilderness Act.

P-12. The revised Forest Plan should eliminate Wilderness Study Areas.

The Forest does not have the authority to eliminate Wilderness Study Areas. This can only be done by Congress.

P-13. The revised Forest Plan should provide tangible and workable objectives and standards for all resource topics in addition to Aquatic Resources.

Goals, Objectives and standards were developed and are described for each resource in the Forest Plan, Chapter 3. The Aquatic section of the revised forest plan is larger than other sections because of an agreement (Biological Opinion) between US Fish and Wildlife Service and the Forest Service concerning bull trout, which is a listed species under the Threatened and Endangered Species Act.

P-14. The FEIS should be subject to peer review for accurate science and data.

The FEIS is subject to peer review in two different ways. First the document is reviewed internally by different specialists on and off the Forest, and second it is reviewed by the public during comment periods.

P-15. The plan needs to be compatible w/HR1204 the Rockies Prosperity Act.

The Forest is not aware of this Act being approved by Congress.

P-16. The revised Forest Plan should mention the Big Hole National Battlefield to continue a legacy of cooperation between NPS and the USFS.

The Forest plans to continue cooperation with the NPS. The revised forest plan does not make decision on whether to or not to continue cooperation with any other agency. This is required through Forest Service policy and laws.

P-17. The FEIS should elaborate how actions and progress are measured.

The monitoring plan is in the revised forest plan, in Chapter 5.

P-18. The revised Forest Plan should specify how monitoring will take place and what measures will be taken to repair declining conditions.

The monitoring plan is in the revised forest plan, in Chapter 5. If declining conditions are identified the Forest Plan may be amended or site-specific projects may be identified, if appropriate, to correct the problem.

P-19. The FEIS should evaluate the true need for management based on multiple uses.

The FEIS displays a range of alternatives to deal with a variety of issues. The effects of the alternatives are displayed in Chapter 3 of the FEIS.

P-20. The revised Forest Plan should protect quiet recreation opportunities, wild country, and wildlife habitat for the future.

The FEIS displays a range of alternatives to deal with a variety of recreation opportunities, including quiet recreation, wild country, and wildlife habitat protection.

P-21. The revised Forest Plan should emphasize restoration of the natural range of viability through timber prescription and treatment.

The revised forest plan does emphasize restoration. The place to best determine the appropriate restoration action is at the site-specific project level.

P-22. The FEIS should display a range of alternatives that are all potentially operable for fair evaluation. I.e. Alternative 3 was not economically viable without suitable timber.

The ID Team did not work with the assumption that an alternative had to have acres of lands suitable timber production to be an economically viable alternative. A reasonable range of alternatives and their predicted effects are disclosed in the FEIS. The benefit cost ratio of each alternative was calculated and displayed in the FEIS, under Economic and Social Values, Economic Efficiency.

P-23. The FEIS should describe the difference between motorized area closures and travel planning.

Any restriction or permission associated with the use of roads or trails can be considered travel planning. There are many levels of travel planning. The DEIS, as well as the FEIS, disclose that the decisions to be evaluated in this assessment, included forest plan revision, as well as a level of travel planning, Chapter 2, Decisions to be Made. The Plan makes strategic decisions like allocations and management prescriptions for those allocations. The travel decision is to (1) close non-motorized and recommended wilderness areas to motorized use to match management prescriptions, and (2) to identify a route map which facilitates compliance with the Tri-State OHV decision. This FEIS does not address all the necessary elements of the 2005 Travel management rule which is being conducted on a site-specific, scheduled basis.

P-24. The revised Forest Plan should specify interagency coordination.

Interagency coordination is a matter of policy not a forest plan decision.

P-25. The revised Forest Plan should emphasize ecosystem restoration.

The FEIS evaluated alternatives, which emphasized a range of ecosystem restoration opportunities.

P-26. The revised Forest Plan should balance economic, social and ecosystem sustainability.

The FEIS evaluated a range of alternatives, which looked a different mixed of economic, social, and ecosystem sustainability. Alternative 6 was developed as our best attempt to balance those considerations.

P-27. The FEIS should explain how the Deerlodge Settlement Agreement has been incorporated.

The Deerlodge Settlement Agreement has been incorporated as comment to the revision process, through comments like this one referring to the settlement agreement, and looking at the intent of the settlement agreement for a variety of issues.

P-28. The Forest Service should consider comments based on content, not volume.

The comments are considered based on content, not volume. This chapter of the FEIS is a result of the content analysis from those comments.

P-29. The Forest Service should consider the input of special use groups in the decision.

The input of special use groups is considered along with the input of all others who comment during the revision process

P-30. The FEIS should provide a draft plan for each alternative.

A draft plan is provided for Alternative 6, which is identified as the FEIS's preferred alternative. Producing a draft plan for each alternative would be cost prohibitive and is not required. We would be happy to visit with you about any specific questions of how alternative design would appear in a forest plan.

Balance of Uses

P-31. The revised Forest Plan should balance recreation with resource needs.

The FEIS evaluated environmental effects from a range of alternatives (6), which looked at different mixes of recreation uses and needs. This evaluation was used to find that balance. A summary of effects can be found in the final table in Chapter 2 of the FEIS.

P-32. The revised Forest Plan should go forward with the balance of uses in Alternative 5.

Thank you.

P-33. The revised Forest Plan should conserve wildlands but allow appropriate resource management of timber, grazing, fisheries and motorized use in already roaded areas.

The FEIS evaluated environmental effects from a range of alternatives (6), which looked at different mixes of resource management and conservation needs. This evaluation was used to find that balance.

Maps

P-34. The FEIS should include maps that load faster and are easier to read and compare to existing travel plans.

We have tried to make the maps easier to read and compare.

P-35. The revised Forest Plan should include location aides on all maps in the document.

We have attempted to include location aides on all maps in the FEIS.

Multiple Use Emphasis

P-36. The revised Forest Plan should make motorized and non-motorized allocations based on percentage of use.

Percentage of use is one element in many used to consider motorized and non-motorized allocations. Other factors include, but are not limited to, protection of threatened and endangered species, water quality, soil protection, user conflicts, solitude, wildlife security, winter range, recreation setting, and demand.

P-37. The FEIS should address the cumulative effects of motorized use restrictions statewide.

The FEIS addresses cumulative effects of motorized use restrictions in this region of Montana in both the Recreation and Travel Management and Economics and Social Values sections of Chapter 3.

P-38. The revised Forest Plan should not be based on ecological sustainability alone.

The FEIS evaluated alternatives based on ecological needs as well as social and economical needs. These effects are described in Chapter 3 of the FEIS.

P-39. The revised Forest Plan should emphasize management for people under the Federal Land Management Policy Act.

The Federal Land Policy and Management Act pertains to the Department of Interior (BLM) and not the Department of Agriculture (Forest Service).

P-40. The FEIS should address resourced based economic impacts to associated counties.

The economic analysis, completed for the FEIS, uses seven counties as its base. The economic analysis can be found in Chapter 3 of the FEIS.

New Alternative Proposals

The Forest Service should consider adopting or should reject the Draft Plan proposed by the Beaverhead Deerlodge Partnership, a coalition of timber industry and conservation organizations. (This comment is represented by a number of individual letters, letters from organizations, and letters from county, state and federal representatives.)

The Forest Service considered and responded to comment received from the Beaverhead Deerlodge Partnership (the Partnership). Specific responses to points made by the Partnership can be found in a response to them in the Chapter following the list of public concerns. We have considered ALL comments submitted prior to publication of the FEIS.

P-41. The Forest Service should follow public involvement and comment process outlined at the start of forest plan revision and not treat the Partnership specially.

While the Forest Service outlined a public involvement process and established formal comment periods at the outset of forest plan revision, we have accepted ALL comments received, regardless of whether a comment period was open or not. Comments were accepted up until preparation for publishing began. An additional formal comment period has been offered to allow the public to review the FEIS and Plan based on the preferred alternative prior to issuing a Record of Decision.

P-42. The FEIS should consider a 6th alternative which limits administration by the Forest Service and establishes a locally controlled pilot forest trust to guide Forest administration.

A Forest Plan is not able to establish a locally controlled pilot forest trust. This could only be done by Congress.

P-43. The FEIS should consider and alternative where all Inventoried Roadless Areas are recommended for wilderness.

The Forest did consider an alternative where all Inventoried Roadless Areas are recommended for wilderness; see Chapter 2, FEIS, under the heading Alternatives Considered but not Analyzed in Detail. Alternative 3 recommends 37% of IRAs for wilderness consideration.

P-44. The FEIS should consider an alternative based on Ecosystem Restoration.

An Ecological Forest Restoration alternative was considered; see Chapter 2, Alternatives Considered but not Analyzed in Detail. All alternatives have an element of restoration built into them

Resource Emphasis

P-45. The revised Forest Plan should preserve big empty places because they will only increase in value as development increases on private lands.

Please review the alternatives described in the FEIS as well as Appendix C.

P-46. The revised Forest Plan should end motorized use in roadless areas and recognize ecosystem processes.

An alternative to make inventoried roadless areas non-motorized year-round was considered; see Chapter 2, Alternatives Considered but not Analyzed in Detail. The FEIS developed a range of alternative which allocated different amounts of recreational use across the forest. Alternative 3 proposed the most amount of non-motorized recreation for the majority of the roadless areas, see the FEIS, page 6, Appendix C. This alternative was developed to respond to those commenter who would like to see the roadless areas non-motorized.

P-47. The revised Forest Plan should restrict motorized use.

The FEIS developed a range of alternatives which allocated different amounts of recreational use across the forest. Alternative 3 proposed the most amount of non-motorized recreation. Please review the alternative comparison table found in Chapter 2 for the FEIS for a display of motorized use restrictions by alternative.

P-48. The revised Forest Plan should provide protection from extractive resources and prevent resource damage.

The ID Team developed a range of alternative which looked at different levels of resource protection. These alternatives were analyzed and the effects disclosed in Chapter 3 of the FEIS.

P-49. The revised Forest Plan should provide protection and enhancement for fish and wildlife because of their importance to the changing cultural and economic future of southwest Montana.

The ID Team developed a range of alternative which looked at different levels of resource protection. These alternatives were analyzed and the effects disclosed in Chapter 3 of the FEIS.

Social

P-50. The Forest Service should address the perception that only motorized users work and pay taxes.

Forest plans set strategic direction for a Forest.

P-51. The revised Forest Plan should include an emphasis on helping young people appreciate nature.

Forest plans set strategic direction for the management of National Forest lands. The Forest Service is promoting a program called “Kids in the Woods.” See the FS website: www.fs.fed.us.

P-52. The Forest Service should work closely with all involved counties besides Beaverhead and Madison counties.

The Forest has worked with each county as per their requests. Some counties have chosen to be more involved than others. The Forest has encouraged all counties to participate in the revision process and has held several all county meetings focusing on forest plan issues.

P-53. The revised Forest Plan should specify ways to use volunteer efforts from special interest groups.

Forest plans set strategic direction for the management of National Forest lands. Forest plans are not intended to provide this type of direction.

P-54. The Forest Service should go directly to motorized recreation groups and ask for input.

Throughout the revision process, a variety of motorized recreation groups have provided input.

P-55. The FEIS should disclose any direction to meet a “demand” for motorized recreation.

We are unaware of any such direction. The FEIS recognizes both motorized and non-motorized uses; see Chapter 3, Economics and Social Values for a discussion of the conflict

P-56. The FEIS should eliminate discussion of political consequences regarding special interest groups.

This discussion was eliminated

P-57. The FEIS should provide the full content of letters with the summary of concerns.

The forest has received over 10,000 letters, which have been used to identify concerns, issues, and to develop alternative. These letters are part of the official final and are available to anyone in electronic format. It is not practical to include all letters in the FEIS.

Recreation Management

R-1. The revised Forest Plan should not lock up public land.

The forest plan allocates lands to meet the needs of a variety of users while providing for resource protection. Areas may be restricted to various types of transportation, but people are not restricted from using appropriate means to “access” public lands. Effects on access are described in the FEIS, Chapter 3, Economics and Social Values, “Effects on management of Traditional Rights”.

R-2. The revised Forest Plan should not promote auto tour loops.

In response to public comments the objective for auto tour loops was removed in Alternative 6 in the Final EIS.

R-3. The revised Forest Plan should not establish a marketing plan.

In response to public comments the objective for a marketing plan was removed in Alternative 6 in the Final EIS.

R-4. The revised Forest Plan should reduce the emphasis on recreation.

The FEIS developed alternatives which allocated lands to meet the needs of a variety of recreational users based on public comments. Alternative 4 emphasizes a sustainable flow of commodity outputs over other uses like recreation. The effects of doing this are analyzed by resource in Chapter 3 of the FEIS.

R-5. The revised Forest Plan should emphasize recreation values.

The FEIS developed alternatives which allocated lands to meet the needs of a variety of recreational users based on public comments.

R-6. The FEIS should consider specific impacts of different recreation activities, rather than broadly lumping and restricting groups of users from areas.

The FEIS considers impacts by type of activity, including motorized and non-motorized activities. Alternatives were developed taking into account different impact and public comments.

R-7. The Forest Plan should maintain objectives and standards to keep traditions of hunting, fishing, and associated economic contributions at the forefront.

The Forest Plan provides for a variety of opportunities for people to participate in these activities, through recreation allocations that were based on public comments to the FEIS. The Forest Plan also recognizes the importance of hunting and fishing and economic contributions in Chapter 1, Forest Niche, and Chapter 3, Economics and Social Values, Goals.

R-8. The revised Forest Plan should make non-motorized opportunities available in areas other than designated Wilderness.

The Forest Plan provides for non-motorized opportunities in 3 different allocations in addition to designated Wilderness. These are recommended wilderness, Wilderness Study Areas, and non-motorized areas. These can found in the Revised Forest Plan under the heading of Management Areas. Non-motorized areas for both summer and winter are visually displayed (forestwide) in the Forest Plan map section.

R-9. The revised Forest Plan should not use supply and demand as a basis for determining recreation uses.

Supply and demand calculations were used in the FEIS analysis to show the adequacy of various settings on the Forest, and to display effects of alternatives. These calculations were only one of several analysis tools used to describe effects. This is documented in the FEIS under the “analysis methods and assumptions” in Chapter 3, Recreation and Travel Management Section.

R-10. The Forest Service should not try to accommodate any and all visitor uses and it should recognize that non-motorized activities have less impact on the land and other uses.

The FEIS evaluated 6 alternatives developed to meet the needs of a variety of users while providing for resource protection. These alternatives were developed based on public comments. The impacts of non-motorized versus motorized activities are analyzed by resource in the FEIS, Chapter 3, under Effects to (resource topic) from Recreation and Travel.

R-11. The FEIS needs to recognize negative effect on the tourist economy of cows in recreation areas like high mountain lakes.

We considered whether this was an issue that warranted analysis during forest plan revision. There are currently livestock restrictions on most high mountain lakes through allotment management plans. In most cases, these areas are considered unsuitable for grazing. Where campgrounds are established around high mountain lakes and grazing does occur in the area, the recreation sites are closed to grazing. No evidence was found to support the conclusion this commenter reaches that the tourist economy is affected.

R-12. The revised Forest Plan should eliminate horse use to high mountain lakes.

While the Forest Plan does not specifically eliminate this use, it provides protection through an aquatics strategy that protects such areas from unacceptable impacts; see Plan, Aquatic Resources, Standard (GM-3).

R-13. The revised Forest Plan should restrict horses on some non-motorized trails because of resource damage.

A horse restriction on certain trails because of resource damage is a site-specific decision to be considered on those trails where the damage is occurring. The FEIS documents the rationale for not considering a site-specific travel management alternative in Chapter 2, “Alternatives Considered but not Analyzed in Detail”.

R-14. The Forest Service should use standard signing across all administrations to make it easier to understand.

Signing is provided through national and state sign standards, which is separate from the Forest Plan.

R-15. The revised Forest Plan should reduce camping restrictions; the fourteen day camping limit is too restrictive.

The maximum camping limit on the Forest is 16 or 14 days, depending on location. This restriction is a site-specific decision and is re-visited periodically. Rationale for decisions to be made from this FEIS is described in Chapter 1.

Hunting

R-16. The revised Forest Plan should designate yearlong non-motorized areas except for game retrieval.

The option of allowing for motorized game retrieval in non-motorized areas was considered, but not developed for the Forest Plan. We determined this was better dealt with in site-specific travel management decisions to be considered later at the District or watershed level. See the FEIS, Chapter 1, Decisions to be Made.

R-17. The revised Forest Plan should increase control of hunters to protect the environment.

While Montana Fish, Wildlife, and Parks regulates hunting, the Forest Service does cooperate and provide seasonal travel restriction to protect wildlife and other resources, and to provide a variety of hunting travel opportunities. Seasonal travel restrictions are made through site-specific travel planning analyses. Timing and type of hunting season closures of roads and trails is considered a site-specific travel decision. Chapter 2 of the FEIS documents the rationale for considering some site-specific closures in non-motorized allocations, “Decisions to be Made”. Rationale for not considering other site-specific travel decisions is documented in Chapter 2, Alternatives Considered but Not Analyzed in Detail, “Site-specific Travel Management Alternative”.

R-18. The Forest Service should provide a game pack out service.

Such services are provided through licensed and permitted outfitter and guides.

R-19. The FEIS should consider discussing time and type of hunting season closure.

Hunting seasons are regulated by the State of Montana.

R-20. The revised Forest Plan should designate the Joe Bauers Road for disabled hunters.

Disabled hunter access, on specific roads or trails, is a site-specific travel decision made at the District level. A Forest Plan sets strategic direction for the Forest; see FEIS, Chapter 1, Decision to be Made. There is nothing in any alternative which would restrict the District from making such a decision.

ROS

R-21. The revised Forest Plan should provide equal motorized and non-motorized ROS settings in both summer and winter.

Although there is not an alternative that provides an equal split between motorized and non-motorized ROS setting, a range of alternatives was developed. Alternative 3 best represents an equal split between motorized and non-motorized ROS setting with approximately a 49 to 51 percent split respectively. The effects of Alternative 3 are compared to other alternatives in the FEIS, Chapter 3, Recreation and Travel Management, “Balance of Recreation Settings”.

R-22. The revised Forest Plan should provide semi-primitive motorized settings and opportunities.

Based on this comment, a Summer Backcountry allocation was created and included in Alternative 6 between the Draft and the Final EIS. The Summer Backcountry allocation provide for a semi-primitive motorized setting.

The FEIS should map primitive vs. semi-primitive areas to show how many people one can expect to meet in a day in any given place.

The Recreation Opportunity Spectrum has been mapped for the existing condition and as projected by alternative. These maps are available in the Project File. Based on ROS mapping definitions, Primitive settings on the Forest are found in the core area of the Anaconda-Pintler Wilderness.

R-23. The FEIS should not use “solitude” to describe “primitive recreation” because recreation is social activity.

The ROS is a required tool for defining recreation settings and opportunities in Forest planning. Solitude is among the characteristics used to define Primitive recreation settings using the Recreation Opportunity Spectrum. Using ROS, the higher the number of social encounters, the higher the level of development. These concepts are further explained in the Recreation Opportunity Spectrum Handbook.

Developed & Dispersed Sites

R-24. The revised Forest Plan should restrict construction of additional recreation facilities.

Restricting construction of additional facilities was considered but not incorporated into the final plan because it would unnecessarily limit the Forest’s ability to respond to recreation pressure and protect other resources. Facilities would be constructed if needed to meet the desired condition and goal of a management area or to protect resources. See the FEIS, Chapter 2, Elements Common to All Action Alternatives and Chapter 3, Recreation and Travel Management, Environmental Effects, “Common to All Alternatives”.

R-25. The revised Forest Plan should provide more ORV trailheads and RV facilities to support motorized recreation.

The FEIS considered a range of recreation opportunities which are described in Chapter 2. Whether to provide for additional ORV trailheads and RV facilities will be part of implementation of the final decision, based on the management allocation and need, see the FEIS, Chapter 2, Elements Common to All Action Alternatives.

R-26. The Forest Service should recognize that summer motorized use will result in vandalism at the Chief Joseph cross-country ski area.

We recognize that vandalism is a risk at the Chief Joseph cross-country ski area (as with any developed area). We considered including the area between Trail Creek and Highway 43 in a non-motorized allocation. Non-motorized allocations are intended to provide a semi-primitive setting. Because of the history of harvest and access, this area is in a roaded setting and would not be well suited for this allocation. See Glossary, Recreation Settings. Although the area is in a motorized allocation, site-specific decisions to minimize use of specific roads in this area can still be considered.

R-27. The FEIS should address the shortage of dispersed camping sites along motorized routes.

During initial scoping and the Analysis of the Management Situation, a shortage of dispersed camping has not been identified. The National Visitors Use Monitoring Report (NUVM) issued in 2001 and 2007 for the BDNF has not identified a shortage of dispersed camping. In polling the Districts, the Forest has not identified a shortage of dispersed camping. However, the forest plan which implements Alternative 6 does include a goal to provide dispersed camping (see Forest Plan, Chapter 3, Recreation and Travel Management section).

Recreation Special Uses

R-28. The revised Forest Plan should establish limits for outfitter guides.

Forest Service policy outlines a process for determining the need for outfitter and guides. That direction is incorporated into the FEIS, Chapter 2, Elements Common to All Action Alternatives. The Forest Plan lays out the strategic direction for the Forest. The revised forest plan does speak to outfitters and guides in the Forestwide Direction in Chapter 3, under the heading of Recreation and Travel Management. It is the site-specific outfitter guide decisions which will determine limits.

R-29. The revised Forest Plan should restrict lessees and permittees to the same travel routes as the general public and require rehabilitation of routes they create.

Lessees and permittees must follow the same travel standards as the general public, unless their permits provide for specific exceptions. The exception would be determined through the site-specific decision process completed prior to issuing the permit. Lessees, permittees, or the public who create routes without authorization do so illegally and are subject to penalties. This would be a law enforcement issue.

R-30. The revised Forest Plan should limit permits for new recreation cabins and resorts.

The revised forest plan does not allow new winter resorts and national policy does not allow new recreation residences on National Forest System Land.

R-31. The revised Forest Plan should encourage development at Maverick Mt.

The revised forest plan recognizes Maverick Mountain and its recreational value. Any future development at Maverick Mountain would be completed through site-specific decisions based on need. The revised forest plan would not prevent some expansion of the facilities.

R-32. The FEIS should evaluate impacts to wildlife from additional developments at Discovery Basin.

Effects on wildlife would be one of many impacts evaluated through a separate site-specific NEPA analysis should further development be proposed.

Travel Management

TM-1. The revised Forest Plan should ensure non-motorized areas have a road access point so people don't have to travel on motorized trails.

Road access was a consideration for non-motorized allocations in alternatives 3, 4, 5, and 6. Boundaries for non-motorized allocations were adjusted for Alternative 6 based on these types of comments from the public and BDNF District Offices. There are a few locations remaining

where a short distance would be traveled on a motorized trail. These areas will be addressed through future site-specific travel planning analyses.

Analysis

TM-2. The revised Forest Plan should restore opportunities for non-motorized recreation in places where motorized use has driven out quiet recreation.

The FEIS identified a range of motorized and non-motorized alternatives. The alternatives and the effects of these alternatives are described in the FEIS, in Chapters 2 and 3. The plan, which implements Alternative 6, responds to this comment, closing areas to motorized use to provide quiet recreation opportunities.

TM-3. The revised Forest Plan should adhere to 39 CFR 295.5 which requires the effects of use by specific types of vehicles off roads be monitored. We did not see a discussion of these effects in the DEIS.

36 CFR 295 has been removed and no longer applies. The FEIS addresses the effects of motorized use (confined to designated roads and trails in all alternatives) on each key issue as it varies by alternative under the heading “Effects on (key issue) from Recreation and Travel Management”.

TM-4. The revised Forest plan should not make travel management decisions.

The current Forest Plan made travel management decisions which were evaluated for a need to change during the revision process (See DEIS, Chapter 1, page 4 and Chapter 2, Key Issues, page 15). The Forest Plan revision process may include additional travel management decisions if disclosed that such decisions may be made. The DEIS Chapter 1, under the heading “Decision to be Made (page 6) disclosed that this analysis and decisions may include travel management decisions. This has been clarified in the FEIS.

TM-5. The revised Forest Plan should include the off road and trail acres available to foot and horse use in comparing motorized to non-motorized use.

Other than the Butte Watershed, the entire Forest is open to horse and foot travel. This is common to alternatives.

TM-6. The revised Forest plan should eliminate 2 stroke but not 4 stroke machines to reduce noise.

Noise from snowmobiles was not identified as an issue during the revision process. Forest Plans are strategic documents which should allow technology to help resolve issues, see FEIS, Chapter 1, Decisions to be Made. As concerns for emissions and noise are raised, technology changes to address it. If the need to restrict a specific piece of machinery arises, it would be done through a site-specific decision.

TM-7. The revised Forest Plan should close all motorized use yearlong.

1982 Planning regulations, 36 CFR 219.21, require forests to provide a broad spectrum of forest and rangeland related outdoor recreation opportunities consistent with needs and demands for all major resources. Responsible motorized recreation on open roads and trails is a legitimate use. No need or demand for another resource indicated a need to close the forest to motorized use,

AMS, 2002. An alternative to close all inventoried roadless areas to motorized use year around was considered but not analyzed in detail, FEIS, Chapter 2.

TM-8. The Forest Service should not delay restrictions on motorized use as it will only compound problems which will result from over-use.

The FEIS provides for restricting motorized use in non-motorized allocations immediately following the Plan ROD, see FEIS, Chapter 1, “Related Decisions Which Implement the Forest Plan”. A second ROD will be issued by the BDNF Forest Supervisor to make site-specific travel management decisions necessary to protect resources or meet public expectations where existing non-conforming activity is taking place in an allocation.

TM-9. The Forest Service should realize any travel decisions will not be meaningful unless a total transportation plan by watershed with public input is conducted.

The Forest Service does recognize that site-specific travel planning will continue after the Forest Plan. However, there are varying degrees of travel decisions. The travel decisions being evaluated in this EIS are outlined in Chapter 2 of the FEIS, Related Decisions to be Made.

TM-10. The revised Forest Plan should do more to reduce the noise, emissions, and gas consumption effects of motorized recreation to the landscape, habitats, wildlife, and people.

A Forest Plan is a strategic document that directs management of national forest lands. It does not provide direction for how types of machines are constructed. The forest plan does recognize impact of particular activities and provide direction to protect resource values. The Plan, which implements Alternative 6, does increase the restrictions on motorized travel to limit effects on wildlife as well as other resources. It also attempts to balance resource conservation with recreation values.

TM-11. The FEIS should address increasing pressure from expanding motorized use.

The FEIS addressed this concern in the affected environment for Recreation and Travel under “Local Recreation Trends. Six alternatives were developed which provide different levels of motorized allocation. The effects of expanding motorized use were displayed for each alternative; see FEIS, Chapter 3, “Effects on (key issue) from Recreation and Travel Management.

TM-12. The revised Forest Plan should specify whether motorized area allocations are open for unrestricted motorized use.

The Forest Plan and FEIS both state that current travel restrictions apply in motorized allocations, FEIS, Chapter 2, Elements Common to All Alternatives. Regardless of alternative, the Plan will include a Recreation Standard which prohibits year around wheeled cross-country travel based on the Tri-State OHV Decision, See Forest Plan, Chapter 3, Recreation and Travel Management.

TM-13. The FEIS should specifically address the need for single track motorcycle and mountain bike trails.

The FEIS and revised Forest Plan recognize mountain bikes and motorcycles as valued recreational activities on the Forest. Based on this and similar comments, additional analysis and

discussion was added for mountain bikes between Draft and Final. The FEIS discusses mountain bikes (Chapter 3, Recreation and Travel Management, Summary of Effects “Non-motorized Recreation and Travel Opportunities”) and motorcycle recreation, areas or routes open to them (Chapter 3, Recreation and Travel Management, Effects by Landscape).

TM-14. The revised Forest Plan needs a standard providing a minimum of a 50 mile system of single track motor and mountain bike trails per ranger district.

Standards are direction necessary to achieve a level of resource protection. They apply when a site-specific project is being developed. A minimum of a 50 mile system of single track motor and mountain bike trails per ranger district would not qualify as a standard but there is nothing in the Plan that constrains Districts from providing this within the appropriate recreation allocations.

TM-15. The revised Forest Plan should not direct management of multiple use public lands as wilderness area.

Recommending areas for Wilderness is among the decisions considered when revising a forest plan (36 CFR 219). Recommending areas as wilderness or managing an existing wilderness are appropriate and ARE considered multiple use under the Multiple Use Sustained Yield Act, see FEIS, Glossary.

TM-16. The FEIS should justify every motorized closure.

The FEIS, Chapter 1, “Decisions to be Made” describes the types of motorized closures that would be made with a second Record of Decision following the Forest Plan ROD. The effects of these motorized closures are described in detail in the various resource sections in Chapter 3 of the FEIS, and in particular in Recreation and Travel Management, “Effects by Landscape”.

TM-17. The Forest Service should recognize that horses and mountain bikes do more damage than ATV’s and snowmobiles when deciding motorized and non-motorized allocations.

The Forest Service acknowledges that each type of use or travel has potential for adverse effect on the environment. We do not attempt to pit one use against another, but rather to provide opportunities for each of the recreational activities to take place with the least amount of impact to the environment or users. Rationale for a range of travel management alternatives and the indices for measuring impacts are provided in the FEIS, Chapter 2, Key Issues, Recreation and Travel Management.

TM-18. The revised Forest Plan should restrict motorized vehicles to those with advanced noise reducing technology and other protections such as plates to limit weed spread.

Forest Plans are strategic documents which should allow technology to help resolve issues. As the concern for noise or other issues are raised, technology is developed to address it. If the need to restrict a specific piece of machinery arises, it would be done through a site-specific decision.

TM-19. The revised Forest Plan should keep all areas traditionally used by snowmobiles open.

Alternatives 1 and 4 best represent this concern; see FEIS Chapter 2, Alternatives. The Record of Decision will document the rationale for why alternatives were selected or not.

TM-20. The revised Forest Plan should minimize motorized use to the greatest extent possible because use of off-road vehicles does not seem to foster respect for natural values.

Alternative 3 best represents this concern, see FEIS Chapter 2, Alternatives. Regardless of alternative, cross country travel is prohibited, FEIS, chapter 2, Elements Common to All Action Alternatives, “Tri-State OHV Decision”.

TM-21. The Forest Service should reconsider creating a destination forest for motorized recreation.

The forest plan provides opportunities for both motorized and non-motorized recreational activities. The forest plan neither creates nor not creates a destination forest for motorized recreation.

TM-22. The revised Forest Plan should explain the source of the Forest’s “recreation niche.”

The Forest recreation niche, Forest Plan, Chapter 1, was developed using the Forest Leadership Team, District Recreation Specialists, and public comment on features of the BDNF important to them.

TM-23. The FEIS should include travel planning for the Whitetail-Pipestone area as a connected action in the analysis.

Whitetail-Pipestone is a site-specific travel planning project being developed under the current Forest Plan. Because of delays in that decision, the revised Forest Plan may well be published prior to the Whitetail-Pipestone travel decision. The FEIS incorporates road and trail data from the Whitetail Pipestone travel planning. Jefferson District personnel assisted in alternative development for travel in that area and management area direction in an attempt to coordinate alternatives.

TM-24. The FEIS should revise projected growth in recreational use based on the increasing population in the Grasshopper Valley, completion of the Pioneer Mountains Scenic Byway, Madison County projections, and summer seasonal fluctuations.

Growth projections used in the DEIS were revisited before publishing the final. The Report to the Nation: The National Survey on Recreation and the Environment, H. Ken Cordell, 2004, USDA FS, Southwest Research Station, “Outdoor Recreation for the 21st Century” which projected growth by county, nationwide continues to be the best source applicable across the forest. Because the FEIS considers a 7-county area, we need a consistent basis, like counties, to provide the best data, rather than small areas like the Grasshopper Valley.

TM-25. The FEIS should resolve contradictory statements about ATV use and earlier demand projections.

The FEIS has been reviewed for contradictory statements about ATV use and earlier demands projections, although none were specifically identified.

TM-26. The FEIS should disclose that visitor surveys do not reflect importance of motorized and mechanized recreation.

The NVUM surveys are random and not intended to portray “importance.” Descriptions of the NVUM survey in the FEIS portray it as a measure of participation rates with NO distinctions based on “importance”, FEIS, Recreation and Travel, Analysis Methods and Assumptions, “Survey, Trend, and Use Information”. Our objective in the revised forest plan is to provide a range of recreation opportunities for a variety of user types.

TM-27. The FEIS should consider the importance and magnitude of motorized access.

The Forest understands that motorized access is important to forest visitors. The FEIS presents a range of alternatives to compare different levels of motorized use. The FEIS also discloses the economic contributions of motorized recreation versus non-motorized recreation in the Economics and Social Values section of Chapter 3. Visitor surveys were used to generate the expenditure data for 21 various motorized and non-motorized activities. “Spending Profiles of National Forest Visitors”, NVUM four Year Report: D. Styne, 2005. The data provided by Styne shows visitors participating in motorized activities contribute more to local economies than many visitors who aren’t purchasing gas and overnight visitors spend more than day visitors, regardless of their transportation.

TM-28. The FEIS should reconsider using visitor use surveys to exclude snowmobiling, ATVs, and hunting.

The NVUM surveys were not intended to exclude any type of use. National Visitor Use Monitoring Surveys are a nationally developed survey conducted on every forest using scientifically developed protocols. It is the best science we currently have. These surveys were used to help describe current use and present a “picture” of what type of recreation takes place on the forest.

TM-29. The FEIS should not use visitor surveys because the data is inaccurate and misleading.

National Visitor Use Monitoring Surveys are a nationally developed survey conducted on every forest using scientifically developed protocols. Accuracy levels of the data are disclosed in the survey and there is no better broad source of information. Comparisons of selected activities, like hunter visits, to other data sources, (Montana Fish Wildlife and Parks) show the numbers to be fairly consistent when adjusted to national forest lands only.

TM-30. The FEIS should include an adequate analysis of the cumulative effects of closures to motorized uses over the last 35 years needs, including lands under other administrations.

With the improvements in technology (particularly in snowmobiles), the creation of ATV’s, and the amount of new road construction, the BDNF is more accessible to more people using motorized vehicles today than thirty five years ago. The restrictions to motorized travel have come about more recently, with the increase in motorized use, as monitoring has identified resource damage and adverse environmental impacts occurring. The FEIS discloses the cumulative effects of closures to motorized uses since 1986 in the Economics and Social Values section of Chapter 3. This analysis includes lands administered by other agencies.

TM-31. The FEIS should provide proof that the current plan does not provide a balance of winter opportunities.

The existing condition, Alternative 1, shows 80% of the forest available to snowmobiles. The FEIS identified and analyzed a range of alternatives which allocated different mixes of winter recreational used, based on public comment, see FEIS, Chapters 2 and 3.

TM-32. The FEIS should offer proof that the existing plan is not providing an acceptable balance of opportunities.

The FEIS identified and analyzed a range of alternatives which allocated different mixes of recreational opportunities, see FEIS, Chapter 2. Effects on the balance of opportunities by alternative were measured using “Acres of each Recreation Opportunity Setting “, FEIS, Chapter 3, Recreation and Travel Management, Effects Indicators, and “changes to lifestyle, attitudes and values”, Chapter 3, Economics and Social Values, Effects Indicators.

TM-33. The FEIS should explain why snowmobile areas are being decreased when the analysis says nearly all visitors indicated they either did not sense crowding or “hardly anyone was there.”

While NVUM survey results indicated snowmobilers feel very little sense of crowding, public comment indicates a need for additional areas free of snowmobiles in winter for quiet recreation and wildlife security, FEIS, Chapter 2, Key Issues, Recreation and Travel Management. The FEIS identified and analyzed a range of alternatives which allocated different mixes of winter recreational uses, based on public comment, see FEIS, Chapter 3, Recreation and Travel Management and Economics and Social Values sections.

TM-34. The FEIS should include benefits to non-motorized users and wildlife from decisions in Alternative 5.

These benefits are described in the Recreation and Wildlife sections of the FEIS.

TM-35. The FEIS should consider how “let it burn” policies have considerably more impact on the environment than motorized recreation.

It is not possible to make this comparison; fire is a natural process within a fire dependant ecosystem, while motorized recreation is a social activity with no benefit to the ecosystem.

TM-36. The revised Forest Plan should make the quantities of closures clearer to reduce the arguments about not providing enough opportunities for motorized use.

The FEIS has been updated to better explain the opportunities available for various types of recreational activities for the different alternatives. Effects are quantified by acres available for motorized use as well as miles of road and trail open for motorized use, FEIS, Chapter 3, Recreation and Travel Management, Direct and Indirect Effects.

TM-37. The FEIS should acknowledge there are few conflicts between snowmobiles and cross-country skiers.

After evaluating public comments to the Proposed Action and the DEIS, we did not find this statement to be accurate, see FEIS, Chapter 5, Response to Comments.

TM-38. The FEIS should use the Montana Wilderness Association data which shows a better economic return from non-motorized winter sports than motorized winter sports.

The 2005 Gallatin Forest Economic Study used the same visitor expenditure data we did – “Spending Profiles of national Forest Visitors, NVUM Four Year Report, 2005”. They also used NVUM visitor data, as surveyed on the Gallatin National Forest, and the same model (IMPLAN) to generate economic impacts, see Project File for the Gallatin Forest report and the FEIS, Chapter 3, Economics and Social Values, Affected Environment, Economic Diversity and Dependency, Recreation and Tourism, for a discussion of how the FEIS treated this data. We believe this data to be the best available that is statistically repeatable.

TM-39. The revised Forest Plan should not include limited terrain and forest cover in areas allocated to snowmobile use.

Several ideas were explored to best display winter allocations for comparison purposes. The team felt the best way to reduce confusion and to be able to tie allocations to maps was to keep all areas where snowmobiles are allowed in one allocation regardless of natural barriers such as terrain, forest cover, or the depth of snow.

TM-40. The FEIS should compare use levels between non-motorized allocations and congressionally designated Wilderness.

In considering this suggestion, we were unable to see a reason for this comparison. Wilderness is designated to provide opportunities for a particular user group, while non-motorized allocations may be designated for a different use group or for no user group. Some non-motorized areas are established for wildlife concerns, not users. The FEIS compares surveyed use levels between a number of non-motorized activities and designated wilderness in Chapter 3, Economics and Social Values, Affected Environment, Recreation and Tourism.

TM-41. The FEIS should map primitive vs. semi-primitive areas to show how many people one can expect to meet in a day in any given place.

ROS was mapped for the FEIS. There is very little "primitive" ROS on the Forest. All is within existing wildernesses. See FEIS, Chapter 3, Recreation and Travel Management.

TM-42. The FEIS should not use “solitude” to describe “primitive recreation” because recreation is social activity.

Solitude is standard term used to describe primitive recreation as well as part of what a wilderness provides according to the Wilderness Act.

TM-43. The FEIS should revise the motorized closures in Alternative 5 because the analysis shows adequacy of existing non-motorized settings beyond the life of the plan.

The FEIS (Chapter 2, Alternatives) displays a range of motorized and non-motorized setting. Alternatives 1 and 4 provide for the most motorized settings. Based on public comment, Alternative 6 was developed which increased motorized settings in some areas and increased non-motorized settings in others.

TM-44. The FEIS should revise the analysis to adequately reflect the loss of prime snowmobiling areas in the Gravelly range.

The FEIS developed a range of alternative concerning snowmobiling in the Gravelly range. The effects of these alternatives are discussed in the Chapter 3 of the FEIS. An extensive analysis was added between Draft and Final to reflect the economic and social effects of closing Mount

Jefferson, in the Gravelly Landscape, to snowmobiling. Alternative 6 was developed to leave part of this area open to snowmobiling.

TM-45. The FEIS should prove the “user conflicts” and “wildlife security” arguments for closures.

User conflicts are well documented by reviewing the public comments in this chapter of the FEIS. Wildlife security needs are disclosed in the Wildlife Habitat Management section in Chapter 3 of the FEIS.

TM-46. The FEIS should provide documentation of user conflicts.

In this list of summarized concerns you will see the conflicts represented in requests for restrictions or reductions in all types of recreation use. The largest concern is based on the conflict between motorized and non-motorized users.

TM-47. The Forest Service should provide that document, and decision-making, reflect citizen support for motorized access and recreation.

Public support for motorized access and recreation is documented in the public comments received during all phases of the revision process. It is reflected in the FEIS, Chapter 2, discussion of the Key Issue Recreation and Travel Management, in the Chapter 3 Affected Environment for Recreation and Travel Management and Economics and Social Values. Alternative 6 was designed, in part, to reflect this support by allocating areas for motorized recreation as well as non-motorized recreation. The Plan, based on Alternative 6, has desired conditions, goals and objectives for motorized recreation, see Plan, Chapter 3, Forestwide direction for Desired Conditions and the Recreation and Travel Management.

TM-48. The FEIS should compare the impact of recreation needs to the impact of natural events like flood and fire.

The effects of the alternatives are displayed in Chapter 3 of the FEIS although a direct comparison between natural events and recreation was not done. The analysis displays effects of proposed management actions that the Forest Service has some ability to control (including recreational use) in comparison to the “No Action” alternative.

TM-49. The revised Forest Plan should maintain the existing miles of motorized and non-motorized trails and areas.

Alternative 1, the No Action alternative which would maintain the existing miles of motorized and non-motorized trails if selected, was considered and analyzed in the FEIS. Chapter 1 of the FEIS, Revision Topics, Topic 4: Recreation and Travel Management, documents the need to change from Alternative 1. The Record of Decision documents the selection of the preferred alternative over no action.

TM-50. The revised Forest Plan should manage recreation and allocate non-motorized and motorized opportunities as described in Alternative 3.

Alternative 3 was developed and analyzed as a possible strategy for managing recreation and other Forest resources. The Record of Decision will document the rationale for the selected alternative.

TM-51. The revised Forest Plan should manage recreation and allocate uses as described in Alternative 4.

Alternative 4 was developed and analyzed as a possible strategy for managing recreation and other Forest resources. The Record of Decision will document the rationale for the selected alternative.

TM-52. The revised Forest Plan should manage recreation and allocate uses as described in Alternative 5.

Alternative 5 was developed and analyzed as a possible strategy for managing recreation and other Forest resources. The Record of Decision will document the rationale for the selected alternative.

TM-53. The revised Forest Plan should carry forward Alternative 5 because it includes many non-motorized designations for quiet winter recreation opportunities including access to make these opportunities possible.

Alternative 5 was considered as the preferred alternative in the Draft EIS. Public and internal comments were used to develop Alternative 6, which retains many of the recreation allocations of Alternative 5.

TM-54. The revised Forest Plan should select Alternative 5 because it deals with the conflicts between motorized and non-motorized recreationists and adds much needed non-motorized winter opportunities.

Alternative 5 was considered as the preferred alternative in the Draft EIS. Public and internal comments were used to develop Alternative 6, which retains many of the recreation allocations of Alternative 5, but further defines opportunities for motorized trail recreation and other opportunities.

TM-55. The revised Forest Plan should use non-motorized allocations instead of recommended Wilderness in order to keep as more areas open to mountain biking.

A range of recreational allocations were developed to address public comment. Alternative 4 uses non-motorized allocations rather than recommended wilderness to provide quiet recreation experiences. Alternatives 1 and 2 allow mountain bikes in recommended wilderness. The effects of alternatives are compared in the FEIS, Inventoried Roadless Areas and Recommended Wilderness, Summary of Effects by Alternative, and in the Recreation and Travel section under Summary of Effects, Non-motorized Recreation Opportunities and Activities.

Enforcement

TM-56. The revised Forest Plan should establish a strong law enforcement program with meaningful penalties and not through motorized restrictions and recommending wilderness.

Law enforcement is used as an implementation tool and is not a forest plan decision. See Chapter 1 of the FEIS, under the heading “Decision to be made”.

TM-57. The revised Forest Plan should include direction for signing of travel restrictions.

Signing of travel restrictions is considered implementation, not a forest plan decision. See Chapter 1 of the FEIS, “Decisions to be Made”. National signing direction is detailed in FSM 7160.

Objectives & Standards

TM-58. The revised Forest Plan should make the non-motorized objective consistent with previous objectives.

The recreation and travel management section of the draft forest plan was reviewed and modified based on comments like this. The goals, objectives, and standards have been modified in the revised forest plan to address the different user groups.

TM-59. The revised Forest Plan should include an objective for winter motorized use.

The revised forest plan includes goals for winter motorized recreation. The ID Team could not identify a winter motorized objective. Objectives are not used to acknowledge a particular use, but rather to correct an unwanted situation. See the definition of “objective” in the glossary.

TM-60. The Draft Plan failed to acknowledge motorized use as a Forestwide objective.

In response to comments like this, two additional recreation allocations were developed in Alternative 6 and applied in the Plan. Goals were developed for a backcountry motorized allocation and a roaded motorized allocation, see Plan, Chapter 3, Recreation and Travel Management. Objectives are not used to acknowledge a particular use, but rather to correct an unwanted situation. See the definition of “objective” in the glossary.

TM-61. The revised Forest Plan should clarify Recreation Standard #2 by explaining how there is no need for road and trail additions as stated on page 30 of the Draft Plan, and the basis for inventory.

This standard was dropped in Alternative 6 and the Plan which implements it. The basis for the Interim Roads and Trails Inventory and how it will be used is explained in the FEIS, Chapter 1, Decisions to be Made, “Related Decisions Which Implement the Forest Plan”.

TM-62. The revised Forest Plan should change standard #2 on page 31 to say “No new motorized vehicles or mountain bikes. . . .”

The FEIS considered a range of alternatives for managing travel in recommended wilderness. Alternatives 1 and 4 do not exclude motorized vehicles from areas because of recommended wilderness. Alternatives 1, 2, and 4 do not exclude mountain bikes from areas based on recommended wilderness. The rationale and effect of doing so in Alternatives 3, 5, and 6 is documented in the FEIS, Chapter 3, IRAs and NWPS Additions, Effects on IRAs and NWPS Additions from Recreation and Travel Management, “Travel Restrictions in Recommended Wilderness”. The Forest Plan implementing Alternative 6 will retain this standard. The Record of Decision will document the rationale for the selected alternative.

TM-63. The revised Forest Plan should change the road objective to say “identify and maintain,” instead of just “identify”.

After review, this was not written as an objective, but was stated more like a goal. It has been modified as a goal and includes the words manage and maintain.

TM-64. The revised Forest Plan should implement a closed unless posted open policy to manage motorized routes.

The new National Forest Service Policy is designated routes for motorized travel. All Forests, including the BDNF, are currently implementing this policy. This is similar to a closed unless posted open strategy.

OHV

TM-65. The revised Forest Plan should prevent the proliferation of OHV routes.

The revised Forest Plan does this by restricting OHV travel to routes identified on the road and trail map. Travel on routes not on the map will be considered illegal cross-country travel. The basis for the Interim Roads and Trails Inventory and how it will be used is explained in the FEIS, Chapter 1, Decisions to be Made, “Related Decisions Which Implement the Forest Plan”.

TM-66. The FEIS should adequately disclose the significant adverse impact of ORV user demands and illegal actions.

The FEIS analyzed the positive and adverse effects of alternative management strategies for the Forest, including OHV use. See Chapter 3 of the FEIS under the various resource sections, “Effects to (key issue) from Recreation and Travel Management.”

TM-67. The FEIS should consider the impact of additional closures resulting in crowding in remaining areas open for motorized use.

The Recreation and Travel Management section of the FEIS discusses this, particularly with regard to Alternative 3, which closes the largest areas to motorized uses in summer and winter, see Chapter 3.

TM-68. The revised Forest Plan should accommodate the proliferation of Off Highway Vehicles with more OHV routes and facilities.

The expanding use of OHVs was considered in developing Alternative 6. The Forest Plan identifies 2 motorized allocations, where additional routes and facilities may be allowed.

TM-69. The Forest Service should provide detailed information and trails for all user types.

Each alternative allows all common National Forest trail uses somewhere on the Forest. Trails are provided for most common recreation activities such as hiking, backpacking, horseback riding, packing stock, mountain bikes, motorcycles, ATVs, cross-country skiing, and snowmobiling. Extreme sports which may damage the resource or adversely affect recreation settings are restricted. Recreation opportunity guides are free and visitor maps are available for purchase at Forest offices and some retail outlets.

TM-70. The revised Forest Plan should provide trail standards for each use.

Standards for trails are provided in FSH 2309.18, and are specific to the type of travel. It was unnecessary to develop new standards for the Plan.

TM-71. The revised Forest Plan should eliminate and close user created motorized trails.

The revised Forest Plan intends to accomplish this by restricting OHV travel to routes identified in the road and trail inventory. Travel on routes not on the inventory will be considered illegal cross-country travel. The basis for the Interim Roads and Trails Inventory and how it will be used is explained in the FEIS, Chapter 1, Decisions to be Made, “Related Decisions Which Implement the Forest Plan”. Site-specific travel planning is expected to further refine roads and trails available for use.

TM-72. Limit ATV use to roads and leave trails for quiet users.

Alternative 3 best addresses this concept but does leave a few trails open for motorized uses. Closing all trails was not among the analyzed alternatives as it was considered too restrictive to comply with multiple use mandates. 1982 Planning regulations, 36 CFR 219.21, requires forests to provide a broad spectrum of forest and rangeland related outdoor recreation opportunities consistent with needs and demands for all major resources. Responsible motorized recreation on open roads and trails is a legitimate use. No need or demand for another resource indicated a need to close all forest trails to motorized use (AMS, 2002).

TM-73. The revised Forest Plan should include a funding mechanism for gas tax revenue to maintain OHV trails.

The use of state gas taxes to maintain OHV trails is already practiced on the Forest through state OHV grants. The inclusion of this and other partnership practices was considered. Most are not included in the plan, rather, they are allowed as a method of accomplishing Forest Plan goals and objectives.

TM-74. The revised Forest Plan should restrict off-road vehicle use near streambeds.

Under the Tri-State OHV Decision, which is incorporated in the revised Forest Plan, there is no off-road vehicle use. Standards for aquatics require restricting uses like dispersed camping near streambeds if they affect the riparian area, stream, or viability of sensitive native fish.

TM-75. The revised Forest Plan should further restrict ATVs and snowmobiles to provide traditional non-motorized recreation and protect natural resources.

The FEIS considered a range of alternatives for allocating motorized and non-motorized recreation. Alternative 3 restricts ATVs and snowmobiles the most. The preferred alternative attempts to provide balanced recreation opportunities in conjunction with resource protection.

TM-76. The revised Forest Plan should establish direction to reduce erosion and protect resources from motorized uses, particularly ATVs.

The revised Forest Plan establishes a number of standards in the Soils and Aquatic Resource sections and Wildlife sections to do just this.

TM-77. The revised Forest Plan should reconsider eliminating motorized trails in roadless areas because the roadless rule specifically allows continued motorized recreation use.

An alternative closing all inventoried roadless areas to motorized use year-around was “considered but not analyzed in detail”, see that section in the FEIS, Chapter 2, Development of Alternatives. All of the developed alternatives allow some motorized travel in roadless areas. Alternative 3 would close most roadless area lands to motorized travel. Alternative 6, the

Preferred alternative closes some areas presently open, but it does allow continued motorized recreational use on some roads and trails in the remaining inventoried roadless areas.

TM-78. The Forest Service should review the specifications of manufactured off road vehicles. They are equal to WWII jeep 4x4s.

The Forest Service does have a definition for width and height of trail and other vehicles; see Glossary for Trail Vehicle. Vehicles wider than 5 feet are categorized as non-trail vehicles.

TM-79. The revised Forest Plan should fully disclose adverse impacts and user conflicts resulting from greatly increased use of ORVs.

The FEIS analyzes the impacts of a range of alternative levels of OHVs and motorized use. See the various sections in Chapter 3 under “Effects to (key issue) of Recreation and Travel Management”.

2001 OHV Amendment

TM-80. The revised Forest Plan should resolve the discrepancy between routes under the 2001 OHV rule, the travel plan, and the Forest Transportation Atlas.

The Plan attempts to do this by establishing an Interim Roads and Trails Inventory. The basis for the Interim Roads and Trails Inventory and how it will be used is explained in the FEIS, Chapter 1, Decisions to be Made, “Related Decisions Which Implement the Forest Plan”. This map was developed with extensive public input. The Interagency Visitor Map (travel plan) is scheduled for revision after the Forest Plan is complete. At that time, the Forest Plan, its included road and trail inventory (developed during the Forest Plan Revision Process to help implement the OHV rule), and the Forest Transportation Atlas will be integrated as budgets allow.

TM-81. The Forest Service has not complied with the 2001 OHV Rule requiring a complete trail inventory for travel planning.

A road and trail inventory was developed with public review, during the Forest Plan Revision Process to help implement the Tri-State OHV Decision (2001). Input from the public and agency staff was used to update the inventory before the Draft EIS was released. This inventory will service as the interim route map for the forest. District level travel planning is currently underway and will continue until the entire forest is covered by a Motor Vehicle Use Map.

TM-82. The revised Forest Plan should carry forward the 2001 OHV amendment.

The revised forest plan does carry forward the OHV amendment (referred to in the FEIS as the Tri-State OHV Decision). See the Recreation Objectives and Standards sections.

TM-83. The FEIS should disclose the effects of “illegal” ORV use and the absence of adequate enforcement.

The FEIS analyzed the positive and adverse effects of alternative management strategies for the Forest, including OHV use. See Chapter 3 of the FEIS under the various resource sections, “Effects to (key issue) from Recreation and Travel Management.”

TM-84. The FEIS should acknowledge the OHV amendment did enough to limit OHV access by removing all acres without OHV trails in them.

The FEIS recognizes the OHV amendment (referred to in the FEIS as the Tri-State OHV Decision) as a part of Alternative 1, the No Action Alternative, and as a part of all other alternatives. The effects analysis of all alternatives for all resources considers the OHV amendment.

TM-85. The Forest Service should honor the agreement in the OHV ROD. The roadless rule did not close any roads, and the agency must honor this commitment.

The OHV ROD (referred to as the Tri-State OHV Decision) required the Forest to inventory routes to be managed for motorized use during travel planning. That requirement has been met during Forest Planning; see the FEIS, Chapter 2, Elements Common to All Action Alternatives. The roadless rule (Roadless Area Conservation Rule, 2001) is a separate decision which does not close any roads, but does not create any commitments to retain open roads either.

TM-86. The revised Forest Plan should no permit off-road vehicle use.

Cross country travel off route is prohibited by the Tri-State OHV Decision which is incorporated into all action alternatives; see FEIS, Chapter 2, Elements Common to all Alternatives. Wheeled vehicles will be restricted to travel on roads and trails and according to seasonal closures with decisions based on Forest Plan direction.

Travel Plan & Inventory

TM-87. The Forest Service should distribute travel plans free of charge, so there would be no excuses for violations.

Motor Vehicle Use Maps developed for each Ranger District under the 2005 Travel Management Rule will be provided to the public free of charge starting in 2008. Until those are completed, FS policy requires the sale of visitor maps in order to recover costs of producing them. This policy is described in FSM 6532.7.

TM-88. The Forest Service should publish the Visitor and Travel Plan information on the same map.

To the extent possible, travel and visitor information are published together on the Interagency Visitor map. However, visitor information for some areas is too extensive to place on the map, and is usually available free of charge at FS offices.

TM-89. The revised Forest Plan should standardize and simplify closure dates on the travel plan.

Closure dates were initially developed based on site-specific objectives for specific locations. Standardizing these dates is considered a site-specific travel decision. The FEIS, Chapter 2 describes the rationale for not considering a site-specific travel management alternative under “Alternatives Considered but Not Analyzed in Detail”. As the forest moves through site-specific travel planning, we will try to simplify dates as much as possible.

TM-90. The revised Forest Plan should provide permanent motorized road and trail designations.

Allocations made at the Forest level in Forest Plans are made for the timeframe of the plan. More permanent “designations” are made by Congress, the President, and in some cases (National

Recreation Trails are an example) by Department heads within the executive branch of the Federal government.

The Forest Plan implementing Alternative 6 does provide an inventory of roads and trails that identifies the basis for interpreting the Tri-State OHV Decision.

TM-91. The Forest Service should complete the transportation plan for each watershed with collaborative public input in order to meet the needs of the recreating public.

Under the 2005 Travel Management Rule, each ranger district will develop a site-specific travel plan and Motorized Vehicle Use Map using public input. The Interim Roads and Trails Inventory developed with public and ranger district participation as part of forest plan revision provides the starting point for that process.

TM-92. The revised Forest Plan should make June 1 the opening date for most motorized trails.

The Forest Plan does not set specific closure (or opening) dates for motorized trail travel. Closure dates were initially developed based on site-specific objectives for specific locations. Standardizing these dates is considered a site-specific travel decision. The FEIS, Chapter 2 describes the rationale for not considering a site-specific travel management alternative under “Alternatives Considered but Not Analyzed in Detail”. The Plan does provide a window of May 15 to December 1 to define “summer” use of trails when trails may be open to motorized travel for all or part of that timeframe. Other dates were considered, but these dates were adopted based on their consistency with dates used by Montana Fish, Wildlife, and Parks and other agencies.

TM-93. The revised Forest Plan should set fall travel restrictions after September 15th to allow a final ride before hunting season, and open routes sooner in the spring.

The Forest Plan does not set specific closure dates for motorized trail travel. The FEIS, Chapter 2 describes the rationale for not considering site-specific travel changes under “Alternatives Considered but Not Analyzed in Detail”. Instead, it provided a window of May 15 to December 1, in which trails in some allocations may be open to motorized travel for all or part of that timeframe. After discussions of possible closure seasons, alternatives for closure dates in the fall within those areas were left to site-specific travel planning to ensure responsiveness for hunter opportunities and big game management.

TM-94. The revised Forest Plan should specify how implementation of travel allocations will take place.

This is discussed in the FEIS, Chapter 1, Related Decisions Which Implement the Forest Plan. The record of decision will also discuss how travel decisions will be implemented.

TM-95. The Forest Service should identify and disclose RS 2477 roads and trails in the Forest Road and Trail Inventory and include County input.

Identification of RS2477 roads and trails would appropriately take place at the time of site-specific travel planning.

TM-96. The revised Forest Plan should require improvement of the transportation system for people without four-wheel drive vehicles.

The Forest Plan provides an objective for inventory and maintenance of a minimum transportation system. FS Manual 7700 provides standards for road maintenance, and requires the Forest to determine appropriate maintenance levels for all system roads. Many roads on the Forest are maintained for and passable by 2WD vehicles in the summer and fall. Some roads, however, are maintained only for travel with 4WD vehicles.

TM-97. The revised Forest Plan should provide more detail about closures, obliteration, termination of temporary roads, and inventory criteria.

The Recreation and Travel section of the EIS provides analysis of road closures. The inventory criteria are available in the Project File. The method of dealing with temporary roads is site-specific, and will be addressed in site-specific NEPA for those temporary roads.

TM-98. The revised Forest Plan should not incorporate roads created before 2001 in the Forest Road System.

The FEIS describes the issue of user created roads and the Tri-State OHV Decision in Chapter 2, Key Issue, Recreation and Travel Management. As noted, repeated use of what may have been a post-2001 illegal route makes it visibly define-able on the ground. Alternatives 3, 4, 5, and 6 establish an Interim Roads and Trails Inventory which is an inventory that would define legal routes until site-specific travel planning is completed. The inventory was prepared from public and ranger district input. Routes that we could ascertain had been created since 2001 were not included.

TM-99. The Forest Service should base the road and trail inventory on the routes shown on the 2001 Visitor Map, and the standards should limit motorized users to those routes.

On the surface, this concept appears sound, and the visitor map has provided information for the inventory. However, the visitor map was not developed to display every road and trail on the Forest, is limited by its scale, and was found to be too incomplete and inaccurate to be used as a total inventory.

TM-100. The FEIS should disclose the source of data that shows a very large increase in routes from the 1996 Southwestern Montana Interagency Visitor Map.

The forest inventory of routes has been regularly updated since 1996. There are many sources for the data: aerial photography, field GPS mapping of routes, internal FS inventories, public input, etc. The reasons the inventories are different are: additional user created routes in areas previously open for cross country travel, newly built routes, and routes that were missed in the '96 inventory.

TM-101. The Forest Service should not use the road and trail inventory because it includes roads and trails that don't exist on the ground.

The inventory was updated between releases of the DEIS and FEIS, based on internal and public comment. A formal process for updating the inventory will be available through site-specific Ranger District travel planning.

TM-102. The revised Forest Plan should add missing roads due to the poor quality of mapping provided with the draft plan.

The inventory was updated between releases of the DEIS and FEIS, based on internal and public comment. A formal process for updating the inventory will be available through site-specific Ranger District travel planning.

TM-103. The FEIS should consider non-system roads and trails in the road and trail inventory.

The inventory was updated between draft and final and does include non-system roads and trails, see TM-97.

TM-104. The FEIS should reconsider the trail inventory figures because a distinction between single and two-track, and trail length is needed to determine whether or not an experience is meaningful.

The FEIS evaluates effects to motorcycle recreation by areas or routes open to them in Chapter 3, Recreation and Travel Management, Effects by Landscape. This is an issue that is more appropriately analyzed at the site-specific travel planning level where part of the decision is “vehicle type”.

TM-105. The FEIS must consider the inadequate cumulative effects evaluations in past travel management decisions and provide adequate mitigation to compensate for past cumulative negative impacts to motorized users.

The FEIS describes the cumulative effects of past and other agency travel management decisions in Chapter 3, Recreation and Travel Management and Economics and Social Values. The Record of Decision will describe the rationale for selecting the preferred alternative and any mitigation the decision-maker feels is necessary.

TM-106. The Forest Service should not attempt to sidestep travel planning by imbedding it in the revised plan.

Several comments show concern for the use of the Forest Plan as a travel planning tool. After careful consideration Forest officials decided certain decisions required by the 2001 Tri-State OHV Decision and the 2005 Travel Management Rule could best be addressed through Forestwide interdisciplinary analysis and that under the 1982 planning regulations, certain broad scale travel decisions were appropriate in conjunction with recommending Wilderness and other recreation allocation management decisions. The FEIS, Chapter 1, “Decisions to be Made” documents this rationale.

TM-107. The Forest Service should follow direction in the 1860 Multiple Use and Sustained Yield Act for resource and transportation management.

The FEIS and Forest Plan were developed under the Multiple Use Sustained Yield Act (MUSYA) of 1960 and, more specifically, under the National Forest Management Act, 36 CFR 219 management requirements, FEIS, Chapter 1. See the glossary for a definition of multiple use extracted from the MUSYA.

Roads

TM-108. The FEIS should include an alternative to provide more motorized opportunities than the existing situation.

Providing an alternative designed around increased motorized opportunities was discussed but not developed. Increased summer motorized opportunities are possible in areas not allocated to non-motorized opportunities by season under all alternatives. Under alternative 4, 64% of the Forest is available for increasing motorized opportunities during site-specific planning. The Plan, based on alternative 6, does not prohibit the development of more routes within motorized allocations (roaded or backcountry) during site-specific travel planning. Management area direction for a few specific areas, like Boulder River-Sheepshead include objectives to meet demand for trails or trailheads.

TM-109. The revised Forest Plan should enhance existing and develop new motorized opportunities and add motorized loop trails.

Goals in the Forest plan provide for new and improved motorized opportunities. Management Area objectives for selected areas include objectives to meet demand for motorized use or improve the quality of motorized trail experiences, see Forest Plan, Chapter 4, example, Boulder River-Sheepshead, South Fleecer, Humbug, Pipestone, East Face, Flint Uplands, Brownback, Meadow Creek, and Butte North.

TM-110. The FEIS should consider the need for motorized access to manage wildlife.

The Forest Plan and the FEIS both recognize the management, including wildlife management, which motorized access facilitates. Removing all motorized access is considered unreasonable and outside the scope of alternatives to be considered. Additionally, motorized access may be granted into non-motorized allocations other the designated Wilderness if it is critical to area management. The Plan clarifies that travel management prohibitions or closures do not apply to administrative uses.

TM-111. The FEIS should acknowledge the need for more roads to support logging and other economic opportunities.

The FEIS acknowledges the many activities, including logging, which are supported by roads. The opportunity for more roads has not been removed by the Forest Plan except in recommended wilderness and summer non-motorized allocations.

TM-112. The Forest Service should consider increasing motorized recreation use in travel management decisions.

Increased summer motorized opportunities are possible in areas not allocated to non-motorized opportunities by season under all alternatives. In the revised Forest Plan, Chapter 4, several management areas have objectives which emphasize the addition of motorized roads and trails. Alternative 1 is considered the maximum acreage for snowmobile opportunities because the only non-motorized areas are designated Wilderness, which is legally closed, and a few small areas of elk winter range.

TM-113. The FEIS should address the concentration of motorized use in smaller areas as opportunities are restricted leading to over use and severe, irreparable impacts.

The analysis addresses this issue, particularly for Alternative 3, in the Recreation and Travel Management section. Also see Effects by Landscape.

TM-114. The revised Forest Plan should maintain all existing roads open to motorized use.

The amount of roads closed by each alternative varies. Alternative 1 does not close any roads, and addresses your concern.

TM-115. The revised Forest Plan should not close roads paid for with taxes.

The amount of roads closed by each alternative varies. Alternative 1 does not close any roads, and addresses your concern.

TM-116. The FEIS should consider roughly 30% of Montana resident's access and recreate on public lands using some sort of motorized vehicle, not including snowmobiles and increase proposed motorized areas.

Virtually all visitors to the BDNF use motorized vehicles to get to the Forest. While the number of people using trail vehicles and snowmobiles has increased, NVUM data shows that only 3 to 5 percent of people visiting the BDNF are using these vehicles for their primary recreation activity. The FEIS uses this information in evaluating alternatives, Chapter 3, Recreation and Travel Management, Local Recreation Trends.

TM-117. The FEIS should explain why people are being denied access to the Forest through closures to motorized travel.

1982 Planning regulations, 36 CFR 219.21, require forests to provide a broad spectrum of forest and rangeland related outdoor recreation opportunities consistent with needs and demands for all major resources. The FEIS, Chapter 2 summarizes the key issue around motorized travel under Key Issues, Recreation and Travel Management. The rationale for closures or travel restrictions accompanying recreation allocations is explained in Chapter 1, Decisions to be Made. More specific effects related to any potential closures are described in Chapter 3, Recreation and Travel Management, Inventoried Roadless Areas and Recommended Wilderness, and Economics and Social Values.

TM-118. The revised Forest Plan should reduce the backlog of unneeded, sediment-bleeding, Forest roads.

Implementation of two concepts in Alternative 6 is expected to lead to obliteration of problematic roads: watershed assessment in key restoration watersheds and site-specific travel planning. Forestwide aquatic goals, objectives and standards directed at sediment producing activities may also trigger road obliteration, Plan, Chapter 3, Aquatics RF-2, RF-3a, RF-3c, and RM-1.

TM-119. The FEIS must identify, address, and mitigate the significant, irretrievable and irreversible impacts of lost opportunities for motorized recreationists.

The FEIS addresses the loss of opportunities for motorized recreational travel by alternative and by landscape in the Recreation and Travel Management section and in the Economics and Social Values section of Chapter 3. The Record of Decision which follows the FEIS would document any mitigation the decision-maker requires as a result of the decision.

TM-120. The FEIS should explain how closing areas to motorized use is supported by the FS mission statement.

1982 Planning regulations, 36 CFR 219.21, require forests to provide a broad spectrum of forest and rangeland related outdoor recreation opportunities consistent with needs and demands for all

major resources. The FEIS presents a range of alternatives to meet the needs and demands for these major resources, one of which is recreation. The effects analysis in Chapter 3 describes the effects of travel and recreation on all major resources and whether the alternatives are consistent with resource needs, Effects to (key issue) from Recreation and Travel Management.

TM-121. The FEIS should provide documentation of resource damage caused by motorized use.

None of the alternatives close areas to motorized use based on specific resource damage. The FEIS does disclose, however, resource benefits which are likely from closures under each resource section in Chapter 3, “Effects to (key issue) from Recreation and Travel Management”.

TM-122. The revised Forest Plan should identify some areas for sacrificial motorized use such as Antelope Basin, Mt. Haggin, the Tobacco Roots, Fleecer, Georgetown Lake, the south Boulder Mountains, the Highlands, and the immediate Butte area.

The revised Forest Plan identifies several Management Areas as places where increases or improvements in summer motorized trail opportunities are possible. Boulder River-Sheepshead Corridor, South Fleecer, Humbug, Pipestone, East Face, Flint Uplands, Brownback, Meadow Creek, and Butte North provide objectives related to improved or increased motorized opportunities. Several other management areas like Ruby and Tie-Johnson, Little Boulder-Galena Gulch, and East Deerlodge, emphasize motorized uses though no objectives are stated to improve or increase use.

Non-Motorized

TM-123. The Forest Service should consider that there are too many roads on National Forest lands and drastically reduce the total amount.

The FEIS, Chapter 2, Key Issues, describes the road density issue under Wildlife Management. A range of alternatives was developed to address the number of open roads and trails as they relate to wildlife concerns. Alternative 3 reduces road density considerably, the effects of which are documented in Chapter 3, in the Wildlife Management section.

TM-124. The revised Forest Plan should identify non-motorized areas to reduce risk to soil, vegetation, aquatic habitats, and wildlife migration patterns.

Each alternative and the revised Forest Plan do identify non-motorized areas for summer and winter seasons.

TM-125. The revised Forest Plan should restrict motorized use in summer and winter to prevent spread of weeds, water quality degradation, noise, and other pollution.

The FEIS considers a range of alternatives to provide or restrict motorized use in summer and winter to provide a balance of recreation opportunities and reduce user conflict. The FEIS in Chapter 3 analyzes the effects of these closures on other resources, like noxious weeds and aquatic health.

TM-126. The revised Forest Plan should increase the amount of non-motorized backcountry recreation opportunities in the Gravelly and Tobacco Root Ranges.

This concern is best addressed by Alternative 3 which increases non-motorized allocations in both mountain ranges. Alternative 6 and its Draft Plan also increase non-motorized opportunities over the existing condition, see the FEIS, Chapter 3, Recreation and Travel Management, Effects by Landscape, Gravelly and Tobacco Roots.

TM-127. The revised Forest Plan should increase non-motorized allocations in the Gravelly and Tobacco Root ranges for wildlife protection.

This concern is best addressed by Alternative 3 which increases non-motorized allocations in both mountain ranges. Alternative 6 and its Draft Plan also increase non-motorized opportunities over the existing condition, see the FEIS, Chapter 3, Recreation and Travel Management, Effects by Landscape, Gravelly and Tobacco Roots.

TM-128. The revised Forest Plan should provide more non-motorized allocations than Alternative 3.

The draft revised Forest Plan which implements Alternative 6 does support closing some lake access trails to motorized travel. For instance, all trails within the Torrey Mountain recommended Wilderness, where many trails access mountain lakes, would be closed to motorized travel.

Compromise

TM-129. The revised Forest Plan should identify motorized corridors to retain access through non-motorized areas.

This approach to recreation allocations was considered but not developed for non-motorized areas. Rather, a range of alternatives was developed which considered allocating or not allocating areas with important motorized roads and trails and analyzing those effects by landscape, FEIS, Chapter 3, Recreation and Travel Management, Effects by Landscape. In two instances Alternative 6 was designed to retain motorized corridors, in Electric Peak Management Area and Antelope Basin Management Area. These areas were well suited to non-motorized allocations but an important snowmobile route passed through the area. See Plan, Chapter 4, Management Area direction, Electric Peak and Antelope Basin.

TM-130. The revised Forest Plan should include an objective which allows temporary roads for timber harvest, fuels projects, and fire control.

The draft revised Forest Plan does allow for temporary roads in all areas except designated Wilderness, Wilderness Study Areas, and allocated Recommended Wilderness.

TM-131. The revised Forest Plan should emphasize conversion of roads to trails when a road closure is considered.

Establishing the type of travel on a route is a site-specific decision, see FEIS, Chapter 2, Alternatives Considered but not Analyzed in Detail, "Site-specific Travel Management Alternative" and Chapter 1, Decisions to be Made. That said, Management Area direction in Chapter 4 of the Plan includes an objective which will accomplish that purpose in specific management areas, Flint Uplands for example, where management emphasis supports it and previous Landscape Analysis recommends it.

TM-132. The revised Forest Plan should not allocate lands to single winter recreation uses. Skiers, snowboarders, and snowmobilers need to share.

People may ski or snowmobile in the same places over much of the Forest under the draft plan. For many skiers, however, the preferred experience is one free of the sights, sounds, and smells of snowmobiles. Additionally, some skiers are intimidated or frightened by the possibility of being run over by snowmobiles, and choose not to ski in snowmobile areas because the experience is unpleasant. This user conflict and people's desire for non-motorized settings is documented in public comments submitted to the AMS, the Proposed Action, and the DEIS (documented in this Chapter). Some snowmobile closures are protections for Wilderness character and some protect secure wildlife habitat.

TM-133. The revised Forest Plan should not allocate summer recreation uses to single uses. Motorized and non-motorized users need to share.

Data shows many motorized recreationists share this view, yet many visitors without trail vehicles disagree. Many visitors prefer to leave the sights and sounds of motors behind and enjoy a quiet landscape as a part of their recreational experience. Public comment on the AMS, the Proposed action and DEIS are sources showing some people's desire for non-motorized settings.

TM-134. The revised Forest Plan should consider a fair mix of recreational opportunities, proportionately balanced by type and season, as the best way to approach recreation planning on public lands.

Several alternatives were considered with different mixes of opportunities. It is difficult to create a "fair" mix, since there are many types of travel used by varying percentages of the visitors on the Forest. The preferred alternative (6) was developed based on public and internal input, varied resource values, and is supported by Forest visitor data.

TM-135. The revised Forest Plan should not separate user groups because of attitudes. We can all share the same trails.

Data shows many motorized recreationists share this view, yet many visitors without trail vehicles disagree. Many visitors prefer to leave the sights and sounds of motors behind and enjoy a quiet landscape as a part of their recreational experience. Public comment on the AMS, the Proposed action and DEIS are sources showing some people's desire for non-motorized settings.

TM-136. The Forest Service should close more roads and better maintain those left open.

The FEIS developed a range of alternatives, several of which close more roads. The Forest Service policy for road maintenance includes direction to "maintain National Forest System roads in a condition to safely accommodate intended use and in accordance with maintenance criteria documented in road management objectives" (FSM 7732.03). Road management objectives (FSM 7712.5) are based on a combination of Forest Plan direction, project decisions, and the results and findings of roads analyses. In some instances, the direction or analyses listed above determine a road should be closed or obliterated. Maintenance levels are assigned to all system roads based on the intended purpose and need for each route. Thus, many roads on the Forest are maintained for use by passenger vehicles, while others are maintained only for travel with high-clearance or 4WD vehicles.

TM-137. The revised Forest Plan should retain motorized opportunities so weeds can be controlled using vehicles.

The draft revised Forest Plan permits exceptions to motorized closures for management needs such as weed control in all areas except designated Wilderness, Plan, Chapter 3, Recreation and Travel Management, Standard 2. Noxious weed treatment is considered an “administrative use”. Such exceptions do require written approval by the District Ranger or Forest Supervisor.

TM-138. The Forest Service should spend the money taking care of roads and trails which are damaging the environment due to lack of maintenance instead of further analysis.

We agree. See response to TM-134 & 135.

TM-139. The Forest Service should partner with clubs to develop and maintain mountain biking and motorcycle trail systems.

Though not mentioned specifically, the draft revised Forest Plan allows partnerships to accomplish these and other objectives or mandates, emphasizing the best available methods to achieve economic efficiency, Plan, Chapter 3, Economics and Social Values.

300 Foot Buffer

TM-140. The revised Forest Plan should maintain the 300 foot travel buffer on designated routes for camping.

The Draft Plan implementing Alternative 6 treats routes to dispersed campsites in Recreation and Travel Standard #3. “Motorized wheeled travel on routes leading to identified dispersed campsites is allowed.” Allowing travel 300 feet off of these routes may still be allowed in the future through site-specific travel decisions.

TM-141. The revised Forest Plan should eliminate or reduce the 300 foot buffer to protect resources, especially in riparian areas.

The Draft Plan implementing Alternative 6 treats routes to dispersed campsites in Recreation and Travel Standard #3. “Motorized wheeled travel on routes leading to identified dispersed campsites is allowed.” Allowing travel 300 feet off of these routes may still be allowed in the future through site-specific travel decisions. Aquatic standards found in the revised Forest Plan, Chapter 3, specifically address riparian area management and provide the direction necessary to protect those resources.

TM-142. The 1/3 mile buffer between motorized routes and non-motorized areas doesn’t serve any purpose and makes the boundaries unidentifiable on the ground and unenforceable.

This issue was discussed at length during alternative development. The 1/3 mile was used to provide some opportunities to realign roads or trails if necessary, yet retain opportunities within the non-motorized areas. Since motorized vehicles are required to stay on the roads and trails, except for access to camping and dispersed use within 300 feet, enforcement is unlikely to become more difficult due to the buffer.

Trails

TM-143. The revised Forest Plan should put all trailheads in the front country.

The Forest Plan emphasizes the placement of trailheads in areas allocated to road-based recreation. Between Draft and Final, some non-motorized allocation boundaries were adjusted to assure this was the case.

TM-144. The FEIS should recognize the historic and traditional use of horses, mules, and foot travel on established system trails when deciding where to allow motorized use.

These activities were considered during the development of all alternatives. Non-motorized allocations were based in part on Ranger District and public input of where motorized uses had not been established as long.

TM-145. The revised Forest Plan should not separate uses on different routes. See Compromise

Data shows many motorized recreationists share this view, yet many visitors without trail vehicles disagree. Many visitors prefer to leave the sights and sounds of motors behind and enjoy a quiet landscape as a part of their recreational experience. Public comment on the AMS, the Proposed action and DEIS are sources showing some people's desire for non-motorized settings.

TM-146. The revised Forest Plan should provide separate trails for motorcycles & ATVs.

This level of trail management is more appropriately accomplished through site-specific travel planning.

TM-147. The FEIS should document or demonstrate the need for more non-motorized trails because hiking trails in the area are not overused.

The motorized/non-motorized travel issue is described in the AMS and the FEIS, Chapter 2, Key Issues, Recreation and Travel Management. The need for non-motorized allocations (which results in more non-motorized trails) is based on the need to provide balanced recreation settings and opportunities, to reduce user conflict, to establish an allocation where users knew what to expect regarding forest conditions and management for the life of the Plan, and for other resources like wildlife.

TM-148. The revised Forest Plan should close unused trails instead of trails we use.

Non-motorized allocations were developed based on Ranger District and public input. One of the criteria for developing Alternative 6 proposals was to select areas which did not have long-standing established motorized recreation. Chapter 2 documents the rationale for developing each alternative. The trails closed by Alternative 6 are listed in the FEIS Chapter 3, Recreation and Travel Management section, Effects by Landscape.

TM-149. The revised Forest Plan should mitigate past closures to motorized recreation by adding motorized trail opportunities.

Objectives in the draft revised forest plan provide for additional motorized opportunities to be developed. The revised Forest Plan identifies several Management Areas as places where increases or improvements in summer motorized trail opportunities are possible. Boulder River-Sheepshead Corridor, South Fleecer, Humbug, Pipestone, East Face, Flint Uplands, Brownback, Meadow Creek, and Butte North provide objectives related to improved or increased motorized opportunities. Several other management areas like Ruby and Tie-Johnson, Little Boulder-

Galena Gulch, and East Deerlodge, emphasize motorized uses though no objectives are stated to improve or increase use.

TM-150. The revised Forest Plan should create additional OHV trails with trailheads close to urban areas.

A Forestwide goal has been added to the revised plan which provides for improving OHV opportunities within a 30 minute drive of communities, Plan, Chapter 3, Recreation and Travel Management, "Recreation Opportunities".

TM-151. The revised Forest Plan should develop a flexible management strategy for trails based on resource condition instead of closures.

Recreation allocations in Alternative 6 were developed to indicate to managers where motorized and non-motorized activities were acceptable. Backcountry motorized and roaded motorized allocations were added to the settings described in the DEIS to demonstrate to motorized users where motorized opportunities would continue to be provided. The goals for managing these motorized allocations stated in the Plan, Chapter 3, Recreation and Travel imply that trails would be managed to resolve resource problems rather than be closed because of them. Further, objectives were developed for several Management Areas with a motorized emphasis which state outright that opportunities for driving would be retained and resource problems would be mitigated, see Plan, Chapter 4, example Upper Ruby Management Area.

Summer Use

TM-152. The revised Forest Plan should increase summer restrictions to motorized vehicles in order to protect natural resources.

The FEIS considered a range of recreation alternatives, including increased summer restrictions. The draft revised Forest Plan implementing Alternative 6 provides for closing areas to motorized travel, increasing summer restrictions, for reasons discussed in the FEIS. The most common reasons are to provide non-motorized opportunities and to provide secure wildlife habitat.

TM-153. The revised Forest Plan should retain motorized closures for the East Pioneer Mountains, West Big Hole, North Big Hole, and Snowcrest Mountains in Alternative 5 because they provide hikers and others with opportunities for quiet recreation.

Most of these closures from alternative 5 were carried forward to Alternative 6 and to the draft revised Forest Plan. The West Big Hole was not. See the effects of Alternative 2 compared to Alternative 6 in the FEIS, Chapter 3, Recreation and Travel Management or Inventoried Roadless Areas and Recommended Wilderness.

TM-154. The revised Forest Plan should provide motorized access to mountain lakes.

A range of alternative recreation allocations was considered which affected motorized access to mountain lakes. The draft revised Forest Plan which implements Alternative 6 allows motorized travel to about half the lakes on the Forest. Alternative 2 and 4 provide even more access.

TM-155. The revised Forest Plan should provide motorized trails with a variety of challenge levels.

The draft Forest Plan allows for motorized trails with varied levels of challenge. Objectives specific to several Management Areas retain primitive 4-wheel driving. Other Management Areas provide single track motorcycle trails or ATV roads and trails. Other Management Areas require separation of full-size vehicle and ATV use on system roads. See Chapter 4 of the Plan. Newly constructed trails and maintained trails must meet national trail standards.

Winter Use

TM-156. The revised Forest Plan should confine snowmobiles to designated routes.

Confining snowmobiles to designated routes was considered but not developed into alternatives because it was considered unnecessarily restrictive. Use of snowmobiles off trails was only identified as a concern on low elevation winter game range and in high elevation forest carnivore habitat, FEIS, Chapter 3, Wildlife Habitat Management or in areas where non-motorized uses were allocated to provide a specific recreation setting, Chapter 3, Recreation and Travel Management.

TM-157. The revised Forest Plan should restrict over-the-snow vehicles that are not snowmobiles.

Defining the type of vehicle allowed on routes is a site-specific decision. The FEIS documents the rationale for not considering a site-specific travel management alternative in Chapter 2, “Alternatives Considered but not Analyzed in Detail”.

TM-158. The revised Forest Plan should establish ATV areas for winter use.

The Plan recognizes the opportunity for winter ATV use in the Jefferson Landscape and Pipestone Management Area in particular. Historic snow levels or wintering game were limiting factors to providing ATV winter use in other Landscapes. The plan allows for these to be developed on a site-specific basis should conditions change in the future.

TM-159. The revised Forest Plan should prohibit snowmobile use in wolverine and lynx areas of the West Big Hole, Mount Jefferson, Sapphire Mountains, Italian Peaks, West Fork Rock Creek, Ross Fork, and Stony Management Areas.

A range of alternative wilderness recommendations and non-motorized allocations which limited snowmobile use in wolverine and lynx areas were analyzed in the FEIS. Alternative 3 is the most protective. The plan, which implements Alternative 6, restricts snowmobile use in much of the West Big Hole, some of Mount Jefferson, Italian Peak, and in the Stony Mountain recommended Wilderness. Much of Ross Creek and the Sapphire Mountains will remain open to snowmobiling.

TM-160. The revised Forest Plan should include more detail about areas set aside for cross-country ski trails.

Chapter 4 of the Plan, Management Areas, Objectives, highlights those areas where the opportunity has already been identified, example: Chain of Lakes, West Fork Madison. The plan allows for these details to be developed when funding allows the trail system and parking developments.

TM-161. The revised Forest Plan should not create new areas for snowmobiles.

The plan does not create new areas for snowmobiles.

TM-162. The revised Forest Plan should not close any more areas to snowmobiles.

The FEIS presents a range of alternative winter recreation strategies. Alternatives 1 and 4 best address this concern.

TM-163. The revised Forest Plan should reconsider the acres of snowmobiling areas because snowmobiles can't go over much of the terrain or through dense timber.

Several methods of representing these areas were discussed. For the sake of consistency, areas where "current travel planning applies" were selected for showing "snowmobile" areas. While some of these areas are not accessible due to terrain, vegetation, or snow depth, they are not "closed" to snowmobile use. This is explained in the FEIS, Chapter 3, Affected Environment, "Existing Winter Settings and Activities".

TM-164. The FEIS should revise the assumptions about predicted snowmobiling increases in the Gravelly Range. Use reductions in Yellowstone have not resulted in increased use in the Gravellys. (letter 478)

This statement is correct in so far as snowmobiling has not increased in the Gravelly Range since Yellowstone was restricted. Snow conditions have been poor since 2003 and snow rangers report decreased use at trailheads in the West Fork Madison and Antelope Basin. The FEIS analysis, however, assumes the same 1% growth per year forestwide in snowmobiling and did not calculate any impacts based on a higher rate of growth in the Gravelly Range. The analysis of impacts from snowmobiling in Mount Jefferson (2200 acres on the south end of the Gravelly Range) was done separately based on current use estimations, not future predictions, FEIS, Chapter 3, Economics and Social Values, Effects from Recreation and Travel.

TM-165. The revised Forest Plan should base any limitations to snowmobiles solely on resource damage.

Winter non-motorized allocations in the Forest Plan are based on balancing recreation opportunities and protecting wildlife habitat. Winter closures in recommended wilderness are intended to protect wilderness character. See the FEIS, Chapter 2, Key Issues, Recreation and Travel and Wilderness Recommendations. See the FEIS, Chapter 3, Recreation and Travel Management, Affected Environment and IRA and NWPS Additions, Effects from Recreation and Travel Management. The reason for snowmobile restrictions are listed by area in the project file.

TM-166. The revised Forest Plan should close all big game winter ranges to any form of winter motorized activity.

Between Draft and Final Alternative 6 was developed which added to big game winter range winter closures, using input from Montana Fish Wildlife and Parks. These areas, as well as winter range travel restrictions from the existing travel plan and winter range areas identified earlier in the process, will be closed in order to provide winter big game habitat over the life of the plan.

TM-167. The revised Forest Plan should not allow snowmobiles on frozen lakes for ice fishing.

These restrictions will apply on lakes in non-motorized winter areas. Chain of Lakes in the Gravelly Landscape is the only location where an exception was made for access to ice fishing.

TM-168. The FEIS should acknowledge that banning snowmobiles is not for environmental or for wildlife reasons, but rather to cater to a small group who will not share.

The FEIS addresses several reasons for winter non-motorized allocations or snowmobile closures: to provide a balance of recreation settings and opportunities, to protect winter game range or high elevation winter habitat for mountain goats or wolverines, or to protect wilderness character in recommended wilderness. See the FEIS, Chapter 2, Key Issues, Recreation and Travel and Wilderness Recommendations. Also see the FEIS, Chapter 3, Recreation and Travel Management, Affected Environment and IRA and NWPS Additions, Effects from Recreation and Travel Management, and Appendix C. The reasons for closing each area to snowmobile are listed in the project file.

Social Concerns

TM-169. The Forest Service should recognize non-motorized allocations serve a select and limited group of people.

The FEIS addresses several reasons for winter non-motorized allocations or snowmobile closures: to provide a balance of recreation settings and opportunities, to protect winter game range or high elevation winter habitat for mountain goats or wolverines, or to protect wilderness character in recommended wilderness. See the FEIS, Chapter 2, Key Issues, Recreation and Travel and Wilderness Recommendations as well as Chapter 3, Recreation and Travel Management, Affected Environment and IRA and NWPS Additions, Effects from Recreation and Travel Management, and Appendix C. The reasons for each non-motorized allocation are listed in the project file.

Chapter 3, Economics and Social Values addresses the effects of non-motorized allocations in terms of number of visitors affected and the economic and social effects.

TM-170. The FEIS should recognize that roadless areas are the backbone of motorized trail opportunities which are being taken away by “green” groups.

Between Draft and Final Alternative 6 was developed which added an allocation called “Backcountry Motorized”. This allocation recognized the importance of the semi-primitive setting that roadless areas contribute to a quality motorized trail experience for many of our visitors. The FEIS addresses the effects of a range of alternatives, including Alternative 6, on motorized trail opportunities.

TM-171. The revised Forest Plan should reconsider motorized restrictions as unlawful on public land because people should be able to participate in their chosen activities wherever they want.

Allowing motor vehicle drivers to travel everywhere they choose was not considered as an alternative. The Tri-State OHV Decision, as just one example of our guiding regulations, prevents us from doing that. The frustration that motorized users express at restrictions places on

their favored activity is addressed in the FEIS, Chapter 3, Economics and Social Values, Effects to the Social Environment from Recreation and Travel Management.

TM-172. The Forest Service should realize motorized recreationists have not been meaningfully involved in the process.

The FEIS describes the public involvement process in Chapter 1, “Public Involvement” and Chapter 3, Economics and Social Values, Effects to Environmental Justice. Over 163 meetings were held during 3 comment periods with over 100 different groups prior to publication of the FEIS. Many of these meetings were with groups advocating motorized use. In addition, Beaverhead and Madison County received cooperator status in the planning process. One of the concerns represented by the county governments was retaining traditional uses like motorized recreation; see Chapter 3, Economics and Social Values, Effects on Governmental Relations.

Alternative 6 was developed using data supplied by the counties, motorized users and input from those groups to modify recommendations for wilderness (Mount Jefferson in particular).

TM-173. The Forest Service, instead of punishing the violators for their bad behavior, is punishing all citizens for the actions of a few by restricting motorized use.

Restrictions to motorized travel are not based on punishment or enforcement. The motorized/non-motorized travel issue is described in the AMS and the FEIS, Chapter 2, Key Issues, Recreation and Travel Management. The need for non-motorized allocations (which results in restrictions on motorized use in several alternatives) is based on the need to provide balanced recreation settings and opportunities, to reduce user conflict, to establish an allocation where users knew what to expect regarding forest conditions and management for the life of the Plan, and for other resources like wildlife. The reasons for each area allocated for non-motorized use by Alternative are listed in the project file.

TM-174. The FEIS should acknowledge the agency pro-OHV prejudice which results in negative effects to wildlife, wildlands, and water.

The issue around motorized and non-motorized recreation is summarized in Chapter 2, Key Issues, Recreation and Travel. This Chapter (5) of the FEIS documents the wealth of comments from the public advocating both types of uses. The FEIS discloses effects of OHV travel to each resource by alternative in Chapter 3.

TM-175. The revised Forest Plan should disclose the Agency’s prior internal determination to promote motorized trail use over the historical quiet trail uses.

The issue around motorized and non-motorized recreation is summarized in Chapter 2, Key Issues, Recreation and Travel. This Chapter (5) of the FEIS documents the wealth of comments from the public advocating both types of uses. The revised Forest Plan displays the allocations selected for each area. The result is a net decrease in areas and trails available for motorized use, as disclosed in the FEIS.

Elderly & Disabled

TM-176. The revised Forest Plan should not reduce opportunities for the elderly and disabled by further limiting ATV areas.

The revised Forest Plan retains 6,670 mile of roads and trails open to and available for motorized travel. These routes are shown to provide sufficient opportunities for existing and predicted increases in motorized travel over the next 10 years without producing excessive crowding on roads and trails, FEIS, Chapter 3, Recreation and Travel Management, Effects, “Summer Motorized Opportunities and Activities”.

TM-177. The revised Forest Plan should make all closed roads retrieval areas in hunting season for the benefit of the elderly and disabled.

Each ranger district provides additional areas open for motorized travel by people with disabilities in hunting season. These areas are designed to give hunters with disabilities the opportunity to hunt in an uncrowded backcountry setting.

TM-178. The FEIS should consider the impact of motorized closures and wilderness recommendation on access for the elderly and disabled.

The revised Forest Plan retains 6,670 mile of roads and trails open to and available for motorized travel. These routes are shown to provide sufficient opportunities for existing and predicted increases in motorized travel, for all ages and abilities, over the next 10 years without producing excessive crowding on roads and trails, FEIS, Chapter 3, Recreation and Travel Management, Effects, “Summer Motorized Opportunities and Activities”.

Recommendations for Wilderness

RW-1. The FEIS should consider the availability of wilderness on a national scale when recommending wilderness.

The Regional office (Region 1) completed a “Wilderness Needs Assessment”, which looked at the need for wilderness for the entire region. This assessment was utilized in this analysis (FEIS, Chapter 3, Inventoried Roadless Areas and Addition to the Wilderness Preservation System).

The revised Forest Plan should consider that the owners of inholdings within wilderness stand to profit at the expense of the general public.

Inventoried roadless areas are evaluated for wilderness potential. The inventory does consider inholdings as one of the criteria, which may adversely affect Wilderness values. Whether or not an inholding within a recommended wilderness stands to profit at the expense of the general public is not substantiated assumption.

The FEIS should consider that wilderness designation limits land use, productivity and access.

Alternatives were developed, which identified a range of wilderness recommendation. These alternatives were evaluated for their effects on different resources and uses, FEIS, Chapter 3.

Alternative Recommendations

RW-2. The revised Forest Plan should emphasize the importance of recommended wilderness as they are unique and special. If not protected as recommended wilderness, these areas should be managed as non-motorized areas.

Alternatives were developed, which identified a range of wilderness recommendation, non-motorized area, and motorized areas. These alternatives were evaluated for their effects on different resources and uses, FEIS, Chapter 3.

RW-3. The revised Forest Plan should maintain non-motorized status for areas recommended as wilderness in Alternative 5 even if they are not recommended in the Final.

Alternatives were developed, which identified a range of wilderness recommendation, non-motorized area, and motorized areas. These alternatives were evaluated for their effects on different resources and uses, FEIS, Chapter 3.

RW-4. The Forest Service should recognize that Wilderness is not the only management option for the protection of natural values and quiet trails. Not exactly the same or are they?

Alternatives were developed, which identified a range of wilderness recommendation, non-motorized area, and motorized areas. These alternatives were evaluated for their effects on different resources and uses, FEIS, Chapter 3.

Although some of these management option may be similar, but they are not the same and have different management prescriptions.

RW-5. The revised Forest Plan should consider protecting primitive areas without making them recommended wilderness.

The FEIS considered other allocations like non-motorized or backcountry for remote areas in lieu of making them wilderness.

RW-6. The FEIS should consider that areas recommended for “Wilderness” may attract more use simply by bearing the label, which may lead to diminished wilderness values.

We recognized that any allocation may attract specific user groups whether wilderness or motorized allocation.

Management

RW-7. The revised Forest Plan should prohibit motorized use in recommended wilderness in light of past experience when such measures were not taken and problems ensued.

The FEIS developed management prescription for each allocation. The prescription for recommended wilderness is non-motorized and applies to all action alternatives.

RW-8. The revised Forest Plan should manage recommended wilderness which allows snowmobiling in recommended wilderness, pending any final decision by Congress.

The FEIS developed management prescription for each allocation. The prescription for recommended wilderness is non-motorized and applies to all action alternatives. If it was felt that snowmobiling was the best use for that area, than snowmobiling was allowed and it was not made recommended wilderness.

RW-9. The revised Forest Plan should consider the large amount of beetle killed trees and the fire danger they pose. In recommended wilderness, this danger could not be reduced through logging dead timber.

The forest does recognize the amount of beetle kill (FEIS, Chapter 3, Vegetation). Recommended wilderness is not the only areas where restriction may limit the harvest of these dead trees.

RW-10. The FEIS should address consistent management of all Inventoried Roadless Areas and Wilderness study areas that share boundaries with other forests.

We have worked with adjoining forest when considering management of inventoried roadless areas and wilderness study areas.

RW-11. The revised Forest Plan should provide a high level of protection for those areas recommended as wilderness.

The management prescription for areas recommended wilderness were designed to provide a high level of protection to protect their wilderness values.

RW-12. The revised Forest Plan should include all Wilderness Study Areas as recommended) wilderness.

Wilderness Study Areas (WSA) were evaluated for wilderness recommendation as Congress requested. Since these areas are address by specific legislation, the Forest Plan did not re-evaluate the recommendations, which currently reside with Congress.

RW-13. The revised Forest Plan should include all IRAs as wilderness

This alternative was considered but it was not analyzed in detail. (See FEIS, Chapter 2, Alternatives considered but not analyzed in detail)

RW-14. The revised Forest Plan should strongly address the deleterious effects of motorized use and importance of wilderness designation.

We recognize that motorized use has adverse effect to wilderness character, and therefore restricted motorized use in areas recommended as wilderness. We also recognized wilderness as a valid and important use on National Forest Lands.

RW-15. The revised Forest Plan should recommend more flat sagebrush/grasslands for wilderness.

We looked for areas which may contribute to this particular vegetation type; although the Forest has very little of this particular vegetation type.

RW-16. The revised Forest Plan should only consider pristine areas with very limited signs of past human use for wilderness recommendation.

Alternatives were developed, which identified a range of wilderness recommendation. These alternatives were evaluated for their effects on different resources and uses, FEIS, Chapter 3.

RW-17. The revised Forest Plan should recommend at least 20% of the Forest as wilderness to match the USDA Forest Service system average.

This would be an arbitrary designation. The Forest utilized the criteria outlined in the Wilderness Act, Federal Regulations, and Forest Service Policy.

RW-18. The revised Forest Plan should protect areas as wilderness to provide for wildlife habitat and protection.

There are many way to provide protection for of wildlife habitat beside wilderness designation. The FEIS considered a variety of way (allocations, objective, and standards) to provide for wildlife protection.

RW-19. The revised Forest Plan should require road obliteration to make larger areas of wild country.

Areas are allocated for a variety of management uses. Road obliteration would be an site-specific decision to achieve a management allocation objective.

RW-20. The FEIS should consider that 96% of the US is roaded, and unroaded areas should be protected.

The FEIS identified a variety of management options for inventoried roadless areas. These alternatives were evaluated and their effects disclosed in the FEIS, Chapter 3.

RW-21. The FEIS should describe how grazing will not be affected by wilderness recommendation.

The effects on grazing from wilderness recommendation are disclosed in the FEIS, Chapter 3, Livestock Grazing.

RW-22. The revised Forest Plan should move the boundary for recommended wilderness in the Plimpton Creek drainage to Thompson Creek to include Clam Valley where there are unique freshwater clams.

Alternative 6 did move the boundary from Plimpton Creek to beyond Thompson Creek and now includes a portion of Clam Creek.

RW-23. The revised Forest Plan should recommend the West Pioneers for unique sagebrush-steppe parks which valuable habitat additions to the National Wilderness Preservation System.

The FEIS did not consider re-evaluating WSA during the revision process. See FEIS Chapter 2, Elements Common to All Alternatives.

RW-24. The revised Forest Plan should include the West Medicine Lodge with the Lima Peaks as recommended wilderness.

The West Medicine Lodge areas did not rate high enough to be considered for wilderness consideration. See FEIS, Appendix C.

RW-25. The revised Forest Plan should designate the entire BDNF as Wilderness.

The entire BDNF does not meet wilderness criteria as defined in the Wilderness Act.

Don't Recommend

RW-26. The revised Forest Plan should recognize and consider that increased wilderness penalizes the majority of users, caters to a minority, and that multiple uses are more beneficial to more visitors than wilderness. It should consider the resource needs of the nation and not set aside more lands as wilderness. It should also consider that wilderness and recommended wilderness will deny freedom of use. It should consider that wilderness recommendation will result in forest health issues and lead to increased fire danger.

Wilderness is a valid use of National Forest lands. It is a requirement of the revision process to evaluate lands for wilderness considerations. The FEIS identified a range of recommendations for wilderness. These alternatives were analyzed and their effects disclosed in the FEIS, Chapter 3.

RW-27. The revised Forest Plan should provide a modified Alternative 4 with no recommended wilderness areas and no road or trail closures.

This Alternative 4 has no recommended wilderness and only proposed to close 77 miles of road and trails out of 7000 miles of roads and trails. This modified alternative is close enough to Alternative 4 as to be the same and have the same effects.

RW-28. The FEIS should explain the need to recommend any more wildernesses.

The Wilderness Act requires the Forest to evaluate roadless areas for wilderness recommendation. The FEIS identified a range of recommendations for wilderness. These alternatives were analyzed and their effects disclosed in the FEIS, Chapter 3.

RW-29. The FEIS should consider that wilderness recommendation may hamper the ability of fire fighters and emergency workers to respond to situations.

Wilderness recommendations do not hamper the ability of fire fighters or emergency workers in responding to situation.

RW-30. The revised Forest Plan should consider the impact of recommended wilderness on people's need to collect fire wood.

Wilderness recommendation should have little or not effect on the collection of firewood. The vast majority of firewood is collected within 100 feet roads. Recommended wildernesses areas have few if any roads.

RW-31. The FEIS should consider rancher's need to build and fix fence, put out salt, build and maintain trails with 4-wheelers and chainsaws, or use tractors to develop water systems to keep livestock off the creeks.

The FEIS recognizes this and has not put any restrictions (Standards) on ranchers within recommended wilderness areas. The operations will need to minimize the effects of activities to protect the wilderness character; however, history has indicated that ranch operations are easily adjusted to meet this need. Existing operation may continue.

RW-32. The revised Forest Plan does not need to recommend the Italian Peaks to achieve the goal of providing solitude and challenging non-motorized recreation, it already does.

The Italian Peaks is currently a recommended wilderness area. This statement is correct, solitude and challenging non-motorized recreation opportunities are not limited to recommended wilderness.

RW-33. The FEIS should recognize Sourdough Mountain affords some of the State's best opportunities for snowmobile accessed hunting and should not be made wilderness.

This area is not recommended for wilderness under any alternative.

RW-34. The Forest Service should not recommend small "pocket" wildernesses as they are already non-motorized and allow mountain bikes.

The minimum recommended wilderness area is 5000 acres.

RW-35. The revised Forest Plan should make winter and summer motorized use in recommended wilderness consistent yearlong.

The management prescription for recommended wilderness is consistent for all action alternatives; they are non-motorized yearlong.

RW-36. The Forest Service should consider that 11.2% of the BDNF is already designated wilderness. The remaining 88.8 percent should be managed for multiple use.

Wilderness is recognized a part of multiple use, according to the Multiple Use Sustained Yield Act. The Forest is currently only 6.5 percent designated wilderness.

Specific Place Recommendations

RW-37. The revised Forest Plan should support wilderness designation for: Emerine, North Carp, Upper East Fork, Flint Range/Dolus Lakes, Basin Creek, Highlands, O'Neil Creek, Whitetail/Haystack, Fred Burr, Middle Mountain, and BDNF portions of Fleecer, Electric Peak, Sapphires, Silver King, Storm Lake, Quigg, and Stony Mountain.

Alternatives were developed, which identified a range of wilderness recommendation. These alternatives were evaluated for their effects on different resources and uses, FEIS, Chapter 3. All of these areas were either recommended for wilderness in at least one alternative or did not rate high enough to be considered for wilderness recommendation.

RW-38. The revised FP should protect most of the West Big Hole as wilderness but allow a small portion for snowmobiling.

Alternatives 1, 2, and 3 recommended the West Big Hole as wilderness with different boundaries, allowing for some snowmobiling.

RW-39. The revised FP should expand the Big Hole winter non-motorized area

Alternative 3 did expand the Big Hole winter non-motorized area.

RW-40. The revised Forest Plan should not recommend the Snowcrest for wilderness because of the existing road system, displacement of traffic and maintenance costs to the Gravelly Range Road, designation would prevent timber management for diseased and beetle killed trees. BLM lands on the west side were considered unsuitable for wilderness, designation would mean more use of the area and diminished wild

character, the rationale was political, it would reduce hunting opportunities, it would interfere with ranching and sheep grazing operations, it would exclude mountain bikes and motorized use.

Alternatives were developed, which identified a range of wilderness recommendation. These alternatives were evaluated for their effects on different resources and uses, FEIS, Chapter 3. Alternative 6 does include the Snowcrest as recommended wilderness.

RW-41. The revised Forest Plan should include McAtee Basin in recommended wilderness to prevent wilderness trespass by snowmobiles.

McAtee Basin was considered under Alternative 3 and 5. It was removed from Alternative 6 because of Congressional language in the Act creating the Lee Metcalf Wilderness, which suggests this area was not intended to be wilderness.

RW-42. The revised Forest Plan should not recommend the East Pioneers. There are roads and old harvest units in this area, and we may want to harvest the timber in the future.

Alternatives were developed, which identified a range of wilderness recommendation. These alternatives were evaluated for their effects on different resources and uses, FEIS, Chapter 3. Alternative 6 does include the East Pioneers as recommended wilderness.

RW-43. The revised Forest Plan should not recommend the Cottonwood Lake Area because it is unsuitable for wilderness. Electric Peak has been used and maintained as a snowmobile trail for 35 years.

Alternatives were developed, which identified a range of wilderness recommendation. These alternatives were evaluated for their effects on different resources and uses, FEIS, Chapter 3. Alternative 6 does not include the Electric Peaks as recommended wilderness.

RW-44. The revised Forest Plan should add Gold Creek north to Sheep Creek to the Torrey Mountain recommended wilderness. The area was excluded to allow mining, but the deposits were not economical and the roads and drill pads have been recontoured and naturalized. Mining scars in Butler Creek, Boulder Creek, and around Black Lion are healing.

This area was added to Alternative 6.

RW-45. The revised Forest Plan should recommend Whitetail/Haystack to protect it from motorized recreation.

Recommended wilderness are based on a set of criteria and their contribution to the National Wilderness Preservation System. Recommended wilderness is not a tool to eliminate motorized recreation. There are other management options to protect areas from motorized impacts.

RW-46. The revised Forest Plan should manage the West Pioneers as recommended wilderness, free from motorized uses.

The West Pioneers is a Wilderness Study Area established by Congress. The act that established this area allows for existing motorized uses.

Mountain Bikes

RW-47. The FEIS should revisit the inadequate evaluation of the trend of mountain biking to consider the future need to provide opportunities.

Mountain biking has been better addressed in the FEIS and forest plan.

RW-48. The FEIS should consider the economic benefit from mountain bikers and not exclude them from the large areas of recommended wilderness on the BDNF.

A discussion of mountain biking was added to the of the FEIS between draft and final, see Chapter 3, Economics and Social Values section, Effects to Economics from IRAs and NWPS additions.

RW-49. The FEIS should correct the statement that technological advances in mountain bikes led to increased demand for single track riding. Single track riding has always been the major focus of the sport.

This statement is not whether or not single track is a major focus of the sport, but rather as technology increase, the number of people participating in the activity is increasing, well as, the place people can go. We have reevaluated this statement in the FEIS.

RW-50. The FEIS should recognize that mountain bikes have virtually no noticeable impacts and are compatible with maintenance of wilderness character.

We recognize that mountain bikes can be low impact. We also recognize that as use increase, as well as, increases in technology of the equipment, users start to create their own trail, impact trails not designed for bikes, which are not compatible with wilderness character. The issue is less about whether or not mountain should or should not be in recommended wilderness, the issue is where on the forest we should be managing for mountain bikes over the long term. We have recommended these areas as wilderness to congress. These are not areas we want promote, encourage, and manage for mountain bikes. We need a long term strategy and location for where we are going to manage for mountain bikes.

RW-51. The revised Forest Plan should not prohibit mountain biking in the Italian and Lima Peaks because there are no present conflicts or problems.

The management prescription for recommended wilderness is to restrict mountain bikes. This prescription applies to all recommended wilderness allocation in any action alternative. Any area where we wanted to manage for mountain bikes was not allocated as wilderness. A range of alternatives was developed and effects disclosed, (see FEIS Chapter 3, Recreation and Travel Management).

RW-52. The revised Forest Plan is correct in closing recommended wilderness to mountain bikes because use will grow, become established, and then be difficult to remove.

Thank you for your comment.

RW-53. The FEIS should consider that back-country mountain bike use is not growing. Growth of the sport is in the beginner and intermediate level and not in the type of riding that brings people deep into the Forest.

We have had comments that mountain bike use is increasing and is not growing. Our information is that mountain biking is growing and will continue to grow.

RW-54. The revised Forest Plan should recognize that mountain biking is a rapidly growing recreational activity and provide opportunities for this sport.

We have had comments that mountain bike use is increasing and is not growing. Our information is that mountain biking is growing and will continue to grow.

RW-55. The FEIS should not include mountain bikes in the same category as ATVs and motorcycles.

Mountain bikes are recognized as its own user group.

RW-56. The Forest Service should consider that horses cause more damage to an area than mountain bikes, yet horses are not prohibited in wilderness or recommended wilderness.

The Wilderness Act allows for horse, it does not allow for mountain bikes; although there are some areas within wilderness where horses are restricted too.

RW-57. The Forest Service should not consider the political consequences of allowing mountain bike use in recommended wilderness as an environmental impact.

It is not the political issues. It is an allocation of uses and where should the forest be looking to develop, encourage, promote, and manage for different user group across the forest. It is the desired condition for areas which drive the goals and objectives for that area. It does not seem appropriate on one hand to encourage use of an area for a user group only to turn to Congress and recommend the area for wilderness, eliminating the use we just encouraged. This does not provide for a long term strategy for where mountain bikes should be managed for.

RW-58. The Forest Service should consider skis and snowshoes as mechanical devices and place the same restrictions on them as mountain bikes.

Skis and snowshoes are not mechanical devices.

RW-59. The revised Forest Plan should restrict game carts if bicycles are restricted also.

As mentioned in an earlier comment, mountain biking is a recreational user group, which the forest plan strives to manage, through strategic direction. Game carts are not a user group requiring management. Game carts would be restricted if Congress designates the areas as wilderness.

RW-60. The revised Forest Plan should not deny families a meaningful opportunity to enjoy mountain biking.

The forest plan does not deny families a meaningful opportunity to enjoy mountain biking.

RW-61. The revised Forest Plan should designate all routes open to mountain bikes unless posted as closed.

All trails and roads are open to mountain bikes unless they are posted closed.

Post Content Analysis

RW-62. The FEIS should acknowledge historic mountain bike trail use and the reduction of opportunities as a result of proposed restrictions in recommended wilderness.

The effects on mountain bikes are disclosed in the FEIS, Chapter 3, under Recreation and Travel Management.

RW-63. The FEIS should maintain access for popular mountain bike trail corridors through recommended wilderness areas.

The IDT considered this comment, however corridors fragments recommended wilderness to the point it conflicts with the concept of preserving wilderness characteristics. Instead, the team evaluated uses for areas under consideration, if they conflicted with recommended wilderness, alternatives were designed which treated it as recommended wilderness or not. Designing conflicting uses into recommended wilderness has driven the need to change as described in Chapter 1, Key Issues, Recommended Wilderness. Alternative 4 recommends the least amount of wilderness and would allow mountain biking without using corridors.

Specific Trail Legal and Administrative Framework.

RW-64. The Forest Service should work out a solution to the Mt Jefferson issue with full public participation, as no public input as gone into the recommendation.

The forest has had several meetings with the public in both Idaho and Montana concerning Mt Jefferson. Many of the comments, which have been received throughout this planning process, have specifically address Mt Jefferson.

RW-65. The revised Forest Plan should abide by a 30-35 year old agreement which protected the Stanley Basin as Wilderness but allowed Island Park to develop into a winter recreation area.

Mount Jefferson is part of the State of Montana and was not involved in the agreement described in this comment.

RW-66. The revised Forest Plan should consider that P.L. 95-150 specifically allows snowmobile use in Wilderness Study Areas and does not compromise the potential for future wilderness designation.

We recognize that P.L. 95-150 allows for existing uses as of 1977, which do not compromise the potential for future wilderness designation.

RW-67. The revised Forest Plan should eliminate special designations because the BLM and FS have no statutory authority to designate and manage areas such as critical waterways, geological, unroaded, botanical, and national scenic areas.

All special designations have been in accordance with Congressional direction through the appropriate act.

Defacto Wilderness

RW-68. The revised Forest Plan should not protect recommended wilderness as Wilderness indefinitely (not the intention of the forest planning process).

The Wilderness Act and Federal Regulations require the Forest Service to protect recommended wilderness until Congress make a decision on them. 36 CFR 219 does make wilderness recommendation and protection of those areas part of the forest planning process.

RW-69. The FEIS should consider the negative economic impact of creating defacto wilderness.

The economic effects of recommending wilderness are addressed in the FEIS, Economic and Social Values, "Effects to the Economy from IRAs and Recommended Wilderness".

RW-70. The Forest Service should not usurp the authority of Congress by creating defacto wilderness.

The Forest Service has not usurped the authority of Congress by creating defacto wilderness. The Forest Service follows Congressional direction. The Wilderness Act requires the Forest Service to evaluate inventoried roadless areas and make wilderness recommendations. There areas, which are recommended for wilderness are to be managed so as to protect their wilderness character.

RW-71. The revised Forest Plan should apply the WSA decision regarding motorized use existing in 1977 to recommended wilderness.

The Forest Plan does this (See Forest Plan, Forestwide Direction, Special Designations).

Consistency

RW-72. The revised Forest Plan should apply management for Mt Jefferson consistent with the adjacent Centennial Mountains Wilderness Study Area and Red Rock Lakes Wildlife Refuge.

Several alternatives were developed concerning the Mt Jefferson area. Alternative 2, 3 and 5 would represent this comment.

RW-73. The revised Forest Plan should close the Mt. Jefferson/Hellroaring area to reduce illegal snowmobile incursions into the adjacent WSA.

Several alternatives were developed concerning the Mt Jefferson area. Alternative 2, 3 and 5 would represent this comment.

RW-74. The revised Forest Plan should direct management of the Mt Jefferson/Hellroaring area consistent with the Targhee National Forest.

Several alternatives were developed concerning the Mt Jefferson area. Alternative 1, 4, and 6 would represent this comment.

RW-75. The FEIS should consider that closing Mount Jefferson may increase trail pressure in other areas of the Caribou-Targhee.

We have been coordinating with the Caribou-Targhee throughout the planning process.

Open for Snowmobiling

RW-76. The FEIS should not consider the 1991 BLM EIS because it was only an assessment and did not specifically address snowmobile use in the Mount Jefferson area.

The 1991 BLM EIS is one of many sources of information used in the development of alternative concerning the Mt Jefferson.

RW-77. The FEIS should consider that skiers have many other areas to enjoy, such as Big Sky and Grand Targhee Resorts.

These are developed ski areas, Mount Jefferson provides remote back country skiing.

RW-78. The revised Forest Plan should allow snowmobiling for family recreation.

The forest plan allows for many areas for family snowmobiling.

RW-79. The FEIS should recognize that there are no wildlife impacts from snowmobiling in the Mt Jefferson area.

The FEIS describes the impacts to wildlife from snowmobiling in FEIS, Chapter 3, Wildlife Habitat Management, under effects to Wolverine and under Cumulative Effects.

RW-80. The FEIS should consider that if Mount Jefferson is closed there may be increased impacts to wildlife habitat in other areas.

The displacement of snowmobilers out of the Mt Jefferson areas is not expected to increase impacts to wildlife in any other area.

RW-81. The FEIS should recognize the demand for ‘quiet trail’ winter use at Mt. Jefferson will be low because the area is too remote.

The fact it is remote creates the opportunity for non-motorized recreation.

RW-82. The FEIS needs to consider that the Mount Jefferson area provides a “gateway” between the states of Montana and Idaho and closing it will block access to popular areas on the Targhee N.F.

Several alternatives were developed concerning the Mt Jefferson area. Alternative 1, 4, and 6 would represent this comment.

Close to Snowmobiling

RW-83. The FEIS should consider that snowmobiles were allowed in the area without proper environmental impact review, and in disregard of the 1987 Forest Plan.

This statement is not correct. The area was open to snowmobiling according to the 1987 forest plan.

RW-84. The revised Forest Plan should establish a Mt. Jefferson/Centennial Wilderness to preserve the area for future generations.

Several alternatives were developed concerning the Mt Jefferson area. Alternative 2, 3, 5, and 6 would represent this comment.

RW-85. The revised Forest Plan should close the Hellroaring/Mt Jefferson area to snowmobiles because it provides spectacular and challenging backcountry skiing which is not compatible with snowmachines.

Several alternatives were developed concerning the Mt Jefferson area. Alternative 2, 3, and 5 would represent this comment.

RW-86. The FEIS should realize that overall, the vast majority of people support non-motorized use of National Forests.

The comments received to not support this conclusion

RW-87. The revised Forest Plan should recommend the Mount Jefferson area to protect the headwaters of the Missouri.

Several alternatives were developed concerning the Mt Jefferson area. Alternative 2, 3, and 5 would represent this comment.

RW-88. The FEIS should recognize that preservation of the area is a long term benefit and more important than managing to provide mechanical entertainment.

Several alternatives were developed concerning the Mt Jefferson area. Alternative 2, 3, and 5 would represent this comment.

RW-89. The FEIS should realize that area is an important wildlife corridor joining Montana to Central Idaho.

The FEIS considers this in the effects analysis (See FEIS, Chapter 3, Wildlife Habitat Management) and Mt Jefferson Inventoried Roadless Areas evaluation (See Appendix C of the FEIS) and is recognized in the Mt. Jefferson Management Area in the Forest Plan.

RW-90. The FEIS must recognize that the Mount Jefferson/Hellroaring drainage possesses high wilderness quality and quiet trail opportunities that deserve protection.

The evaluation of the Mt Jefferson Inventoried Roadless Area can be found in Appendix C of the FEIS.

RW-91. The FEIS should consider that the area contains a few remnant populations of pure Westslope cutthroat trout.

We recognize that this area has populations of pure westslope cutthroat trout and this was taken into account when rating wilderness characteristics in the project file for Appendix C (Ecological Need).

Ideas for Compromise

RW-92. The revised Forest Plan should manage Mt. Jefferson for winter motorized use but keep it non-motorized in the summer.

Several alternatives were developed concerning the Mt Jefferson area. Alternative 1 and 6 would represent this comment.

RW-93. The revised Forest Plan should require snowmobilers and skiers to share the area.

Several alternatives were developed concerning the Mt Jefferson area. Alternative 1 and 6 would represent this comment.

RW-94. The FEIS should acknowledge that conflicts between skiers and snowmobilers are largely manufactured.

After reviewing all of the public comments, having discussions with a variety of user group, and discussions with County, State, and Congressional representatives, we do not believe that the conflict is manufactured.

Evaluation Criteria

RW-95. The FEIS should acknowledge the area is too small, less than 5,000 acres, to meet the legal requirement for wilderness evaluation.

The Mt Jefferson area is less than 5,000 acres but it is adjacent to an area recommended by the BLM. Together the areas exceed 5,000 acres.

RW-96. The FEIS should recognize the Mount Jefferson/Hellroaring does not have enforceable or manageable wilderness boundaries and consider the cost of boundary marking, patrols, and enforcement.

Boundaries and manageability for Mt Jefferson Roadless Area is discussed in Appendix C of the FEIS.

RW-97. The FEIS should recognize that heavy snowmobile use has made the Mt Jefferson area incompatible for recommended wilderness.

Several alternatives were developed concerning the Mt Jefferson area. These alternatives were evaluated. Their effects are disclosed in the FEIS, Chapter 3. The fact that this area has heavy snowmobile use was considered.

RW-98. The FEIS should acknowledge that opportunities for solitude and communion with nature are compromised by the presence of snowmachines.

The FEIS addresses the issue of motorized use in recommended wilderness where opportunities for solitude are sought; see Chapter 3, IRAs and NWPS Additions, Effects from Recreation and Travel, "Travel restrictions in Recommended Wilderness.

RW-99. The FEIS should recognize that there is plenty of existing wilderness near Mt. Jefferson for those wishing a "quiet trail" opportunity.

We recognize there are existing wildernesses near Mt. Jefferson, as well as, existing snowmobiling opportunities.

RW-100. The FEIS should realize that Mount Jefferson is a critical part of the conservation landscape in the Centennial Valley.

Appendix C displays the evaluation of wilderness characteristics for Mount Jefferson. This evaluation recognizes the presence of Sawtell Peak, visible occasionally but at a distance of 1 to 3 miles.

Economic Impact on Island Park

RW-101. The FEIS should consider that reduced snowmobiling in Island Park may result in less plowing on county roads and could make living in Island Park more difficult.

The FEIS estimates around 1500 visits to the Mount Jefferson area in a winter. This is 1.5% of the estimated 95,000 snowmobile visits to the Caribou-Targhee National Forest, FEIS, Chapter 3, Economics and Social Values, “Effects Specific to Island Park”. This would apply to Alternatives 2, 3, and 5. There would be no change under Alternatives 1, 4, and 6.

RW-102. The FEIS should consider that there are two established businesses in the Hellroaring drainage whose clients are adversely affected by the presence of snowmobiles.

The economic impact model, IMPLAN, includes data for all businesses in the eight county economic impact area, see the FEIS, Chapter 3, Economics and Social Values, Analysis Methods and Assumptions. These businesses are in Beaverhead County which is included. The more specific effects of the Mount Jefferson alternatives are described in Effects to Economics from Recreation and Travel and Effects to Social Values from Recreation and Travel.

Roadless

RD-1. The FEIS did not adequately consider the ecological biological and ecological importance of IRAs.

Alternative 3 was developed in part to address concerns about the ecological importance of inventoried roadless areas (IRAs), see Chapter 2 Alternative descriptions. Alternative 3 excludes motorized use and timber harvest from all IRAs, regardless of their wilderness suitability ranking. All action alternatives exclude suitable timber base from IRAs in recognition that protection of IRAs under the Roadless Rule and allocations for productive timber lands are inherently in conflict. The FEIS effects analysis for all resources compare the effects of Alternative 3, which maximizes protection of IRAs, to other strategies for management.

RD-2. The FEIS should include the economic benefits of Inventoried Roadless Areas protected for natural values.

The FEIS, Chapter 3, recognizes the value of protected lands in relation to the economy under Affected Environment and under Effects to the Economic Environment from Wilderness Recommendations.

RD-3. The revised Forest Plan should reference the any Roadless analysis prepared on the BDNF in regard to the Roadless Rule during the 1990s.

As of the FEIS printing, the 2001 Roadless Rule is in place. All action alternatives conform to the direction of the 2001 Roadless Rule. The Inventoried Roadless Area Analysis and evaluation was completed for the FEIS in 2007 in conformance with the 1982 Code of Federal Regulations (36CFR 219.17(a) and the related Forest Service Handbook direction (FSH 1909.12.7).

RD-4. The revised Forest Plan did not inventory “un-inventoried roadless lands” as required under the Bush Administration’s 2005 planning regulations.

The Forest Service inventoried un-inventoried roadless land. Appendix C of the FEIS, on page 1 and on the IRA maps, documents the addition of previously un-inventoried roadless lands to the

inventory. The re-inventory of lands during Forest Plan Revision was completed in accordance with the 1982 Planning Regulations, (36CFR 219.17(a) and the associated FSH 1909.12.7.

The Bush Administration 2005 planning regulations did not hold up in court. The Forest Service is directed to follow the 2001 Roadless Area Conservation Rule (RACR), which describes prohibitions on management of roadless, not a roadless inventory procedure. The “inventoried roadless areas” that the RACR prohibitions apply to are those identified in a set of maps submitted by national forests for the FEIS in November 2000 (36 CFR Part 294.11, 2001)

RD-5. The revised Forest Plan should protect all IRAs as directed under the 2001 Roadless Rule.

As of the FEIS printing, the 2001 Roadless Rule is in place. All action alternatives conform to the prohibitions of the 2001 Roadless Rule. See Appendix C of the FEIS for detailed analysis.

Management

RD-6. The revised Forest Plan should recommend all roadless areas for Wilderness designation.

All inventoried roadless areas were not recommended for wilderness in any of the action alternatives; see FEIS, Chapter 2, “Alternatives Considered but not Analyzed in Detail”. After reviewing this comment and the rationale for not considering all roadless areas as recommended wilderness, it was decided that it was still not a reasonable alternative. Alternative 3, however, recommended for wilderness all roadless areas specifically identified by the public or ranking “High” for wilderness suitability (see Appendix C for a discussion of ranking criteria). After examining all alternatives and public comments, the deciding official chose Alternative 6 as the preferred alternative. Alternative 6 was developed in response to public comments, on the draft EIS. See the Record of Decision for specific rationale for alternative selection.

RD-7. The FEIS should consider allowing helicopter logging operations within IRAs.

No alternative considered in the FEIS prohibits helicopter logging operations within IRAs. The 2001 Roadless Rule, however, prohibits timber harvesting except for clearly defined, limited purposes: to improve threatened, endangered, proposed, or sensitive species habitat, to maintain or restore the characteristics of ecosystem composition and structure, such as to reduce the risk of uncharacteristic wildfire effects, the removal of timber is needed for personal or administrative uses that are allowed, or where roadless characteristics were substantially altered prior to 2001.

RD-8. The revised Forest Plan should manage all IRAs as proposed wilderness to protect wilderness character.

All inventoried roadless areas were not recommended for wilderness in any of the action alternatives; see FEIS, Chapter 2, “Alternatives Considered but not Analyzed in Detail”. After reviewing this comment and the rationale for not considering all roadless areas as recommended wilderness, it was decided that it was still not a reasonable alternative. Alternative 3, however, recommended for wilderness all roadless areas specifically identified by the public or ranking “High” for wilderness suitability (see Appendix C for a discussion of ranking criteria). After examining all alternatives and public comments, the deciding official chose Alternative 6 as the

preferred alternative. Alternative 6 was developed in response to public comments, on the draft EIS. See the Record of Decision for specific rationale for alternative selection.

RD-9. The FEIS should acknowledge that snowmobiles cause little to no lasting impact to wilderness character. IRAs should therefore remain open to snowmobiles.

No alternative excludes winter motorized use from all IRAs. The FEIS considers a range of winter uses from 89% of IRAs open to snowmobiles in Alternatives 1 and 4 to only 45% of IRAs open in Alternative 3. The effects are discussed in Appendix C, page 5 and 6, and in Effects on Inventoried Roadless Areas from Recreation and Travel Management.

RD-10. The revised Forest Plan should allow fire suppression in IRAs when necessary.

Fire suppression not prohibited in IRAs by either the 2001 Roadless Area Conservation Rule or the Forest Plan.

RD-11. The revised Forest Plan should conserve and protect IRAs by allowing no development.

The 2001 Roadless Rule was issued to “provide lasting protection for inventoried roadless areas within the NFS lands”. All action alternatives implement the direction of the 2001 Roadless Area Conservation Rule by prohibiting road construction and timber harvest with few exceptions. Road construction for development of mineral leases or under CERCLA and a few other exceptions are permitted.

IRAs recommended for wilderness will have a higher level of protection from development. The FEIS considers a range of acres and a mix of specific IRAs for allocation as recommended wilderness. Appendix C describes that process and the effects on IRAs in more detail.

RD-12. The revised Forest Plan should protect roadless areas to maintain hunting, fishing, and other traditional, non-motorized, uses.

The 2001 Roadless Rule was issued to “provide lasting protection for inventoried roadless areas within the NFS lands”. All action alternatives implement the direction of the 2001 Roadless Area Conservation Rule which prohibits road construction and timber harvest with few exceptions. Road construction for development of mineral leases or under CERCLA and a few other exceptions are permitted.

IRAs recommended for wilderness will have a higher level of protection from development. The FEIS considers a range of acres and a mix of specific IRAs for allocation as recommended wilderness. Appendix C describes that process and the effects on IRAs in more detail. Alternative 3 has the highest level of recommendations for wilderness. The FEIS compares the effects of alternatives on protection of roadless under “Inventoried Roadless Areas and Additions to the Wilderness Preservation System” and Appendix C.

RD-13. The revised Forest Plan should protect roadless areas to provide fish and wildlife habitat and watershed values.

The 2001 Roadless Rule was issued to “provide lasting protection for inventoried roadless areas within the NFS lands”. All action alternatives implement the direction of the 2001 Roadless Area Conservation Rule which prohibits road construction and timber harvest with few exceptions.

Road construction for development of mineral leases or under CERCLA and a few other exceptions are permitted.

IRAs recommended for wilderness will have a higher level of protection from development. The FEIS considers a range of acres and a mix of specific IRAs for allocation as recommended wilderness. Appendix C describes that process and the effects on IRAs in more detail.

Alternative 3 has the highest level of recommendations for wilderness. The FEIS compares the effects of alternatives on protection of roadless under “Inventoried Roadless Areas and Additions to the Wilderness Preservation System” and Appendix C.

RD-14. The revised Forest Plan should not allow off road vehicles in IRAs.

An alternative was considered in the DEIS to prohibit motorized use in IRAs year around, Chapter 2, Alternatives Considered but Not Analyzed in Detail. Based on this comment that alternative was reconsidered. The rationale for not analyzing it still applies. Alternative 3 considers the effect of allocating most (81%) of the inventoried roadless areas to summer non-motorized uses. Alternative 6 allocates 66% of IRAs to non-motorized uses. See Appendix C for details. The Record of Decision explains the rationale for selecting alternative 6 over Alternative 3.

RD-15. The FEIS should consider that road construction in IRAs could lead to the introduction of noxious weeds.

The 2001 Roadless Rule was issued to “provide lasting protection for inventoried roadless areas within the NFS lands”. All action alternatives implement the direction of the 2001 Roadless Area Conservation Rule which prohibits road construction and timber harvest with few exceptions. Road construction for development of mineral leases or under CERCLA and a few other exceptions are permitted.

RD-16. The FEIS should recognize the important role of fire in IRAs.

Alternative 3 was developed to address interest in allowing natural processes to maintain ecosystems, particularly in inventoried roadless areas (IRAs), see Chapter 2, Alternative descriptions. Alternative 3 excludes timber harvest from all IRAs. The FEIS effects analysis for all resources compare the effects of Alternative 3 to other strategies for management.

RD-17. The revised Forest Plan should not recommend any more roadless areas in order that the access needs of the aged, injured, and disabled are met.

Alternative 4 was developed in part to address interest in no wilderness recommendations. The FEIS compares the effects of that alternative to others under Recreation and Travel Management, “Effects on Recreation and Travel Management from Wilderness Recommendations”.

RD-18. The FEIS should consider thinning in IRAs as appropriate.

The 2001 Roadless Rule was issued to “provide lasting protection for inventoried roadless areas within the NFS lands”. The Rule prohibits timber harvesting except for infrequent, clearly defined, limited purposes: to improve threatened, endangered, proposed, or sensitive species habitat, to maintain or restore the characteristics of ecosystem composition and structure, such as to reduce the risk of uncharacteristic wildfire effects, the removal of timber is needed for personal or administrative uses that are allowed, or where roadless characteristics were

substantially altered prior to 2001. Thinning could take place under any action alternative, only if it met one of these limited purposes.

RD-19. The revised Forest Plan should not allow commercial logging because of its destructive effect on IRAs.

The 2001 Roadless Rule was issued to “provide lasting protection for inventoried roadless areas within the NFS lands”. The Rule prohibits timber harvesting except for infrequent, clearly defined, limited purposes: to improve threatened, endangered, proposed, or sensitive species habitat, to maintain or restore the characteristics of ecosystem composition and structure, such as to reduce the risk of uncharacteristic wildfire effects, the removal of timber is needed for personal or administrative uses that are allowed, or where roadless characteristics were substantially altered prior to 2001.

RD-20. The revised Forest Plan should recognize the Lolo National Forest recommends wilderness for the Stony Mountain IRA of which the BDNF makes no mention.

In response to comments on the DEIS, the wilderness suitability rating for Stony Mountain IRA and its absence from earlier alternatives was reviewed. Stony Mountain rates “High” (See Appendix C for details), is included in wilderness recommendations in Alternative 6, the preferred alternative.

RD-21. The revised Forest Plan should drop IRAs containing roads and trails because they do not qualify as roadless.

The FEIS describes the requirements for inventorying roadless areas in Chapter 3, IRAs and National Wilderness Preservation System Additions, Affected Environment, IRAs. The criteria in FSH 1909.12 states that an IRA does “not contain improved roads maintained for travel by standard passenger-type vehicles...” The FEIS clarifies that on the BDNF, “there are a number of IRAs that have user created roads or travel ways that were never planned, designed, physically constructed, or maintained. The existence of these routes does not in itself preclude roadless designation, although their presence within IRAs has understandably led to some confusion”.

RD-22. The Forest Service must recognize that, legally, the USFS cannot administratively include additions to the Lee Metcalf as these areas were dropped from further consideration in 1982.

The Lee Metcalf Wilderness designation language was reviewed and no agreements or requirements were found where the areas dropped from designation were “released” from ever being considered again.

RD-23. The revised Forest Plan arbitrarily dropped Beaver Lakes Roadless Area from the inventory. It should be restored and its wild character preserved.

The FEIS describes the requirements for inventorying and evaluating roadless areas in Chapter 3, IRAs and National Wilderness Preservation System Additions, Affected Environment. Criteria in FSH 1909.12 include 3 conditions for areas mapped at less than 5,000 acres. Beaver Lake IRA #1-003B did not meet these requirements. Appendix C of the FEIS documents the rationale for dropping this unit from the inventory on page 2.

RD-24. The revised Forest Plan did not include any record of Dixon Mountain IRA.

The FEIS describes the requirements for inventorying roadless areas, Chapter 3, IRAs and National Wilderness Preservation System Additions, Affected Environment Criteria in FSH 1909.12 include 3 conditions for areas mapped at less than 5,000 acres. Dixon Mountain Area #1-019 did not meet these requirements. Appendix C of the FEIS documents the rationale for dropping this unit from the inventory on page 2.

RD-25. The revised Forest Plan should not change IRA boundaries or delete acres from IRA designation without sound reason and full disclosure through NEPA.

The FEIS (Appendix C and Chapter 3, Inventoried Roadless Areas and Additions to the Wilderness Preservation System, Analysis Methods and Assumptions) describes the requirements for IRA inventory and evaluation as well as the rationale for adjustments in IRA boundaries. The boundary changes were disclosed through Appendix C to the Draft EIS. The FEIS serves as full disclosure through NEPA. The changes will have gone through two public comment periods prior to a decision.

RD-26. The DEIS does not adequately address changes in the Sapphire Mountain Wilderness Study Area between 1987 and the present.

The FEIS meets the requirement of 36 CFR 219.17(a), which requires the FS to evaluate and consider for recommendation as potential wilderness during the forest planning process. Appendix C of the FEIS describes the roadless characteristics and wilderness suitability of the Sapphire Mountain Roadless Area #1-421. The WSA comprises 77% of the IRA.

The FS addressed change in the Sapphire Mountain WSA in a 2006 document in response to litigation, Montana Wilderness Association v. US Forest Service. See the FEIS, Chapter 2, Elements Common to All Alternatives, “Wilderness Study Areas” and Chapter 3, Special Designations, Wilderness Study Areas.

Evaluation

RD-27. The FEIS Inventoried Roadless Area evaluation should disclose the wilderness suitability score for each of the four elements of the wilderness evaluation process and not just a final score.

The Forest Service responded to this request by disclosing the ranking of all four elements in Appendix C of the FEIS.

RD-28. The revised Forest Plan should include the Highlands as recommended wilderness because of many features that make it suitable and worth protection.

The Forest Service responded to this comment by including the Highlands IRA in the Table Mountain Recommended Wilderness in Alternative 6.

RD-29. The FEIS Inventoried Roadless Area evaluation should recognize Four Eyes Canyon has many impacts and non-conforming uses and should be dropped from consideration as wilderness.

Four Eyes Canyon IRA ranked “Low” for wilderness suitability and was not included in recommended wilderness in any alternative. See Appendix C, Four Eyes Canyon.

RD-30. The DEIS Inventoried Roadless Area evaluation for the Sapphire and Stony Mountain IRAs showed only the wilderness suitability rating for the BDNF side and should include ratings for the adjacent forests.

A wilderness characteristic assessment evaluated the changes in wilderness characteristics between 1977 and 2005 (project file). This assessment found, “neither the wilderness character or the potential for inclusion in the NWPS has diminished when looking at the WSA as a whole”

Scenery

SCN-1. The revised Forest Plan should contain clearer direction for scenery.

The scenery direction in the revised Forest Plan was updated in an attempt to make it clearer.

SCN-2. The revised Forest Plan should provide better definitions for the concern level list.

The glossary and the Concern Level List were both updated to better define the list.

SCN-3. The revised Forest Plan should define the Extent of Concern for developed sites.

The extent of concern was incorrectly published in the draft plan. The list has been corrected and extent of concern is defined in the glossary.

SCN-4. The FEIS should revisit the scenery analysis because does not show the need to reduce motorized opportunities.

This comment was reviewed with the scenery analysis. We were unable to find any discussion in the scenery analysis indicating a need to reduce motorized opportunities based on scenery.

Soils

SOIL-1. The revised Forest Plan should ensure protection of easily eroded soils.

The Forest Plan ensures protection of easily eroded soils by incorporating the Region 1 soil quality standards (SQS) as a Forest Plan Standard. The SQS's require that all soil disturbing activities maintain 85 percent of the affected area with soils in good condition and define the threshold that must be met on these soils, including 1 for erosion. The disturbance threshold is set high enough that soils disturbed by erosion or other factors, maximum of 15%, are expected to recover over short time periods.

SOIL-2. The revised Forest Plan should permit logging on non-sensitive soils up to 45% slopes.

Forest Plan standard 1 addresses this comment. Logging is permitted on slopes steeper than 35% if site-specific analysis shows damage is unlikely and soil objectives can be met.

SOIL-3. The Forest Service should recognize cost of soil restoration and assure it is included in the budget.

This is a good point. However, congress allocates Forest Service budgets not the Forest Plan.

SOIL-4. The revised Forest Plan should require sediment and erosion control with site-specific BMPs and best available technologies and stop using required watershed analysis and high forest roads standards.

What you suggest is a Forest Plan requirement; see Objectives in the Soil section. Watershed Analysis is used to decide which BMP's are necessary and in some instances a high road standard is required as a BMP.

SOIL-5. The revised Forest Plan should quantify existing soil productivity reductions to enable disclosure of cumulative soil productivity effects.

This is done at the project level to assure that Forest Plan standards are met, including the Region One soil quality standards.

SOIL-6. The revised Forest Plan should adopt the Region 1 soil quality standards to allow NEPA review of standards.

The intent of the Draft Forest Plan was to state that Region One Soil Quality Standards are incorporated. It will be clearly stated in the Final.

SOIL-7. The revised Forest Plan should address the failure of Soil Quality Standards in terms of 1) soil productivity protection, 2) the validity of the activities area concept, 3) effectively evaluating natural & man-made cumulative effects, and 4) quantifying soil productivity.

The existing soil quality standards were the state of the art for Region One at the time they were written. The Long Term Forest Productivity study, other research, soil monitoring on all Forest, and other sources are being used to evaluate the Standards as they exist and will be used to update them as better information becomes available.

SOIL-8. The revised Forest Plan should require monitoring to document Soil Quality Standards (SQS) effectiveness by demonstrating that Best Management Practices meet SQS and by validating the SQS per se.

Your concern is already met because the SQS's are in the Forest Plan and the Forest Service Manual, Section 2554.1 requires monitoring to 1) Determine the effectiveness of the standards and guides in the Forest Plan (this include SQS's and BMP's), and 2) Validate assumptions and coefficients used in developing standards and guidelines. Make modifications as needed.

SOIL-9. The revised Forest Plan should require inventory and monitoring of soil functioning indicators, such as lichens, etc.

Presently there is not a practical, effective method for doing this. The type of inventory/monitoring you suggest will be adopted when it becomes practical and effective.

SOIL-10. The FEIS should recognize that a federal soil law is needed to assure the Forest Service will protect soil productivity.

Congress passes federal laws.

Special Designations

Continental Divide National Scenic Trail (CDNST)

SPC-1. The Forest Plan should direct management of the CDNST as a non-motorized route year-round.

An objective in the Draft Forest Plan and a goal in the Final Forest Plan provide for management of the CDNST as a non-motorized route.

SPC-2. The Forest Plan should allow mountain biking along the CDNST by creating corridors through recommended wilderness.

The use of mountain bikes in all or part of the recommended Wilderness was considered in both the Draft and Final Forest Plans.

SPC-3. The FEIS should consider how mountain bike use of the CDNST would be adversely affected by recommendations of the Anaconda-Pintler additions, Centennial, Electric Peak, and Italian Peaks for wilderness.

The FEIS Special Designations section has been expanded to cover the lengths of trail available for various types of travel by alternative.

SPC-4. The Forest Service should use partnerships with mountain bikers to maintain the CDNST trail.

Your suggestion is a possible method of managing the CDNST in all alternatives. The Forest Plan does not exclude this method of maintaining the CDNST.

SPC-5. The revised Forest Plan should designate the CDNST as non-motorized to conform to national policy.

While a complete non-motorized route is the national goal for the CDNST, existing motorized segments will require site-specific analysis before closure. The Forest Plan has an objective to manage the CDNST as a non-motorized route.

SPC-6. The Forest Plan should designate some parts of the CDNST as a motorized route.

While there are some sections of the CDNST which allow motorized uses, national direction is to manage this nationally designated trail as a non-motorized route. Over time sections which are motorized may become non-motorized. Where this is not possible due to traditional uses, an alternate non-motorized route may be built.

SPC-7. The Forest Plan should not close newly constructed or existing sections of the CDNST to motorized use, i.e. Miner, Berry to Goldstone, Nez Perce trail, Gibbons Pass North.

National policy for the CDNST directs the Forest to manage the trail as a non-motorized route. Even with this policy, some sections of the trail will remain open to motorized travel under the Forest Plan. New sections must be built for only non-motorized use in compliance with this policy. Existing trail sections which may be closed with the Forest Plan are within Forest Plan allocations requiring the closure, such as Recommended Wilderness and seasonal non-motorized allocations.

SPC-8. The Forest Plan should honor the 510 miles of motorized use on the CDNST as established by the 1989 decision.

The Forest Plan does not change any of the existing uses of the CDNST. Any changes would come after site-specific travel planning.

SPC-9. The Forest Plan should retain trail 102, and trail 103 as motorized loops connecting to the CDNST. (check this one on the map to see if the statement makes sense)

These trails, in the Anderson Mountain Area, would be open to motorized summer use in Alternatives 1, 2, and 4, and closed in Alternatives 3, 5, and 6. The trails lie in a Summer Non-motorized area in Alternative 6 and would therefore be slated for motorized closure in the Forest Plan.

SPC-10. The Forest Plan should designate the Sapphire Crest Trail a yearlong non-motorized route as a special allocation.

The BDNF part of the Sapphire Crest Trail would be open to motorized summer use in Alternatives 1, 2, and 4, and closed in Alternatives 3, 5, and 6. The trail would therefore be slated for motorized closure in the Forest Plan.

SPC-11. The Forest Plan should create special designations, similar to the CDNST, for motorized trails.

Special designations, such as the CDNST, are decisions made at the national level, either by Congress or by agencies according to laws and policy. The Forest Plan, by area has allows or allocates many trails to motorized use. Consideration was given to recommending national recreation trails; however, no specific trails were brought forward and no national trail designations were recommended in any alternative.

Lewis & Clark National Historic Trail

SPC-12. The revised Forest Plan should close the Lewis and Clark National Historic Trail to motorized access yearlong to facilitate wildlife migration between the West Big Hole and Anaconda-Pintler areas.

The entire length of the designated LCNHT on the Forest lies along the Trail Creek Road and State Highway 43. The closure was considered but not included in any alternatives due to the effects closure would have on existing travel along these heavily used routes.

Nez Perce National Historic Trail

SPC-13. The revised Forest Plan should develop an equivalent single track motorized trail as mitigation for the closing the Nez Perce National Historic Trail to motorcycles.

The entire length of the designated NPNHT on the Forest lies along the Trail Creek Road and State Highway 43. Motorized closure of the trail was considered but not included in any alternatives due to the effects closure would have on existing travel along these heavily used routes. The designated NPNHT remains open to motorcycles and other vehicles.

Wild & Scenic Rivers

SPC-14. The Forest Plan should include Harvey Creek as an eligible Wild and Scenic River.

Based on this comment, Harvey Creek was again reviewed for WSR eligibility. It was not found to have any outstandingly remarkable values which would lead to its inclusion as an eligible river.

Wilderness

SPC-15. The revised Forest Plan must recognize that pristine land is not a renewable resource and should be preserved as Wilderness.

The alternatives provide a range of “Recommended Wilderness” allocations, and provide management which protects Wilderness character in those areas. Only Congress has the authority to designate lands as Wilderness.

SPC-16. The FEIS should recognize that calling an area “Wilderness” can lead to increased publicity and over-use.

The Forest has part of two such areas, the Anaconda-Pintler Wilderness and the Lee Metcalf Wilderness. These areas were named by Congress, not by the BDNF, and these names will remain regardless of publicity or use.

SPC-17. The revised Forest Plan should manage existing wilderness trail assets properly before recommending more wilderness.

The revised Forest Plan provides for trail management through the Wilderness plans and in the Infrastructure sections. Recommending additional areas for Wilderness does not increase trail maintenance for the Forest, and is not expected to affect the maintenance of trails in existing Wilderness.

SPC-18. The FEIS should recognize that future demand for recreation will be from those who don’t use gas, so wilderness will be more important in the future than it is now.

Trend data does not support the assumption of a movement toward more non-motorized recreation. It does, however, support the concept of increases in nearly every type of outdoor recreation.

SPC-19. The FEIS should address prevention of snowmobile incursions in wilderness areas.

Enforcement was briefly discussed in the Recreation and Travel section of the FEIS.

Wilderness Study Areas

SPC-20. The revised Forest Plan should restrict motorized use in Wilderness Study Areas.

Further restriction of motorized uses in the Wilderness Study Areas was discussed, and motorized restrictions from the Deerlodge Forest Plan in the Sapphire WSA were incorporated into Alternative 6. Because the management of the areas is well defined by law, further management changes were not developed in action alternatives.

SPC-21. The FEIS Inventoried Roadless Area evaluation for the Sapphire and Stony Mountain IRAs showed only the wilderness suitability rating for the BDNF side and should include ratings for the adjacent forests.

Wilderness Suitability ratings for these areas are available in the Roadless Inventories completed for the Bitterroot and Lolo National Forests.

SPC-22. The revised Forest Plan should specify roads adjacent to WSAs will be restored and also included in recommended wilderness.

Recommended Wilderness allocations were considered but not developed for the WSAs or adjacent lands with roads in any of the alternatives.

Timber Management

TM-1. The revised Forest Plan should allow more timber sales in roadless areas after wildfire.

The revised forest plan allows timber harvest on 1,631,000 acres of forest land for multiple use reasons. Roadless areas are included in this acreage. They could be harvested as long as roads are not constructed. Barring construction of roads on roadless areas is a decision in effect that is beyond the forest plan to change.

TM-2. The FEIS should address fire salvage in terms of wildlife habitat because it is a public issue and not currently addressed.

The FEIS states that fire salvage requires site-specific analysis and decision. We can not find a generalization supported by science or management experience that can be implemented across the landscape regarding fire salvage and wildlife habitat.

TM-3. The FEIS should address the deteriorating condition of the timber resource and resulting build-up of fuels.

We believe the FEIS does address the build-up of fuels in the Fire section and improves the seral condition of the forest during the planning period.

TM-4. The revised Forest Plan should respond to insect and disease by harvest, to prevent wildfire and destruction of resource values and produce jobs and timber.

There is no scientific evidence that harvesting timber reduces insect and disease levels during epidemics. By thinning to smaller than breeding size classes some reduction in bark beetle activities can be achieved as long as it occurs before full blown epidemics occur usually due to climate and weather conditions. Thinning when practiced on sound rotation schedule can be a valuable part of a timber rotation but if done everywhere does not produce the more valuable larger size logs. Wildfire generally occurs under the influence of climate cycles and will occur whether the forest is under epidemic insect outbreaks or not. Insects and disease are considered by some to produce destruction of resource values such as death of a live tree but by others to produce resource values such as snags and down wood.

TM-5. The revised Forest Plan should identify additional suitable timberlands and manage to improve forest health because this will mitigate the effects of insects and support the local economy.

The revised plan does identify additional suitable timberlands in the preferred alternative over those designated in Alternative 5 of the DEIS.

TM-6. The revised Forest Plan should make more post and pole and house-log sales available, to allow people with low income to afford to buy or build a house; to provide bio-mass energy sources, thin the lodgepole stands, make it easier for people to get poles.

The revised plan allows for harvest on 1,631,000 acres of timberlands. The outputs depend upon site-specific analysis and decision.

TM-7. The Forest Service should open closed roads on a rotating basis for more firewood and post and pole harvest areas.

Roads, currently closed, may be opened for firewood and post and pole harvesting. These would be opened under site-specific project decisions.

TM-8. The revised Forest Plan should direct management of timber stands so the revenue can be used to enhance tourism activities.

This would not be appropriate forest plan direction. Within the authorities the forest has, there are many resource areas we may want to use such funds.

TM-9. The revised Forest Plan should direct management of timber stands without disrupting natural beauty and silence.

The commentator gives no specific methods or practices to be considered.

TM-10. The revised Forest Plan should cease destructive wasteful subsidized logging on public lands.

Timber harvest is a valid use of National Forest Lands. It is use we are to identify according to Federal Regulations (36 CFR 219).

TM-11. The revised Forest Plan should require logging by helicopter to remove opposition to logging.

Specifying particular logging systems such as helicopter logging is a site-specific decision based on site-specific analysis and decision.

TM-12. The revised Forest Plan should require logging with emphasis on low impact harvest and roadless logging systems.

There is nothing in the NFMA or the planning regulations that require logging. Logging is a site-specific decision to capture economic value for the purposes allowed or specified in the planning regulations. .

TM-13. The revised Forest Plan should require logging before dead trees are too old to use as a resource.

Logging dead trees or leaving them is a site-specific decision. The time frames for when dead trees are harvested if that is the decision is usually influenced by weather or the process of appeal or litigation and is outside the forest plan control.

TM-14. The revised Forest Plan should require logging in a responsible way.

The commentator gives no specifics that can be incorporated in the forest plan.

TM-15. The revised Forest Plan should use the 35% slope limit for logging on granitic soils and 45% for ground based logging on basaltic soils.

The slope requirement was eliminated. Examining slope concerns to maintain soil productivity will be a site-specific project level decision. As identified in this comments, different soils types require different protection measures. These are best determined at the site-specific analysis.

TM-16. The FEIS should address where, how, and for what purpose timber is being removed because the BDNF is not a large timber production forest.

These are site-specific prescriptions that depend on site-specific analysis and decision making.

TM-17. The FEIS should address the failure of logging as a substitute for wildland fire.

We do not believe logging is a substitute for wildland fire and has not been portrayed as a substitute for wild land fire in the FEIS. These are two different ecological processes that cannot be compared.

ASQ

TM-18. The revised Forest Plan should not specify a target amount of harvest as a goal to be achieved each year because it serves only to argue there is too much or too little production.

The forest plan does not specify a timber target.

TM-19. The FEIS should provided accurate modeling and rational for Allowable Sale Quantity.

The FEIS has Spectrum modeled ASQ in the Chapter 3 Timber Production section.

TM-20. The revised Forest Plan should set an upper limit or maximum allowable timber harvest, excluding firewood for private use, and non-commercial post and poles for individuals.

Allowable Sale Quantity is an upper limit from suitable timberlands pursuant to the planning regulations.

TM-21. The revised Forest Plan should not reduce the current Allowable Sale Quantity.

Allowable Sale Quantity (ASQ) is a factor of acres of lands suitable for timber production. These acres change between alternatives.

TM-22. The revised Forest Plan should allow timber harvest to benefit people.

It does allow harvest on 1,631,000 acres based on site-specific purpose and need, analysis, and decision.

TM-23. The revised Forest Plan should specify a minimum sustained yield of 46 MMBF annually because this prescription falls within the guidelines of all Congressional laws regarding management of renewable resources.

We cannot find a law or guidelines specifying 46MMBF as a minimum sustained yield. The commentator does not give us such a citation.

TM-24. The FEIS should contain a wider variety of timber volume in alternatives.

Timber volume is an output, which depends on the amount of lands available for timber harvest. The acres available for timber harvest ranges from 1,259,000 to 1,913,000 acres.

TM-25. The revised Forest Plan should simplify the conditions to justify logging because of the way logging opponents can accuse the FS of violating their own plan on every timber sale.

No specifics to simplify conditions are given.

Economics

TM-26. The revised Forest Plan should ensure economically and environmentally viable harvest.

The FEIS considers the effects of a range of alternatives which consider different levels of timber harvest. The decision maker (Regional Forester) will look at those effects and determine which alternative will form the basis of the Revised Forest Plan through the Record of Decision.

TM-27. The Forest Service should revisit suitable timber acres using best available science to develop economic goals and objectives.

We believe we have reviewed and incorporated the best available science to develop the goals and objectives in the forest plan.

TM-28. The FEIS should model the Allowable Sale Quantity based on resource allocation not budget because models cannot take into account future budget changes.

We used SPECTRUM software to model Allowable Sale Quantity (ASQ) two ways for each alternative, using productivity of acres allocated AND using budget constraints along with productivity of acres allocated. That data was not presented in the DEIS but we have included it in the FEIS (See FEIS, Chapter 3, Timber Production). In response to this comment we also clarified our discussion of the relationship between the estimated outputs with a constrained budget and ASQ from suitable acres.

TM-29. The revised Forest Plan should allocate 1,483,486 suitable timberland acres because the actual capability and long term sustained yield calculations are the basis for budget adjustments by Congress not the other way around.

The DEIS identified 1,483,486 acres as tentatively suitable lands. This acreage includes inventoried roadless lands, recommended wilderness, and other areas that may not be suitable for managing as productive timber lands. The rationale for not including the inventoried roadless area portion of these acres is presented in the DEIS, page 29 and the FEIS, Alternatives Considered but not Developed).

We have added a discussion to the FEIS of the relationship between budgets, estimated outputs, and our ability to respond to Congressional priorities.

Suitability

TM-30. The revised Forest Plan should not designate suitable timberlands because the BDNF is a very dry forest, trees do not grow rapidly, and existing logging roads can not be maintained.

There is one alternative (Alternative 3) that does not designate suitable timberlands. Thus this option is one considered by the decision maker.

TM-31. The revised Forest Plan should contain an objective to explain the low suitable timber base.

Objectives do not explain items. There is a range of suitable timber bases ranging from over 600,000 acres to 0. This range is explained in the FEIS, Chapter 2, Alternatives, Chapter 3, Timber Production, and the Forest Plan, Chapter 2.

TM-32. The FEIS should consistently define suitable and unsuitable timberlands based on productivity across all alternatives.

We used the same criteria for all action alternatives.

TM-33. The FEIS should not base definitions of habitat improvement, fuels reduction, and ecosystem restoration on suitable/unsuitable timberlands.

We can't find where it does this.

TM-34. The revised Forest Plan should include westslope cutthroat trout, bull trout, fluvial grayling, and Margaritifera falcata habitat as criteria for unsuitable timber harvest lands.

The fish and clams live in water that by definition is not timberland, neither suitable nor unsuitable. Effects and impacts to these species are required to be determined for activities that may occur on adjacent suitable or unsuitable timberlands. Findings of no significant impact or mitigations developed to maintain the viability of the species pursuant to the Endangered Species Act and National Forest Management Act are required for activities on adjacent timberlands.

TM-35. The revised Forest Plan should not use 20 cubic feet per year as a criteria for suitable timberland because it is too low for a suitability threshold due to changes in climate, soil productivity, and shifting markets.

Twenty (20) cubic feet per year has been a long standing minimum for production on timberlands considered as economically capable of producing timber products. The commentator does not give us an alternative.

TM-36. The revised Forest Plan should retain the existing suitable timberland acres.

Alternative 1 retains the existing suitable timberland and thus is considered by the decision maker.

TM-37. The revised Forest Plan should include suitable timberlands in inventoried roadless areas.

Roadless areas were included in suitable timberlands in Alternative 1.

TM-38. The revised Forest Plan should remove inventoried roadless from suitable timberlands as described in the Draft Plan.

Suitable timberlands were not included in Alternative 2, 3, 4, 5, and 6.

TM-39. The FEIS should address sensitive soils, slope and riparian areas in determinations of suitable timberland.

The criteria used to determine suitable timberlands addressed these.

TM-40. The revised Forest Plan should increase suitable timberland to improve forest health, reduce fire hazard, and soften the effects of forest insect outbreaks.

The revised forest plan offers a range of alternatives of suitable timberlands that we believe covers these issues.

TM-41. The plan should exclude lands from suitable timber determinations where threatened and endangered fish species live, or other species that would be negatively impacted.

Water where T & E fish species live is not included in suitable timberlands by definition. Terrestrial species are considered, and effects and impacts analyzed before activities take place on suitable timberlands. Mitigations are developed where needed to avoid negative impacts.

TM-42. The plan should specify 1,138,092 acres in the suitable timberlands base acres because the forest has 3,387,691 acres and withdrawal of non forested leaves 2,319,501 acres, withdrawal of wilderness/ RNA leaves 1,963,812 acres, and withdrawal of lands producing less than 20 cubic feet per acre leaves 1,483,486 acres and withdrawal of lands >45% slope leaves 1,299,526 acres and withdrawal of xeric conifers and whitebark pine leaves 1,237,334 acres and withdrawal of watersheds with less than 50% forest cover leaves 1,138,092 acres.

The FEIS contains a range of suitable timberland acreages that complies with current Forest Service direction on how to calculate suitable acres.

TM-43. The plan should exclude riparian areas from the suitable timber base.

Riparian areas are excluded from the suitable timber base in Alternatives 2, 3, 4, 5, and 6.

TM-44. The revised Forest Plan should contain a standard to allow entry into Riparian Conservation Areas for watershed improvement and include them in suitable acres to thin conifers to develop large woody material, and increase the hardwood component for riparian wildlife habitat.

There is nothing in the Forest Plan which prohibits the harvest or management of vegetation for the purpose of aquatic restoration or enhancement.

Tribal Rights and Interests

TB-1. The revised Forest Plan should require consultation with tribes regarding proposals for management of traditional religious and cultural areas

The Revised Forest Plan commits the Forest to compliance with all laws and regulations regarding the preservation and management of heritage resources, including Traditional Cultural Properties. The Beaverhead-Deerlodge National Forest consults with interested Indian tribes in compliance with the National Historic Preservation Act, the Archaeological Resources Protection Act, the American Indian Religious Freedom Act and other applicable statutes.

Vegetation Management

VG-1. The revised Forest Plan should address sagebrush dominated vegetation with objectives and standards for the three subspecies of sagebrush to maintain cover and different age stands.

The forest plan has a goal under the Chapter 3 Vegetation, Biodiversity section of managing disturbance processes to produce a mosaic of species and age classes of trees, shrubs, grasses, and forbs to provide animal forage and cover. We believe this goal applies to sagebrush dominated vegetation that includes four subspecies of big sagebrush and five additional species of shrubby sagebrush that occur on the BDNF.

VG-2. The revised Forest Plan should list sagebrush as a unique habitat because sage grouse breed and winter here.

Our definition of unique habitats specifies areas, usually small in size, to provide life requirements of plant or animal species not met on the general landscape. We believe sagebrush shrublands to be one of our large habitat types that should be managed as a major component of the National Forest rather than a unique habitat.

VG-3. The revised Forest Plan should provide a measurable definition of forest health.

Our research of the literature and review of public comments revealed that the term “forest health” has different meanings to different people. We chose not to use it in the forest plan since there is not a universal definition

VG-4. The revised Forest Plan should emphasize creating healthy forests with un-even aged management especially in Granite County.

We chose not to use the term “healthy forest” in the revised forest plan since it is an ambiguous term. Un-even aged management is a site-specific stand prescription that we believe does not have universal application but should be determined on a site-specific basis.

VG-5. The revised Forest Plan should promote effective and sustainable management by establishing objectives and standards for weeds, unique habitats, native plant restoration, and insect and disease.

The forest plan addresses weeds, unique habitats, native plant restoration, and insects and disease in Chapter three Vegetation Goals, and further addresses weeds under Chapter 3 Vegetation objectives.

VG-6. The revised Forest Plan should minimize management where vegetation is within the historic range of variability.

We believe the plan does emphasize management where vegetation is outside our best estimates and models of HRV and minimizes management where vegetation is within best estimates and models. Thus it emphasizes conifer encroachment reduction on grasslands and shrublands, concentrates efforts to restore aspen identified as outside of HRV, and provides for restoring conifer types such as whitebark pine, lodgepole pine, and Douglas –fir that have succeeded into higher covers of mid seral at the expense of early seral stages.

VG-7. The revised Forest Plan should maintain an age class range of 24% in the 0-80 age class, 42% in the 81-140 class, 34% in the 141-480 class on the Beaverhead and 19% in the 0-80 class, 48% in the 81-140 class, and 27% in the 141-480 class on the Deerlodge. Otherwise approximately 75% of the BDNF will have a high risk of mortality and stand replacing wildfire.

We chose to use the Region 1 wildlife vegetation diversity matrix to determine current vegetation size classes that meet our NFMA requirement to maintain a diversity of plant and animal species well distributed across the forest. The matrix is displayed in the FEIS at Chapter 3 Vegetation, where a comparison is made with SIMMPPLE modeled HRV and current condition based on FIA data.

VG-8. The FEIS should include the ASQ as modeled in Spectrum.

We added Spectrum modeled ASQ to the FEIS Chapter 3 Timber Production section.

VG-9. The FEIS should not assume the historical range of vegetation is known, especially for conifer encroachment.

In the FEIS we do not make that assumption. We used the SIMMPPLE model to estimate HRV but do not assume the numbers it produced are the absolute HRV, rather we used it to determine if trends are in accordance with other data sources.

VG-10. The revised Forest Plan should call for higher acres of aspen restoration than identified in the Draft Plan to reach the lower end of the historic range sooner

The research literature and our analysis in the FEIS, under Chapter 3 Vegetation, Aspen section, shows uncertainty in the amount of historic aspen cover. There is general accordance that aspen has declined in the west. However, some areas show increases while others show decreases. We chose an amount of acreage on which to attempt aspen restoration based on what we believed was affordable with current budget estimates and likely to be accomplished in the future based on site-specific NEPA.

VG-11. The revised Forest Plan should fully protect the 32 listed species of sensitive plants.

Sensitive plants are protected in the Forest Plan in Chapter 3 Goals, Objectives, and Standards. They are also protected by Forest Service policy found in FSM 2670 and by regulation 36 CFR 261.9 (c) and (d)

VG-12. The revised Forest Plan should emphasize whitebark pine improvement because it is an important type that is dying out.

The Forest Plan addresses whitebark pine habitat improvement in Chapter 3 Vegetation objectives for the whitebark pine-subalpine fir type. We are also following research reports on whitebark pine and if new or better ideas are forthcoming we will incorporate them.

Conifer Encroachment

VG-13. The revised Forest Plan should address more encroaching species than Douglas-fir.

We changed the objective under Chapter 3 Vegetation, Grassland/Shrubland//Riparian section to read conifers rather than just Douglas-fir.

VG-14. The FEIS should discuss negative impacts of conifer encroachment.

In terms of water storage,

We do not have research or site-specific studies for the impacts of conifer encroachment on water storage for the BDNF so the discussion was not included.

Riparian vegetation,

Because riparian areas constitute such a small percentage of the forest site-specific data and analysis are required. Generally, shading of other riparian vegetation is one of the negative impacts, but it must be evaluated on a site-specific basis.

Forage production,

Addressed under Environmental Consequences Summary of Effects Conifer Encroachment Reduction section DEIS pages 89 and 90 and is carried forward in the same section of the FEIS.

Wildlife habitat,

See the paragraph above

Aspen restoration, and

Addressed under the Quaking Aspen Section of Affected Environment Chapter 3 Vegetation, DEIS p. 81 and is also addressed in the same section of the FEIS.

In whitebark pine stands (subalpine fir).

Mention is made of other “conifers” succeeding into whitebark stands under the Pine sub-family discussion of Affected Environment, Chapter 3 Vegetation page 71 DEIS.

VG-15. The revised Forest Plan should clarify why trees and shrubs removed by burning do not provide forage for wildlife.

Trees and shrubs do provide forage for wildlife. The system is dynamic and following fire the forage often shifts for some period of time to grasses and forbs that also provide forage for wildlife.

VG-16. The revised Forest Plan should use aspen as an MIS.

Restoring aspen is a major objective of the Forest Plan. There are however many variables that influence aspen and no single management action is known that will accomplish aspen

restoration. We will monitor aspen to see if meeting our major objective is occurring over time or whether it continues to decline despite trying different techniques. Since there are so many variables and the scientific community is not certain what has caused aspen decline in the past we think it is not an appropriate MIS.

VG-17. The revised Forest Plan should emphasize mechanical methods to reduce evergreen tree encroachment and aspen enhancement, rather than fire, to reduce exotic plant introduction and preserve sage-grouse habitat.

The revised plan envisions a variety of techniques determined by site-specific project analysis to address conifer encroachment and aspen enhancement. In some cases conifer encroachment is best dealt with by mechanical means, in others fire may be more economical and ecologically effective.

VG-18. The revised Forest Plan should require utilization through timber sales or stewardship contracts to remove conifers. Then use prescribed fire to promote sprouting of aspen.

The forest plan is a strategic document designed to focus on desired outcomes and ecological processes. Timber sale contracts and stewardship contracts are two of various ways to achieve outcomes. We believe, however they should not be prescribed in the forest plan.

VG-19. The revised Forest Plan should not prioritize manipulation of aspen unless natural fire and exclusion of grazing are involved.

We addressed this aspect of natural fire and grazing regarding aspen restoration in the FEIS Chapter 3 Vegetation, Aspen section.

VG-20. The revised Forest Plan should use a more accurate measure than the historical range of variability.

We used estimates of historic range of variability where we deemed it an appropriate guide but did not rely on it completely. HRV of old growth, for example, is not known or modeled for the BDNF. For this component we relied upon old growth estimates based on the Forest Inventory Analysis data that gives the current best estimate with a statistically valid confidence interval. We also use satellite imagery, aerial photography and GIS mapping and analysis to give us measures of vegetation parameters. We are always open to new or more accurate measurement methods but believe we have used the best currently available.

Old Growth

VG-21. The Forest Service should map and validate all remaining old growth.

We use the existing FIA data in conjunction with the R1 old growth algorithm. This allows us to estimate current levels and monitor future old growth on a landscape level to maintain a portion of the forest mosaic in this condition. There is no requirement in the planning regulations to map old growth.

VG-22. The revised Forest Plan should not allow harvest in old growth stands unless they are outside the historic range of variability to protect bio-diversity.

There is no requirement in the planning regulations to disallow harvest in old growth stands. Rather old growth is part of the diversity of vegetation types and the plan provides for keeping some of this diversity.

VG-23. The revised Forest Plan should define the relationship between the level of old growth retained and wildlife habitat needs.

The relationship between levels of old growth on the landscape and wildlife habitat needs is controversial and not established for the old growth types and wildlife present on the BDNF. We have extensively reviewed the scientific literature on this subject and are unable to establish the relationship referred to. We continue to review the science available on this subject and welcome credible peer reviewed science that may shed further light on this issue.

VG-24. The revised Forest Plan should clearly define terms in the old growth standard and how they are incorporated.

We indicated terms defined in the glossary in italics and included the terms pertaining to old growth in the Vegetation Goal or old growth and to Standard 2.

VG-25. The revised Forest Plan should state the scientific credibility of Forest Inventory Analysis.

The Forest Inventory Analysis was mandated by Congress in the McSweeney-McNary Forest Research Act of 1928 and the Forest and Rangelands Renewable Resources planning Act of 1974. The system has extensive data collection procedures and a quality assurance program that are beyond the scope of the Forest Plan to judge as to scientific credibility

VG-26. The revised Forest Plan should prohibit logging in old growth unless a 15% retention standard is met.

Retention of 15% old growth is one of the alternatives for managing old growth in the FEIS. The decision maker will choose which option is implemented in the forest plan.

VG-27. The revised Forest Plan should specify how a 10% old growth distribution will be measured.

It will be measured on a forestwide scale using FIA data and the Region 1 Old Growth Algorithm for types defined in the “dominance types” in the glossary..

VG-28. The revised Forest Plan should conserve old growth because it is essential for a diversified landscape.

The revised Plan does that with both a Goal and a Standard under Vegetation, Chapter 3.

VG-29. The revised Forest Plan should include a forest specific resource plan while still protecting old growth characteristics.

We believe the Plan does protect a portion of the current old growth while other resources specific to the BDNF are addressed.

VG-30. The revised Forest Plan should increase the amount of old growth by the end of the planning period because 10% is inadequate based on prevalence historically.

We do not have a reliable estimate of the historic range of variability of old growth on the BDNF. The FEIS includes options that increase the 10% retention standard. The decision maker will decide if 10% is enough or whether management for increased old growth should occur.

VG-31. The revised Forest Plan should resolve the conflict between current plans that say the forest has obligate old growth species and Draft EIS that says there are none. “Lolo Post Burn, 9th Circuit, conflicting science, strong opinions, and “needs further scientific research to determine presence or absence.” (BW)

The Lolo Post Burn 9th Circuit does refer to old growth dependent species but does not state which species those are. There is conflicting science but we have been unable to find any that supports there being “obligate” old growth species on the BDNF. Thus we changed the plan to reflect that. We are also mindful that under the course filter approach we are retaining some of the existing old growth as part of the diversity that is a special case of the large size class/late seral forested type.

VG-32. The revised Forest Plan should provide a scientific basis for old growth retention and protection.

The planning regulations do not require a scientific basis for old growth retention and replacement. The 10% retention was used because that amount preserves about 44% of existing old growth.

VG-33. The revised Forest Plan should specify stand size in its old growth definitions.

The planning regulations do not require specification of stand size for old growth or any other seral stage of vegetation.

VG-34. The revised Forest Plan should require validation sampling for FIA stand size estimates.

The FIA has quality assurance programs in place that validate FIA estimates.

Insects and Disease

VG-35. The revised Forest Plan should not close roads in bug infested areas to allow management.

While the revised forest plan does close motorized access in specific areas the Forest Service can administratively open roads needed to manage resources as necessary.

VG-36. The revised Forest Plan should give stronger direction to salvage and manage of insect infested areas.

The forest plan allows salvage and management of insect infested areas to be conducted under an integrated pest management system. Site-specific analysis and decisions are required to determine when and where these are appropriate.

VG-37. The revised Forest Plan should include consideration of bugs and microbes before manipulating vegetation.

That concern is addressed in the Bio-diversity Goal in the Vegetation section in Chapter 3.

VG-38. The revised Forest Plan should reconsider Kentucky blue grass as a key species.

We did and Kentucky bluegrass was removed from the key species under the Livestock Grazing section Interim Standards

VG-39. The revised Forest Plan should consider fungi and insects as capable components and beneficial organisms.

We believe it does. We include insects and microbial communities under the Biodiversity Goal in Chapter 3, Vegetation.

VG-40. The revised Forest Plan should allow salvage of dead and diseased timber for fire prevention and economic benefit.

The revised Plan allows salvage, fire prevention and other economic benefits when site-specific analysis has been completed to determine the appropriate method.

VG-41. The revised Forest Plan should provide for killing the forest quickly rather than doing it slowly over time.

We do not find any provision or mandate in the statutes or regulations that direct or provide for killing the forest at all so we have not proposed doing so.

VG-42. The revised Forest Plan should provide for removal of bug killed trees with minimal impact.

The revised forest plan allows removal of bug killed trees based on site-specific analysis and decision.

Management and Other Objectives

VG-43. The revised Forest Plan should include acreage taken by prescribed fire in the 5-9” class in the 5-9 “reduction of approximately 74,000 acres.”

It is in Chapter 3 under Forested Vegetation Objectives in the Vegetation section,

VG-44. The revised Forest Plan should use timber harvest to regenerate aspen.

The revised plan would allow timber harvest to be used as a tool to regenerate aspen if determined appropriate in site-specific analysis.

VG-45. The Forest Service should ensure vegetation management does not become synonymous with timber harvest on unsuitable timberland.

The planning regulations provide for timber harvest on not-suitable lands where harvest is allowed to protect other multiple use values or meet other resource objectives. CFR 219.2(c)(1)

VG-46. The FEIS and Plan should clarify the distinction between suitable timber production and timber harvest.

We made a concerted effort to clarify this point in the Timber section of the FEIS.

VG-47. The FEIS should address the impact of past logging on aspen.

The impact of past logging has not been studied, monitored, or inventoried in sufficient depth on the BDNF to allow other than anecdotal observations.

VG-48. The revised Forest Plan should manage vegetation by grazing, timber management, thinning, and use of post and pole sales and suitable forest health practices rather than letting trees burn.

The revised plan allows all of these practices. See the Goals under Livestock Grazing and Timber Production in Chapter 3 of the Plan.

Non-native Species (Weeds)

VG-49. The FEIS should address the relationship of burning to the spread of noxious weeds and exotic grasses especially cheatgrass, because they are impacting native ecosystems and disclose what the cost of control will be.

Noxious weeds and burning are discussed in the FEIS Chapter 3 Effects on Vegetation of Wildland Fire Use. Cheatgrass is not on the Montana Noxious weed list so it was not specifically addressed. The BDNF noxious weed control program was updated by the 2002 FEIS and Record of Decision which considered vectors of weed spread and economic impacts. There is no requirement in the planning regulations to analyze and disclose the cost of weed control as part of forest plan revision.

VG-50. The revised Forest Plan should force private landowners to control weeds on private property.

We agree that uncontrolled weeds on private property are a detriment to public lands. However there is nothing in the planning regulations or other statutory provisions that permits the Forest Service to force private landowners to control weeds.

VG-51. The FEIS should address the correlation of increasing ATV and other motorized use with the spread of noxious weeds.

This is addressed under Effects on Vegetation from Recreation and Travel Management

VG-52. The revised Forest Plan should emphasize education and cooperative efforts to control weed spread instead of road closures.

Planning regulations do not require this as part of forest plan revision. Education and cooperation were a part of the analysis discussion in the 2002 Noxious Weed Control Program EIS.

VG-53. The FEIS should be more specific about the relationship between snowmobiling and weed spread. (Volume I, page 96 and 339).

We have very little to support this.

VG-54. The revised Forest Plan should emphasize preventive noxious weed management and use native species to restore weed infested areas.

The plan does this under the noxious weed objectives in Chap 3 Vegetation and the non-native species section under Chapter 3 Vegetation Goals.

VG-55. The revised Forest Plan should protect roadless areas to reduce the noxious weed invasion. SAID IN ROADLESS ALSO

There are no provisions in the revised forest plan to open road corridors in roadless areas.

VG-56. The revised Forest Plan should require the inspection and cleaning of all vehicles including FS vehicles for noxious weeds.

This is not in the decision space we have for forest planning. Inspections are a weed spread prevention practice required under Best Management Practices for vehicles used for projects and firefighting on national forest and are required in contracts or permits rather than in the forest plan. Otherwise the Forest Service can only inform and persuade private vehicles owners to inspect and remove weeds on their own cars.

VG-57. The FEIS should display scientific evidence of summer motorized vehicles transporting noxious weeds.

References from Montana State University and the Journal: Plant Ecology, were added to the effects section under Motorized Transportation Effects in the Vegetation section in Chapter 3 of the FEIS.

VG-58. The revised Forest Plan should emphasize prevention of noxious weeds in sensitive plant habitat.

The Biological Evaluation recognizes noxious weeds as primary threat to sensitive plant populations. Look in the Forest Plan, Chapter 3, Vegetation, Goals, Non-Native Species.

VG-59. The revised Forest Plan should not restrict recreational use because of weed seed spread potential for hikers, mountain bikers stock and motor vehicle users.

We have not made any closure decisions in the Forest Plan based on weed preventions.

VG-60. The revised Forest Plan should eliminate the use of chemicals, pesticides, and herbicides.

We believe these tools, properly used, and in accordance with specific labels are part of an integrated pest management program as described in the 2002 BDNF Noxious Weed Program EIS and ROD. It is also supported in the Plan, Chapter 3, Vegetation, Goals - Pest Management.

VG-61. The FEIS should disclose the current extent of noxious weed infestations or the effects they have on the physical, biological resources or the productivity of the land.

We added to the FEIS our current estimate of noxious weed infestations in the noxious weed section of Chapter 3 Vegetation. We use the State of Montana Noxious Weed list and local County Noxious weed lists that have the authority of the Montana State Legislature declaring them to have adverse effects on physical, and biological resources and productivity of the land.

VG-62. The revised Forest Plan should address noxious weeds in roadless areas, natural areas and wilderness since they need equal attention as in other areas.

There is nothing in the revised forest plan that prevents addressing noxious weeds in these areas and they are addressed under the Noxious Weed Objective in Chapter 3 Vegetation.

VG-63. The revised Forest Plan should include noxious weed treatment measures that include:

- The degree of success needed on disturbance areas and accurate cost assessments in light of limited budgets.

- Mitigation measures for logging, burning, and roads which exacerbate weed distributions.
- Reduction of the spread of noxious weeds by obliterating non-maintainable roads; prohibit ORVs off trails, and by managing grazing.
- Allowing vehicles in roadless areas to manage noxious weeds.

The planning regulations do not require this level of specificity in the forest plan. These treatment mitigation measures where appropriate are included in integrated pest management decisions, contract specifications, permits

Research Natural Areas

VG-64. The revised Forest Plan should propose the swamp and peat bogs in the Hamby Creek drainage as research natural area.

The RNA target Assignment for marsh and bog meadows for the BDNF from the Research Natural Areas of the Northern region Status and Assessment Needs of October 1996 has been filled by the Skull Odell RNA.

VG-65. The revised Forest Plan should display and state the travel status for Research Natural Areas.

There is no requirement in the planning regulations to do this. Rather travel status in RNA's is covered under the Establishment Record and Decision Memo establishing RNA's and the Protection and Management Standards for RNA's found at FSM 4063.3.

VG-66. The revised Forest Plan should use better maps to depict seasonal motorized restrictions in Research Natural Areas.

This falls under travel management planning and production of public maps that is a separate process from Forest Plan Revision. Construction of new roads and motorized travel are generally prohibited in RNAs under the regulations and policies governing RNAs

TE&S Plant Species

VG-67. The revised Forest Plan should preserve habitat for commercial species of edible mushrooms, fungi of medical interest, and species important to wildlife.

There is no provision in the planning regulations to make this kind of decision in the forest plan.

VG-68. The revised Forest Plan should require a survey for fungi to know what is out there.

There is no requirement in the planning regulations to survey for fungi.

VG-69. The revised Forest Plan should not use T&E species or other technical data biased against public recreation to make restrictions.

We can not find where it does this.

VG-70. The revised Forest Plan should close sensitive plant habitats to protect the plants from humans, horses, and vehicles.

There is no requirement in the planning regulations or authorization to close sensitive plant habitats. Sensitive plant habitats are protected by other means

Wildlife

WLD-1. The FEIS should provide science for supporting the age class distributions as proxy for wildlife viability.

We chose to use the Region 1 Wildlife Vegetation Diversity Matrix (available in the project file) to determine current vegetation size classes that meet the NFMA requirement to maintain a diversity of plant and animal species well distributed across the forest. The matrix was developed by a number of specialists in the Regional Office based on science from many sources. There is conflicting science and no single agreed-upon right answer for what percentages or areas should be in particular age/size classes. We attempt to ensure diverse age and size/structure classes of forested and non-forested vegetation types across the landscape. This is the method we are directed to employ based on the R1 Final Viability Consistency Paper.

WLD-2. The FEIS should disclose that viability requirements are not being adequately met.

To the extent viability is linked to maintaining vegetation within the historic range of variability (HRV), all vegetation types except aspen and lodgepole pine, are within the modeled historic range of variability (Chapter 2-vegetation). Lodgepole pine occupies considerably more forest area than it did historically, at the expense of aspen. Lodgepole pine is mapped using SILC3. In the future it may be more accurately mapped using National Agricultural Imagery Program. Alternative 6 makes a proactive commitment to restore aspen, generating an upward trend toward recovering this important vegetation type. The FEIS and the BA/BE disclose viability requirements ARE being met.

WLD-3. The revised Forest Plan should emphasize protection of wildlife habitat.

The plan emphasizes managing habitat within the historic range of variability as noted in the response to comment WLD 2 about sustaining wildlife populations. The preferred alternative also emphasizes managing motorized access to reduce disturbance to wildlife and maintaining secure habitat. The preferred alternative provides a forestwide average of 56% secure habitat in the summer by landscape and 59% secure habitat by hunting unit during the fall hunting season. The preferred alternative also secures 43% of big game winter range and 71% of wolverine denning habitat under non-motorized allocations.

WLD-4. The revised Forest Plan should protect habitat for all native species.

The preferred alternative emphasizes managing for the historic range of variability in vegetation to sustain viable populations of all wildlife that inhabit the BDNF. Lodgepole pine, for instance, must be managed to help produce an upward trend in aspen which is notably deficient across the forest. Secure habitat is also provided as noted at comment WLD 3. Desired habitat is not static.

WLD-5. The FEIS should address species that are affected by ecosystem restoration.

All species are potentially affected over time and space. As noted in Chapter 3, the BDNF Threatened, Endangered, and Sensitive Species list encompasses approximately 346 terrestrial

species for all or portions of their life cycle. It is not practical to address each and every species, particularly when many species winter elsewhere, some in other countries.

WLD-6. The revised Forest Plan needs criteria for good wildlife habitat

The plan provides for a diversity of vegetation, both by species and size and age class. This in turn, will provide good wildlife habitat.

WLD-7. The revised Forest Plan should clarify the reason Alternative 5 provides greater security for wildlife than Alternative 3.

The FEIS clarifies that Alternative 3 does indeed provide the highest per cent secure habitat forestwide for summer and fall. However, Alternative 3 doesn't provide as much opportunity to improve habitat as 5 or 6. Please see the discussion in the Wildlife Habitat Management section in Chapter 3.

WLD-8. The revised Forest Plan should put equal priorities on wildlife and human uses.

The revised plan does indeed balance wildlife and human uses. The preferred alternative provides a mix of uses with a long term sustained yield of 23.0 mmbf for timber harvest, secure wildlife habitat (52% summer, 59% fall), protection of winter range from motorized disturbance, and wilderness recommendations for human amenities, and potential wildlife connectivity and linkage.

WLD-9. The FEIS should manage wildlife habitat in large blocks to maintain natural process.

We agree with this premise. Wildland fire will provide the greatest natural change agent under prescribed conditions. Vegetative treatments prescribed by alternative in the FEIS, Chapter 2, will move the Forest towards a greater diversity of vegetative conditions.

WLD-10. The revised Forest Plan should require wildlife population monitoring. (ec Cites Mills 1994 which is a legal declaration for civil case CV 94-108-M-CCL and Ruggiero et al 1994 from Conservation Biology V. 8 #2, pp 364-372)

One person among others who voiced this concern cited Mills 1994 - a legal declaration for civil case CV 94-108-M-CCL and Ruggiero et al 1994 from Conservation Biology V. 8 #2, pp 364-372). The revised plan provides direction to manage vegetation within the historic range of variability. Tracking vegetation changes through FIA is a better method for assessing effects of plan implementation on wildlife.

WLD-11. The revised Forest Plan should identify habitat deficiencies.

The plan identifies a serious deficiency in the aspen component across the forest. This vegetation is so far outside its historic range, that management can only develop an upward trend over the next 15 – 20 years. The preferred alternative proactively targets 67,000 acres of active aspen restoration. The preferred alternative also identifies active conifer encroachment reduction over 74,000 acres to promote restoration of grassland/sagebrush habitat.

WLD-12. The FEIS should use the Berkley/Humboldt formula.

The team is unfamiliar with this formula. The person who made this suggestion did not respond to requests for clarification.

Management Direction

WLD-13. The revised Forest Plan should provide meaningful wildlife objectives.

The preferred alternative provides snag and large woody debris retention, secure habitat areas by hunting unit and landscapes, old growth, aspen restoration, conifer encroachment reduction to restore grassland/sagebrush habitat, winter non-motorized allocations to protect big-game winter range and wolverine denning habitat, and road density objectives by landscape and hunting unit to enhance potential connectivity and linkage for wide-ranging wildlife. We believe these are meaningful.

WLD-14. The revised Forest Plan should provide more detail about application and enforcement of wildlife objectives.

Road density objectives which are fundamental in managing for secure habitat, linkage and connectivity, are clearly applied to each hunting unit and landscape.

WLD-15. The revised Forest Plan should have more precise and measurable wildlife standards.

The preferred alternative provides for snag and large woody debris retention, secure habitat areas by hunting units and landscapes, old growth retention, aspen restoration, conifer encroachment reduction to restore grassland/sagebrush habitat, winter non-motorized allocations to protect big-game winter range and wolverine denning habitat, as well as road density objectives by landscape and hunting unit to enhance potential connectivity and linkage for wide-ranging wildlife. These are all precise enough to be measured see Chapter 3 Vegetation and Wildlife Habitat Management sections.

WLD-16. The revised Forest Plan should use more effective wildlife standards as described by Montana Wildlife Federation.

The Federation suggested an objective of 1.0 mi/sq mile as probably maximizing big game security. The preferred alternative displays in the wildlife section of the FEIS that 21 of the 29 hunting units have fall road density objectives of 1.1 mi/sq mile or less. The Federation comments also note any road densities above 1.5 mi/sq mile imply a significantly degraded landscape that comprises big game. The preferred alternative notes in the wildlife section of the FEIS that 8 of 11 landscapes have objectives of 1.6 mi/sq mi or less. At the hunting unit scale fall road density objectives of 1.6 mi/sq mile or less are established for 28 of 29 hunting units. Fall is a crucial time for big game security due to the large influx of hunting pressure.

The suggestion was also made to substitute the pine marten for wolverine as a management indicator species. This was not done because the pine marten is not a sensitive species, thereby not meeting the intent to determine potential impacts of snowmobile use on denning habitat for a sensitive species that has been petitioned for Federal listing on several occasions.

The Federation also urged protection of mountain goat habitat from snowmobile use. The wildlife section of the FEIS displays that the preferred alternative closes 43% of big game winter range forestwide and 71% of wolverine denning habitat forestwide. Individual landscape closures are higher. Mountain goat, elk, deer, and wolverine wintering areas are included in the mix of closures, not all winter habitat for these species is non-motorized.

The Federation suggested that changes in allotment stocking should require plan direction to weigh the effects of on all fish and wildlife resources. Plan direction is not necessary in this instance. Site-specific allotment analysis addresses these effects.

The federation also suggests dropping non-motorized areas less than 1.0 miles wide from non-motorized calculations. This is not consistent with the Yellowstone grizzly bear habitat definition of secure habitat as greater than 10 acres and 500 meters or more from a road. The FEIS uses a modified buffer of 1/3 mile (synthesis of recreation and grizzly bear buffers) and 10 acres to display secure habitat. Consequently the amounts of secure habitat are actually less than would be calculated under the grizzly bear definition.

The Hunting Unit 318 fall road density objective has been reduced from 2.0 to 1.8 mi/sq mile in Alternative 6 (preferred) in response to the Federation's and Montana Fish Wildlife & Parks comments. This would require closing 22 miles of road to meet the objective. This would constitute an improvement over the current condition. State elk population objectives for hunting unit 318 are basically being met with the current motorized road/trail footprint. Conditions would improve under the preferred alternative.

The Forest Service recognizes that domestic sheep generate conflicts with wild Bighorns. The preferred alternative would not restock sheep allotments that become vacant. While existing sheep permittees may be permitted to use allotments that become vacant, additional numbers would not be allowed. Montana Fish, Wildlife and Parks biologists have been silent regarding Bighorn sheep reintroduction.

Fire Effects

WLD-17. The FEIS should describe how wildland fire use benefits specific species of wildlife.

Effects on wildlife from wildland fire use are discussed in the Wildlife Habitat and Fire Management sections of Chapter 3. The BDNF hosts approximately 346 species and it is not practical to assess effects by each specific species. However, the effects on threatened, endangered and sensitive species are assessed in the Biological Evaluation, (Appendix B).

WLD-18. The FEIS should analyze the impacts on wildlife from logging and fire management.

Effects are discussed in then environmental consequences section of Timber Production and Fire Management in the Wildlife Habitat Management section of Chapter 3.

Linkage

WLD-19. The FEIS should delete the discussion of the negative aspects of connectivity or use more science based logic.

The FEIS has been strengthened to more science based logic on the negative aspects of connectivity. See the Wildlife Habitat Management section of Chapter 3.

WLD-20. The FEIS should explain how the negative aspects of connectivity are due to management activity.

We did discuss the negative effects from management in the Wildlife Habitat Management section of Chapter 3.

WLD-21. The revised Forest Plan should provide large biological reserves with buffer zones and linkages.

There is no empirical data supporting design or delineation of buffer zones and connections for large biological reserves on the BDNF. There is also no empirical data on local large ungulate or carnivore movement from which specific corridors can be delineated. Secure habitat based on the Grizzly Bear Amendment definition, however, displays areas across the forest that are more “permeable” to wildlife movement based on road densities. See the Wildlife Habitat Management section in Chapter 3 and maps of secure habitat summer and fall.

WLD-22. The revised Forest Plan must provide stronger direction for corridors and linkage.

There is no empirical data supporting design or delineation of buffer zones and connections for large biological reserves, on the BDNF. There is also no empirical data on local large ungulate or carnivore movement from which specific corridors can be delineated. Secure habitat, based on the Grizzly Bear Amendment definition helps display those areas across the forest that are more “permeable” to wildlife movement based on road densities. See the wildlife discussion in the Wildlife Habitat Management section of Chapter 3 and maps of secure habitat summer and fall.

WLD-23. The revised Forest Plan should have cover and road density standards for corridors to ensure site-specific projects are required to have beneficial or no impact on connectivity.

While there is no empirical evidence to support specific corridors and linkage zones, specific road density objectives are established for all landscapes and hunting units by summer and fall. See the discussion in the Wildlife Habitat Management section of Chapter 3. Secure habitat is also discussed in the wildlife section with maps showing the extent and distribution of secure habitat.

WLD-24. The revised Forest Plan should provide linkages around the perimeter of Yellowstone, particularly the Gravelly Range.

The maps in the Wildlife Habitat Management section of Chapter 3 display secure habitat which can contribute to linkage and connectivity across the forest and to adjacent lands. See the discussion and tables in the wildlife section of Chapter 3 for details.

WLD-25. The revised Forest Plan should incorporate the provisions in Alternative 3 for linkage areas and hunting districts exceeding best science for security.

This comment is unclear regarding best science for security. See the Wildlife Habitat Management section of Chapter 3 of the FEIS for detailed discussions of security habitat. The wildlife narrative provides detail on percent secure habitat by landscape for summer and by hunting unit for the fall. Alternative 3 does provide the most secure habitat in the fall and is closely followed by alternatives 6, 5, 4 and 2.

WLD-26. The revised Forest Plan should address habitat continuity over time.

All analysis and discussions of habitat are based on the life of the revised plan which is expected to be approximately 15 years

WLD-27. The revised Forest Plan should identify recommended wilderness areas that provide links from the Greater Yellowstone Ecosystem to the Salmon-Selway Ecosystem and Northern Continental Divide Ecosystem.

All alternatives recommend wilderness areas that can provide linkages across the forest to adjacent lands. See the inventoried roadless areas and recommended wilderness narrative in Chapter 3 of the FEIS. The Wildlife Habitat Management section of Chapter 3 discusses the effects of recommended wilderness on potential linkage.

WLD-28. The revised Forest Plan should clearly delineate and preserve corridors connecting BDNF to Central Idaho wilderness/Greater Yellowstone Ecosystem/ Glacier National Park/Bob Marshall Wilderness.

A discussion of the effects of road densities and recommended wilderness on secure habitat contributing linkages to adjacent lands is contained in the Wildlife Habitat Management section of Chapter 3. There is no empirical support available to delineate and preserve specific geographic corridors across the BDNF.

WLD-29. The revised Forest Plan should protect wildlife movement corridors.

There is no empirical data to support the delineation and protection of specific corridors across the BDNF. Nevertheless, the Wildlife Habitat Management section in Chapter 3 of the FEIS discusses the effects of road densities and recommended wilderness in terms of increasing secure habitat and contributing to the ability of wildlife to move across forest landscapes.

WLD-30. The revised Forest Plan should connect wilderness for predators and biodiversity.

The Wildlife Habitat Management section of Chapter 3 discusses connectivity including wilderness recommendations which contributes to secure habitat for wildlife, including large predators.

WLD-31. The revised Forest Plan should support a corridor through the Centennial Mountains.

The Wildlife Habitat Management section of Chapter 3 analyses wilderness recommendations adjacent to the Centennial Mountains. The mountains themselves, however, are not under the jurisdiction of the BDNF.

WLD-32. The revised Forest Plan needs wildlife corridors between Greater Yellowstone Area, Helena National Forest, Northern and Southern Rockies.

The Wildlife Habitat Management section of Chapter 3 of the FEIS discusses potential connectivity to adjacent lands including the Helena NF to the north and the Caribou-Targhee to the south. However, there is no empirical data upon which to base the delineation of specific corridors.

WLD-33. The revised Forest Plan should support all connections among the Centennial, Gravelly, Snowcrest, and Beaverhead ranges.

The Wildlife Habitat Management section of Chapter 3 discusses connectivity for all alternatives. The Centennial, Gravelly, Snowcrest and Beaverhead ranges are all included in the analysis. There is no empirical data, however, to support specific geographic connections.

WLD-34. The FEIS should recognize the Sapphire Wilderness Study Area as an important biological corridor.

While there is no empirical data to support particular geographic corridors for wildlife, the Wildlife Habitat Management section of Chapter 3 discusses potential connectivity along the western boundary to adjacent lands including the Lolo NF on the northwest border.

MIS

WLD-35. The revised Forest Plan needs more Management Indicator Species.

In response to comments elk and mountain goats were added as MIS

WLD-36. The revised Forest Plan needs Management Indicator Species for all disturbance activities.

The 1982 planning regulations do not require the selection of MIS for all disturbance activities. Wolverine is a Northern Region sensitive species selected as a MIS to indicate changes in winter recreation use levels because they use high isolated areas for denning. While the wolverine normally is found at low densities throughout its range, it has been documented in most forest landscapes. This species was previously petitioned for listing under the Endangered Species Act, indicating a high level of public concern. Snowmobile activity has increased dramatically and is the only off-road motorized activity that is allowed on the NFS lands in Region 1.

The mountain goat is another commonly hunted and monitored species that occupies a high elevation niche potentially subject to motorized disturbance in the winter. MTFWP collects data on this species by hunting district.

Rocky mountain elk is selected as the most important commonly hunted big game on the BDNF. Elk are widespread occurring in all vegetation types at all elevations up to 10,000 ft. MTFWP produces annual survey information by hunting district which facilitates monitoring of this species.

WLD-37. The FEIS should develop conservation strategies for sensitive and Management Indicator Species.

The “Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region” (Samson 2006) provides guidance for managing and assessing effects to these species. This guidance is supplemented by “Habitat Estimates for Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher (Samson 2006). Further raptor guidance is provided by “Flammulated, Boreal, and Great Gray Owls in the United States: A Technical Conservation Assessment (GTR RM-253. 1994). Additional carnivore guidance is provided by “The Scientific Basis for Conserving Forest Carnivores: American Marten, Fisher, Lynx, and Wolverine in the Western United States (GTR-RM-254. 1994).

The Montana Statewide Elk Management Plan (2004) provides guidance for our pre-eminent big game MIS. Limitations on snowmobile use are partly based on providing security for mountain goats during their most stressful season.

All terrestrial and avian wildlife species are discussed in the Biological Evaluation.

WLD-38. The revised Forest Plan should have scientifically supportable MIS (refer to Oct 2004 meeting notes w/RMRS).

The deciding officer has selected wolverine, mountain goat, and elk as appropriate MIS for the BDNF. These are discussed in the Wildlife Habitat Management section of Chapter 3.

WLD-39. The revised Forest Plan should have old growth Management Indicator Species.

The plan has not identified a wildlife old growth MIS in preference to monitoring old growth using Forest Inventory and Analysis (FIA). The plan specifies maintenance of at least 10% of well distributed old growth in five dominance types as disclosed in the Vegetation section of Chapter 3. The 10% retention in the preferred alternative amounts to retaining approximately 44% of the existing FIA estimated old growth of 22.9% currently inventoried on the BDNF.

WLD-40. The revised Forest Plan should have pileated woodpecker as a Management Indicator Species (see page 23 of letter 558, cites IPNF 78 EIS).

The deciding officer has decided to select wolverine, mountain goat, and elk as appropriate for the BDNF.

The “Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region” (Samson 2006) provides guidance for managing and assessing effects to these species. This guidance is supplemented by “Habitat Estimates for Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher (Samson 2006). Further raptor guidance is provided by “Flammulated, Boreal, and Great Gray Owls in the United States: A Technical Conservation Assessment (GTR RM-253. 1994). Additional carnivore guidance is provided by “The Scientific Basis for Conserving Forest Carnivores: American Marten, Fisher, Lynx, and Wolverine in the Western United States (GTR-RM-254. 1994)

The “Habitat Estimates” assessment shows that the BDNF alone has more than enough habitat to meet the entire Northern Region habitat viability requirements for the goshawk, black-backed woodpecker, flammulated owl, and marten. The BDNF also meets 50% of the entire Northern Region habitat viability requirement for pileated woodpecker, 60% of Northern Region winter fisher habitat, and exceeds the regional habitat need for summer fisher habitat.

WLD-41. The revised Forest Plan should add sage grouse as a Management Indicator Species for sagebrush habitat.

The deciding officer has not selected the sage grouse as a meaningful MIS based on amount of habitat as discussed in the Wildlife Habitat Management section of Chapter 3.

WLD-42. The revised Forest Plan should reconsider wolverine as a Management Indicator Species because there is little baseline data.

Baseline data is not a requirement for including a species under the 1982 planning regulations, broad distribution is. Wolverines occur at low densities under the best conditions. Despite the low densities, survey information shows detection of wolverines in the Madison, Gravelly, Lima-Tendoy, Big Hole, Pioneer, and Clark-Fork Flints landscapes. This indicates broad distribution across the Forest.

WLD-43. The revised Forest Plan should use pine marten as a Management Indicator Species instead of wolverines because there is more baseline trapping data for pine martin.

Baseline data is not a requirement for including a species under the 1982 planning regulations. Wolverines occur at low densities under the best conditions. Despite the low densities, survey information shows detections in the Madison, Gravelly, Lima-Tendoy, Big Hole, Pioneer, and Clark-Fork Flints landscapes. This indicates broad distribution across the Forest.

Wolverine denning habitat is more likely to be adversely affected by high altitude motorized use. The Wildlife Habitat Management section of Chapter 3 of the FEIS and the Biological Evaluation discuss the effects on wolverines.

Old Growth Habitat

WLD-44. The revised Forest Plan should consider the negative aspects of firewood cutting because of road access in old growth stands.

Firewood cutting has a negligible effect on any forest habitat. Annual forestwide firewood volume is approximately 976 cords (Tom Heintz pers. com.) which equates to approximately 195 permits. Firewood cutting typically occurs along roads. Some road densities will be reduced under the preferred alternative which could potentially reduce the volume of firewood cut.

WLD-45. The FEIS should discuss how wildland fire can help create old growth habitat conditions.

Fire is a process and cannot be referred to as a thing or a creator of old growth. Fire can occasionally play a role in the development of, but does not “cause” old growth. Old growth results as trees and their mychorizal communities live to old age classes. Some species such as ponderosa pine and Douglas-fir, upon reaching the older age class, are adapted by natural selection to produce thick heat insulating bark that prevents killing of the cambium, when exposed to the heat of light or moderate fires. Light or moderate intensity fires burning in these stands often kill the seedlings of these species while they are quite small, thus preventing them from producing fire ladders into the crowns of the older trees that can result in stand replacement.

Light fires also maintain grasses in the understory which also inhibit the germination of trees seeds, further reducing the likelihood of ladder fuels and essentially recycling nutrients to the larger trees and allowing more moisture to be available to the large trees.

Larger more robust trees, from the available nutrients and moisture, are often more able to resist bark beetle attacks by using pitch to force out insects. These trees are more resistant to disease organisms because of thick injury resistant bole bark and functioning mychorizae. Fires in these adapted types thus maintain conditions for the large trees to continue growing often reaching our definitions of “old growth.”

Other species such as lodgepole pine exist in mixed environments. Some percentage of the stand succumbs to stand replacement burns which then reseed following fire from serotinous cones. New stands commence as long as climate and weather conditions continue to be unfavorable to the stand replacement burns. Some, by chance, grow into older age classes.

Species such as whitebark pine occupy niches, usually in high elevations, where local weather conditions for stand replacement fire only occur at long intervals. Seeds of these pines are planted by Clark's nutcrackers and squirrel caches with preference given to recently burned areas the nutcrackers. The same niche occupancy by spruce and fir seems to prevent stand replacing fires for long intervals, due to chance, where the moisture and snow regimes keep stand replacement events minimized for long periods.

WLD-46. The FEIS should provide a meaningful tie to scientifically determined habitat for wildlife, particularly old growth.

Important but not exclusive references are the "Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region" (Samson 2006), "Habitat Estimates for Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher (Samson 2006). Further raptor guidance is provided by "Flammulated, Boreal, and Great Gray Owls in the United States: A Technical Conservation Assessment (GTR RM-253. 1994). Additional carnivore guidance is provided by "The Scientific Basis for Conserving Forest Carnivores: American Marten, Fisher, Lynx, and Wolverine in the Western United States (GTR-RM-254. 1994). The Wildlife Habitat Management section of Chapter 3 and the biological evaluation for wildlife (Appendix B), provide assessments of wildlife habitat.

WLD-47. The revised Forest Plan should incorporate R1 1990 old growth species guidance.

The R1 web site does not contain this document or any reference to it as Northern Region management direction. Habitat parameters, amount of estimated critical habitat, and total estimated habitat in the Northern Region have been updated in "A Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region", USDA Forest Service (2005) and in "Habitat Estimates For Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher" (2005). These latter 2 documents are currently in use by biologists throughout the region as the latest information to assist in evaluating effects on these species.

WLD-48. The FEIS must consider the cumulative effects on old growth habitat and associated species.

Old growth is discussed in the Wildlife Habitat Management section and the Vegetation section of Chapter 3. The discussions clearly show that old growth is well represented across the forest within the historic range of variability (HRV). The preferred alternative preserves at least 50% of the existing inventory, considering potential losses to fires, insects, and disease.

Other Species

WLD-49. The revised Forest Plan should let buffalo migrate and cancel cattle leases near Yellowstone National Park.

Two decisions on buffalo migration have already been made. The Federal and State Records of Decision (2000) state that bison will not be allowed to migrate beyond Zone 2 in the West Yellowstone Area. This means bison will not be allowed to cross the Gallatin National Forest. Bison management outside the boundaries of Yellowstone National Park is the responsibility of surrounding states.

The BDNF has no cattle allotments near Yellowstone National Park (YNP). Forest Service allotments between YNP and the BDNF are administered by the Gallatin and Caribou-Targhee National Forests.

WLD-50. The revised Forest Plan should have standards and objectives for migrating bison.

Two decisions on buffalo migration have already been made in the Federal and State Records of Decision (2000). The decisions state bison will not be allowed to migrate beyond Zone 2 in the West Yellowstone Area. This means bison will not be allowed to cross the Gallatin National Forest toward the BDNF. Bison management outside the boundaries of the park are the responsibility of the surrounding states.

WLD-51. The revised Forest Plan should provide for viable populations of bighorn sheep and bison.

Seven active sheep allotments remain on the BDNF. Montana Fish, Wildlife, and Parks is managing for bighorn sheep with the current sheep grazing. While some lethal control of bighorns to control disease has taken place, MTFWP has not expressed concerns in comments on the DEIS. Regardless, the Wildlife Habitat Management section of Chapter 3 of the FEIS notes “. . . if a domestic sheep allotment becomes vacant in the Gravelly Range, the allotment will be closed to sheep or be used by an existing Gravelly sheep permittee with no increase in sheep numbers.”

Two decisions on buffalo migration have already been made in State and Federal bison management efforts. The Federal and State Records of Decision (2000) state that bison will not be allowed to migrate beyond zone 2 in the West Yellowstone area. This means that bison will not be allowed to cross the Gallatin NF to any other lands to the west. Bison management outside the boundaries of Yellowstone NP is the responsibility of the State. The future of bison movement outside the park rests w/State decision makers.

WLD-52. The revised Forest Plan should abandon or relocate sheep allotments to maximize suitable conditions for bighorns.

The Wildlife Habitat Management section of Chapter 3 of the FEIS notes that if a domestic sheep allotment becomes vacant in the Gravelly Range, the allotment will be closed to sheep or be used by an existing Gravelly sheep permittee with no increase in sheep numbers.

WLD-53. The revised Forest Plan should eliminate domestic sheep to avoid conflicts with bighorns.

Seven active sheep allotments remain on the forest. Montana Fish, Wildlife, and Parks is managing for bighorn sheep with the current sheep grazing. While some lethal control of

bighorns to control disease has occurred, the State had not expressed concerns in comments to the DEIS. Regardless, the Wildlife Habitat Management section of Chapter 3 of the FEIS notes that if a domestic sheep allotment becomes vacant in the Gravelly Range, the allotment will be closed to sheep or be used by an existing Gravelly sheep permittee with no increase in sheep numbers.

WLD-54. The FEIS should assess the threat to bighorns from domestic sheep.

Seven active sheep allotments remain on the forest. Montana Fish, Wildlife, and Parks is managing for bighorn sheep with the current sheep grazing. While some lethal control of bighorns to control disease has occurred, the State had not expressed concerns in comments to the DEIS. Regardless, the Wildlife Habitat Management section of Chapter 3 of the FEIS notes that if a domestic sheep allotment becomes vacant in the Gravelly Range, the allotment will be closed to sheep or be used by an existing Gravelly sheep permittee with no increase in sheep numbers.

WLD-55. The Forest Service should promote restoration of beavers and their habitat as part of riparian management.

The State of Montana manages wildlife. The restoration of beaver habitat would be part of the forest plan restoration strategy. Where, how, or when we would do it would be through a site-specific decision or watershed assessment.

WLD-56. The revised Forest Plan should map potential conflict areas between bighorn and domestic sheep.

Sheep allotments are mapped in the project file. Bighorn sheep distribution is provided by FWP at <http://fwp.mt.gov/insidefwp/GIS/download.aspx>

WLD-57. The revised Forest Plan should address the problem of cowbirds and cattle.

The comment does not provide a definition of the “problem”. If we assume the comments refers to cowbird parasitism of other species, Northern Region Landbirds trend data for cowbirds appears can be found at: <http://avianscience.dbs.umt.edu/trend/gettrendsbyspecies.aspx>

Recreation Impact

WLD-58. The Forest Service should not make concessions to growing motorized recreation at the expense of wildlife security.

The Wildlife Habitat Management section of Chapter 3 assesses secure habitat, road densities by landscape and hunting unit by all six alternatives. Road closures are proposed under Alternatives 2, 3, 5 & 6.

WLD-59. The Forest Service should not penalize motorized users for loss of habitat on private land.

All secure habitat, non-motorized allocations, and road density objectives are based exclusively on national forest lands. Motorized opportunities are widely available across the forest. The Wildlife Habitat Management section of Chapter 3 assesses the effects of travel management.

WLD-60. The revised Forest Plan should protect wolverine and lynx from off-road, motorized, and bicycle use.

The Beaverhead-Deerlodge has been reclassified as not occupied by the lynx. (USDA/USDI Amendment. 2006. Northern Rockies Lynx Management Direction-Record of Decision. 2007). Wheeled, motorized off-road travel is prohibited forestwide. We have no data supporting adverse impacts to wolverine from bicycle users.

Extensive winter non-motorized allocations have been made to protect wolverine denning habitat from motorized disturbance. The Wildlife Habitat Management section of Chapter 3 of the FEIS and the Biological Evaluation assess the impacts to wolverines.

WLD-61. The revised Forest Plan should protect wolverine denning sites from snowmobiles and disclose studies showing the negative impacts of snowmobiles on wildlife, especially wolverines.

The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses the percentages of wolverine denning habitat to be protected by non-motorized allocations. All alternatives provide protections to denning habitat with Alternatives 3 & 6 providing the highest percentages of non-motorized allocation for wolverine denning habitat.

Conclusive studies on the impacts of snowmobiles are not available for North America. Citizens can review the Northern Region wolverine assessment for additional references and varied information on snowmobiles and wolverines. The website is http://www.fs.fed.us/r1/cohesive_strategy/integration/wildlife/R1_wolverine_assessment.htm

WLD-62. The revised Forest Plan should not restrict snowmobiles because of wolverines.

There is mixed information on the effect on wolverines from snowmobiles. Due to the species status as Forest Service Northern region sensitive, BDNF sensitive and MIS, and Montana US District Court direction (2006) to the US Fish & Wildlife Service for a 12 month formal status review, it is prudent to provide protections for denning habitat.

WLD-63. The revised Forest Plan should designate snowmobile routes and play areas to ensure large blocks of secure habitat.

The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses winter non-motorized allocations to provide secure habitat. Detailed maps of non-motorized allocations are found in the project file.

WLD-64. The revised Forest Plan should restrict snowmobile use in all historic and occupied goat habitat.

The preferred alternative provides for 43% closure of big game winter range in national forest ownership to protect roadless area values, wolverine and mountain goat winter habitat, and elk winter range. While not solely aimed at protecting goat habitat, the preferred alternative provides notable protections for goats from motorized disturbance. Detailed maps are found in the project file.

The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses the impacts of travel management on wildlife.

WLD-65. The Forest Service should consider limiting snowmobile use of crucial winter range to designated routes, particularly for bighorn and mountain goats.

The preferred alternative provides for 43% closure of big game winter range in national forest ownership to protect roadless area values, wolverine and mountain goat winter habitat, and elk winter range. While not solely aimed at protecting goat habitat, the preferred alternative provides notable protections for goats from motorized disturbance. Detailed maps are found in the project file.

The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses the impacts of travel management on wildlife.

WLD-66. The FEIS should discuss why hunting is OK but non-destructive wildlife viewing by motorized users seems unacceptable.

Wildlife viewing by motorized users is completely acceptable. Road density objectives and non-motorized allocations are established to meet a variety of needs including wildlife security and public expressions for motorized opportunities. The preferred alternative allocates 55% of the forest for summer motorized use and 61% of the forest for winter motorized use. The Wildlife Habitat Management section of Chapter 3 of the FEIS discusses the effects of travel management on wildlife. The Recreation and Travel Management section of Chapter 3 of the FEIS discusses the effects of the alternatives on recreation and travel management.

Hunting is regulated by Montana Fish, Wildlife, and Parks while habitat on NFS lands is under the purview of the Forest Service.

WLD-67. The revised Forest Plan should not use wildlife mortality as a reason to close roads and trails to OHV use.

The road density objectives are compatible with the State grizzly bear management plan (2002), State elk plan (2004) and the grizzly bear amendment (2006) to greater Yellowstone national forests. Road management is also required to address other resource concerns such as watershed conditions that can be adversely affected by road design and location.

Road density objectives and non-motorized allocations are established to meet a variety of needs including wildlife security and public expressions for motorized opportunities. The preferred alternative allocates 55% of the forest for summer motorized use and 61% of the forest for winter motorized use. The Wildlife Habitat Management section of Chapter 3 of the FEIS discusses the effects of travel management on wildlife

WLD-68. The revised Forest Plan must prohibit off-road-vehicle and snowmobile use in areas below standard.

Road density objectives are ceilings that do indeed require closing roads at the landscape and hunting unit scales in order to meet objectives. The Wildlife Habitat Management section of Chapter 3 of the FEIS discusses the miles of roads to be closed by alternative for summer and fall. There are no density objectives for winter. There are, however, non-motorized allocations for winter. The percentages of these allocations are discussed in the Wildlife Habitat Management section of Chapter 3 of the FEIS. Detailed maps of the winter non-motorized allocations are found in the project file.

WLD-69. The revised Forest Plan should not use vehicle disturbance to justify motorized restrictions for elk because hikers are more disturbing.

The Wildlife Habitat Management section of Chapter 3 of the FEIS displays the threat response of elk to various disturbances (Wisdom et al 2004). Wisdom clearly shows that elk exhibit a greater response to ATVs than hikers at 500 meters.

WLD-70. The revised Forest Plan should recognize the impacts of hiking and other non-motorized recreation on nesting birds. Cites Swarthout, Elliott and Steidl Jrnl Cons Biology, Feb 2003

We agree that any activity can cause disturbance to nesting birds. The commenter specifically cites Swarthout et al (2003) who examined affects of controlled hiking on Mexican spotted owls (ESA threatened) in southern Utah. They specifically concluded “Given current levels of visitation rates to most remote canyons occupied by owls, however, owl populations on the Colorado Plateau are not likely threatened by hiking. Notable exceptions are those canyons that receive use by > or = 50 hikers per day.” Swarthout et al. do not expand their conclusions beyond the Mexican spotted owl which does not occur in Montana.

WLD-71. The FEIS should disclose that wildlife and vehicles can co-exist.

The EIS establishes road density objectives by landscape and hunting unit on National Forest lands that provide for both motorized use and wildlife security. The preferred alternative allocates 55% of the forest for summer motorized use and 61% of the forest for winter motorized use. The Wildlife Habitat Management section of the FEIS Chapter 3 discusses the effects of travel management on wildlife

WLD-72. The FEIS should discuss Yellowstone National Park studies that showed threat responses were greater to non-motorized than motorized travel. (Park environments are significantly different than the BDNF. No hunting behavior associated w/vehicles etc.)

The Yellowstone Park environment differs significantly from the BDNF in that there is no hunting throughout the park. Wisdom et al. (2004) shows that motorized use (ATVs) produce a higher probability of a threat response than hikers at both 1000 and 500 meters. At 100 meters the mean probability of a threat response is still higher for an ATV than for a hiker. The significance of Wisdom et al (2004) is that the site (Starkey Experimental Forest) allows hunting. The Wisdom threat response table is found in the Wildlife Habitat Management section of Chapter 3 of the FEIS.

WLD-73. The FEIS should quantify private residential encroachment on summer and winter range and compare it to disturbance from mechanized visitation.

Private development of winter range is a private land issue that is the purview of county planning boards and Montana Fish, Wildlife, and Parks.

WLD-74. The revised Forest Plan should restrict snowmobile use on elk winter range to designated corridors.

The plan restricts snowmobile use on 43% of big game winter range which includes elk winter range in Forest Service ownership. Some corridors, based on roads, are open through otherwise closed areas of winter range. Detailed maps of non-motorized winter allocations are located in the project file.

WLD-75. The revised Forest Plan should close all winter range to snowmobile use.

The plan restricts snowmobile use on 43% of big game winter range which includes elk winter range in Forest Service ownership. Some corridors, based on roads, are open through otherwise closed areas of winter range. Detailed maps of non-motorized winter allocations are available in the project file.

WLD-76. The FEIS should discuss the negative impacts of excessive motorized use on wildlife (P. 264)

The effects of motorized use are discussed in the Wildlife Habitat Management section of Chapter 3 of the FEIS

WLD-77. The revised Forest Plan should exclude non-motorized areas less than 1 mile wide from the wildlife security analysis.

The EIS and Plan use the definition of grizzly bear security found in the Forest Plan Amendment For Grizzly Bear Habitat Conservation For The Greater Yellowstone Area National Forests 2006 (P. 23, Figure 4)) which replicates the definition found at P. 41, Figure 10 in the Final Conservation Strategy For The Grizzly Bear In The Yellowstone Ecosystem. 2003. The buffer was modified from 500 meters to 1/3 mile to include recreation considerations. Consequently the resulting security areas are less than what would appear using the 500 meter buffer.

Hunting

**WLD-78. The revised Forest Plan should justify the need for wildlife security against Montana the Fish, Wildlife, and Parks acknowledgement there are too many elk.
(Answer about other needs. Security definition based on the g=GYA g-bear definition)**

We agree that the State has acknowledged the need to reduce elk numbers in some hunting districts. The purpose in basing Road density objectives on elk is that what works for elk also provides secure habitat for other wildlife including grizzly bears, as well landscapes that are more permeable for wildlife movement through low road densities. The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses wildlife security, connectivity & linkage.

WLD-79. The Forest Service should consider that this plan will lead to more landowner and recreation conflicts, elk harvests will be lower, and will lead to more landowner problems with game animals.

Regulation of hunting activity is managed by Montana Fish, Wildlife, and Parks, affecting elk harvest. The issue of elk pressures on private lands is acknowledged and addressed in cumulative effects at the end of the Wildlife Habitat Management section.

WLD-80. The revised Forest Plan should reduce the emphasis on bears and wolves to make elk management easier.

The BDNF is obligated by Forest Service policy and the Endangered Species Act to manage for the grizzly bear and grey wolf as sensitive and federally listed respectively. The Montana Statewide Elk Management Plan (2004) does not identify bears and wolves as issues for elk management.

WLD-81. The EIS should address low elevation security for big game.

The Wildlife Habitat Management section of Chapter 3 of the FEIS addresses secure habitat extensively. Secure habitat is analyzed at the landscape and hunting unit scale both summer and fall. The secure habitat maps in the wildlife section display that secure habitat is found at all elevations.

WLD-82. The revised Forest Plan should have elk thermal cover standards on summer and winter range. (See elk revised Forest Plan if any issues for thermal cover)

The preferred alternative is compatible with the State Elk Plan (2004) objectives. State objectives overwhelmingly speak to elk security. This concern is addressed by road density objectives. The State plan has no specific thermal cover objectives for any hunting unit on the forest. Forest and State area wildlife biologists routinely work together to address specific project level habitat concerns during project NEPA analysis.

WLD-83. The revised Forest Plan should specify road densities of less than 1.5/sq mile for all hunting units.

The Wildlife Habitat Management section of Chapter 3 of the FEIS displays road densities by landscape and hunting unit for all alternatives. Alternative 3 was analyzed for road densities of 1.0 mi/sq mi for all hunting units.

WLD-84. The revised Forest Plan should have less than 1.5/sq mile in HD 321 to keep elk off private land below the forest longer.

The Wildlife Habitat Management section of Chapter 3 of the FEIS discloses alternatives 1, 3, and 6 were analyzed at road densities of 1.1 mi/sq mi, 1.0 mi/sq mi, and 1.1 mi/sq mi respectively during the fall hunting season.

WLD-85. The revised Forest Plan should have an upper limit of 1.0/sq mile for elk.

Alternative 3 was analyzed at 1.0 mi/sq mi for the fall, encompassing general hunting season. A detailed assessment of road densities by alternative is found in the Wildlife Habitat Management section of Chapter 3 of the FEIS.

WLD-86. The Forest Service should shorten hunting seasons in migratory corridors rather than close roads.

Hunting season lengths are under the exclusive purview of Montana Fish, Wildlife and Parks.

WLD-87. The revised Forest Plan should change the elk security standard to reduce open motorized roads and trails to, or below, the criterion.

Clarification has been added to FEIS language that the road density objectives are a ceiling. The Wildlife Habitat Management section of Chapter 3 of the FEIS displays, by alternative, the miles of road that would have to be closed to meet objectives under all alternatives.

WLD-88. The revised Forest Plan should specify needs for road closure and obliteration in hunting units.

The Wildlife Habitat Management section of Chapter 3 of the FEIS displays, by alternative, the miles of road that would have to be closed in each hunting to meet objectives under all alternatives.

WLD-89. The revised Forest Plan should concentrate timber harvest temporally and spatially and stay out for extended periods for elk security. This one is really hard, how about: “The FP should plan timber harvest around elk security needs.”

Specific timber harvest prescriptions and timing are addressed at the project level analysis stage. Elk security is addressed at this stage as needed. Forest Service biologists routinely coordinate with State biologists on NEPA analysis concerns, including elk issues.

WLD-90. The revised Forest Plan should provide area closures during spring calving and hunting seasons to protect wildlife where necessary.

The secure areas shown in the Wildlife Habitat Management section maps in Chapter 3 of the FEIS encompass summer (May 15 – 10/1) and fall (10/1 – 12/15) closures to protect wildlife. See the wildlife section for analysis of per cent secure habitat by landscape and hunting unit.

WLD-91. The FEIS should recognize the current motorized condition does not affect game populations which have risen or held steady under the existing condition.

We agree that elk (the premier big game species in SW Montana) populations have risen and fundamentally meet State Elk Plan objectives. See the Wildlife Habitat Management section of Chapter 3 for a comparison of estimated populations versus State objectives for each hunting unit.

WLD-92. The revised Forest Plan should refine road density objectives for HD 321 and 332. Roads are concentrated at private land interface displacing elk onto private land and leading to high hunting mortality.

Road density objectives are based on the hunting district scale. Site-specific project analysis is expected to assess individual motorized road/trail locations.

WLD-93. The revised Forest Plan should describe coordination with the Montana Fish, Wildlife, and Parks Elk Plan.

Both the draft and final State elk management plan have been important reference documents during plan formulation to include road density objectives by hunting unit. The Wildlife Habitat Management section of Chapter 3 of the FEIS displays assessment of road densities by hunting unit and the population estimates vs. objectives for elk derived from the final State elk management plan.

WLD-94. The revised Forest Plan should not allow further degradation of Elk Management Units, identified below standard by Montana Fish, Wildlife, and Parks. (See elk revised Forest Plan)

The Wildlife Habitat Management section of Chapter 3 of the FEIS uses the hunting units described in the State elk plan as the analysis scale, rather than Elk Management Units. State objectives are established at the hunting unit scale and provide a better analysis unit for coordination between Forest Service and State wildlife biologists. State Elk Plan (2004) habitat objectives emphasize maintaining elk security. The most effective tool is managing road densities for which objectives are established for each hunting district on national forest lands. This is a finer scale than the EMU which encompasses multiple hunting districts and non-Forest Service land ownerships. The road density objectives are compatible with the State plan.

WLD-95. The FEIS should address the number of hunters and motorized use.

The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses travel management, summer and winter non-motorized allocations, and road densities by alternative. We do not assess hunter numbers as the Forest Service does not regulate hunting pressure, which is the purview of Montana Fish, Wildlife, and Parks.

WLD-96. The FEIS should revise the hunted species list. The Draft EIS omits several important species. (Develop list for all on the forest)

The FEIS has been updated to include all the commonly hunted big-game species on the forest.

WLD-97. The revised Forest Plan should include provisions for wild turkey habitat management.

Wild turkeys are not prevalent on the forest. There is evidence of breeding in the northwest portion of the forest where the only ponderosa pine stands exist. The plan proposes to manage this forest type within the historic range of variability. Seed production under this regime would be available to turkeys as well as other wildlife species. Thinning, wildland fire use, and prescribed fire are tools with which the ponderosa pine habitat can be managed.

Road Density/Access

WLD-98. The FEIS should recalculate non-motorized areas using a buffer less than one mile wide to better address wildlife security.

The EIS and Plan use the definition of grizzly bear security found in the Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests (2006, P. 23, Figure 4) which replicates the definition found at P. 41, Figure 10 in the Final Conservation Strategy for the Grizzly Bear in the Yellowstone Ecosystem (2003). The buffer was modified from 500 meters to 1/3 mile to include recreation considerations.

WLD-99. The FEIS should analyze specific roads/trails for effects on wildlife.

Specific roads/trails effects will be analyzed at the project level scale during plan implementation.

WLD-100. The revised Forest Plan should not close roads to improve connectivity because it does not make a measurable difference.

Connectivity is not the sole reason for road density objectives. Reductions in road densities to improve security and freedom of movement is supported by the Forest Plan Amendment For Grizzly Bear Habitat Conservation For The Greater Yellowstone Area National Forests (2006), Elk Management in the Northern Region: Considerations in Forest Plan Updates or Revisions (GTR INT-303, 1993), the Montana Statewide Elk Management Plan (2004), and Effects of Off-Road Recreation on Mule Deer and Elk (Wisdom et al. 2004). Wisdom in particular notes increasing probabilities of a threat response by elk to ATVs as distance decreases.

WLD-101. The revised Forest Plan should display the road density objectives.

The Wildlife Habitat Management section of Chapter 3 of the FEIS displays road density objectives by landscape and hunting unit. The plan contains a wildlife objective for road density by landscape.

WLD-102. The revised Forest Plan should implement seasonal travel restrictions and permit hunting to help reduce road densities.

The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses non-motorized allocations by alternative for summer and winter secure habitat maps as a result of travel restrictions are displayed in the wildlife section.

WLD-103. The FEIS should use a smaller scale than landscapes to determine road densities.

The wildlife section of the FEIS assesses road densities at the hunting unit scale as well as landscape.

WLD-104. The revised Forest Plan should have year round road density standards, not just during hunting season.

The wildlife section of the FEIS displays road density objectives at the landscape scale for summer and at the hunting unit scale for fall. Forest roads are closed by snow in the winter.

WLD-105. The revised Forest Plan should provide road density standards for summer and winter range.

The wildlife section of the FEIS displays road density objectives at the landscape scale for summer and at the hunting unit scale for fall. Both seasonal ranges are encompassed by these sets of objectives. Summer and winter use is encompassed by non-motorized area allocations. Secure habitat maps for summer and fall are located in the Wildlife Habitat Management section of Chapter 3 of the FEIS. Non-motorized area allocations are located in the project file.

WLD-106. The revised Forest Plan should reduce road densities in the northern watersheds.

Road density objectives for landscapes and hunting units are assessed in the Wildlife Habitat Management section of Chapter 3 of the FEIS. The unspecified northern watersheds are encompassed at these scales.

WLD-107. The revised Forest Plan should manage for road density of 1.0/sq mi.

Alternative 3 addresses road densities at 1.0 mi/sq mi

WLD-108. The revised Forest Plan should have less road density for HDs 212-215, 302, 318, 340 which have insufficient grizzly security at >1.5/sq mi. HD 318 is a priority for regional connectivity.

The Wildlife Habitat Management section of Chapter 3 of the FEIS displays the fall road density objectives for these hunting units for all alternatives. Alternative 3 in particular displays miles of roads to be closed to meet objectives for all these hunting units except 302. This hunting unit's current road density is 1.0 mi/sq mi.

Under alternative 3, 198 miles of road would have to be closed in hunting unit 318 to meet the objective of 1.0 mi/sq mi for this alternative.

The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses the percentage of security for each hunting unit by alternative.

WLD-109. The revised Forest Plan should establish motorized route densities less than 1.5/sq mi to meet wildlife.

The wildlife section of Alternative 3 assesses road densities for all alternatives. Alternatives 3, 5 & 6 fundamentally address road densities at less than 1.5 mi/sq mi.

WLD-110. The revised Forest Plan should reduce road density objective in HD 318 to less than 2.0/sq mi. to help meet MTFWP Elk Plan population goals and improve connectivity to the Helena National Forest. .

Alternatives 3 and 6 would require reductions of 198 miles and 22 miles of open motorized roads and trails respectively, reducing road density to 1.0 and 1.8 mi/sq mi. respectively.

WLD-111. The revised Forest Plan must require enforcement of road density standards.

Road densities are objectives toward which will be managed during plan implementation. Site-specific project implementation will address forest plan compliance.

Specific Areas

WLD-112. The revised Forest Plan should reduce road densities in Boulder River and Upper Jefferson River as described in Alternative 5 for connectivity, elk effectiveness and healthy watersheds.

Alternatives 2, 3, 5, and 6 propose closing roads to meet landscape road density objectives for the Jefferson River landscape. Reductions to meet objectives for Boulder River are proposed in Alternatives 2, 3, and 6. See the evaluation in the Wildlife Habitat Management section of the FEIS, Chapter 3.

WLD-113. The revised Forest Plan should specify motorized road use in the Boulder River Landscape be compatible with the Helena National Forest.

Reductions to meet objectives for the Boulder River Landscape occur under alternatives 2, 3, and 6. The analysis area for the BDNF does not include the Helena NF. Site-specific travel planning would occur on both forests through individual project analyses.

WLD-114. The revised Forest Plan should reduce or eliminate roads and snowmobile travel on the north end of the Gravelly and the Jefferson River landscapes.

The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses road densities for hunting unit 330 on the north end of the Gravelly landscape and hunting units 340, 350, and 370 on the Jefferson River landscape. Some reductions occur. See the wildlife section for details.

Winter non-motorized allocations are found on both landscapes. See the Wildlife Habitat Management and the Recreation and Travel Management sections of Chapter 3 of the FEIS for details. Maps of winter non-motorized allocations are found in the project file.

WLD-115. The revised Forest Plan should lower summer road densities between the summer non-motorized areas in the T-Roots and Pipestone Pass. (HDs 320, 333, 340 @ 1.0, 1.0, 1.5 respectively)

Road density objectives are established for hunting units as the smallest scale. The area mentioned appears to encompass hunting units 320, 333 and 340. The preferred alternative

objectives for these units for the fall hunting season are 0.8, 0.9, and 1.4 mi/sq mile respectively. These objectives are compatible with the State Elk Plan.

WLD-116. The Final EIS should explain the change from 83% snowmobile use on winter range in the Lima-Tendoy, according to the Southwest Montana Travel Plan, to 32% in the Alternative 5.

The comment does not properly interpret the per cent of non-motorized big game winter range. The existing condition is 17% non-motorized winter range. The preferred alternative more than doubles the non-motorized allocation of winter range to 37% in the Lima-Tendoy landscape.

WLD-117. The revised Forest Plan should reduce road densities described in Alternative 5 for the Tendoy Range. (Hds 300, 302, 328 at .5, 1.0, 1.0 respectively)

The road density section of Chapter 3 (Wildlife) of the FEIS has been updated. The hunting unit for the Tendoy Range is 302. Updated GIS analysis indicates that 11 miles of road would have to be closed to meet the road density objective of 1.0 mi/ sq mi under alternative 6. See the road density section for details for all hunting units in the Lima-Tendoy landscape.

WLD-118. The revised Forest Plan should further reduce motorized trail density in the Tobacco Roots and Gravellys.

The Wildlife Habitat Management section of Chapter 3 displays the fall road density objectives the hunting units in both landscapes. Density objectives for the Gravelly hunting units are 1.0 mi/sq mi or less across alternatives 3, 5, and 6. Objectives for the Tobacco Roots hunting units are also 1.0 mi/sq mile or less. Alternative 6 would require 16 miles of motorized road/trail closures to meet the objective on the southwest portion of the Tobacco Root landscape.

Objectives are compatible with the State elk management plan and the Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests. (2006)

WLD-119. The revised Forest Plan should require more than 60% grizzly security in the Gravelly Range.

The road density objectives and resulting secure habitat for the Gravelly Range are compatible with the Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests (2006). Summer secure habitat for the Gravelly Range meets or exceeds 62% for all alternatives.

By comparison, the adjacent Henry's Lake BMU in the grizzly bear Primary Conservation Area (PCA) contains approximately 45% secure habitat.

See the Wildlife Habitat Management section of Chapter 3 of the FEIS for details on the amount of secure habitat by landscape for all alternatives.

WLD-120. The revised Forest Plan should lower road densities in the Gravellys (HDs 323, 324, 327, 330 at 0.5, 0.5, 1.0, 1.0 respectively)

The summer road density objective for the Gravelly landscape is 1.0 mi/sq mile in alternatives 3, 5, and 6. The hunting units encompassing the Gravelly landscape have fall open motorized road/trail density objectives of 1.0 mi/sq mi or less in alternatives 3, 5, and 6. Alternative 6 (preferred) has objectives of 0.5 – 0.8 mi/sq mile. See chapter 3, Wildlife Habitat Management section of the FEIS for details on road density objectives.

WLD-121. The revised Forest Plan should acknowledge diminished ethical hunting environments in the Boulder River landscape from existing high road densities.

We assume that this comment refers to less area away from roads at high road densities. The preferred alternative fall road densities for hunting units 318 and 350, which are encompassed by the Boulder River landscape, have road density objectives that would require closing 48 miles of road to meet objectives. This will provide for more opportunity to foot and horseback hunters.

See the Wildlife Habitat Management section of Chapter 3 of the FEIS for details on road density objectives for all alternatives and hunting units.

WLD-122. The revised Forest Plan should protect more wolverine and mountain goat habitat in the Big Hole, including Homer Young, Little, and Rock Island lakes.

The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses wolverine denning habitat as the most crucial for this species. Non-motorized allocations protecting this habitat ranges from 38% of Big Hole denning in alternatives 1 and 4 to 67%, 76%, and 91% in alternatives 5(6), 2 , and 3 respectively. See the wildlife section for details on percent denning habitat that is non-motorized for all alternatives.

WLD-123. The revised Forest Plan should expand the winter use closure in the West Big Hole to include Homer Young Pk and Little Lake area for goats and wolverines.

The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses wolverine denning habitat as the most crucial for this species. Non-motorized allocations protecting this habitat ranges from 38% of Big Hole denning in alternatives 1 and 4 to 67%, 76%, and 91% in alternatives 5(6), 2 , and 3 respectively. See the wildlife section for details on percent denning habitat that is non-motorized for all alternatives.

WLD-124. The revised Forest Plan should restore and protect historical big game winter range populations in the Discovery Basin area.

The FEIS provides for a range of non-motorized allocations in the Clark Fork Flints landscape which encompasses the Discovery Basin area. The preferred alternative allocates 49% of big game winter range, based on mapping from Montana Fish, Wildlife, and Parks, to non-motorized. See the Wildlife Habitat Management section of Chapter 3 for details. Winter non-motorized allocations are available in the project file.

Site-specific project coordination between Forest Service and State wildlife biologists will assess local big game habitat management.

Snags

WLD-125. The FEIS should disclose the reason for not citing the R1 snag protocol.

The Wildlife Habitat Management section of Chapter 3 of the FEIS has been updated at the snags discussion to reference the R1 snag protocol.

WLD-126. The revised Forest Plan needs to include size classes for better snag standards.

The updated snags discussion references size classes as compatible with the R1 snag protocol and Samson (2006).

WLD-127. The FEIS should disclose how many logged areas are deficient in snags.

The FEIS displays snags at the landscape scale (Chapter 3 – Wildlife Habitat Management) based on statistically valid Forest Inventory and Analysis (FIA) data. Data on Snag density on logged areas is generally not available. For many types, snags are very ephemeral as when the stands are opened up the snags are wind thrown or snow thrown. We believe snags should be managed on the landscape to provide sufficient habitat for snag associated species exclusive of logged areas.

WLD-128. The FEIS should discuss the applicability of the Upper Columbia River Basin snag and down woody debris guidelines.

These guidelines have limited applicability to the BDNF. The Upper Columbia Basin boundary extends only into Upper Clark Fork on the Deerlodge side. Most of the Forest drains into the Missouri River Basin. Appendix 12 in the Columbia Basin SDEIS defines large downed wood as logs w/large end diameter of 21". Large snags defined as standing dead tree w/dbh of 21" or larger. FIA data over the Beaverhead-Deerlodge shows large snags at 21"+ dbh do not routinely occur.

The Beaverhead-Deerlodge has elected to reference the R1 Snag Protocol (2000) for vegetation response units (VRU). FEIS snag densities are compatible with the Northern Region snag protocol (2000) vegetation response units (VRU) for warm, dry ponderosa pine, Douglas-fir and high elevation spruce/fir/lodgepole pine as well as being compatible w/Samson's (2006) assessment for the pileated, black-backed woodpeckers, and flammulated owls.

WLD-129. The revised Forest Plan must retain natural processes that produce snags.

The FEIS discusses natural processes for old growth and snag retention in the Vegetation section of Chapter 3 of the FEIS. The forest plan preferred alternative clearly supports wildland fire use over virtually the entire forest. Wildland fire use to allow for resource benefits is shown under the Fire Management objectives in the Plan. Fire is the major change agent across the BDNF that produces snags. Considerable numbers of snags are created by insects as is currently evident across the forest. Over four hundred thousand acres of the BDNF have been influenced to some degree by bark beetles over the previous three years as disclosed in FEIS Vegetation Chapter 3.

WLD-130. The revised Forest Plan should address recruitment of snags over time.

The FEIS discusses natural processes for old growth and snag retention in the Vegetation section of Chapter 3 of the FEIS. The forest plan preferred alternative clearly supports wildland fire use over virtually the entire forest. Wildland fire use to allow for resource benefits is shown under the Fire Management objectives in the Plan. Fire is the major change agent across the BDNF with considerable change effected by insects as is currently evident across the forest. Recent fires and bark beetle epidemics have created major snag clusters in recent years and are expected to be continuing sources of snag recruitment over the life of the plan.

TE&S Wildlife Species

WLD-131. The revised Forest Plan should protect Threatened, Endangered and Sensitive species by reducing road densities.

The preferred alternative provides road density objectives for all hunting units. Twenty (21) of 29 hunting districts on the forest have a fall open motorized road/trail density objective of 1.1 mi/sq mi or less. Only three hunting units have an objective of 1.5 mi/sq mi or more. The road density objectives are compatible with the State grizzly bear management plan (2002), State elk plan (2004) and the grizzly bear amendment (2006) to greater Yellowstone national forests. Large secure areas are well distributed across the forest with secure areas mapped using the definition from the grizzly bear amendment to the Greater Yellowstone national forests.

WLD-132. The revised Forest Plan should have conservation strategies for all species.

The EIS and plan use guidance from Habitat Estimates for Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher (Samson 2006). We also use the Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region, USDA Forest Service. (Samson 2006)

WLD-133. The revised Forest Plan should develop a fisher conservation strategy.

We use guidance from the Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region, USDA Forest Service. (Samson 2006).

Additional carnivore guidance, including fisher, is provided by “The Scientific Basis for Conserving Forest Carnivores: American Marten, Fisher, Lynx, and Wolverine in the Western United States (GTR-RM-254. 1994).

WLD-134. The revised Forest Plan should consider adding an exclusion to protect or exclude listed species habitat from suitable base.

Suitable base has been excluded from the Gravelly landscape, the only occupied landscape for the grizzly bear.

WLD-135. The revised Forest Plan should provide compensation for economic losses due to motorized closures for Threatened, Endangered, and Sensitive species.

Compensation for perceived economic losses is not a plan decision.

WLD-136. Analysis must support threats to listed species from recreational activities, with data.

The grizzly bear amendment (2006) for national forests in the Greater Yellowstone Ecosystem clearly displays at section 3.3.2 that grizzly bear mortality is almost solely attributable to conflicts with humans. To the extent that reducing road densities and associated recreation activities can help to minimize conflicts, bears can benefit.

The Montana Bald Eagle Management Plan (1994) clearly describes management zones around active nests to restrict human impacts that could lead to nest abandonment.

While not federally listed elk, the most important hunted species on the Forest, show probabilities of threat responses above 50% to ATVs and bicycles at 100 meters (Wisdom et al. 2004).

WLD-137. The EIS must provide proof of connections between recreation activity and perceived declines of Threatened, Endangered, and Sensitive species.

The grizzly bear amendment (2006) for national forests in the Greater Yellowstone Ecosystem clearly displays at section 3.3.2 that grizzly bear mortality is almost solely attributable to conflicts with humans. To the extent that reducing road densities and associated recreation activities can help to minimize conflicts, bears can benefit.

The Montana Bald Eagle Management Plan (1994) clearly describes management zones around active nests to restrict human impacts that could lead to nest abandonment.

While not federally listed elk, the most important hunted species on the Forest, show probabilities of threat responses above 50% to ATVs and bicycles at 100 meters (Wisdom et al. 2004).

WLD-138. The revised Forest Plan should support Threatened, Endangered, and Sensitive Species by managing motorized use

Road densities and the effects of recreation and travel management are assessed in the Wildlife Habitat Management section of Chapter 3 of the FEIS. Details on road density objectives and non-motorized allocations are found in the wildlife section. Reductions in motorized use are displayed for alternatives 2, 3, 5, and 6.

WLD-139. The revised Forest Plan should protect Threatened, Endangered, and Sensitive species in sanctuary preserves.

Large secure areas are well distributed across the forest with these areas mapped using the definition from the grizzly bear amendment to the Greater Yellowstone national forests. These secure areas provide for reduced disturbance from motorized disturbance for game species as well as TES species to include grizzly bears. See the Wildlife Habitat Management section of Chapter 3 of the FEIS for details.

WLD-140. The revised Forest Plan should manage to ensure that species aren't listed under ESA.

The Northern Region sensitive species list (2004-revised 2007) identifies those species with viability concerns. Forest Service manual direction (FSM2670) clearly states that these species are to receive attention to prevent listing under ESA. The US Fish & Wildlife Service has the authority and responsibility for formal listing under ESA after extensive review and public comment.

The biological evaluation for the FEIS discusses the effects and discloses that no sensitive species will be pushed towards listing as a result of this plan, see FEIS, Appendix B.

WLD-141. The revised Forest Plan should provide for dispersal of Threatened, Endangered, and Sensitive species.

Large secure areas are well distributed across the forest with these areas mapped using the definition from the grizzly bear amendment to the Greater Yellowstone national forests. These secure areas provide for reduced disturbance from motorized disturbance for game species as well as TES species to include grizzly bears. See the Wildlife Habitat Management section of Chapter 3 of the FEIS for details on secure habitat and connectivity/linkage to adjacent areas.

WLD-142. The FEIS should provide detailed mapping of Threatened, Endangered, and Sensitive species habitat.

The gray wolf is the only federally listed species on the BDNF. The wolf is habitat generalists that can use all habitat types on the forest. The latest pack locations are found in the Rocky Mountain Wolf Recovery 2006 Annual Report in the project file. Annual reports from 1999 are available to the public for download at <http://www.fws.gov/mountain-prairie/species/mammals/wolf/>.

Habitat mapping for sensitive species is found in the project file.

WLD-143. The FEIS should identify minimum viable populations and disclose conservation strategies for sensitive species and require the performance of population surveys.

The FEIS discloses there will be no negative affects to sensitive species from direction in the revised forest plan (FEIS, Appendix B). Guidance for sensitive species is provided by the R1 “Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region” (Samson 2006) which provides guidance for managing and assessing effects to these species.

This guidance is supplemented by “Habitat Estimates for Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher (Samson 2006). Bald eagle guidance is provided by the National Bald Eagle Management Guidelines (2007). Further raptor guidance is provided by “Flammulated, Boreal, and Great Gray Owls in the United States: A Technical Conservation Assessment (GTR RM-253. 1994).

Grizzly bear guidance is provided by the Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests (2006). Additional carnivore guidance is provided by “The Scientific Basis for Conserving Forest Carnivores: American Marten, Fisher, Lynx, and Wolverine in the Western United States (GTR-RM-254. 1994). Additional guidance for sage grouse is provided by the Connelly Guidelines (2000), final Montana sage grouse management plan (2005), and the Conservation Assessment of Greater Sage Grouse and Sagebrush Habitats(Connelly et al 2004). Population survey information on all important big game species is provided by Montana, Fish, Wildlife, and Parks. Reference documents are available in the project file.

The FEIS discloses there will be no negative affects to sensitive species from direction in the revised forest plan (FEIS, BE).

Grizzly Bears

WLD-144. The revised Forest Plan should not close additional roads for grizzly bears because habitat is fully occupied.

Habitat for the grizzly bear is not fully occupied. “Current information indicates this population of grizzly bears is growing at approximately 4 to 7 percent or more annually. The grizzly bear has increased its distribution in the Greater Yellowstone Area by almost 50 percent since the 1970s; expansion is expected to continue.” (Record of Decision for Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests. 2006)

WLD-145. The revised Forest Plan should identify why the Gravellys are considered occupied for grizzly bears

The Wildlife Habitat Management section of Chapter 3 of the FEIS has been revised to include a map of the Yellowstone Distinct Population Segment of Grizzly Bears showing occupancy in the Gravelly landscape.

WLD-146. The revised Forest Plan should define grizzly security consistently with current accepted terminology (See p. 41 of Final Yellowstone strategy, p. 23 FEIS for GYA g-bear amendment)

The EIS and Plan use the definition of grizzly bear security found in the Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests (2006. P. 23, Figure 4) which replicates the definition found at P. 41, Figure 10 in the Final Conservation Strategy for the Grizzly Bear in the Yellowstone Ecosystem. (2003). The buffer was modified from 500 meters to 1/3 mile to include recreation considerations. Consequently the resulting security areas are less than what would appear using the 500 meter buffer.

WLD-147. The Forest Service must address increasing motorized use of roadless areas to minimize the effect on recovery of grizzly bears (GYA population recovered see bear amendment)

The Wildlife Habitat Management section of Chapter 3 of the FEIS provides detailed assessment of secure habitat and road density objectives to meet wildlife needs. The Yellowstone Distinct Population Segment of grizzly bears has been de-listed. (Federal Register / Vol. 72, No. 60 / Thursday, March 29, 2007)

WLD-148. The FEIS should consider that grizzly bears and wolves, verified in the Stony Mountain IRA, are also likely in the Sapphire Mountain WSA where the DEIS stated “There are no known threatened or endangered species.”

The grey wolf is not listed as threatened or endangered in Sapphire Mountains along the northwest boundary of the BDNF. The wolf is classified as non-essential/experimental south of I-90. While transient sightings of grizzly bears have occurred in the northwest portion of the forest, we have yet to confirm occupancy. Regardless, project specific NEPA analysis will addresses listed species wherever they might be detected.

WLD-149. The revised Forest Plan should reduce road density to 1.0 forestwide outside occupied grizzly bear habitat.

Alternative 3 assesses road densities at 1.0 mi/sq mile forestwide and evaluates impacts in Effects to Wildlife from Recreation and Travel Management in the FEIS.

WLD-150. The revised Forest Plan should include a forestwide food storage and sanitation order.

The forest currently has a food-storage order in effect for the entirety of the Gravelly and Tobacco Root landscapes. The order can be expanded as the need arises.

Forest Carnivores

WLD-151. The revised Forest Plan should protect lynx and wolverine habitat in the Anaconda-Pintler, Snowcrest, West Fork of Rock Creek, and Stony Mountain Areas.

The Beaverhead-Deerlodge is classified as unoccupied by Canada Lynx. The US Fish & Wildlife Service (8/08/07) does not include the lynx on the list for the BDNF. Winter non-motorized allocations have been proposed to protect wolverine denning habitat. See the wildlife section of Chapter 3 of the FEIS for details. See also areas recommended for wilderness in the FEIS, Chapter 2.

WLD-152. The revised Forest Plan should provide the basis for coarse woody debris direction.

Since publication of the DEIS, coarse woody debris guidance has been provided in the Northern Region Habitat Estimates for Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher (Samson .2006).

WLD-153. The FEIS should cite the study from Citizens for Balanced Use that shows no impact to wolverines and lynx from snowmobiles.

We are not familiar with such a study and such a document was not provided with the comment. The Citizens for Balanced Use web site shows no reference to such a study when the BDNF biologist looked for one in August of 2007.

WLD-154. The Forest Service should study the effects of motorized use on rare species such as fisher and wolverine, plants, small mammals, and their predators.

The plan provides road density objectives for each hunting district and snowmobile restrictions to protect winter denning habitat for wolverines. See the monitoring section for wolverine monitoring. The other species are not MIS.

WLD-155. The Forest Service should study the effects of snow compaction on small non-hibernators (voles, gophers, mice, etc) and their predators.

The Northern Rockies Lynx Management Direction FEIS address this comment.

Lynx

WLD-156. The FEIS should provide proof that snowmobiles adversely affect Lynx.

The Northern Rockies Lynx Management Direction FEIS address this comment. This FEIS discloses the effects of winter over the snow recreation.

WLD-157. The revised Forest Plan should add a No Surface Occupancy stipulation for oil and gas in potential lynx habitat.

The Canada lynx is no longer on the forest list of T&E species. On May 12, 2006 Regional Forester Kimbell, and Fish & Wildlife Service Regional Director King signed an amendment to the Lynx Conservation Agreement classifying the BDNF as unoccupied by lynx per the National Lynx Survey.

The Record of Decision for the Northern Rockies Lynx Management Direction (USDI 2007) confirms this classification.

The current US Fish & Wildlife Service species (8/08/07) list no longer shows the lynx on the forest. Consequently consultation is no longer required regarding management effects on lynx and management action for lynx is not currently needed on the BDNF.

WLD-158. The revised Forest Plan should include Lynx Conservation Assessment and Strategy prescriptions. (Address non-occupancy re: impending lynx amendment)

The Canada lynx is no longer on the forest list of T&E species. On May 12, 2006 Regional Forester Kimbell, and Fish & Wildlife Service Regional Director King signed an amendment to the Lynx Conservation Agreement classifying the BDNF as unoccupied by lynx per the National Lynx Survey.

The Record of Decision for the Northern Rockies Lynx Management Direction (USDI 2007) confirms this classification.

The current US Fish & Wildlife Service species (8/08/07) list no longer shows the lynx on the forest. Consequently consultation is no longer required regarding management effects on lynx and management action for lynx is not currently needed on the BDNF.

Should the Forest become “occupied”, by Canada lynx, the direction provided by the ROD for the Northern Rockies Lynx Management Direction FEIS will be followed, See revised Forest Plan, Forestwide Direction, Wildlife.

WLD-159. The revised Forest Plan should enact a forestwide road density of 1.0/sq mi for lynx.

Alternative assesses a road density objective of 1.0 mi/sq mile forestwide. See the Wildlife Habitat Management section of Chapter 3 of the FEIS for details on road density objectives by alternative. Density is based on elk habitat but works for all forest carnivores as well.

WLD-160. The revised Forest Plan should include the guidelines, objectives and standards from the Northern Rockies Lynx and Grizzly Bear amendments.

The Canada lynx is no longer on the forest list of T&E species. On May 12, 2006 Regional Forester Kimbell, and Fish & Wildlife Service Regional Director King signed an amendment to the Lynx Conservation Agreement classifying the BDNF as unoccupied by lynx per the National Lynx Survey.

The Record of Decision for the Northern Rockies Lynx Management Direction (2007) confirms this classification.

The current US Fish & Wildlife Service species (8/08/07) list no longer shows the lynx on the forest. Consequently consultation is no longer required regarding management effects on lynx and management action for lynx is not currently needed on the BDNF.

Direction particular to the BDNF from the grizzly bear amendment (2006) is incorporated by reference.

WLD-161. The FEIS should provide a response to the Ecology Center comments to the Lynx Amendment from 10/24/2001, as part of this process.

The Canada lynx is no longer on the BDNF List of Threatened & Endangered Species as of May 12, 2006. The Record of Decision for the Northern Rockies Lynx Management Direction (2007)

confirms the BDNF is unoccupied by Canada lynx. The change of status for lynx is discussed in the FEIS.

WLD-162. The revised Forest Plan should establish the West Pioneers as wilderness for Lynx.

The Canada lynx is no longer on the forest list of T&E species. On May 12, 2006 Regional Forester Kimbell, and Fish & Wildlife Service Regional Director King signed an amendment to the Lynx Conservation Agreement classifying the BDNF as unoccupied by lynx per the National Lynx Survey.

The Record of Decision for the Northern Rockies Lynx Management Direction (2007) confirms this classification.

The current US Fish & Wildlife Service species (8/08/07) list no longer shows the lynx on the forest. Consequently consultation is no longer required regarding management effects on lynx and management action for lynx is not currently needed on the BDNF.

Direction particular to the BDNF from the grizzly bear amendment (2006) is incorporated by reference.

WLD-163. The revised Forest Plan should provide measures to protect lynx from the effects of snowmobile tracks in their habitat. (GYC, snow compaction, competitor advantage)

The Canada lynx is no longer on the forest list of T&E species. On May 12, 2006 Regional Forester Kimbell, and Fish & Wildlife Service Regional Director King signed an amendment to the Lynx Conservation Agreement classifying the BDNF as unoccupied by lynx per the National Lynx Survey.

The Record of Decision for the Northern Rockies Lynx Management Direction (2007) confirms this classification.

The current US Fish & Wildlife Service species (8/08/07) list no longer shows the lynx on the forest. Consequently consultation is no longer required regarding management effects on lynx and management action for lynx is not currently needed on the BDNF.

Also see response to WLD-158.

Wolverine

WLD-164. The revised Forest Plan should not close areas to backcountry skiers where wolverine trapping is allowed.

Winter closures are for motorized travel, not skiing. Winter non-motorized allocations maps by alternative are in the FEIS Chapter 2.

WLD-165. The FEIS should explain how trapping differs from snowmobile use in terms of effects on wolverines.

There is mixed information on the effect on wolverines from snowmobiles. Due to the species status as Forest Service sensitive, BDNF MIS, and Montana District Court direction (2006) to the US Fish & Wildlife Service for a 12 month formal status review, it is prudent to provide

protection from snowmobile disturbance for wolverine denning habitat. Trapping causes direct mortality.

WLD-166. The revised Forest Plan should allow hunting and trapping, but not of wolverines.

The Forest Service does not regulate hunting or trapping. Those activities are managed by Montana, Fish, Wildlife, and Parks.

WLD-167. The revised Forest Plan should not close Mt Jefferson because of wolverine.

The Alternative 6 recommends wilderness designation for a portion of Mt Jefferson. Wolverine habitat is not a driving factor. See the Inventoried Roadless Areas and Recommended Wilderness analysis in Chapter 3.

WLD-168. The revised Forest Plan should not use wolverine for justification of snowmobile closures.

The alternatives, including Alternative 6, do recommend some areas be closed to snowmobiles for the protection of denning habitat for species like wolverine.

WLD-169. The revised Forest Plan should coordinate sensitive species management with Montana Fish, Wildlife, and Parks and in particular, prohibit wolverine trapping.

There is mixed information on the effect of snowmobiles on wolverines. Due to the species status as Forest Service sensitive, BDNF MIS, and Montana District Court direction (2006) to the US Fish & Wildlife Service for a 12 month formal status review, it is prudent to provide protections for denning habitat.

Winter non-motorized allocations are not exclusively driven by wolverine denning habitat considerations. See the Wildlife Habitat Management section of Chapter 3 of the FEIS for assessment of per cent non-motorized allocation by alternative. The Recreation and Travel Management section of Chapter 3 provides additional detail on non-motorized allocations.

WLD-170. The revised Forest Plan should protect wolverine denning habitat from snowmobiles in West Big Hole, Mt Jefferson, Italian Peaks, and Sapphires.

The revision process for the Northern Region sensitive species list coordinated with the MTFWP and the Montana Species of Concern List. Trapping is regulated by MTFWP, not the Forest Service.

WLD-171. The revised Forest Plan should provide more snowmobile closures in West Fork of Rock Creek, Ross Fork, and Stony Mountain Area for lynx and wolverine.

The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses protection of wolverine denning habitat as the most crucial for this species. Non-motorized allocations protecting this habitat ranges from 38% of Big Hole denning in alternatives 1 and 4 to 67%, 76%, and 91% in alternatives 5(6), 2, and 3 respectively. See the wildlife section for details on percent denning habitat that is non-motorized for all alternatives.

WLD-172. The revised Forest Plan should manage Mt Jefferson as recommended wilderness to protect wolverines.

The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses protection of wolverine denning habitat as most crucial for this species. Forestwide winter non-motorized allocations protecting denning habitat ranges from 36% in Alternative 1 to 80% in Alternative 3. See the Wildlife Habitat Management section of Chapter 3 for details on percent denning habitat allocated as non-motorized for all alternatives.

WLD-173. The revised Forest Plan provides protection of wolverine by restricting all motorized use to designated routes and play areas.

The Wildlife Habitat Management section of Chapter 3 of the FEIS assesses wolverine denning habitat as the most crucial for this species. Forestwide winter non-motorized allocations protecting this habitat range from 36% in Alternative 1 to 80% in Alternative 3. See the Wildlife Habitat Management section of Chapter 3 of the FEIS for details on percent denning habitat that is non-motorized for all alternatives.

Goshawk and Other Raptors

WLD-174. The revised Forest Plan should describe how raptor nests are to be protected.

Protection for raptor nests are developed in site-specific project analysis. Repeated occupation of specific nest sites is not common. While bald and golden eagles routinely add to an existing nest, goshawks for example may have several nest sites within a large nest territory (Reynolds.1992). The R1 Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region (2006) helps to provide guidance on nest management.

WLD-175. The Forest Service should use Reynolds (1992) for goshawk management and maintain 50% old growth for goshawk.

The latest R1 goshawk guidance is provided by the Northern Goshawk Northern Region Overview, Key Findings and Project Considerations (2007). Reynolds (1992) is cited in the development of this guidance.

At least 10% of well distributed old growth will be maintained in five dominance types as disclosed in the Vegetation section Chapter 3. The 10% retention in the preferred alternative amounts to approximately 44% of the existing FIA estimated old growth of 22.9% currently inventoried on the BDNF. Alternative 3 proposes retention of more than 50% of existing old growth.

WLD-176. The revised Forest Plan should protect 5,400 acre foraging areas for known active goshawk territories and protect an additional 2500-5000 acres beyond the foraging area.

The latest R1 goshawk guidance is provided by the Northern Goshawk Northern Region Overview. Key Findings and Project Considerations (2007). Strict prescriptions are not directed in this document in order to offer options for professional judgment at the project level. The goshawk was removed from the R1 sensitive species list (July 16, 2007)

Blackbacked Woodpeckers

WLD-177. The revised Forest Plan should identify areas where natural processes will be allowed to occur for black-backed woodpeckers without any fuels or timber management

The FEIS discusses natural processes for old growth and snag retention in the Vegetation section of Chapter 3. The preferred alternative clearly supports wildland fire use forestwide. Wildland fire use for resource benefits is described in the Fire Management objectives in the plan. Fire is the major change agent forestwide with considerable change effected by insects. Some areas such as Wilderness and Research Natural Areas are areas where only natural processes will occur. Other areas are likely to be left to natural processes following site-specific analysis such as occurred in the Mussigbrod burn of 2000.

Sagegrouse

WLD-178. The Forest Service should map sage grouse habitat across the forest and define a sagebrush management strategy.

Modeled sage grouse habitat was based on an 11 mile (18 kmn) radius buffer for migratory populations (Connelly 2000) from all known lek sites in SW Montana. There are no known leks anywhere on the BDNF, but upslope dispersal onto the forest does occur. The buffer naturally excludes sagebrush habitat beyond the modeled radius. Maps are located in the project file. Management guidance is provided by the State Sage Grouse Plan (2005), the State/BDNF “Sagebrush MOU”, and the Connelly Guidelines (2000).

WLD-179. The revised Forest Plan should not allow grazing in sage grouse habitat.

Grazing in sage grouse habitat is managed using the Connelly (2000) guidelines. Connelly does advocate prohibition of grazing. The guidelines clearly state “there is little direct experimental evidence linking grazing practices to sage grouse population levels.” (Braun 1987, Connelly and Braun 1997 in Connelly 2000).

WLD-180. The revised Forest Plan should provide sagebrush communities for sage grouse.

The plan provides for managing all vegetation communities. Sagebrush has been mapped across the BDNF and tallied for all landscapes. These map layers are available in the project file.

WLD-181. The revised Forest Plan should integrate management of species such as wolf, lynx and sagegrouse.

The entire Northern Rocky Mountain wolf population has been proposed for de-listing by the US Fish & Wildlife Service (Federal Register / Vol. 72, No. 26 / Thursday, February 8, 2007 / Proposed Rules). After de-listing, management guidance will be provided by the Montana Wolf Conservation and Management Plan (2004).

Sage grouse conservation is coordinated with the Montana Sage Grouse Management Plan and Conservation Strategy (2005)

The lynx is no longer included on the BDNF list of T&E species. See FEIS Chapter 3.

Sagebrush

WLD-182. The revised Forest Plan should include sagebrush as a unique habitat.

Sagebrush is not a unique habitat on the BDNF. Comparison of Figures 5.2 & 5.3 in Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats (Connelly et al 2004) shows that there is more sagebrush throughout southwest Montana than could be expected to occur if plant succession occurred without human presence.

“Although sagebrush steppe and grassland still form a mosaic across the landscape, it appears that sagebrush has increased in more places than it has decreased (Arno and Gruell 1986)” in Lesica, P. and S. V. Cooper. 1997. Pre-settlement vegetation of southern Beaverhead County, Montana.

WLD-183. The Forest Service should not burn sagebrush.

Extensive conservation action regarding fire in sagebrush is provided by the final Montana sage grouse management plan (2005). Fire is recognized as a management tool when carefully used. The “Sagebrush MOU” (2002) between the BDNF and MTFWP Region 3 specifically provides for mosaic burning of no more than 50% of a treatment area within a 30 year period with no point more than 600 ft from an unburned area.

Arno and Gruell (1983) note from SW Montana, “Comparisons between the late 1800’s or early 1900’s scenes and the present vegetation showed the following trend: Sagebrush coverage has increased, conifer forests have thickened, and trees have spread down slope into former grass or sagebrush communities.” Prescribed fire is a legitimate management tool to manage for various seral stages in sagebrush habitat and to reduce conifer encroachment.

WLD-184. The revised Forest Plan should protect big sagebrush.

Extensive conservation action regarding sagebrush management is provided by the final Montana sage grouse management plan (2005). Mechanical treatments and fire are recognized as management tools when carefully used. The “Sagebrush MOU” (2002) between the BDNF and Montana FWP Region 3 specifically provides for mosaic burning of no more than 50% of a treatment area within a 30 year period with no point more than 600 ft from an unburned area.

WLD-185. The FEIS should identify the impacts of sagebrush burning on wildlife.

Fundamentally, to the extent that sagebrush is reduced there can be negative impacts on species that prefer sagebrush. Conversely grassland species can be increased. Changes are not readily quantifiable without site-specific analysis.

The “Sagebrush MOU” (2002) between the BDNF and MTFWP, Region 3, specifically provide for mosaic burning of no more than 50% of a treatment area within a 30 year period with no point more than 600 ft from an unburned area. Implicit in this guideline is recognition that sagebrush can be burned while meeting wildlife needs for avian and ungulate species.

WLD-186. The Forest Service should not over-manage for sage grouse and their habitat.

The BDNF is required to maintain species viability across the forest. The sage grouse is a Northern Region sensitive species and a State “Species of Concern.” The classifications direct greater management effort to maintain the species. Management guidance is provided the State Sage Grouse Management Plan.

Wilderness/Roadless

WLD-187. The Forest Service needs to set aside vast areas of wilderness to protect wildlife.

The plan retains existing wilderness designations and recommends up to 706,000 acres for additional wilderness in Alternative 3. See the inventoried roadless area and recommended wilderness discussion in Chapter 3.

WLD-188. The revised Forest Plan should protect roadless areas to ensure long-term elk populations.

The FEIS analyzes recommended wilderness for varying amounts of IRAs and road density objectives for the purpose of elk security which in turn benefits other species. The plan will offer the best combination of protection of this resource balanced with other uses. See the inventoried roadless area and recommended wilderness sections as well as the wildlife section discussions of secure habitat by landscape and hunting district.

MANAGEMENT AREAS

Management Area Direction

MA-1. The revised Forest Plan should specify whether timber harvest for other purposes is allowed for each management area.

The Forest Plan clarifies where timber harvest is allowed, where it is not allowed, and where lands suitable for timber production are located under “Timber, Timber Harvest Classification Protocol”. Management areas where timber harvest is allowed but other objectives are primary are listed there. Timber harvest is not explicitly mentioned in the individual management area direction because it is not a management emphasis.

MA-2. The revised Forest Plan should use more diverse allocations than Recommended Wilderness to protect land while allowing bicycles, i.e. Remote Backcountry, National Protection Areas, and National Scenic Areas.

National designations like National Scenic Areas are made by Congress. Diverse allocations were considered in protecting lands while allowing bicycles. An example in Alternative 6 is the West Big Hole, Electric Peak and McAtee Basin in the Madison range where summer non-motorized allocations were designed to protect most of the area and allow mountain bikes.

MA-3. The revised Forest Plan should eliminate emphasis on motorized recreation in management areas where soils are highly erosive, road densities unnecessarily high and riparian values important, i.e. upper Deep Creek, Fishtrap-Mt. Haggin, Humbug, upper Pipestone, Pioneers Scenic Byway, Bryant Creek and John Long, West Big Hole and West Big Hole Flats Management Areas.

The FEIS considered a range of alternatives for motorized recreation and road densities. Alternative 3 was designed to address comments like the one above asking the Forest Service to conserve and restore wildlife values and aquatic health by limiting motorized use and constraining road densities to 1 mile per square mile. Alternative 3 will close 1300 miles of trail in addition to closures in non-motorized allocations, some of those will be in the areas described

above. Alternative 3 restoration key watersheds will provide an opportunity to identify and address specific roads and trails of concern in Deep Creek, Fishtrap-Mt Haggin, Pipestone, Pioneers Scenic Byway, and Humbug management areas. The Record of Decision will document the rationale for selecting Alternative 6 over Alternative 3.

MA-4. The FEIS should identify restoration needs for specific problem roads, trails and watersheds in Landscape or Management Area objectives.

Forest Plan Revision does not address specific road and trail problems, see Chapter 1 “Decisions to be Made”. Watersheds with restoration concerns or fish conservation opportunities were identified and a range of alternatives considered for protecting or restoring them. See Chapter Two, “Key Issues”.

MA-5. The revised Forest Plan should transfer management of the Elkhorn Wildlife Management Unit to the Helena NF to manage as non-motorized and for secluded wildlife.

The Revised Forest Plan defers addressing management of the Elkhorn Wildlife Management Unit until the Helena NF revises their Forest Plan. At that time, a range of alternatives will be considered, including managing the area as non-motorized and for secluded wildlife.

MA-6. The revised Forest Plan should protect the following management areas as non-motorized in winter: Anderson Mt, Horse Prairie, Trail Creek, West Big Hole, West Big Hole Flats, Mormon Buffalo, Harvey Creek, Cottonwood Lake, Antelope Basin, Centennial Creek, Johnny Gulch, Ruby Centennial, Ruby-Horse Cr, Timber Cr, Wall Cr, West Fork, Wigwam-Cherry, Burton Park, Little Boulder Galena Gulch, Table Mt, Horse Prairie, Lima Peaks, Medicine Tendoy, East Face, Pioneer Mt Byway, Brown Back, Meadow Creek, Middle Mt, Mill Creek, Ramshorn, South Boulder Corridor, South Willow Corridor, Tobacco Root Peaks, Wisconsin.

All or part of these areas were considered in a range of alternatives for winter non-motorized use in the analysis. The ROD will document the rationale for selection.

MA-7. The revised Forest Plan should protect the following management areas as non-motorized in summer: Anderson Mt, Horse Prairie, Northeast Fleecer, Pintler Face, Bear Mt, Selway-Saginaw, Tie-Johnson, Trail Creek, West Big Hole, Bull Mt, Boulder River-Sheepshead, I-15 Corridor, Little Boulder, Little Boulder-Galena Gulch, Mormon Buffalo, East Deerlodge, Flint Foothills, Flint Uplands, Harvey Creek, Warm Springs, Antelope Basin, Centennial Foothills, Chain of Lakes, Greenhorn Mountains, Hellroaring, Idaho Creek, Lobo Mesa, Ruby Horse Creek, Timber Creek, Upper Ruby, Wall Creek, Wigwam Cherry, Bull Mt, Burton Park, Hells Canyon, Table Mt, Whitetail, Horse Prairie, Lima Peaks, Medicine-Tendoy, Bryant, East Face, Pioneer Mountains Byway, West Face, West Pioneer WSA, Meadow Creek, Middle Mt, Ramshorn, Tobacco Root Peaks, Wisconsin, Backyard Butte, Northeast Fleecer, East Fork, Middle Fork, Ross Fork, Sapphire Mt WSA, Stony, West Fork Rock Creek.

All or part of these areas were considered in a range of alternatives for summer non-motorized use in the analysis. The ROD will document the rationale for selection.

Big Hole Landscape

BH-1. The revised Forest Plan should close the Chief Joseph Ski area and the area bordered by Highway 43, Trail Creek drainage and the CDNST to summer motorized use as well as winter. Current open roads already provide ample access for motorized users and mixed uses on trails would be a safety problem.

We considered including the area between Trail Creek and Highway 43 in a non-motorized allocation, but the upper end is well-roaded, roads which currently provide access to a number of opportunities north and east of Gibbons Pass and the head of Trail Creek. Non-motorized allocations are intended to provide a semi-primitive setting. Because of the history of harvest and access, this area is in a roaded setting and would not be well suited for this allocation. See Glossary, Recreation Settings. Even Alternative 3, which allocates the greatest number of acres on the forest to non-motorized, did not include this piece of ground.

BH-2. The revised Forest Plan should retain the Chief Joseph Ski area closure except for administrative activities. Investments in the facilities and coordination with ski clubs need to be preserved.

We have included a standard in the Plan which does exactly this, Trail Creek Management Area.

BH-3. Manage this landscape for its wilderness and wildlife characteristics to maintain the important habitat link from the Greater Yellowstone Ecosystem to Selway-Bitterroot Ecosystem.

Alternative 3 emphasizes preserving large blocks undeveloped lands for wildlife in the Big Hole landscape through recommended wilderness or non-motorized allocations. Alternative 5 and 6, while not recommending wilderness for the West Big Hole, protect the roadless character and large blocks of wildlife habitat through non-motorized allocations along the continental divide and management area direction. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3.

BH-4. The revised Forest Plan should reflect coordination with the Salmon and Bitterroot management of the Chief Joseph area.

The preferred alternative reflects coordination with the Salmon and Bitterroot National Forests.

BH-5. The revised Forest Plan should make the whole continental divide wilderness, concentrate motorized use around highway 43 at Chief Joseph Pass and Mt Haggin, and close more roads in the Big Hole.

Alternative 3 responds to this comment by recommending a large piece of the West Big Hole along the continental divide as wilderness and closing all roadless areas to motorized use. The Record of Decision documents the decision maker's rationale for selecting Alternative 6 over Alternative 3.

BH-6. The revised Forest Plan should further restrict snowmobiles in the West Big Hole.

We recognize how contentious snowmobile use is in the West Big Hole. Comments supporting and objecting to snowmobile use in this area made up a large part of responses to the Proposed Action. Restricting snowmobiles from much of the West Big Hole was analyzed in Alternative 3. The effects of partial restrictions in the West Big Hole were analyzed in Alternatives 5 and 6.

The preferred alternative and plan limit snowmobiles on the north and south end of the West Big Hole area, which is more restrictive than the current situation. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3.

Trail Creek Management Area

BH-7. The revised Forest Plan should close the entire management area to motorized travel year round.

A good portion of the Trail Creek management area is occupied by the State Highway 43 corridor. With the highway corridor, campgrounds, and the high density of roads on the north end, it is not realistic to manage the entire area as non-motorized year around. Alternative 5 and 6 allocate a large portion to non-motorized winter and about half to non-motorized summer.

BH-8. The revised Forest Plan should close the May Creek National Recreation Trail to snowmobiles. It is not currently used by snowmobiles and is a popular winter trip on skis or snowshoes.

The preferred alternative and Plan do this.

BH-9. The revised Forest Plan should add a management emphasis and objective to recognize this area as a critical pinch-point for wildlife linkage.

The Forest Service recognizes the value of the Big Hole Landscape as a possible linkage along the Continental Divide. The preferred alternative blocks up summer non-motorized areas along the higher elevations of the Continental Divide, including the south half of Trail Creek

BH-10. The revised Forest Plan should make the area around Anderson Mt Road #081 closed to winter motorized use. This road is common to the Anderson and Trail Creek management areas and is not compatible with mixed snowmobile/skier use because of blind curves and hills. Work with the Salmon National Forest to manage both sides as winter non-motorized.

The preferred alternative reflects coordination with the Salmon and Bitterroot National Forests on that stretch of the Continental Divide. The trail was left open to motorized use.

BH-11. The revised Forest Plan should provide a 2 wheeled motorized trail as an important component of the only meaningful single track trail loop on the Wisdom Ranger District.

Forest Plan revision does not direct site-specific decisions about system roads and trails. While roads or trails may be closed as a result of Plan allocations for non-motorized recreation or recommended wilderness, the Plan does not consider site-specific additions to the system, changes to locations, or closures other than those affected by allocations. This comment will be dealt with during travel planning which follows Forest Plan Revision.

BH-12. The revised Forest Plan should leave motorized travel open in the Trail Creek area.

Alternatives 1 and 4 considered the effects of leaving the entire Trail Creek area open to motorized use. We received a lot of opposition to these alternatives because of the popularity of cross-country skiing in the Chief Joseph area and vicinity. The preferred alternative leaves

motorized travel open in the north half of the area during summer and the area along and north of Trail Creek in the winter.

BH-13. Close, shorten, or gate the Gibbons Pass to Sula road (181 Nez Perce NHT).

The Gibbons pass to Sula road is on the Bitterroot National Forest, we cannot make a decision on how to manage that road.

BH-14. The revised Forest Plan should gate many existing roads leaving room for car campers.

This is a site-specific decision that will be made during travel management planning in the near future (1-5 years).

BH-15. Leave May Creek Trail #103 and Big Hole Trail #2 motorized. My family has used them for years.

The preferred alternative closes these trails through a summer non-motorized allocation in part of the Trail Creek management area. Options to this allocation, which would leave these trails open, were considered in Alternatives 1, 2, and 4. We received a lot of comments asking us to provide some opportunities in this area for non-motorized recreation. The Record of Decision documents the rationale for selecting Alternative 6 over these alternatives.

Anderson Mountain Management Area

BH-16. The revised Forest Plan should retain the recommended summer and winter closures of Anderson Mountain and Trail Creek areas for solitude and winter non-motorized recreation.

The revised plan does this.

BH-17. The revised Forest Plan should prohibit motorized use from Anderson Mountain since it has a portion of the Lewis & Clark Trail.

The revised plan prohibits motorized use in the Anderson Mt management area. The Anderson Mt road will remain open to motorized use to coordinate with the Salmon NF management of the adjacent area.

BH-18. Include the entire length of Cabinet Trail in the summer/winter closure area labeled 5-BH-10. Add an objective to acquire inholdings in Trail, Cabinet, and Richardson Creeks through deed or conservation easement.

Trail 101A is included in the summer winter closure in the preferred alternative.

We considered adding specific land adjustment objectives by management area for the Plan. However, the Forest's history of successful land adjustments is based on opportunity and willingness of landowners rather than Forest priorities or objectives. We responded by establishing a Forestwide goal in the preferred alternative to improve national forest management through purchase, exchange, or other authority as opportunities arise. If the opportunity arises to acquire these inholdings, the Forest Plan will support that action.

BH-19. Retain the management direction as non-motorized because it's important lynx habitat.

We did this, see the Plan, Anderson management area.

However, as the FEIS points out (Wildlife, affected environment, first page) the Northern Rockies Lynx Amendment concludes that the BDNF is not occupied by lynx. Modeling of lynx habitat shows it widespread across all areas of the forest.

BH-20. Leave trail #102 open as a corridor for 2 wheeled motorized vehicles. This is an important component to the only meaningful single track trail system on the Wisdom Ranger District.

Alternatives 2 leaves Trail #102 open for motorcycles. After examining all alternatives and public comments which supported a range of recreation opportunities, the deciding official proposes to select Alternative 6. The rationale for selecting Alternative 6 over Alternative 2 is documented in the Record of Decision.

BH-21. Leave the area open to motorized use since it has been without even an area restriction for off-trail travel and never included in wilderness legislation.

We considered leaving the area open to motorized use in Alternatives 1 and 4. We received a lot of public support for allocating this roadless area to non-motorized uses. It is bordered on the north and south by fairly extensive motorized opportunities. The rationale for selecting Alternative 6 over Alternatives 1 and 4 is documented in the Record of Decision.

Anaconda-Pintler Additions Management Area

BH-22. Carp and Copper creeks on the north side of the Anaconda-Pintlar should be added to simplify the wilderness boundary.

A portion of the Carp Creek area is recommended for wilderness in the preferred alternative .

Copper Creek is part of the Wilderness Study Area. Wilderness Study Areas are being managed to protect wilderness character as it existed in 1977, but we are not considering them for recommended wilderness. See the FEIS, Chapter 2, elements common to all alternatives.

BH-23. The revised Forest Plan should consider adding sections 2 and 11 in Sullivan Creek and Section 1 in Twelvemile Creek to the Anaconda-Pintler Addition. All sections have wilderness qualities and should be protected for wildlife and wildlife habitat. This area is important elk summer range. Wet meadows are used by mountain goats and wolverine use this area year-around. Moving the boundary lower in both drainages will help prevent snowmobile trespass. In the past ATV riders have been trying to pioneer routes into the basins from old logging roads and clearcuts in both Sullivan and Twelvemile creeks.

The preferred alternative and plan expand the recommended addition to the AP wilderness to protect more wildlife habitat, but not into these sections. However, sections 2 and 11 ARE closed to both winter and summer motorized use, which will address these concerns.

BH-24. The revised Forest Plan should expand the Hellroaring addition by taking in the Clam Creek drainage down to FS Road 1278, using the road as the wilderness boundary to the Mystic Lake Trailhead. FS Road #1278 should be obliterated from its terminus at Clam Valley to the present closure at the Mystic Lake Trailhead. Construct a pack trail in its place. Bring the wilderness boundary down to FS Road 1278 from the

Mystic Trailhead northeast to the private inholding in McCormick Park, from the northeast corner of the private inholding to the ridge between Roberts and Pintler Creeks to the present Wilderness Boundary. The roaded buffer above Road #1278 in Alt 5 won't provide a sufficient fuel reduction zone to really lessen the threat of wildfires moving onto private land. The fuel break is at the natural ecotone between Road #1278 and the Forest Boundary. Any efforts to improve this fuel break should be below the road.

The boundaries of the Hellroaring addition were determined based on manageability and suitability. Locating boundaries near trailheads to manage motorized intrusions was a consideration. See Appendix C, North Big Hole IRA # 1-001, for a discussion of manageability and suitability characteristics.

The inventoried roadless area does not extend as far as Road #1278. Both regulations and handbook direction clearly define the areas to be considered as potential wilderness. This does not include roaded lands outside of inventoried roadless (FSH 1909.12, 7.11, 8/3/92). Nor are we required to consider obliterating roads to create roadless character.

BH-25. The revised Forest Plan should recommend adding more areas with sagebrush to the Anaconda-Pintler Wilderness Area and shorten roads that approach from the east.

We recognize the need to add more areas of low elevation sagebrush grasslands to the Wilderness Preservation System (APP C, Introduction, Need). The boundaries of the AP additions were determined based on this need as well as manageability and suitability, as directed by regulation and handbook direction (FSH 1909.12 71.1, 8/3/92. See Appendix C, North Big Hole IRA # 1-001, for a discussion of these characteristics. The preferred alternative includes recommended wilderness which represents this vegetative cover type, Garfield Mountain and the Snowcrests as well as the lower elevations of the AP addition.

We re-examined the developed lands on the east side of the Pintler Face management area during our roadless area re-inventory and did not find them to have wilderness potential. Road obliteration to create roadless or improve wilderness characteristics was not a consideration in this process.

BH-26. Retain the wilderness management emphasis as described for the Anaconda-Pintler Recommended Wilderness Additions.

The Final Plan retains this emphasis.

BH-27. Recommend extension of the AP wilderness area to the west and east. Though the side of the Divide near Mount Howe and Evans in the Twelve Mile and Sullivan drainages could be excluded from wilderness recommendation to allow snowmobile use.

Alternative 6 does extend the AP wilderness west and east and extends a winter non-motorized closure below Mt Howe and Mt Evans to improve manageability of motorized closures in the recommended wilderness. We believe that leaving access open to Mt Howe and Evans, while recommending the rest, would result in a boundary difficult to manage. Alternatives 1-5 do not include a winter non-motorized allocation below Mt Howe and Evans, allowing use approaching the peaks.

South Fleece Management Area

BH-28. The revised Forest Plan should consider making South Fleecer a non-motorized area for elk during spring and summer months. Stream crossings and wet meadows along the trail system have been badly damaged by ATVs and motorcycles with much of the damage occurring from off trail riding. There are small isolated populations of Westslope cutthroat in lower reaches of streams draining this area.

Alternative 3 allocates the majority of the management area to non-motorized uses. The FEIS describes the effect of that level of closures in the *Pioneers under RECREATION AND TRAVEL*, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

The concern about off-trail riding was resolved by the OHV Plan Amendment for Montana, North Dakota and South Dakota in 2001. The revised Plan incorporates direction from that decision, establishing the Forest Road and Trail Inventory, off which any motorized use is illegal.

BH-29. Manage the area between Dickie Peak and Long Tom Creek as summer non-motorized to protect wet meadows, elk calving and migrating, and westslope cutthroat trout. Close the trails from the end of the Johnson Creek Rd #1208 east to the Long Tom Road #1201 to wheeled motorized users. Half the damage from motorized users to wet meadows and streams is occurring along Trail #275, the trail and area around it should be closed.

Trail #275 is currently closed to motorized use although it is not indicated as closed on the 1996 Travel Plan map.

The revised Plan incorporates direction from the OHV Plan Amendment for Montana, North Dakota and South Dakota in 2001. Under all alternatives cross country travel is prohibited, so the wet meadow areas off trail will be protected. Alternative 3 considers the effect of managing this area (and all roadless areas) as non-motorized. Alternative 6 and the associated Plan allocate the area described to semi-primitive backcountry with some motorized use allowed. The Record of Decision explains the rationale for selecting Alternative 6 over Alternative 3.

BH-30. Keep Fleecer Mountain roadless and close off additional roads, especially Tom & Jerry Creeks and the roads going high into the Fleecer Mountain, and thus make the IRA larger.

Alternative 3 allocates parts of the Fleecer roadless area to non-motorized uses, one large block is between Tom and Jerry Creeks. The FEIS compares the effects by alternative in *RECREATION AND TRAVEL*, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

BH-31. Replace the emphasis proposed in the Draft. Replace “improve motorized trail opportunities to meet demand” with “Retain but not increase the present motorized trail opportunities”.

The intent of this objective is to improve the quality of opportunities, by connecting loops or reducing trails with no particular destination. The objective to “retain but not increase...” does not lead to the same actions. The decision maker considered a range of alternatives for managing the Fleecer area, from largely non-motorized (Alternative 3) to mostly motorized (Alternative 4).

The preferred alternative provides both roaded and low density backcountry motorized opportunities.

West Big Hole Flats Management Area

BH-32. The revised Forest Plan should add a standard for “No sediment production from road construction, timber sale activities and trails entering streams” to better protect fisheries.

Forestwide aquatic standards in the Final Plan (Alternative 6) are designed to protect fisheries in all management areas from management activities (See Standards TM-1, TM-1a, RF-2, RF-3a, RF-3c, and RM-1).

BH-33. The revised Forest Plan should propose the Hamby Swamp as a Research Natural Area.

We used the Research Natural Areas of the Northern Region Status and Needs Assessment (1996) to identify habitat types or sensitive plant communities that needed to be represented on the Beaverhead-Deerlodge NF. The assessment did not include the habitat type represented by Hamby Swamp. If at some future date a need is identified to establish a RNA here, this Plan does not preclude that.

BH-34. The revised Forest Plan should close areas to motorized access in Big Swamp and Little Lake Creek.

Cross country travel is prohibited under all alternatives, incorporating direction from the OHV Plan Amendment for Montana, North Dakota and South Dakota in 2001. No alternative considered closing the major system roads in Big Swamp or Big Lake Creek to motorized use. The Forest Service has an investment in these well used roads. The destinations these roads provide access to (Twin Lakes campground) are popular with a large number of forest users.

BH-35. The revised Forest Plan should close Trails 203, 40, 87, 185, and 376 leading to MA 10.

The preferred alternative allocates the West Big Hole management area to non-motorized use in summer which closes the upper ends of the routes listed here. But Forest Plan revision does not direct site-specific decisions about system roads and trails outside of allocations for non-motorized recreation or recommended wilderness. The Plan does not consider site-specific additions to the system, changes to locations, or closures other than those affected by allocations. This comment will be dealt with again during travel planning which follows Forest Plan Revision.

BH-36. The revised Forest Plan should manage this area for 2-wheeled vehicles in summer and snowmobiles in winter since it is not winter wildlife range.

The preferred alternative and Plan allow motorized use, including 2-wheeled vehicles, on roads and trails in this area in summer and allows snowmobiles in winter.

BH-37. The revised Forest Plan should close all the lakes in West Big Hole Flats to motorized use; they aren’t big enough to warrant even a trolling motor. Close or gate the roads to motors a few miles farther away from the main Beaverhead ridge especially Big Swamp creek or Ajax Lake Rd. Make the West Big Hole Wilderness

longer and connect some of the flats area in the wilderness. Gate the road up Dark Horse Creek and reduce motorized use on the Nez Perce Trail.

Twin, Miner and Van Houten Lakes are already closed to gasoline motors and will remain so. The road to Ajax Lake remains open to access private mining claims. Alternative 3 considered extending the wilderness recommendation further along the divide. The preferred alternative did not select this recommendation because of conflicting winter uses and the availability of other management options to protect roadless character. Site-specific decisions like gating roads and reducing levels of use were not considered in Forest Plan revision.

Fishtrap Mount Haggin Management Area

BH-38. The revised Forest Plan should retain the proposal to close all trails accessing the AP Wilderness and the Tenmile Lakes Trail show on the Travel Status map for Alt 5 to eliminate conflicts with non-motorized users.

We retained these closures in Alternative 6, see management area direction for Fishtrap Mount Haggin in the Forest Plan.

BH-39. The revised Forest Plan should emphasize “dispersed recreation to compliment the wilderness” similar to Pintler Face in order to upgrade numerous undeveloped trailheads leading to the A-P Wilderness.

This comment was incorporated into the management area description, see paragraph one under Fishtrap Mt Haggin management area direction.

BH-40. The revised Forest Plan should concentrate the winter motorized area into a smaller and better area with some closer hill climb areas, snowmobilers like company and competition so concentrating them might actually benefit the majority.

The Final Plan adds a winter non-motorized allocation to the Fishtrap Mt Haggin area which responds to this concern.

BH-41. Prohibit motorized use right from the trailhead parking lots like Rainbow Lake.

The preferred alternative does this by establishing a non-motorized allocation from the trailhead north and west.

Selway-Saginaw Management Area

BH-42. The revised Forest Plan should include a Standard for “No sediment production from timber management activities in streams draining into the Big Hole River” to protect grayling habitat.

Forestwide aquatic standards in the Plan are designed to protect fisheries in all management areas from timber management activities (See Standards TM-1, TM-1a, RF-2, RF-3a, RF-3c).

BH-43. The revised Forest Plan should retain the summer non-motorized areas and make them winter non-motorized as well.

The Plan retained the summer non-motorized areas as suggested, see Selway-Saginaw Management Area in the Plan. Winter non-motorized areas are intended to protect low elevation

big game winter range, protect high elevation winter habitat for mountain goats or wolverine, or provide quiet winter recreation opportunities in accessible locations, see FEIS, Glossary. The summer non-motorized areas in Selway Saginaw are not well-suited.

BH-44. The revised Forest Plan should close summer motorized access in the Selway Creek Watershed to preserve important westslope cutthroat trout habitat.

This management area includes the Selway restoration watershed and two key fisheries watersheds, designed to protect and conserve the important westslope cutthroat trout habitat. Impacts of motorized use of roads and trails will be reviewed as part of the watershed restoration process following Plan implementation

BH-45. The revised Forest Plan should gate more roads during hunting season.

Forest Plan revision does not direct site-specific decisions about system roads and trails like seasonal closures. While roads or trails may be closed as a result of Plan allocations for non-motorized recreation or recommended wilderness, the Plan does not consider site-specific additions to the system, changes to locations, or closures other than those affected by allocations. This comment will be dealt with during travel planning which follows Forest Plan Revision.

North Fleecer Management Area

BH-46. Increase motorized closures in these areas to further protect important wildlife habitat for ungulates.

The Forest Service recognizes the conflict between protecting elk security and providing motorized access in the Fleecers. We considered the effects of increasing motorized closures in these areas through non-motorized allocations in Alternative 3 but chose to add it to backcountry semi-primitive recreation opportunities on the Forest in Alternative 6 because of strong support for this type of experience in the Fleecers. Rationale for selecting Alternative 6 is contained in the Record of Decision.

Regardless of alternative, habitat for ungulates will continue to be protected through current winter game range closures and hunting season restrictions on travel, see FEIS, Features Common to all Alternatives. In addition, the preferred alternative includes a road density objective which reduces fall road density in Hunting Unit 341 from .6 miles/square mile to .5 mi/sq.mi.

BH-47. Close the roads that go high on Fleecer Mountain; they serve no purpose. Fleecer would be a good spot for a game pack out service station. Get private landowners to spray their weeds all the way to Butte and around the pump house. Concentrate motorized use to Mt Haggin area, eliminate the deep penetrating roads.

We considered closing the roadless area surrounding Fleecer Mountain to motorized use in Alternative 3 but chose to add it to backcountry semi-primitive recreation opportunities on the Forest in Alternative 6 because of strong support for this type of experience in the Fleecers. Establishing game packout stations is a site-specific decision, not one to be made in the Forest Plan. Nor can we make decisions about how landowners or Montana Fish Wildlife and Parks manage their property.

BH-48. This MA is important for the restoration of westslope cutthroat in the headwaters of the Clark Fork River and for elk and other wildlife. Most of the traditional foot and stock trails have been converted to ATV “troads.” There should be no expansion of motorized trials in this area and a standard should be included stating “No net increase in motorized trails.” It appears the Butte district is turning this into another Whitetail-Pipestone play area.

Plan direction for other resources will protect native fish, elk and other wildlife, see the FEIS sections on the appropriate resource describing effects of Alternative 6. The Plan designates German Gulch as a Key Fisheries Watershed to protect and conserve the westslope cutthroat trout population in the Northeast Fleeceers. The Plan also contains a wildlife objective for elk security which reduces fall road density in Hunting Unit 341 from .6 miles/square mile to .5 mi/sq. mi. . Evaluating the need to limit or expand motorized use or restoring troads to trails will take place during travel planning, as part of Plan implementation.

West Big Hole Management Area

BH-49. Retain the road and trail closures in the West Big Hole, but close the Pioneer Creek trail below the first stream crossing because OHV users are driving down the middle of the stream channel for at least 100 feet, damaging wet areas and contributing silt to streams.

Forest Plan revision does not direct site-specific decisions about system roads and trails. While roads or trails may be closed as a result of Plan allocations for non-motorized recreation or recommended wilderness, the Plan does not consider site-specific additions to the system, relocations, or closures other than those affected by allocations. This comment will be dealt with during travel planning which follows Forest Plan Revision.

BH-50. Close Berry Creek drainage and other spur roads that ford year-round streams and damage riparian areas. Closing them instead of rebuilding will save money, preserve habitat and provide a positive experience for non-motorized users.

Several of these spur roads are closed by the summer non-motorized allocation in the West Big Hole for Alternative 6 and the Plan. We believe these are the ones this comment refers to.

BH-51. Restore closed and badly eroded roads for watershed health.

Forest Plan revision does not direct site-specific decisions about system roads and trails. While roads or trails may be closed as a result of Plan allocations for non-motorized recreation or recommended wilderness, the Plan does not consider site-specific additions to the system, changes to locations, or closures other than those affected by allocations. This comment will be dealt with during travel planning which follows Forest Plan Revision.

BH-52. Designate the West Big Hole non-motorized year round.

The Forest acknowledges a number of people support closure of the West Big Hole to all motorized use. We considered doing this through a recommendation of the area for wilderness in the Proposed Action. Alternative 3 considers the effects of closing to all motorized use. We received strong public opposition to closing popular snowmobiling opportunities in the Miner Lake to Twin Lake areas and developed Alternatives 5 and 6 to respond to these comments. Alternatives 5 and 6 leave a portion of the area open to snowmobiling but close the remainder of

the area and closes the entire area to summer motorized use. After examining all alternatives and public comments which supported a range of wilderness recommendations and non-motorized allocations, the deciding official chose to select Alternative 6. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3.

BH-53. Retain winter non-motorized designations in: Anderson Mountain, Horse Prairie, Trail Creek West Big Hole, West Big Hole Flats.

We retained the winter non-motorized designations from Alternative 5 in the Big Hole. There were no closures proposed in West Big Hole Flats in any alternative because it did not meet the criteria for winter non-motorized allocations, see Glossary.

BH-54. Retain summer non-motorized designations in: Anderson Mountain, Horse Prairie, Northeast Fleecer, Pintler Face, Bear Mountain, Selway-Saginaw, Tie-Johnson, Trail Creek, and West Big Hole.

Alternative 6 retains summer non-motorized allocations in all but Northeast Fleecer and Tie-Johnson areas. The effects of allocating these two areas to non-motorized were considered in Alternative 3. They were not carried forward because we received strong public support for maintaining the backcountry semi-primitive motorized experience in these areas. The Record of Decision documents the rationale for selecting Alternative 6 rather than Alternative 3.

BH-55. Drop motorized closures in the West Big Hole. There are no resource concerns or current user conflicts to justify this.

The Forest acknowledges a number of people oppose the motorized closures in the West Big Hole in Alternative 5. Alternatives 1 and 4 left the area open to motorized in winter and retained only the current level of motorized closures in summer. After examining all alternatives and public comments which supported a range of wilderness recommendations and non-motorized allocations, the deciding official chose to select Alternative 6. See the Record of Decision for specific rational for alternative selection.

BH-56. Do not recommend the West Big Hole for wilderness but limit snowmobiles to designated routes in areas open to them and manage them like other motorized vehicles on public lands.

The West Big Hole is not recommended for wilderness in the preferred alternative. Winter non-motorized allocations exclude snowmobiles from all of the West Big Hole MA except the Big Lake Creek to Miner Creek area. Decisions about how to manage snowmobiles outside of the non-motorized allocations can be made site-specifically.

BH-57. Do not create motorized closures in the West Big Hole because it limits options to locate the Berry Creek section of the CDNST.

The Miner to Berry to Goldstone CDNST trail relocation and construction locations will be decided before this ROD is issued. Because of national direction, any new construction will be non-motorized regardless of current or future travel management decisions. See the FEIS, “Alternatives Considered but not Analyzed in Detail”. The deciding official preferred alternative 6. The Record of Decision will document specific rational for alternative selection.

BH-58. Designate more multiple use areas instead of locking up roads and access to areas like Dark Horse, Janke, Berry, Hamby, Miner Lakes, etc.

We do this for some of the areas you mention. Under the preferred alternative, Dark Horse Lake and Miner Lake lie within the West Big Hole Flats management area, which emphasizes timber production and remains mostly open to motorized use. The upper reaches of Janke, Hamby, and Berry drainages are in the West Big Hole management area which limits summer motorized use and timber harvest. These options were not available under current conditions. The only area mentioned above where access is more restrictive than currently is Janke Lake. The ROD documents why the decision maker selected this alternative over Alternative 1 or 4 which retain the motorcycle trail into Janke Lake.

BH-59. Do not close the state line from Moose Creek trail 7363 to Dark Horse trail 7330 to motorized uses; we have used it for years.

Trail 7330 and 7327 will remain open in the preferred alternative. The trails leading north and south from there along the state line have been closed for some time by the current travel plan and will remain closed in all alternatives.

BH-60. Leave at least a corridor of existing trails for snowmobiles to the high alpine riding and priceless views into the Big Hole Valley and Idaho.

We do this in the preferred alternative, by leaving a large area from Big Lake Creek south to Miner Creek open in winter, see West Big Hole Management Area in the Plan.

BH-61. Increase the West Big Hole winter closure to include the area from Miner Creek north to Big Lake Creek to enhance wildlife connectivity and protect outstanding wolverine denning habitat.

The Forest acknowledges a number of people support closure of the West Big Hole to all motorized use for a number of reasons. We considered doing this through a recommendation of the area for wilderness in the Proposed Action. We received strong public opposition to closing popular snowmobiling opportunities in the Upper Miner Lake to Twin Lake areas. Alternatives 5 and 6 to respond to those comments by leaving this portion open to snowmobiling but leaving the remainder of the area allocated to winter non-motorized and the entire area is allocated to summer non-motorized. After examining the effects on both wildlife and recreationists of all alternatives and public comments which supported a range of wilderness recommendations and non-motorized allocations, the deciding official chose to select Alternative 6. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3.

BH-62. Keep the following trails open to snowmobiling: Slagamelt #186, Ajax #625, Little Lake Creek #87, Rock Island #58, Miner Creek #58, Hamby Creek #7322, Berry Creek # 7325, Pioneer Creek #442, Jahnke Creek #7328, Dark Horse #7330, and Goldstone Pass #7327.

We received strong public opposition to closing popular these snowmobiling opportunities in the Upper Miner Lake to Twin Lake areas under the Proposed Action (Alternative 2). Alternatives 5 and 6 respond to these comments by leaving this portion of the West Big Hole open to snowmobiling, Slagamelt, Ajax, Little Lake Creek, Rock Island, Dark Horse and Goldstone Pass trails remain open. Upper Miner, Hamby, Berry, and Janke are closed. Alternatives 1 and 4 leave all these trails open. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 1 and 4.

BH-63. Provide additional trailheads and non-motorized trails into the West Big Hole so hikers are not forced to walk along motorized routes. Access to roadless areas in the summer is currently difficult without a 4-wheeler.

The preferred alternative will in effect create more non-motorized trails by excluding motorized use from some existing routes. However, identifying new trail routes or trailhead facilities is a site-specific decision. Forest Plan revision does not consider site-specific additions to the system, changes to locations, or closures other than those affected by allocations. This comment will be dealt with during travel planning which follows Forest Plan Revision.

BH-64. Retain the summer motorized closure area proposed by the draft for the West Big Hole Special Management area because they will reduce stream impacts and will be an asset for other recreationists.

The preferred alternative does retain the summer motorized closures proposed in the Draft Plan.

BH-65. Retain the winter motorized closure area proposed by the draft for the West Big Hole Special Management area because it will be a huge asset for the public and for species of wildlife who need larger territories and less disturbance.

The preferred alternative does retain the winter motorized closures area proposed by the Draft Plan.

BH-66. The areas closed to snowmobiles in the West Big Hole are too small to protect mountain goat and wolverine habitat. They should include the Homer Young Peak-Little Lake area.

Alternative 3 closes most of the West Big Hole north to Trail Creek to winter motorized use. The FEIS compares the effects of winter non-motorized closures by alternative on wolverine denning habitat and mountain goats Forestwide. Alternative 6 was designed to include areas important for both species. It provides the second highest protection from snowmobile disturbance to denning habitat. About 2/3 of the modeled wolverine denning habitat in the West Big Hole is protected under Alternative 6 compared to the current situation. The Record of Decision will document the rationale for selecting Alternative 6 over Alternative 3.

BH-67. Recommend at least part of the West Big Hole to protect the high mountain meadows and rangelands.

The Forest acknowledges a number of people support recommendation of the West Big Hole for wilderness. We recommended the area for wilderness in the Proposed Action and received strong public opposition to that proposal because a large number of snowmobilers value highly their opportunities in the Big Lake Creek to Miner Creek part of the area. We analyzed the effects of a wilderness recommendation in Alternatives 1, 2, and 3. Alternatives 5 and 6 were developed to respond to comments by leaving a portion open to snowmobiling but allocating the entire area to summer non-motorized. The Record of Decision will document the rationale for selecting Alternative 6 over Alternative 1, 2, or 3.

BH-68. Recommend all of the West Big Hole. It has been recognized for potential inclusion in wilderness for over 25 years. Summer motorized use has damaged trails and streams. Snowmobile use is affecting mountain goats and wolverine.

The Forest acknowledges a number of people support recommendation of the West Big Hole for wilderness. We recommended the area for wilderness in the Proposed Action and received strong public opposition to that proposal because a large number of snowmobilers value highly their opportunities in the Big Lake Creek to Miner Creek part of the area. We analyzed the effects of a wilderness recommendation in Alternatives 1, 2, and 3. Alternatives 5 and 6 were developed to respond to comments by leaving a portion open to snowmobiling but allocating the entire area to summer non-motorized. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 1, 2, or 3.

BH-69. Recommend the West Big Hole boundary identified in the 1986 Beaverhead Forest Plan and retain the summer non-motorized area outlined in the West Big Hole Special Management Area to buffer the proposed wilderness. Include Janke Creek and Blind Canyon.

The preferred alternative retains the summer non-motorized area outlined in the draft. Winter use was much more contentious. We analyzed the effects of a wilderness recommendation in Alternatives 1 (1986 boundary), 2, and 3. Alternatives 5 and 6 were developed to respond to comments by leaving a portion open to snowmobiling while protecting the undeveloped character of the remaining area. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 1, 2, or 3.

BH-70. Manage the West Big Hole according to the Montana Wilderness Study Act. Why allow a motorized constituency to develop by violating this law.

Management of the West Big Hole is not directed by the Montana Wilderness Study Act. This applies only to the West Pioneer WSA and the Sapphires WSA.

Ruby Management Area

BH-71. Prioritize restoration for the area as was indicated in the Proposed Action.

We do this through designation of Moosehorn Creek restoration watershed, see the Plan, Ruby Management Area.

BH-72. Increase the motorized closures in this area to create protected connectivity areas for migrating wildlife between Anderson Mt and the West Big Hole.

We evaluated the effects of closing all roadless areas, which includes the portion of Ruby along the divide, to motorized use in Alternative 3. The decision maker documented the rationale for selecting Alternative 6 over Alternative 3 in the Record of Decision.

Pintler Face Management Area

BH-73. Retain the non-motorized emphasis.

The preferred alternative retains the non-motorized areas proposed in the Draft Plan.

BH-74. Drop the emphasis on “developed and dispersed recreation to compliment wilderness recreation opportunities. Instead emphasize “Less developed character in support of resident and tourist expectations of the uniqueness of the Big Hole Valley”. Keep the trailheads primitive.

We feel that facilities which “compliment wilderness recreation” should also meet the expectations for the unique character of the Big Hole, addressing this comment, so we did not change the wording for the Plan.

BH-75. Add an objective to acquire by deed or conservation easement the private inholding in McCormick Park.

We considered adding specific land adjustment objectives by management area for the Plan. However, the Forest’s history of successful land adjustments is based on opportunity and willingness of landowners rather than Forest priorities or objectives. We responded by establishing a Forestwide goal in the preferred alternative to improve national forest management through purchase, exchange, or other authority as opportunities arise. If the opportunity arises to acquire McCormick Park, the Forest Plan will support that action.

BH-76. Manage this entire MA as Recommended Wilderness.

Federal regulations (CFR219.17)(b)) direct us to evaluate areas contiguous to roadless or other undeveloped areas for recommended wilderness only if they have “identified wilderness potential”. Regulations and handbook direction are very clear about what criteria must be present (FSH 1909.12 71.1, 8/3/92). We re-examined the developed lands on the east side of the Pintler Face management area during our roadless area re-inventory and did not find them to have wilderness potential.

BH-77. Delete the last emphasis item for non-motorized. The area should be motorized as per the Proposed Action.

Alternative 1, 2, and 4 left the Pintler Face open for consideration of motorized use. We received favorable public support for making the heart of the roadless areas in the Pintler Face non-motorized as they are in Alternatives 5 and 6. The decision maker documents the rationale for selecting Alternative 6 over 1, 2, or 4 in the Record of Decision.

Tie Johnson Management Area

BH-78. Retain the non-motorized allocations and remove from Suitable Timber Base.

The preferred alternative retains the non-motorized allocation on the north end but changes the allocation in the Elk Creek area to backcountry motorized, leaving Trail 18 open. We considered dropping the area from suitable timber base in Alternative 3. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3.

BH-79. Include the whole length of Trail #110 in non-motorized. Leaving segments open makes it difficult to enforce non-motorized use as Trail 110 terminates at Bender Cabin with the junction of Trail #374 (currently managed as #8 closure) and Trail #17 which is included in the proposed AP-Wilderness Addition. A better solution might be decommission Trail 110 as it parallels the CDNST and is no longer needed.

The preferred alternative retains the non-motorized allocation on the north end but changes the allocation in the Elk Creek area to backcountry motorized, leaving Trail 18 open. We considered dropping the area from suitable timber base in Alternative 3. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3.

BH-80. Create a winter non-motorized area from Placer Creek northeast to Bender Creek to provide a migration corridor for wolverine from prime denning habitat in the Anderson Mountain/Trail Creek areas of the West Big Hole to the Anaconda Pintlers.

The corridor from Placer Creek, near the Big Hole Battlefield, northeast to Bender Creek, is fairly well roaded and at low to mid-elevations in the Big Hole range. We have not allocated this area to winter non-motorized in any alternative because it does not meet the criteria for winter non-motorized use, see Glossary. A better corridor is available through the Beaver Lake roadless area to the west.

BH-81. Add a restore wildlife connectivity management standard. Even though the area is roaded there are still some unroaded areas that can be used as anchors for a restoration strategy to link Anaconda-Pintler wildlife with more southerly Big Hole wildlife populations.

The preferred alternative and Plan deal with connectivity forestwide. Linkages are defined as those identified for a federally listed species through a multi agency management approach. The FEIS states that secure areas can address concerns about “linkages” across large landscapes and describes an approach managing for lower open motorized road densities. An analysis of wildlife security areas for the preferred alternative using open road densities, show a secure area in Beaver Lake roadless area, connecting the Anderson Mountain/Trail Creek areas to Continental Divide near the Anaconda Pintlers.

Horse Prairie Management Area

BH-82. Manage for the balance of motorized opportunities described in the proposed action.

The proposed action (“recreation opportunities are mostly motorized, though some trails are non-motorized”), draft plan and plan for the preferred alternative all describe leaving most motorized opportunities in Horse Prairie intact. Motorized closures displayed in the preferred alternative reflect the Area 5 and 8 designations in the current Interagency Travel Plan, along with the cross country travel prohibitions from the 2001 OHV Amendment.

BH-83. Add a wildlife connectivity management standard and manage the CDNST as a quiet recreation trail without large motorized buffers that encourage deviations from the trail.

The preferred alternative and Plan deal with connectivity forestwide. Linkages are defined as those identified for a federally listed species through a multi agency management approach. The FEIS states that secure areas can address concerns about “linkages” across large landscapes and describes an approach managing for lower open motorized road densities. An analysis of wildlife security areas for the preferred alternative using open road densities, shows a secure area along the Continental Divide in this management area.

No alternative allows motorized use in buffers along trails. The 2001 OHV Amendment prohibits cross-country travels forestwide. This was a common misinterpretation of the DEIS maps. In the DEIS, maps of non-motorized allocations only indicate where motorized use is prohibited, they DON’T indicate where motorized use is necessarily allowed. The current Interagency travel plan is the authority for where motorized use is allowed and any seasonal restrictions of use outside of

non-motorized allocations. We have tried to make the non-motorized allocation discussion clearer in the FEIS and Alternative 6, see Chapter 2, Alternative 6 description.

Boulder River Landscape

BR-1. We support non-motorized summer and winter proposals in the Boulder River and Jefferson Landscapes.

The preferred alternative includes non-motorized summer and winter proposals very similar to the Draft Plan.

BR-2. Reduce the number of roads and trails across the landscape to meet the Infrastructure Objective of “Identify the minimum necessary transportation system”. Many motorized routes parallel each other and multiple routes end in the same place.

The preferred alternative will result in reduced roads and trails in the Boulder Landscape. Wildlife objectives in the Plan call for a reduction in the open motorized road densities in the Boulder landscape and Hunting District 318 to 1.8 miles per square miles or less, (Plan, page #52). This will most likely be implemented through the upcoming Motor Vehicle Use Management planning.

BR-3. Restore watershed condition and reduce road density in this landscape that has the highest level of poor condition watersheds and no restoration watershed emphasis. It also includes the largest municipal watershed, 303d streams and the highest road densities on the Forest.

We feel the preferred alternative and Plan will do this. The preferred alternative designates three restoration watersheds in this Landscape, North Fork Little Boulder, Lower Little Boulder and Beaver Creek.

The preferred alternative will also result in reduced roads and trails in the Boulder Landscape. Wildlife objectives in the Plan call for a reduction in the open motorized road densities in the Boulder landscape and Hunting District 318 to 1.8 miles per square miles or less, (Plan, page #52). This will most likely be implemented through the upcoming Motor Vehicle Use Management planning

BR-4. The big game winter range is incomplete in the Boulder River Landscape. Please consider the impact of motorized recreation on elk in the Whitetail-Pipestone area.

We remapped big game winter range in the Boulder River Landscape between Draft and Final using information provided by Montana Fish Wildlife and Parks.

BR-5. Increase the number of non-motorized trails in this landscape, there are a disproportionately high ratio of motorized to non-motorized recreational trails.

Forest Plan revision does not direct site-specific decisions like constructing additional roads and trails. However, miles of non-motorized trails may increase in some alternatives as a result of land allocations (like recommended wilderness) which convert trails from motorized to non-motorized. In the case of the Boulder River landscape, non-motorized allocations in Alternatives 3 and 5 close some small segments of roads or trails but do not contribute to any meaningful non-motorized trail opportunities. However, motorized allocations in the Boulder River do not

preclude a future decision to convert motorized to non-motorized or add a new non-motorized trail to the system during site-specific travel planning following Forest Plan revision.

BR-6. Retain all the summer and winter non-motorized areas proposed in the Draft Plan for the Boulder River Landscape.

The preferred alternative retains the non-motorized proposals in the Draft Plan with some minor boundary refinements.

BR-7. The provisions of Alt 3 must be incorporated in this landscape to improve wildlife security. It is an important area for wildlife as identified by Montana Fish, Wildlife, and Parks.

The Forest Service recognizes concerns about elk security in the Boulder River Landscape. The decision maker considered the effects of Alternative 3 as well as the other alternatives on wildlife. The Record of Decision contains the rationale for selecting Alternative 6 over Alternative 3. The alternative he selected includes an objective to reduce road density in the Boulder River landscape in summer and in hunting district 318 in fall, potentially closing 22 miles of road, see FEIS, Chapter 2. It also includes non-motorized winter closures to protect elk security on elk winter range.

BR-8. Connect the summer and winter motorized closure areas of the Little Boulder, Mormon Buffalo and Boulder River Sheepshead to the Electric Peak Recommended Wilderness to benefit wildlife migration. Add a management standard for wildlife connectivity.

The potential pathway described by this comment is crossed by the four-lane Interstate 15, which offers a much greater obstacle than any adjacent forest roads. Because of the presence of the Interstate and the adjacent road network which moves traffic from the Interstate to private land in Basin Creek and Boulder Creek, it is not feasible to connect all of the non-motorized areas referred to in this comment. The Forest Service acknowledges the Boulder River landscape is one of the more heavily roaded areas on the Forest. This is a remnant of the long history of mining, associated private lands, and harvest activity in the area. There are fewer areas that lend themselves to non-motorized allocations (which must provide a semi-primitive, not roaded setting).

Wildlife security is a concern and was emphasized in Alternative 3. Alternative 3 offers more acres in non-motorized allocations in Boulder River Landscape than other alternatives and addresses the security issue in this landscape through a road density objective of 1.9 miles per square mile. The preferred alternative also sets a road density objective below current conditions. See FEIS, WILDLIFE, Effects of Recreation and Travel". The Record of Decision documents the rationale for selecting Alternative 3 over Alternative 6.

BR-9. Keep the CDNST open to motorized access from Thunderbolt to Bison Mountain. This is an important section of trail which cross several management area boundaries and is an important loop trail.

The preferred alternative would not result in closures to this road and trail network.

BR-10. The FEIS should acknowledge that for the Boulder River Landscape, ethical hunting environments are diminished by intensive land use and high road densities that occur in this area.

We remapped big game winter range in the Boulder River Landscape between the DEIS and FEIS using information provided by Montana Fish, Wildlife, and Parks. The winter non-motorized allocations were redesigned using this same information though the boundaries might not match exactly, see Plan, Boulder River Landscape.

BR-11. Remap winter non-motorized allocations to reflect winter big game range (see map attached, Gayle Joslin).

The Forest Service acknowledges the Boulder River landscape is one of the more heavily roaded areas on the Forest. This is a remnant of the long history of mining, private lands, and harvest activity in the area. The FEIS addresses road densities and their effect on wildlife security under Effects on Wildlife from Recreation and Travel Management, and Wildlife Security and Connectivity. The preferred alternative includes an objective to reduce road density in the Boulder River landscape in summer and in hunting district 318 in fall, see Plan, Wildlife.

BR-12. Remap utility/communication sites map to include all existing power lines, it currently does not.

The utility/communication sites and corridor map is intended to only include designated utility corridors available for new utility transmission rights-of-way. As the FEIS states, other existing rights of way occupied by utilities are not designated as corridors because expansion will not be encouraged.

Basin - Cataract Management Area

BR-13. Unauthorized trails from the BDNF leading onto the Occidental Plateau need to be closed and reclaimed. The integrity of the Clancy-Unionville travel project area which designated routes and recognizes the presence of winter range and other areas unsuitable for motorized recreation must be protected from motorized incursion from the Boulder River area.

Closure and reclamation of unauthorized trails or site-specific solutions to unauthorized cross country travel are site-specific decisions. The Plan does incorporate direction from the 2001 OHV Plan Amendment for Montana, North Dakota and South Dakota, making all cross country travel off of designated routes illegal, Plan, Recreation and Travel Management, Standard 4.

BR-14. Use this area for timber production but maintain high quality wildlife habitat in Three Brothers, Clay/Vacchiou Creeks and the South Fork of Basin Creek.

Management direction for the Basin Cataract Management Area reflects this concern.

BR-15. Manage the CDNST as non-motorized and create a non-motorized trail from the South Fork of Basin Creek to the CDNST.

See the FEIS, Chapter Two, "Alternatives Considered but not Analyzed in Detail". While a complete non-motorized route is the national goal for the CDNST, existing motorized segments will require site-specific analysis before closure.

As far as creating a non-motorized trail to the CDNST, Forest Plan revision does not direct site-specific decisions like constructing additional trails,

BR-16. Include objectives for restoration, road obliteration, etc for the Luttrell Pit which impacts wildlife movement and security. Reconsider allocations in this management area to better address wildlife security and watershed health.

Luttrell Pit is currently administered by the EPA. When reclamation of the mines in the Basin Cataract area is complete, EPA will turn over the depository to Montana State Department of Environmental Quality.

Alternative 3 allocates more non-motorized area in Basin Cataract than other alternatives. The FEIS compares the effect of this with other alternatives in RECREATION AND TRAVEL, “Effects by Landscape”. The Record of Decision will document specific rationale for alternative selection.

BR-17. Include a standard requiring that “wildlife connectivity values will be maintained and improved” and include a non-motorized allocation to facilitate that.

Management area direction for the preferred alternative includes maintenance of secure wildlife habitat in the Three Brothers, Clay/Vacchiou and South Fork Basins in the goal statement, a management area standard for “no net increase in open motorized road and trails” and a forestwide objective to reduce motorized road density in Hunting Unit 318 (which includes this area).

Alternative 3, which emphasized conservation of habitat and de-emphasized motorized uses, included two non-motorized allocations in this management area. The preferred alternative did not, but addressed wildlife security in the manner described in the above paragraph. The FEIS describes the impacts of that alternative relative to Alternative 6 under effects of recreation and travel management on wildlife security, FEIS. The Record of Decision documents the rationale for selecting alternative 6 over alternative 3.

Boulder River-Sheepshead Management Area

BR-18. Add Lowland Road to the objective for “manage, harden, and designate...”

The preferred alternative does this.

Electric Peak Management Area

BR-19. Reevaluate the wilderness suitability of Cottonwood Lake. There is a man-made lake and the town of Leadville. Deerlodge has considered a dam on Blackfoot Meadows.

We re-evaluated the wilderness suitability of Cottonwood Lake area (Electric Peak roadless area #1-609) in consideration of these points (See description of the area in Appendix C of the FEIS). Suitability for wilderness is still high

BR-20. Keep trails in the Electric Peak area open, especially #65, they are popular with Butte riders.

We responded to this comment by modifying the preferred alternative to allow snowmobiling on designated routes (including the groomed trails) and play areas. This resolution allows riders to

use popular trails while allowing the Forest Service to identify and protect potential wolverine denning areas.

BR-21. Retain the wilderness recommendation for Electric Peak.

Alternatives 3 and 5 considered the effects of recommending Electric Peak for wilderness. The preferred alternative does not, but protects the undeveloped character of the area through non-motorized allocations. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3 or 5.

BR-22. Do not close part of the trail system, including Leadville through Sheep Camp Meadows to Electric Peak to snowmobiles or recommend Electric Peak for Wilderness because the Deerlodge Snowmobile Club has maintained the system by agreement, for 38 years.

We responded to this comment by modifying the preferred alternative to allow snowmobiling on designated routes (including the groomed trails) and play areas. This resolution allows riders to use popular trails while allowing the Forest Service to identify and protect potential wolverine denning areas.

Little Boulder Management Area

BR-23. The road northeast of Little Boulder Park heading to Whitetail Park is shown motorized. This is currently a non-motorized trail and should remain non-motorized. The non-motorized closure area should be expanded to the northeast contiguous with area 05-BR-05 extending northeast of Shields and Ironsides. Protect the pristine meadow area from ATVs.

Thank you for your comment. We have corrected that error. It now shows as non-motorized and will remain so in the preferred alternative.

Alternative 3 included the entire Haystack and Whitetail roadless areas in non-motorized allocations. This would include the area northeast of Shields and Ironsides. The effects of doing this is described in the FEIS, Recreation and Travel Management, Effects by Landscape, Boulder River. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3.

BR-24. The Mount Pisgah hiking trail is difficult to access without a 4x4 truck. Please consider creating an additional access route.

Forest Plan revision does not direct site-specific decisions like constructing additional roads and trails or improving trailheads. However, in all alternatives except Alternative 3, the access into the hiking trail is in a backcountry motorized or roaded setting which would allow for future improvements to access.

BR-25. Retain the closure to Moose meadows and all other motorized closures protecting wetland meadows in this area (Dunks meadows, Berry's, Tim's meadows).

These meadows remain protected by non-motorized allocations in the preferred alternative.

BR-26. Combine this management area with the roadless lands of Whitetail-O'Neil-Haystack for an 84,000 acre roadless area instead of hacking it up. Maintain the

Haystack NRT as non-motorized. Acquire private lands within the boundary. Obliterate the Moose Creek Rd or your closure goals will not be achieved. Close the illegal ATV route to Tim's Meadow. The CDNST was first funded as a non-motorized trail and should be kept so.

Alternative 3 allocates all of the roadless lands of Whitetail-O'Neil-Haystack to non-motorized uses only. This allocation will close the ATV route. The effects of doing this is described in the FEIS, Recreation and Travel Management, Effects by Landscape, Boulder River. The Record of Decision documents why Alternative 6 was selected over Alternative 3.

While a complete non-motorized route is the national goal for the CDNST, existing motorized segments will require site-specific analysis before closure. Those routes open to motorized use prior to 1978 can still be allowed. See the FEIS, Chapter Two, "Alternatives Considered but not Analyzed in Detail".

BR-27. Create a year-round non-motorized travel designation for the entire 84,000 acre Whitetail-Haystack-O'Neil roadless area as a key corridor connecting the northern Greater Glacier-Bob Marshall Ecosystem to the Greater Yellowstone Ecosystem.

Alternative 3 allocates all of the roadless lands of Whitetail-O'Neil-Haystack to non-motorized uses only. The effects of doing this is described in the FEIS, Recreation and Travel Management, Effects by Landscape, Boulder River. The Record of Decision documents why Alternative 6 was selected over Alternative 3.

BR-28. Move the gate on Little Boulder Road to Buffalo Creek (R5N-T5N, Sec 32 NE corner). This would mean Trail #91 to Big Major Mine would be closed on the Little Boulder side. One of the landowners favors this closure because he uses State Mine Road #8592.

Forest Plan revision does not direct site-specific decisions like constructing additional trails, moving gates or improving trailheads. However, Alternative 3 allocates this area of the Little Boulder to non-motorized uses, which will result in Trail #91 being closed all the way to the State Mine. The effects of doing this is described in the FEIS, Recreation and Travel Management, Effects by Landscape, Boulder River. The Record of Decision documents why Alternative 6 was selected over Alternative 3.

Little Boulder-Galena Gulch Management Area

BR-29. Expand the non-motorized area south of West Creek. Beaver Creek is a spectacular wetland riparian area that needs protection from ongoing extensive damage. Close roads damaging this stream and consider rerouting roads that cross Beaver Creek

While we did not consider extending the non-motorized allocation east in any alternative because of the roaded setting, we recognize the value and sensitivity of wet meadows in the Little Boulder area. The preferred alternative was modified to include more of the area in key watersheds. Alternative 6 designates the North Fork Little Boulder, Lower Little Boulder and Beaver Creek as key restoration watersheds. Forestwide objectives require a watershed assessment and completion of restoration activities, which may include road obliteration or road improvement.

BR-30. Retain proposed closures of spur roads southwest of West Creek.

No alternative considered a non-motorized closure southwest of West Creek. Non-motorized allocations are intended to provide a semi-primitive setting. Because of the history of mining and access, this area is in a roaded setting and is would not be well suited for this allocation. See Glossary, Recreation Settings.

BR-31. The road from North Fork Little Boulder up to Berkin Park is incorrectly shown as motorized. This road/trail is closed except for administrative use and should remain non-motorized. This would make a good hiking trail. Manage Doe Ridge trail as non-motorized bicycle use

You are correct, Road 5133 is closed to all motorized vehicles by the current travel plan. The preferred alternative allocates that area as road based so it remains under the direction of the current travel plan until a new travel plan is developed for the Jefferson District.

As far as the specific use of Doe Ridge Trail (indicated as a road in our inventory), Forest Plan revision does not direct site-specific decisions about trail management. Areas are allocated for non-motorized but we are not making trail by trail decisions about best use. That will be done following Forest Plan revision through District travel planning. The road along Doe Ridge (we are not familiar with a Doe Ridge Trail). The Galena area was not considered for a non-motorized allocation in any alternative because of the high density of existing roads and use.

BR-32. The emphasis says provide non-motorized area for quiet recreation and wildlife security. This isn't happening here...there are virtually no non-motorized opportunities. Increase the ratio of motorized trails to hiking trails.

You are correct in pointing out this non-motorized emphasis statement in the Draft Plan is inconsistent with the setting for Little Boulder-Galena Gulch. We modified the boundaries of the non-motorized allocation in Little Boulder to stop short of the management area boundary, see Plan, Boulder River Landscape, Little Boulder-Galena Gulch MA.

Forest Plan revision does not direct site-specific decisions like constructing additional roads and trails. However, miles of non-motorized trails may increase in some alternatives as a result of land allocations (like recommended wilderness) which convert trails from motorized to non-motorized. In the case of the Boulder River landscape, non-motorized allocations in Alternatives 3 and 5 close some small segments of roads or trails but do not contribute to any meaningful non-motorized trail opportunities. However, motorized allocations in the Boulder River do not preclude a future decision to convert motorized to non-motorized or add a new non-motorized trail to the system during site-specific travel planning following Forest Plan revision.

BR-33. Designate routes in this area to stem the flow of newly created ATV tracks to protect wildlife security.

The Plan incorporates direction from the OHV Plan Amendment for Montana, North Dakota and South Dakota in 2001. Under all alternatives motorized use is confined to designated routes and cross country travel is prohibited, so secure wildlife habitat off trail will be protected.

BR-34. Close the north part of the MA to summer motorized use in addition to the winter closures.

Non-motorized allocations are intended to provide a semi-primitive setting. Because of the history of mining, harvest and private land access, this area is in a roaded setting and is would not be well suited for this allocation. See Glossary, Recreation Settings. Even Alternative 3, which allocates the greatest number of acres on the forest to non-motorized did not include this piece of ground.

BR-35. Keep trail #86 open through Little Boulder Park – it is the only connector trail between Butte and Boulder.

Trail #86 ends where the private land ends in Little Boulder Park. The dotted line on the travel map that connects to Butte is a power transmission line that was mistakenly included on the trail inventory layer in the DEIS.

Clark Fork Flints Landscape

CF-1. Provide additional non-motorized areas in the Flints in the Race Track and other areas.

Alternative 3 increases non-motorized areas in the Flints considerably. The preferred alternative also increases non-motorized areas over current levels, but not to the same degree as alternative 3. The effects of these alternatives on opportunities within the Clark Fork Flints Landscape is described in the FEIS. The Record of Decision will document the rational for the preferred alternative.

CF-2. Snowmobile use should remain unchanged in the Flint Creek Range. Summer OHV use in the Flints should remain restricted.

Alternatives 1, 2, and 4 address this comment by offering close to the same amount of snowmobiling opportunities as the current condition. Alternative 6 reduces snowmobiling opportunities, but not as much as Alternatives 3 and 5. The effects of these alternatives on opportunities within the Clark Fork Flints Landscape is described in the FEIS. The Record of Decision will document the rational for the selected alternative.

All alternatives retain the current OHV restrictions in the Flint Creek Range as a minimum.

CF-3. Make a large portion of this landscape a roadless/wilderness.

Alternative 3 addresses the concerns of those who would like to see a large portion of the Flint Range in roadless or wilderness. The effects of on opportunities within the Clark Fork Flints Landscape is described in the FEIS. The Record of Decision will document the rational for the selected alternative.

Inventoried roadless areas increased in the Flint Range with the addition of Lost Creek (IRA #1-436), this designation is regardless of alternative.

CF-4. Reduce the amount of “let burn” areas in the landscape. These “let burn” policies will penalize commercial businesses and hinder tourist visitations like they did over Labor Day weekend when Signal Rock fire burned and put Philipsburg under heavy smoke for almost three weeks.

Between the DEIS and FEIS fire policy has changed. The preferred alternative and Plan address “Appropriate Management Response” instead of “Wildland Fire Use”, which allows Forest

Service decision makers more options in considering issues like this one. The circumstances under which a fire occurs, the likely consequences on firefighter, public safety and welfare, natural and cultural resources, and values to be protected, dictate the appropriate response to the fire. See the Fire Management chapter in the FEIS for an explanation of Appropriate Management Response.

CF-5. Continually harvest timber in Granite County to provide a reasonable economic base for the county. The County is penalized when large public holdings are not utilized and burned instead.

The Forest Service received many similar comments and recognizes the strong support in Granite County for logging. Based on this comment, the preferred alternative was modified into Alternative 6 between Draft and Final, which increases acres suitable for timber production and acres where timber harvest is allowed. Suitable timber lands are concentrated in the Flint Foothills and Warm Springs management areas, but other lands available for timber harvest are found in all Flint range management areas except recommended and designated wilderness. Alternative 4 designates more suitable timber lands than Alternative 6 and allocates a larger portion of the forest budget to timber production. The effects of this are documented in the FEIS, “Effects on Timber Production from Suitable Timber Lands” and “Effects on Timber Production from Other Forested Lands”. The Record of Decision will document the rationale for the selected alternative.

CF-6. Retain all of the non-motorized allocations, summer and winter, proposed in Alt 5.

Alternative 6, the preferred alternative, retains all of the non-motorized allocations proposed in Alternative 5 for summer and winter.

CF-7. Recommend portions of the Flint Range for wilderness. Large tracts of primitive motor-free lands in Dolus and Trask Lake areas have excellent wilderness attributes. Restore damaged trails and lakes and maintain the main access road in the Racetrack watershed to provide semi-primitive non-motorized recreation.

Alternative 3 recommended the Flint, Dolus, and Lost Creek inventoried roadless areas for wilderness. The preferred alternative allocated these same areas to non-motorized uses to provide quiet recreation opportunities and wildlife security rather than recommending them for wilderness. The wilderness suitability evaluation (Appendix C) rates all three of these areas as “moderately” suitable, largely because of contractual obligations of special use dams. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3.

Forest Plan revision does not deal with site-specific decisions for road maintenance or trail restoration. These will be addressed during implementation of the Plan.

East Deerlodge Management Area

CF-8. Add a standard for “No sediment production from timber management activities in the Cottonwood Creek and Perkins Gulch key watersheds” to better protect fisheries.

Cottonwood (Fred) Creek is designated as a key fisheries watershed in the preferred alternative. Girard Gulch is designated a key restoration watershed. Forest Aquatic Standards 8 and 9 in the Plan (Alternative 6) are designed to protect fish in these key watersheds. In addition, Forestwide

aquatic standards TM-1, TM-1a, RF-2, RF-3a, RF-3c, and RM-1 are designed to protect fisheries in all management areas from management activities.

CF-9. Retain the timber and grazing emphasis in Alt 5 but close winter motorized access in the southern part of the MA to create a semi-secure buffer around the northern part of the AP wilderness to safeguard wildlife habitat.

The East Deerlodge Management Area does not extend across the Interstate to the AP wilderness. In the area this comment speaks of, the winter motorized closure in Alternative 5 was extended in the preferred alternative through recommendation of a larger chunk of the area as wilderness which will have the effect of safeguarding wildlife habitat.

Flint Foothills Management Area

CF-10. Gate roads and include part of this in a Flint Upland wilderness/roadless with some grazing still allowed.

Criteria for inventoried roadless areas and suitable wilderness areas are directed by regulation and handbook direction (FSH 1909.12 71.1, 8/3/92). The Flint Foothills are roaded and developed and do not fit the criteria for either roadless or wilderness, regardless of alternative.

CF-11. Add a standard for “No sediment production from timber management activities in the Boulder and South Boulder key watersheds” to better protect fisheries.

Lower Boulder, South Boulder and Bielenberg are designated as key fisheries watersheds in the preferred alternative. Forest Aquatic Standards 8 and 9 in the Plan (Alternative 6) are designed to protect fish in these key watersheds. In addition, Forestwide aquatic standards TM-1, TM-1a, RF-2, RF-3a, RF-3c, and RM-1 are designed to protect fisheries in all management areas from management activities.

Flint Uplands Management Area

CF-12. Eliminate the deep road penetrations and through routes and make it roadless.

Alternative 3 eliminates most of the road corridors into the Flint Uplands by allocating a large portion of the management area to non-motorized. The Forest Service has contractual or permit obligations on 9 dams and reservoirs in the area, some of which require motorized access for maintenance. The preferred alternative leaves some of these routes open to motorized use. The Record of Decision will document the rationale for the selected alternative.

As far as making the area roadless, criteria for inventoried roadless areas and suitable wilderness areas are directed by regulation and handbook direction (FSH 1909.12 71.1, 8/3/92). The portions of this management area that are not already inventoried as roadless are roaded and developed and do not fit the criteria, regardless of alternative.

CF-13. Close motorized access in the Pikes Peak and South Boulder Creek areas to buffer prime wolverine denning habitat and other important wildlife habitat in the Flint Uplands.

The preferred alternative closes high elevation lands in these two areas in winter to protect wolverine denning habitat and expands on existing motorized closures in the area during the summer for general wildlife security and quiet recreation.

CF-14. Manage the uplands as non-motorized to support lynx and wolverine denning habitat.

Alternative 3 allocates the largest portion of the Flint Creek Range to winter non-motorized. The preferred alternative closes high elevation lands in the Pikes Peak and Dora Thorn Ridge areas in winter to protect wolverine denning habitat and expands on existing motorized closures in the area during the summer for general wildlife security and quiet recreation. The Record of Decision will document the rationale for the selected alternative.

As the FEIS points out (Wildlife, affected environment, first page) the Northern Rockies Lynx Amendment concludes that the BDNF is not occupied by lynx. Modeling of lynx habitat shows it widespread across all areas of the forest.

CF-15. Recommend part of the Flint Uplands for wilderness. Non-motorized winter opportunities without noise and the smell of machines are very limited in the Flint Range. This will also protect remaining old-growth, fisher, and many other increasingly rare natural qualities.

Alternative 3 recommended the Flint, Dolus, and Lost Creek inventoried roadless areas for wilderness. The preferred alternative allocated these same areas to non-motorized uses to provide quiet recreation opportunities and wildlife security rather than recommending them for wilderness. The effects of this are compared to Alternative 6 of the FEIS. The wilderness suitability evaluation (Appendix C) rates all areas as “moderately” suitable, largely because of contractual obligations of special use dams. The Record of Decision will document the rationale for the selected alternative.

Forest Plan revision does not deal with site-specific decisions for road maintenance or trail restoration. These will be addressed during implementation of the Plan.

CF-16. Recommend part of the Flint Uplands for wilderness to protect watershed values and native fish strongholds. Little of this mountain range is still roadless, most is heavily roaded.

Alternative 3 recommended the Flint, Dolus, and Lost Creek inventoried roadless areas for wilderness. The preferred alternative allocated these same areas to non-motorized uses to provide quiet recreation opportunities and wildlife security rather than recommending them for wilderness. The effects of this are compared to Alternative 6 of the FEIS. The wilderness suitability evaluation (Appendix C) rates all three areas as “moderately” suitable, largely because of contractual obligations of special use dams. The Record of Decision will document the rationale for the selected alternative.

CF-17. I support your closures of trails leading to the Anaconda-Pintler Wilderness in Fishtrap-Mount Haggin and the Tenmile Lakes trail closure.

The preferred alternative retains the closures proposed in Alternative 5 in these areas.

Georgetown Lake Management Area

CF-18. Concentrate motorized use here and leave the Flint Uplands roadless.

The preferred alternative retains the motorized use and roaded setting around Georgetown Lakes and allocates the majority of the Flint Uplands to a semi-primitive setting. We have included an

objective to convert some low standard roads to trails. The status of the Flint-Dolus roadless area remains the same.

CF-19. Make protecting public access to the lake and fisheries protection a priority.

We have inserted a statement in the management area description to emphasize the importance of public access to the lake. Protection of fish habitat on Forest Service lands is provided through a set of objectives and standards in the Plan based on the Inland Native Fish (INFSH) direction, see Plan, Aquatic Standards. Montana Fish Wildlife and Parks is responsible for protecting the fish population in Georgetown Lake.

CF-20. Remove this management area from the timber base.

The preferred alternative does not allocate suitable timber base in the Georgetown Lake management area.

CF-21. Terminate existing lease agreements on lakeshore properties at the end of the contract period to protect declining access to the existing shoreline. Reject any efforts at privatization of the shoreline.

The public has access to the shoreline on Georgetown and Echo Lakes where recreation residences are located. Allowing administrative and public access on the site is a term and condition of these leases. These are 20 year leases which could be re-issued unless there is a specific and compelling public interest in the site.

CF-22. Upgrade the minimum scenic integrity level at Georgetown to HIGH.

A “high” scenic integrity objective (see Glossary) requires human activities are not visually evident. Intermixed private land, homes, ski areas, and other development in the Georgetown Lake management area prevent us from being able to achieve high scenic integrity in many portions of the area, particularly around the lake itself. The adjacent areas which provide the backdrop for Georgetown Lake (the high country of the Flints, the Anaconda-Pintler wilderness) both have high scenic integrity requirements.

However, scenic integrity in the Georgetown Lake area is a concern to the Forest Service. The Plan establishes a ‘Scenic Concern Level One’ for travel routes and areas where use is high and/or concern for the scenery is high. Highway One and several Forest Roads through the Georgetown Management Area, Georgetown Lake itself and the surrounding recreation sites are all designated concern level one, see Plan, Scenery Standard, and list of Concern Level One routes.

CF-23. Retain the proposed winter closure on the north end as proposed in Alt 5. Manage the Lodgepole NRT as summer non-motorized as well as winter non-motorized.

The winter non-motorized area was retained for the preferred alternative.

National Recreation Trail direction supersedes Forest Plan direction on the Lodgepole trail. It will remain open in the summer.

CF-24. Expand the viewshed to the whole drainage and add it to the list of protected watersheds which is more descriptive of resource values than protecting viewsheds.

Intermixed private land, homes, ski areas, and other development in the Georgetown Lake management area prevent us from effective watershed restoration work in many portions of this management area, particularly around the lake itself. Key watersheds and restoration opportunities were identified in the adjacent area within the watershed (see Warm Springs Management Area).

Harvey Creek Foothills Management Area

CF-25. Add a standard for “No sediment production from timber management activities in the Harvey Creek and 8 mile Creek key watersheds” to better protect fisheries.

Harvey and Eightmile Creeks are designated as key fisheries watershed in the preferred alternative 6. Forest Aquatic Standards 8 and 9 in the Plan implementing this alternative are designed to protect fish in these key watersheds. In addition, Forestwide aquatic standards TM-1, TM-1a, RF-2, RF-3a, RF-3c, and RM-1 are designed to protect fisheries in all management areas from management activities.

CF-26. Remove this area from the timber base permanently to protect bull trout and westslope cutthroat. It is a key watershed.

The preferred alternative designates all of the Harvey Creek Management Area except for Section 28 on the northeast corner as key fisheries watersheds. This single section, which lies outside of those key watersheds, is the only place designated for suitable timber base. We felt harvest in Section 28 would not compromise the bull trout and westslope cutthroat trout populations in the remaining 50 sections.

CF-27. Retain the motorized closures proposed in Alt 5.

The preferred alternative retains summer non-motorized allocations proposed in Alternative 5.

John Long Management Area

CF-28. Close motorized access to this management area to preserve the unique undeveloped character.

Alternative 3 allocated the inventoried roadless area in this management area to non-motorized. The effects of that alternative on recreation and travel in the Clark Fork Flint Landscape are discussed in the FEIS. The preferred alternative allocates the same area to backcountry: lands with a natural appearing setting, managed to protect wildlife habitat, semi-primitive recreation opportunities, or as custodial lands. The Record of Decision will document the rationale for the selected alternative.

Warm Springs Management Area

CF-29. Allocate as wilderness to connect the Anaconda-Pintler Wilderness to the Flint Uplands.

We evaluated the inventoried roadless area portion of Warm Springs Management Area for wilderness suitability. Criteria for inventoried roadless areas and suitable wilderness areas are directed by regulation and handbook direction (FSH 1909.12 71.1, 8/3/92). A portion of the area was deemed suitable and manageable and is recommended for addition to wilderness in the preferred alternative.

The lower elevations and north side of the highway are roaded and developed and do not fit the criteria for either roadless or wilderness, regardless of alternative.

CF-30. Retain trail closures proposed in Alt 5 to reduce user conflict and better protect wildlife and fisheries habitat. The same area closed in summer should be closed in winter to protect wintering mountain goats and wolverine using the upper basins. Right now there is little snowmobile use so it would be a good opportunity to close the area before use increases.

The preferred alternative does retain trail closures proposed in Alternative 5.

We did not consider a winter closure for this piece because most of the wolverine and mountain goat habitat in the Anaconda Pintler Range is protected under roadless, Wilderness or Recommended Wilderness designations. See project file: Wildlife Habitat Viability Analysis, Query 5, fsfiles/office/gis/fpr/products/plots/wild_habscreen/alt_w5_36x48.pm.

CF-31. Retain the motorized closures to Twin Lakes, Barker Lakes and Haggin Lake as proposed in Alt 5.

The preferred alternative does retain the motorized closures to these lakes as a result of a non-motorized area allocation.

CF-32. Close the summer non-motorized areas in winter as well to protect mountain goats and wolverine.

We did not consider a winter closure for this piece for two reasons. First, most of the wolverine and mountain goat habitat in the Anaconda Pintler Range is already protected under roadless, Wilderness or Recommended Wilderness designations. See project file: Wildlife Habitat Viability Analysis, Query 5, fsfiles/office/gis/fpr/products/plots/wild_habscreen/alt_w5_36x48.pm. Second, this section of Warm Springs MA is located above a heavily roaded section recently acquired through a land exchange. Roads analysis following Plan implementation will identify travel routes optimal for recreation, roads to maintain and roads to obliterate. See the Plan, Warm Springs Management Area, Objectives.

Gravelly Landscape

G-1. Improve the explanation for excluding suitable base from the Gravelly Landscape from just “occupied grizzly bear”.

We did so. Rationale for excluding suitable base from the Gravelly Landscape is found in the FEIS, Timber Production, Effects from Wildlife, and in Plan, protocol for suitable timber base. These discussions are based on the resource values described in the Gravelly Landscape area description, Plan, Chapter 4

G-2. Manage the timber resource in the Gravelly Landscape to improve water, timber businesses, economy and wildlife.

As described in the FEIS, Chapter 2, “Description of Alternatives”, Alternatives 1 and 4 allocate suitable timber lands in the Gravelly landscape. Alternatives 2, 3, 5, and 6 preclude timber production in favor of resource uses that may be incompatible with timber production: security

for grizzly bear and a number of other species along with an emphasis on backcountry, undeveloped recreation. The process for allocating suitable timber lands and other lands where harvest is allowed is described in Chapter 3 “Timber Production, Analysis Methods and Assumptions”. All alternatives allow timber harvest to meet other resource objectives. These objectives would include improving water or wildlife habitat or capturing the value of timber for timber businesses through salvage. The Record of Decision will document the rationale for the selected alternative.

G-3. Provide a special designation for the top of the Gravellys that would suspend it in time, protecting its very unique character from development. Maintain the grazing and especially the wild unroaded setting of the east side.

The preferred alternative emphasizes protecting the roadless undeveloped character of management areas on the east side of the Gravelly Range and reinforces that with summer non-motorized allocations on both sides of the Gravelly Range road. See the Plan, Chapter 4, Management Area Direction, Gravelly Landscape.

G-4. Close the main Monument Ridge road down the center of the Gravelly range or close the east west routes and create a central wilderness. Concentrate motorized use to 20% of the area. Concentrate winter use towards Henry’s lake with a through route along west fork Madison.

Alternative 3 recommends the 3 roadless areas in the Monument Ridge area and south end of the Gravellys as wilderness, see FEIS, Chapter 2, map of Recommended Wilderness, Alternative 3. The high standard Gravelly Range Road, however, would remain open as a corridor as would the Standard Creek road. This would concentrate motorized use in the West Fork and Warm Springs areas. The greatest acreage of winter non-motorized is allocated in Alternative 3. The Record of Decision will document the rationale for the selected alternative.

G-5. Correct the niche statement that indicates most of the area is non-forested. This is misleading considering all the timber in the Greenhorns and on the east side from Morgan Gulch south to Meridian Creek. Also correct the implication that past timber harvest was all “bug-killed”.

These statements have been corrected in the Landscape description, Plan, Chapter 4, Management Area Direction, Gravelly Landscape.

G-6. Correct the statement that many MAs are “Unsuitable for timber production, Instead state they are suitable but “unavailable”.

We have eliminated that statement.

G-7. Retain all the non-motorized designations proposed in Alternative 5.

Alternative 6 retains the non-motorized designations proposed in Alternative 5.

G-8. Manage Hellroaring, Antelope Basin, Centennial Foothills, Chain of Lakes, Greenhorn Mountains, Idaho Creek, Johnny Gulch, Ruby-Centennial, Ruby Horse Creek, Timber Creek, Wall Creek, West Fork and Wigwam Cherry Creek as non-motorized in winter.

The preferred alternative allocates portion of all listed management areas to non-motorized in winter as did Alternative 5. This is the dominant management emphasis for Hellroaring, Chain of Lakes, Grennhorn Mountains, Idaho Creek, Johnny Gulch, Ruby Horse Creek, Wall Creek and Wigwam Cherry Creek.

G-9. Manage the Gravellys for low road densities that maintain secure elk habitat.

The preferred alternative establishes a low road density objective of 1 mile per square mile in summer. During hunting season that objective drops to .5 miles per square mile for hunting units 324 and 323. (A density of 1.0 is the lowest road density criterion used to measure access affecting grizzly bears, (ROD for the Greater Yellowstone Ecosystem Grizzly Bear Amendment)

G-10. Retain proposed limitations on snowmobiles along the east front of the Gravellys, especially those areas around Cliff and Wade Lakes and in Antelope Basin.

The preferred alternative retains proposed limitations to snowmobiles along the east front of the Gravellys, along with those mentioned here.

G-11. Recommend some wilderness in the Gravelly Range to protect grizzly bears.

Alternative 3 recommends the 3 roadless areas in the Monument Ridge area and south end of the Gravellys as wilderness see FEIS, Chapter 2, map of Recommended Wilderness, Alternative 3. The preferred alternative allocates 60% of the landscape to non-motorized designations, see FEIS, Recreation and Travel Management, Gravelly Landscape. In addition, the preferred alternative establishes a low road density objective of 1 mile per square mile in summer. During hunting season that objective drops to .5 miles per square mile for hunting units 324 and 323. (A density of 1.0 is the lowest road density criterion used to measure access affecting grizzly bears, (ROD for the Greater Yellowstone Ecosystem Grizzly Bear Amendment). The Record of Decision will document the rational for the selected alternative.

G-12. Emphasize proper and sustainable range management in the Gravellys rather than grizzly bear habitat.

The preferred alternative emphasizes the role of grazing in the Gravelly Landscape area description and the management goal statement for Antelope Basin, Centennial Foothills, Lobo Mesa, Upper Ruby, and Wigwam Cherry Management Areas. See the Plan, Chapter 4.

Chain of Lakes Management Area

G-13. Manage as non-motorized winter and summer as proposed.

The preferred alternative retains non-motorized allocations proposed in Alternative 5.

G-14. Hunting and shooting should not be allowed in the Chain of Lakes.

This is a site-specific decision not made in the Forest Plan.

G-15. The boundaries of the developed sites around Cliff, Wade Lakes and the Madison River need to be defined. Retain Objectives 2 and 3 from the Proposed Action to concentrate use in developed sites and control dispersed camping to minimize resource damage.

We restored the dispersed site objective to the management area direction. The objective of “managing dispersed camping” will address both concerns.

G-16. Correct the boundary where the motorized Meridian Creek trail dead ends in a non-motorized area.

Thank you for noting this error, we have corrected it in the preferred alternative.

G-17. Leave the Lost Mine Canyon trail open to motorized vehicles so they can travel between Red Rock and Cliff Lake.

This trail remains open in Alternative 4 which allocates fewer non-motorized areas in the Gravelly Range. The preferred alternative allocates the area between Cliff and Hidden Lake as non-motorized. An alternate motorized route between Cliff and Red Rock Lakes is available over the top of Cliff Lake Bench and down the Hoodoo Pass to Hidden Lake trail. The Record of Decision will document the rationale for the selected alternative.

G-18. Confine camping to within developed campgrounds to limit litter, fire danger and misuse of the land.

We did not consider confining camping to developed campgrounds under any alternative. However, the preferred alternative includes an objective to “manage dispersed camping...” in this area, which will provide the agency with the tool to address the concerns mentioned here.

G-19. Eliminate cattle grazing within Chain of Lakes.

Under all alternatives, the largest proportion of the management area is not grazed, it is outside of any grazing allotments. The Elk Lake Allotment permits grazing from just south of Hidden Lake, past the south end of Elk Lake. Fencing keeps livestock from grazing the east side and south end of Elk Lake. We did not consider an alternative that closes the Elk Lake allotment.

The decision made in the Forest Plan is whether lands are capable and suitable for grazing, Plan, Chapter 2. No forestwide suitability issues were identified that would eliminate the Elk Lake grazing allotment. The FEIS points out in Chapter 2, Elements Common to All Alternatives, that the BDNF will use the allotment management planning process to determine additional lands that are not suitable and determine the site-specific permit actions necessary to meet Forest Plan desired conditions, objectives and standards.

G-20. Increase the non-motorized area all the way to the Red Rocks Refuge so wildlife can move between.

Alternative 3 allocates the largest portion of the Chain of Lakes to non-motorized. However, no alternative considers closing the access to Elk Lake Lodge which operates under a Special Use Permit. No barriers have been identified in relation to wildlife movement to Red Rocks Refuge. The Record of Decision will document the rationale for the selected alternative.

G-21. The revised Forest Plan should close the Wade Lake area to snowmobiles for quiet skiing and ice fishing.

The preferred alternative closes the area around Wade Lake to winter motorized use but allows a designated ice fishing access route.

Antelope Basin Management Area

G-22. Limit motorized access from Lone Tree Creek northwest to Spring Branch Creek to safeguard wildlife habitat important for connectivity to the Greater Yellowstone Ecosystem.

The Forest Service recognizes the value of wildlife habitat in Antelope Basin, because of its adjacency to Chain of Lakes and Red Rock Wildlife Refuge. See the management goal statement and descriptors in the Plan, chapter 4. For this reason the preferred alternative allocates three blocks of non-motorized area in Antelope Basin and retains the trail closure into Spring Branch. The remaining roadless area is allocated as backcountry. No alternative considers closing the road through Antelope Basin between Lone Tree and Reynolds Pass because of the need to access to private land and cattle managing facilities.

G-23. Manage snowmobile use levels to protect wildlife security in this corridor.

Alternative 3 includes a large winter non-motorized area in Antelope Basin. The preferred alternative retains part of this non-motorized allocation. The FEIS identified wolverine and mountain goats as the species of concern related to winter recreation. Antelope Basin does not contain winter denning habitat for wolverine or mountain goat winter range.

Centennial Foothills Management Area

G-24. Allocate this as a wilderness to connect the Centennial Mountains across Red Rock to the Gravelly top and Snowcrest.

We evaluated the suitability of the Lone Butte IRA (1-1028) for wilderness. Criteria for identifying suitable wilderness areas are directed by regulation and handbook direction (FSH 1909.12 71.1, 8/3/92). The area did not receive a high enough rating to be included in any alternatives. See Appendix C, Lone Butte, for a detailed description of the ratings.

G-25. Close elk winter range to snowmobiles in this area. Retain the objective to limit driving full size vehicles on primitive roads.

Neither the Forest Service or Montana Fish Wildlife and Parks have identified elk winter range in the Centennial Foothills management area. See the Forest Elk Winter Range map, available in the Project File, GIS Library, Elk Winter Range 2006.

The Draft Plan based on Alternative 5 had an objective to retain but not increase opportunities for driving full size vehicles on primitive roads. That objective was retained for the preferred alternative. We are not sure if that was the intent of this comment or not.

G-26. The FEIS needs to consider the impacts mixing motorized and non-motorized areas will have on wildlife security and enforcement.

The FEIS considers the impacts of motorized and non-motorized areas on wildlife security in Chapter 3, Effects on Wildlife from Recreation and Travel.

Enforcement of decisions made in the Forest Plan is considered implementation. It isn't included in the budget effects of alternatives because law enforcement is funded nationally, not at the Forest level. The Forest recognizes that winter non-motorized allocations will demand enforcement to assure that the purpose for these areas are met. That's why we have included a monitoring item in Chapter 4, Monitoring and Evaluation, which tracks violations in non-motorized high elevation winter habitat.

G-27. The map in the Red Rock Pass area shows an ATV trail it is a road with closed road signs at every junction.

We have corrected that error on our road and trail maps.

Centennial Recommended Wilderness Management Area

G-28. Convince other agencies to make the whole crest a wilderness and close the road through the Centennial.

The Forest Service cannot legally recommend wilderness for other agency lands or close County Roads through private land.

G-29. Follow through on commitments and habitat protection needs and allocate as a wilderness.

Alternatives 2, 3 and 5 recommend the Mount Jefferson roadless area for wilderness. The preferred alternative recommends half of the area for wilderness. The effects of doing this are described in the FEIS, Chapter 3, under Recreation and Travel Management, Inventoried Roadless Areas and Recommended Wilderness, and the Economics and Social Values Sections. The Record of Decision will document the rationale for selecting the final alternative.

G-30. Retain the recommended wilderness theme.

Alternatives 2, 3, and 5 recommend the Mount Jefferson roadless area for wilderness. The preferred alternative recommends half of the area for wilderness. The effects of doing this are described in the FEIS, Chapter 3, under Recreation and Travel Management, Inventoried Roadless Areas and Recommended Wilderness, and the Economics and Social Values Sections. The Record of Decision will document the rationale for selecting the final alternative.

G-31. The description should mention the importance of the area for wolverine.

Including wolverine in the management area description would not result in management action taken on behalf of the species. However, the Forest Plan establishes wolverine as a management indicator species for winter motorized activity, Plan, Chapter 3, Wildlife Goals. The boundary for Alternative 6 recommended wilderness was drawn to include the area closed by special order the last 3 years for protection of wolverine habitat, FEIS, Chapter 3, Recreation and Travel Management, Effects by Landscape, Gravelly Landscape, Alternative 6.

G-32. Coordinate management with BLM tracts adjacent. Motorized closures here will limit motorized trespass onto BLM.

Alternatives 2, 3, and 5 recommend the Mount Jefferson roadless area for wilderness. The preferred Alternative 6 recommends northern half of the area for wilderness and prohibits summer motorized use in the southern half. Regardless of alternative, the area will be closed to summer motorized use, coordinating with management of the adjacent BLM. Under Alternative 6, only the northern half will be closed to winter motorized use, coordinating with management of adjacent BLM. The effects of these choices are described in the FEIS, Chapter 3, under Recreation and Travel, Inventoried Roadless Areas and Recommended Wilderness, and the Economic and Social Impacts Sections. The Record of Decision will document the rationale for selecting the final alternative.

Greenhorn Mountains Management Area

G-33. Retain your objective to acquire access in Powder Gulch and Ice Creek, both are important to hunters.

This objective was retained in the preferred alternative.

G-34. Make this wilderness and connect to the Greater Gravelly wilderness.

We evaluated the suitability of the Sheep Mountain IRA (1-1021) for wilderness. Criteria for identifying suitable wilderness areas are directed by regulation and handbook direction (FSH 1909.12 71.1, 8/3/92). The area received a high enough rating to be included in Alternative 3 as recommended wilderness. The preferred alternative only recommended the Snowcrest portion of the Gravelly Range for wilderness. The Record of Decision will document the rationale for the selected alternative.

G-35. Continue to manage as a non-motorized haven. Why not build a trail at the head of Alder Gulch that connects the FS lands at the base of Mt. Baldy to other Greenhorn trails for a hiking/skiing opportunity “close to communities”.

The preferred alternative retains the non-motorized proposal for the Greenhorn Mountains.

Forest Plan revision does not direct site-specific decisions about system roads and trails, however. While roads or trails may be closed as a result of Plan allocations for non-motorized recreation or recommended wilderness, the Plan does not consider site-specific additions to the system, changes to locations, or closures other than those affected by allocations. This comment will be dealt with during travel planning which follows Forest Plan Revision.

G-36. Retain your “unsuitable timber” designation even though BLM prioritizes vegetation treatments in adjacent tracts.

The preferred alternative does not allocate suitable timber lands in the Greenhorn Mountains Management Area.

Hellroaring Management Area

G-37. This large roadless area needs more snowmobile closures in the Gazelle and Wolverine Creek areas. Use should be limited to designated routes and allowed only on the periphery of this landscape.

Alternative 3 includes the Gazelle and Wolverine Creek in a winter non-motorized allocation and confines snowmobile use to the periphery of the management area. The preferred alternative allocates everything south of Gazelle Creek trail to winter non-motorized as well as the entire Ruby Horse Creek and Wall Creek Management Areas to the north. The Record of Decision will document the rationale for the selected alternative.

G-38. Expand summer non-motorized area 5-GR-13 to the east through Wolverine Basin, to Secret Lake, from Freezeout Creek to FS Rd 237 to improve watershed condition and connectivity.

Alternative 3 includes the Wolverine Basin area in a summer non-motorized allocation. The preferred alternative allocates the area to backcountry, which allows use of the Wolverine-

Gazelle Trail. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3.

No alternative considers a non-motorized allocation in the West Fork area (between Freezeout and Secret Lakes). Non-motorized allocations are intended to provide a semi-primitive setting, see FEIS, glossary. The history of timber harvest in this area resulted in a roaded setting which would not be well suited for this allocation. See Glossary, Recreation Settings. Even Alternative 3, which allocates the greatest number of acres on the forest to non-motorized uses did not include this piece of ground.

No specific wildlife connectivity issues were identified in the area referenced. The FEIS describes the effects of non-motorized allocations and road density objectives on wildlife security and connectivity in the Gravelly Landscape under Wildlife Management. As the table indicates, open road and trail densities in the Gravelly Range under this alternative are at .7 miles per square mile, well below a density that may cause security or connectivity concerns.

Ruby Centennial Corridor Management Area

G-39. Implement a plan to disperse camping and recreation through this corridor rather than confine it as the current proposal suggests. The corridor is too narrow and private land makes it unrealistic to emphasize quiet recreation.

The Plan includes an objective to “manage, harden and designate new dispersed recreation sites along the Ruby Centennial Road”. See Plan, Chapter 4. We feel this will address the concern stated here.

G-40. Do not develop additional fee campgrounds (if that’s what “designate and harden dispersed sites” means). Instead, harden dispersed areas along the Beaver Bench road and Corral Creek road to aid in dispersing recreation along other roads.

The Objective to designate and harden dispersed sites would not lead to fee campgrounds. See FEIS, Glossary for a definition of dispersed and developed recreation. The objective is included in the Ruby Centennial Management Area because of the large number of camps along this route that have a potential to impact soils, vegetation and water. The Plan also includes a forestwide objective to improve and harden dispersed sites in roaded allocations wherever resources or public health and safety are jeopardized by concentrated use, Plan, Recreation and Travel.

G-41. Partially close it and provide authorized access only for through traffic for ranchers and locals.

The Forest Service did not consider closing the Ruby Centennial Road in any alternative. This high standard gravel road provides access between the Ruby Valley and ranches and the Red Rock Refuge in the Centennial Valley as well as to many other parts of the Gravelly Range. No need to close this road was identified by any other agency, group or individuals.

G-42. Retain the management direction for this area proposed in Alt 5.

The preferred alternative retains the management direction for Ruby Centennial Corridor from Alternative 5.

Ruby Horse Creek Management Area

G-43. Phase grazing out on alpine allotments, it conflicts with a high quality backcountry experience.

The preferred alternative officially closes most of the Ruby Horse Creek Management Area to grazing. The periphery, along the Gravelly Range road is still grazed as part of allotments in adjacent areas.

G-44. Leave Ruby Creek Trail 330 open because the adjacent two trails (#26, 78) are already non-motorized.

This trail remains open in Alternatives 1 and 4. The preferred alternative includes it in a non-motorized allocation.

G-45. Retain the management direction for this area proposed in Alt 5.

The preferred alternative retains the management direction for Ruby Horse Creek Management Area from Alternative 5.

Snowcrest Management Area

G-46. Eliminate the penetrating roads, especially Corral, Pole and Beaver Creek areas.

The preferred alternative includes the roads referenced in the recommended wilderness along with an objective to “convert abandoned roads to trails”.

G-47. Consider protecting the Snowcrest with a designation other than wilderness.

Alternatives 1, 2 and 4 protected the Snowcrest Range through non-motorized allocations. The effects are summarized in the FEIS, Inventoried Areas and Recommended Wilderness, Summary of Effects by Alternative. The Record of Decision documents the rationale for selecting Alternative 6 over Alternatives 1, 2, or 4.

G-48. Leave the spur roads open for access into non-motorized opportunities.

Non-motorized allocations in Alternatives 1 and 4 are drawn around these spur roads. The Snowcrest area boundary in Alternatives 3, 5, and 6, which recommend the Snowcrest for Wilderness are drawn to include the upper ends of these spur roads. The wilderness boundary included the roads because it made the area more manageable for wilderness. The roads are low enough standard that they can be restored or converted into trails. The lower end of these roads will remain open for access into non-motorized opportunities. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 1 or 4.

G-49. Retain the recommendation of wilderness for this Management Area.

The preferred alternative retains the recommendation of wilderness for the Snowcrests.

G-50. The FEIS needs to address what will happen with commercial outfitting in the Snowcrest if it is allocated recommended wilderness.

We have added a statement to the FEIS, Wilderness, Effects Common to All Alternatives, to clarify that while wilderness recommendation may affect motorized access for outfitters, it will not affect their permits, days of use, or dates. If current outfitters access the area on horseback, there will be no affect.

G-51. Do not recommend the Snowcrest for wilderness, it will result in greater public use and lack of management.

Alternatives 1, 2 and 4 do not recommend the Snowcrest for wilderness. The Record of Decision documents the rationale for selecting Alternative 6, which does, over Alternatives 1, 2, or 4.

Upper Ruby Management Area

G-52. Reduce roads.

Summer non-motorized allocations in Alternative 3 reduce the road density in the Upper Ruby area. Non-motorized allocations in the preferred alternative leave existing motorized roads open. The Record of Decision will document the rationale for the selected alternative.

G-53. In addition to proposed summer non-motorized areas in Alt 5, close winter range north of Burnt Creek to snowmobiles.

The Cottonwood area is not considered for a winter motorized closure in any alternative. Alternative 3 allocates the Greenhorns and east side of Timber Creek to winter non-motorized, which captures a large portion of the winter range. Snowmobile use of Cottonwood Creek area has not been an issue because of low snow levels.

West Fork Management Area

G-54. Keep motorized users on trails. Make Flatiron Mountain and Freezeout Lakes non-motorized. Create a tongue of wilderness to West Fork Rest Area thus shrinking the gap to the Lee Metcalf to one mile.

The revised Plan incorporates direction from the OHV Plan Amendment for Montana, North Dakota and South Dakota in 2001. Under all alternatives cross country travel is prohibited.

Criteria for identifying suitable wilderness areas are directed by regulation and handbook direction (FSH 1909.12 71.1, 8/3/92). The Flatiron/Freezeout/West Fork area does not meet the criteria for an inventoried roadless area or suitable wilderness. The preferred alternative allocates a block of winter and summer non-motorized north of Standard Creek that runs down to the West Fork Rest Area and recommends Papoose Bench for wilderness, shrinking the gap to the protected areas to one mile.

G-55. Retain and emphasize the objective to “develop cross-country skiing... opportunities with easy access to Highway 287.

The preferred alternative retains the management objectives for the West Fork Management Area from Alternative 5.

G-56. Increase summer and winter closures in the west half of this MA to protect important ungulate habitat.

Alternative 3 adds summer and winter non-motorized allocations along the west edge of this MA. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3.

Ungulate habitat does not appear to be a concern in this hunting unit. As the FEIS points out in the table, “Fall Open Motorized Roads and Trails by Hunting District, Hunting Unit 323 (most of

the West Fork MA) has a fall open road and trail density of only ½ a mile per square mile, one of the lowest on the Forest outside of Wilderness areas.

G-57. Limit motorized access in Soap creek watershed to protect cutthroat trout habitat.

The preferred alternative designates Soap Creek as a key fisheries watershed. Forestwide aquatic objectives specifically protect westslope cutthroat trout habitat in these watersheds in relation to roads, see the Plan, Aquatic Objective “Fish Key Watersheds”, Objective 1 (RF-3a), and Standard 2 (RF-2a).

G-58. Current ATV restrictions are not being enforced

The Forest recognizes that enforcement of decisions made in the Forest Plan will be a required part of implementation. However, law enforcement is funded nationally, not at the Forest level and outside of decisions we can make in Forest Plans.

Idaho Creek Management Area

G-59. Gate it and keep roadless except for miners.

We did not consider a non-motorized allocation in Idaho Creek in any alternative. Idaho Creek is roaded and is not well suited for a non-motorized allocation which requires a semi-primitive setting, see FEIS, Glossary, Non-Motorized Allocation.

Federal regulations (CFR219.17)(b)) direct us to evaluate areas contiguous to roadless or other undeveloped areas for recommended wilderness only if they have “identified wilderness potential”. Regulations and handbook direction are very clear about what criteria must be present (FSH 1909.12 71.1, 8/3/92) for an area to be inventoried as roadless. We re-examined lands in the Idaho Creek area during our roadless area re-inventory and did not find them to have roadless characteristics. Nor is the area well-suited for a non-motorized allocation, see the definition of non-motorized allocations in the Glossary.

G-60. Retain the management direction proposed in Alt 5.

The preferred alternative retains the management direction from Alternative 5.

Lobo Mesa Management Area

G-61. Close the dissecting trails.

Alternative 3 recommends the management area for wilderness, which closes the entire it to motorized use. The preferred alternative allocates 3 blocks of non-motorized area which leaves 3 popular trails open. The Record of Decision will document the rational for the selected alternative.

Johnny Gulch Management Area

G-62. Retain the management direction proposed in Alt 5.

The preferred alternative retains the management direction from Alternative 5.

Timber Creek Management Area

G-63. Limit snowmobile access to the road in this MA to protect winter range.

The Forest Service recognizes that elk winter range is scattered from the Greenhorns south along the lower elevations above the Ruby River. We did not include a winter motorized closure in the Timber Creek MA in any alternative. The preferred alternative allocates the entire Snowcrest and Greenhorn management areas, flanking Timber Creek, as winter non-motorized.

Wall Creek Management Area

G-64. In addition to the proposed winter non-motorized area in Alt 5, allocate the South Fork of Hyde Creek for summer non-motorized use as well to protect wildlife security.

Alternative 3 allocates the entire roadless area to summer non-motorized, including the South Fork of Hyde Creek. The preferred alternative leaves a portion of Wall Creek as backcountry motorized, where the Hyde Creek and Wall Creek trails pass through. The Record of Decision will document the rationale for the selected alternative.

The Plan allocations do not change the fall hunting season restrictions on motorized use of these trails to protect wildlife security. The effects discussion of wildlife security in the FEIS points out in the table, "Fall Open Motorized Roads and Trails by Hunting District), that this Hunting Unit (323) has a fall open road and trail density of only ½ a mile per square mile, one of the lowest on the Forest outside of Wilderness areas.

Jefferson River Landscape

JR-1. Maintain or establish roadless mgt areas such as the Table Mountain Management Area south of Butte to protect critical habitat for predators and their prey.

The Table Mountain roadless area is recommended for wilderness in the preferred alternative. It will be managed to protect wilderness characteristics.

JR-2. The FEIS should evaluate the consequences of intensive motorized recreation in the Whitetail-Pipestone area displacing elk into Elk Park and the private land game damage complaints that occur as a result of the inability of public land to hold wildlife.

The FEIS evaluates the impact of motorized recreation on elk and other wildlife security using road density analysis by Landscape and by Hunting District. See Wildlife, Effects, Wildlife Security and Connectivity). The impact of motorized recreation on elk is also being considered more site-specifically in the in the Whitetail-Pipestone area by the Whitetail-Pipestone Travel Management FEIS which will be issued later.

JR-3. Concentrate ORV users in this landscape to smaller areas; eliminate a couple of the big road intrusions.

Alternative 3 allocates a larger proportion of this landscape to non-motorized uses, which concentrates OHV users to smaller areas. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3.

JR-4. Retain the summer and winter non-motorized allocations as presented in Alt 5.

The preferred alternative retains the winter non-motorized allocations proposed in Alternative 5 and essentially retains the summer non-motorized allocations with an adjustment in the Burton Park area.

JR-5. Manage the CDNST as non-motorized and close all roads coming into the trail.

While a complete non-motorized route is the national goal for the CDNST, existing motorized segments will require site-specific analysis before closure. See the FEIS, Chapter Two, “Alternatives Considered but not Analyzed in Detail”. More appropriate routes for the CDNST, which follow the actual crest of the divide through roadless areas are being planned for future construction.

JR-6. The CDNST as mapped on pages 182-186 is not consistent. The part on in non-motorized on page 182 does not exist and should be mentioned as a construction need under “Objectives”.

We have corrected this mapping area for the Burton Park and Humbug Management Areas. Thank you for bringing it to our attention.

JR-7. Develop a mountain biking center around the proposal to build a tram to Our Lady of the Rockies.

The tram and statue are located on private land, in an area predominately private. The Forest Plan does not make site-specific decisions about individual facilities, especially if they involve private land. See the Six Decisions Made in Forest Plans. Plan allocations may result in improved opportunities for some classes of recreation in specific areas. The preferred alternative allocates the East Face above Butte to non-motorized uses, which could compliment any future decisions about mountain biking opportunities. Travel planning conducted on the Butte District following Forest Plan revision will consider comments such as this one.

JR-8. Please consider the impact of motorized recreation on elk in the Whitetail-Pipestone area.

The FEIS evaluates the impact of motorized recreation on elk and other wildlife security using road density analysis by Landscape and by Hunting District. See Wildlife, Effects, Wildlife Security and Connectivity. The preferred alternative includes an objective to reduce road density to 1.6 miles per square mile. The impact of motorized recreation on elk is also being considered more site-specifically in the in the Whitetail-Pipestone area by the Whitetail-Pipestone Travel Management FEIS which will be issued later.

Bull Mountains Management Area

JR-9. Devote resources to coordination of elk winter range management with private landowners to avoid ungulate habitat fragmentation.

The Plan recognizes the value of the Bull Mountains for elk winter range in the management description and includes an objective for the bull Mountains to “Coordinate management with owners of private lands inside the Forest boundary”. How many resources (budget or manpower) are devoted to this will be determined during Plan implementation.

JR-10. Provide additional hiking trails, to Hadley Park from Whitetail Pass and/or Farnhem Creek. Close Farnhem Creek Spur Road and expand non-motorized.

Forest Plan revision does not deal with site-specific additions to road or trail systems. Nor did it deal with specific closures. Opportunities are addressed primarily through allocations of land for

various levels of recreation use. These closure and addition suggestions are appropriately addressed during site-specific travel planning which will follow Forest Plan revision.

Retain the non-logging designation on Bull Mountain. Continue to recognize the area as winter range for elk.

The preferred alternative retains the direction of the Draft Plan for the Bull Mountains.

Burton Park Management Area

JR-11. Keep Trail #108 the only motorized access from Butte into this area. Use a standard which says “Limit motorized use to Trail #108 through the non-motorized area to provide access to open areas beyond” like you did for Antelope Basin, page 145.

Alternative 3 allocates a large portion of Burton Park to non-motorized uses, which results in a number of the roads and trails in the area being closed to motorized access but leaves Trail #108 open. The preferred alternative allocates the south half of the area to non-motorized uses. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3.

JR-12. Retain the summer non-motorized emphasis in Burton Park, especially near the CDNST as proposed in Alt 5. Drop the winter motorized closures from Curly Gulch north, about 8 sections. It is not used much for wintering wildlife and is easily accessed from Little Basin Creek Road and provides reasonable snowmobiling opportunities.

The preferred alternative retained the portion of non-motorized allocation against the Continental Divide on the south end of the area but did not drop any of the winter motorized closure. This area remains open to snowmobile travel in Alternatives 1 and 4. Provide additional hiking trails, to Hadley Park from Whitetail Pass and/or Farnhem Creek. Close Farnhem Creek Spur Road and expand non-motorized.

JR-13. Retain management direction for Burton Park as proposed in Alt 5.

The preferred alternative retained the emphasis on recreation and secure winter wildlife habitat but changed the expected recreation settings from non-motorized to a mix of roaded and semi-primitive non-motorized.

JR-14. Keep Burton Park open to motorized recreation.

Non-motorized allocations proposed by the preferred alternative do not reduce motorized road or trail opportunities over the existing condition. See Figure in the FEIS, “Closed Roads and Trails by Alternative”. Cross country motorized travel was prohibited by the 2001 OHV Plan Amendment for Montana, North Dakota and South Dakota which is incorporated in Plan direction, see the Plan, Recreation and Travel Management, Standard 4.

Hells Canyon Management Area

JR-15. Allocate Hells Canyon Creek to summer non-motorized use to protect rainbow trout spawning. Allocate the east part of the management area to winter non-motorized to protect important ungulate winter range.

No alternative allocates the area to summer non-motorized uses. However, based on comments like this, the preferred alternative designates it a key fisheries watershed. In the section Conservation of TES Fish and Aquatic Species Management, the FEIS describes the forestwide

benefits of a fish conservation key watershed approach in meeting viability requirements for trout. The FEIS examines the effect of roads and trails on streams in relation to travel management.

The east side of Hells Canyon is not allocated to winter non-motorized use in any alternative. The area does not meet the criteria set for winter non-motorized allocations, see Glossary.

Humbug Management Area

JR-16. Protect the high elevation wetlands in the Moosetown area from motorized use – it has a feeling of lawlessness with vehicles and guns everywhere.

Cross country motorized travel was prohibited by the 2001 OHV Plan Amendment for Montana, North Dakota and South Dakota which is incorporated in all alternatives and the Plan direction, see the Plan, Recreation and Travel Management, Standard 4.

JR-17. Impose more motorized closures in this area to protect lynx habitat and maintain management consistency with the BLM.

Non-motorized allocations are intended to provide a semi-primitive setting. Because of the history of mining, harvest and private land access, this area is in a roaded setting and would not be well suited for this allocation. See Glossary, Recreation Settings. Even Alternative 3, which allocates the greatest number of acres on the forest to non-motorized, did not include this piece of ground.

The Canada lynx is no longer on the forest list of T&E species. On May 12, 2006 Regional Forester Kimbell, and Fish & Wildlife Service Regional Director King signed an amendment to the Lynx Conservation Agreement classifying the Beaverhead-Deerlodge NF as unoccupied by lynx per the National Lynx Survey. The current US Fish & Wildlife Service species list no longer shows the lynx on the forest:

http://montanafieldoffice.fws.gov/Endangered_Species/Listed_Species/Forests.html.

Consequently the forest is no longer required to consult on management effects on lynx.

Pipestone Management Area

JR-18. Keep the State Creek Road open year round. It is a great place to find a Christmas tree, cat hunt, bear hunt, elk hunt, especially for disabled hunters, and cut firewood.

The Forest Plan makes decisions about recreation allocations, not seasonal restrictions. See the Six Decisions Made in Forest Plans. The preferred alternative includes the State Creek Road in a “roaded” setting, so it will remain open. The current travel plan, which dictates the seasonal use of this road, indicates it is open year round.

JR-19. Stop illegal ATV use – this doesn’t have to be a “sacrifice area”.

Cross country motorized travel was prohibited by the 2001 OHV Plan Amendment for Montana, North Dakota and South Dakota which is incorporated in all alternatives and the Plan direction, see the Plan, Recreation and Travel Management, Standard 4. Enforcement of this prohibition is a Forest Plan implementation issue, not part of the decision.

JR-20. Manage the Bull Mountain Game Range and Ratio Mt as non-motorized.

The preferred alternative allocates the Bull Mountain Game Range and Ratio Mountain as winter non-motorized

JR-21. Expand the summer and winter motorized closures in the Fish Creek area (sections 33, 32, 26, 27, and 28) to protect westslope cutthroat trout habitat.

No alternative expands the summer and winter motorized closures in upper Fish Creek beyond that in Alternatives 5 and 6. Alternative 5 also allocates Fish Creek as a key fisheries watershed. The preferred alternative does not allocate it as a key fisheries watershed but includes Forestwide aquatic objectives and standards which will protect native fish habitat. The FEIS compares the effect of roads and trails on streams in relation to travel management, by alternative. The Record of Decision documents the rationale for the selected alternative.

JR-22. Keep road #417 open from Delmoe Lake to the Continental Divide which provides a loop trail from Butte to the Pipestone area.

Alternatives 1 and 4 non-motorized allocations do not affect road #417 – it would remain open. The preferred alternative includes this trail within a non-motorized allocation. The Record of Decision documents the rationale for the selected alternative.

JR-23. Keep trail #100 open on the east side of McClusky Mt, it has historically been used heavily by motorized users.

While Trail #100 on McClusky Mountain may have been used historically, it has not been on the Forest road and trail inventory for a number of years, even though it shows on the 1996 Travel Map. (Source: INFRA data base, BDNF).

Site-specific travel planning is taking place for the Whitetail Pipestone area concurrently with Forest Plan Revision. The preferred alternative identified in the Whitetail Pipestone Travel Management DEIS identifies a loop trail on the south side of McClusky Mountain to offer a better motorized opportunity than the dead-end trail #100. The Record of Decision for Whitetail Pipestone (to be issued late in 2007) will document the rationale for this decision.

JR-24. Keep the Sheep Camp road over top of Ratio open to motorized access for hunting opportunities. It is well suited for ATV or four wheel drive.

The preferred alternative allocates the Ratio Mountain area as roaded. There would be no changes to existing travel opportunities here as a result of the Record of Decision.

Whitetail and most of O'Neil Management Areas

JR-25. Close the numerous spur roads all over the region.

While roads or trails may be closed as a result of Plan allocations for non-motorized recreation or recommended wilderness, the Plan does not consider specific additions or deletions to the system. The preferred alternative allocates the majority of the Whitetail area to a non-motorized allocation. This has the effect of closing two trails and several spurs.

The Whitetail-Pipestone Travel Plan analyzed the roads and trails in this area to determine which ones provide quality recreation opportunities and which are creating. The Draft EIS which considered several travel alternatives has been released and public comment gathered. The final decision on road and trail management in that area should be released in 2007.

JR-26. Manage the Nez Perce Creek segment of the CDNST as non-motorized and the adjacent area as non-motorized.

The preferred alternative allocates the area around the Nez Perce Creek segment of the CDNST to non-motorized uses.

JR-27. Hiking trails are scarce in this area. Consider developing some hiking trails off of Bigfoot Creek.

While roads or trails may be closed as a result of Plan allocations for non-motorized recreation or recommended wilderness, the Plan does not consider specific additions or deletions to the system. The preferred alternative allocates the majority of the Whitetail area to a non-motorized allocation. This has the effect of closing two trails in the area to motorized, leaving them open for hiking. The area north of Bigfoot Creek would be non-motorized, providing the opportunity for hiking trails in the future.

JR-28. Combine with roadless lands of Haystack and O'Neil to make an 84,000 acre roadless area.

The preferred alternative allocates the majority of the Whitetail, Haystack and O'Neil inventoried roadless areas to non-motorized use.

JR-29. Close O'Neil Roadless Area to motorized use and close more of the Whitetail-Pipestone area closed.

The preferred alternative allocates the majority of the Whitetail, Haystack and O'Neil inventoried roadless areas to non-motorized use.

JR-30. Close Road #8695 and ATV routes to and around Whitetail Park, except for administrative use. Gate the road below the Nez Perce Trail. Protect Whitetail Park because of its unique geological/hydrological feature and elk calving.

Site-specific travel planning is taking place for the Whitetail Pipestone area concurrently with Forest Plan Revision. The non-motorized emphasis alternative (Alternative 3) for that project considers the effects of closing Road #8695. The preferred alternative identified in the Whitetail Pipestone Travel Management DEIS, leaves that route open for administrative and public use. The Record of Decision for Whitetail Pipestone (to be issued late in 2007) will document the rationale for not selecting Alternative 3.

Because of the preferred alternative during site-specific travel planning, no Forest Plan Revision alternatives include that road corridor in non-motorized allocations. Several other ATV routes around the Park will be closed by non-motorized allocations in Alternative 3, 5, and 6. The Record of Decision documents the rationale for selecting Alternative 6 over other alternatives.

While roads or trails may be closed as a result of Plan allocations for non-motorized recreation or recommended wilderness, the Plan does not consider specific additions or deletions to the system, closure methods, or seasonal restrictions. The preferred alternative includes the Nez Perce Trail in a non-motorized allocation but whether to gate the roads or not is a site-specific decision.

JR-31. Non-motorized use should be emphasized, not motorized use because this is a very important area for wildlife.

The preferred alternative emphasizes non-motorized use. See the Plan, Whitetail Management Area.

JR-32. Retain the management direction for Whitetail as proposed in Alt 5.

The preferred alternative retains the management area direction proposed in Alternative 5.

JR-33. Designate routes in this area dotted with hundreds of spur roads. Provide hiking trails into the Little Boulder from Whitetail.

Motorized travel is confined to designated routes forestwide in all alternatives. Cross country motorized travel was prohibited by the 2001 OHV Plan Amendment for Montana, North Dakota and South Dakota which is incorporated in Plan direction, see the Plan, Recreation and Travel Management, Standard 4.

As far as new hiking trails, Forest Plan revision does not deal with site-specific additions to road or trail systems. Opportunities are addressed primarily through allocations of land for various levels of recreation use. The preferred alternative allocates the area between Whitetail Reservoir and Little Boulder as non-motorized, leaving the connecting trails non-motorized and available for hiking.

I-90 Corridor Management Area

JR-34. Retain the management direction for this corridor as proposed in Alt 5.

The I-90 Corridor was dropped as a separate management area between Draft and Final. There was not enough distinction between this area and the adjacent Pipestone management area. Objectives for I-90 MA were added to Pipestone MA. The management direction as proposed in Alternative 5 is essentially retained.

Table Mountain Management Area

JR-35. Retain the management direction for Table Mt proposed in Alternative 5.

We retained the management direction for Table Mountain proposed in Alternative 5.

JR-36. Protect the existing roadless areas in Table Mt which are critical for predators and prey.

The preferred alternative protects the existing roadless area in Table Mountain by recommending the area for wilderness.

Lima Tendoy Landscape

LT-1. The revised Forest Plan should retain the proposed motorized closures for Maiden Peak.

The preferred alternative does retain the motorized closure proposed for Maiden Peak.

LT-2. Retain non-motorized winter and summer allocations proposed in Alt 5 for this landscape.

The preferred alternative essentially retains the winter and summer non-motorized allocations proposed in Alternative 5. Small non-motorized pieces were dropped in Bear Canyon and Meadow Creek due to improved road and trail inventory data.

L T-3. The revised Forest Plan should reduce road densities in this landscape, especially roads that allow access into the Limekiln Canyon BLM WSA because this landscape contains excellent wildlife habitat and roads exacerbate erosion and weeds.

The FEIS addresses road densities and their effect on wildlife security under Effects on Wildlife from Recreation and Travel Management, and Wildlife Security and Connectivity. The preferred alternative includes a goal which caps road density in the in the landscape in summer and in hunting district 328 in fall at that 1.0 mi/sq mi, see Plan, Wildlife.

Access into Limekiln Canyon WSA is under the jurisdiction of BLM. The BLM has recently revised their Resource Management Framework Plan, establishing the base map for designated routes. The RMP Record of Decision, 2006 indicates major access routes into the WSA through Johnson, Deer Canyon, Limekiln Canyon, and over the top of the Tendoy Mts. Closing the Forest Service Road #956 will not limit access into the WSA.

L T-4. The revised Forest Plan should include a summer non-motorized classification for the unroaded area surrounded by Cabin Creek, Muddy Cr and Big Sheep Cr to be consistent w/the winter non-motorized classification for grizzly security. Include summer non-motorized for Deadwood Gulch to the east.

Criteria for identifying roadless areas are directed by regulation and handbook direction (FSH 1909.12 71.1, 8/3/92). The Sourdough Mountain Roadless Area 1-017 was expanded during the inventory to include an area south of Trail Hollow Creek, see Appendix C. The preferred alternative allocates most of this block of Forest Service land to winter non-motorized. It allocates a block of summer non-motorized in the Graphite Mt area and east of Sourdough Peak. Alternatives 3 and 5 allocate a greater portion of the area to summer non-motorized. The Record of Decision documents the rationale for selecting Alternative 6 over Alternative 3 and 5.

Security for grizzly bears by landscape is evaluated in the FEIS. Open road and trail densities in the Lima Tendoy Landscape under any alternative are at 1.0 miles per square mile, considered a low density even by grizzly bear standards, (a density of 1.0 is the lowest road density criterion used to measure access affecting grizzly bears, (ROD for the Greater Yellowstone Ecosystem Grizzly Bear Amendment)).

Alternative 3 allocates a portion of the area east of Deadwood Gulch to summer non-motorized uses. The Record of Decision describes the rationale for selecting Alternative 6 over Alternative 3. Most of the area is in a roaded setting. Non-motorized allocations are intended to provide a semi-primitive setting. Because of historical access, this area is in a roaded setting and would not be well suited for this allocation. See Glossary, Recreation Settings.

Horse Prairie Management Area

L T-5. Impose more summer and winter closures in the Dixon Mountain area to protect sensitive lynx habitat.

The preferred alternative does allocate the Dixon Mt area to summer non-motorized and a portion of the west side to winter non-motorized uses.

However, as the FEIS points out on page (Wildlife, affected environment, first page) the Northern Rockies Lynx Amendment concludes that the BDNF is not occupied by lynx. Modeling of lynx habitat shows it widespread across all areas of the forest.

L T-6. Keep Tash Peak roadless.

The preferred alternative allocates the Tash Peak area to non-motorized uses which will close motorized roads and trails.

L T-7. Close the area south of Browns Creek all the way to Bloody Dick Creek to snowmobiles.

This area was not considered for a winter non-motorized closure in any alternative. Winter non-motorized allocations were made to either: protect low elevation big game range, protect high elevation mountain goat or wolverine habitat, or offer quiet winter recreation opportunities that are easily accessible, see Glossary. This area was not a high priority for any of these reasons.

Italian Peaks Management Area

L T-8. Retain wilderness recommendation, close the Nicholia Road and create a trail head immediately upon reaching FS land. Move the weather station and buy out the one inholding so all sections can be included in the wilderness.

The preferred alternative does retain the wilderness recommendation for Italian Peaks. The Nicholia Road is located outside the Italian Peaks recommended wilderness and provides access to a number of other locations outside the recommended wilderness.

As far as the other suggestions, Forest Plan revision does not direct site-specific decisions like these. See the Six Decisions Made in Forest Plans.

L T-9. Include Indian, Simpson, and Tex Creeks in the boundary of the Italian Peaks Recommended Wilderness.

Alternative 3 expands the boundaries of the recommended wilderness to include Simpson and Tex Creeks and include Indian Creek in a non-motorized allocation. The FEIS compares the effects of alternatives, Inventoried Roadless Areas and Recommended Wilderness, Summary of Effects by Alternative. The Record of Decision will display the rationale for selecting alternatives.

L T-10. Address motorized trespass in the Italian Peak area.

Forest Plan revision makes decisions about land allocations, goals, objectives and standards. Enforcement to prevent motorized trespass is an implementation issue.

L T-11. Sign the Nicholia Creek Trailhead.

Forest Plan Revision does not make decisions about site-specific implementation issues like signage. See the Six Decisions Made in Forest Plans, Chapter 1.

L T-12. Keep the road to Deadman Lake open for the families and school groups which have traditionally used it.

We received a lot of public support for access to Deadman Lake. The road to Deadman Lake will remain open. The preferred alternative leaves the road corridor outside of the recommended wilderness.

L T-13. The closures in the Deadman and Pine Creek areas will be inconvenient and/or expensive to me as a permittee. I use ATVs to check water developments and fences, and would hate to have to go to town for a permit every time I need to check or do maintenance.

The road to Deadman Lake will remain open. The preferred alternative leaves the road corridor into Deadman Lake outside of the recommended wilderness.

L T-14. Add Four Eyes Canyon and Garfield Mountain to Italian Peaks recommended wilderness.

The preferred alternative recommends Garfield Mountain for wilderness. Four Eyes Canyon is rated “Low” for wilderness suitability, however, and was not included in any alternative as recommended wilderness. See Appendix C for a description of the capability, availability and need for the Four Eyes IRA #1-020.

L T-15. Retain the wilderness recommendation for Italian Peaks

The preferred alternative retains the wilderness recommendation for Italian Peaks.

L T-16. Manage the area for non-motorized ‘self discovery’ recreation and wildlife to better preserve wilderness characteristics. Improving access will degrade wilderness character. If recommended for wilderness, manage the area as it is until Congress designates it Wilderness, rather than excluding mountain bikes.

Alternative 4 does not recommend the Italian Peaks for wilderness, but allocates it to non-motorized uses which would emphasize roadless character. Mountain bikes would be allowed but not motorized vehicles. The deciding official proposes to select Alternative 6 over the other alternatives. The Record of Decision will document the rationale for the selected alternative.

The FEIS documents the rationale for excluding motorized use and mountain bikes from recommended wilderness in all action alternatives under the heading “INVENTORIED ROADLESS AREAS AND RECOMMENDED WILDERNESS, Analysis Methods and Assumptions, Recommended Wilderness.

Lima Peaks Management Area

L T-17. Phase out grazing in alpine areas above tree line to decrease erosion and protect wildlife habitat.

The FEIS states that the BDNF will use the allotment management planning process to determine additional lands that are not suitable and determine the site-specific permit actions necessary to meet Forest Plan desired conditions, objectives, and standards.

L T-18. Include Lima Peaks in the Italian Peak wilderness.

The preferred alternative does include Lima Peaks in the Garfield Mountain Recommended Wilderness.

LT-19. The FEIS should consider how motorized development on the CDNST in the Italian Peaks will affect wilderness values.

Motorized use in the Italian Peaks recommended wilderness is prohibited under the preferred alternative. The FEIS examines the presence of motorized development in recommended wilderness under “Effects On Recommended Wilderness from Recreation and Travel Management”.

LT-20. Restrict snowmobiles in the eastern half of the MA from Birch Creek east to Big Beaver Creek.

Alternative 3 closes the area described to snowmobiles through winter non-motorized and recommended wilderness allocations. The preferred alternative recommends the Garfield Mountain area for wilderness. As a result, snowmobiles will be restricted from all but the Sawmill/Deep Creek area. The deciding official proposes to select Alternative 6 over the other alternatives. The Record of Decision will document the rationale for the selected alternative.

LT-21. Drop the proposals to construct a trailhead on the Nicholia Creek road, improve roads to trailheads, and improve the CDNST. These activities are inconsistent with maintenance of true wilderness character.

The preferred alternative drops the objective to construct a trailhead on the Nicholia Creek road. There were no objectives proposed in the Draft to improve roads or improve the CDNST.

LT-22. Drop the proposal to improve the Nicholia Creek road system. The area is heavily used by elk and encouraging more use will increase weeds. ATVs need to be closed out of some roads. Winter travel with snowmobiles is OK.

There was no proposal made to improve the Nicholia Creek road system.

The preferred alternative allocates some parts of the Lima Peaks Management Area to summer and winter non-motorized. This has the effect of closing ATVs out of some roads and snowmobile travel out of others.

LT-23. Close Nicholia Creek Road and make a trailhead just inside the BDNF boundary.

Alternative 3 allocates the Nicholia Creek Road and the area east of it as non-motorized. The preferred alternative leaves this area open to motorized use. The FEIS describes the effects of non-motorized allocations on the Lima Tendoy Landscape, under Recreation and Travel, “Effects on Recreation and Travel Management from Non-Motorized Allocations”. The deciding official proposes to select Alternative 6 over the other alternatives. The Record of Decision will document the rationale for the selected alternative.

Medicine Lodge-Tendoy Management Area

LT-24. Close unauthorized roads and restrict travel in wetlands of the Harkness Lake and Morrison Lake area as well as east of Cabin Creek to protect sensitive vascular plants and wetlands.

Cross country motorized travel was prohibited by the 2001 OHV Plan Amendment for Montana, North Dakota and South Dakota which is incorporated in Plan direction, see the Plan, Recreation and Travel Management, Standard 4.

LT-25. Included the Continental Divide in the Italian Peaks wilderness. Control motorized use in the Tendoy portion. Close the area around Morrison Lake to motorized use except for a trailhead road.

Federal regulations (CFR219.17)(b)) direct us to evaluate areas contiguous to roadless or other undeveloped areas for recommended wilderness only if they have “identified wilderness potential”. Regulations and handbook direction are very clear about what criteria must be present (FSH 1909.12 71.1, 8/3/92) for an area to be inventoried as roadless. We re-examined all of the roadless lands along the Continental Divide during our roadless area re-inventory. Those that met wilderness suitability criteria were included in a range of alternatives. Alternative 3 included the most lands. The effects of Alternative 3 compared to other alternatives are found in the FEIS, under “Effects On Recommended Wilderness from Recreation and Travel Management”.

Alternative 3 includes the most lands in the Tendoy and around Morrison Lake in non-motorized allocations. The preferred alternative includes 5 blocks of land in the Tendoy in non-motorized allocations. The FEIS describes the effects of non-motorized allocations on the Lima Tendoy Landscape, under Recreation and Travel, “Effects on Recreation and Travel Management from Non-Motorized Allocations”. The deciding official proposes to select Alternative 6 over the other alternatives. The Record of Decision will document the rationale for the selected alternative.

LT-26. Drop summer non-motorized allocate 5-LT-08 in the Jeff Davis Peak, Maiden Peak area or at least modify the boundaries to keep selected roads open for their entire length in this order of priority: Center Ridge Road #70028, Behind Camp Road, designated 4WD, Bowl Road (map unclear, Creek to Jackleg Fence Rd #70026; Jeff Davis to Maiden Peak – added to inv Priority #5

Alternative 1 leaves all of these routes open. Alternative 2 and 4 leave them all open except for the Jeff Davis to Maiden Peak road. The non-motorized allocation 5-LT-08 was modified between alternative 5 and the preferred alternative to leave more area open in section 27 and 34. Roads and trails 70026, 70019, 70018, 946, 3936, 70031, 70032, 3937 will be open. The Jeff Davis to Maiden Peak road, road #70028, and five small spur roads will be closed. The FEIS describes the effects of non-motorized allocations on the Lima Tendoy Landscape, under Recreation and Travel, “Effects on Recreation and Travel Management from Non-Motorized Allocations”. The deciding official proposes to select Alternative 6 over the other alternatives. The Record of Decision will document the rationale for the selected alternative.

LT-27. Please make sure all of these are system roads and consider these options: Redraw the boundary on the west side to cherry-stem these roads. 2. Designate these roads as “non-maintained” 4WD trails. 3. Close them as roads but keep them open as motorized trails. 4. Open these roads for hunting season.

We considered cherry stemming the roads mentioned, but we received support for retaining the non-motorized allocation as is from Montana Fish Wildlife and Parks, to protect hunting season wildlife security. Alternative 1 leaves all of these routes open. Alternative 2 and 4 leave them all open except for the Jeff Davis to Maiden Peak road. The non-motorized allocation was modified between alternative 5 and the preferred alternative to leave more area open in section 27 and 34. The deciding official proposes to select Alternative 6 over the other alternatives.

As far as the other suggestions, Forest Plan revision does not deal with site-specific modifications to the transportation system like changing status from roads to trails or adding roads to the system. The Forest Plan makes allocations of land use, which can have the effect of closing roads.

LT-28. This has been open historically and been used heavily for hunting and game retrieval. It is a dry rocky ridge with little potential for erosion. Lack of surface water limits potential for foot travel. There has been little horse or backpacker use except during hunting season in a small area around Road #70028. Motorized access for hunting fits the description for this niche.

Alternative 1 allocates leaves this area available for motorized use. The FEIS describes the effects of winter non-motorized allocations on the Lima Tendoy Landscape, under Recreation and Travel, “Effects on Recreation and Travel Management from Non-Motorized Allocations”. We received comments supporting and opposing this proposal (5LT-08). Montana Fish Wildlife and Parks wrote in support of the closure. The deciding official proposes to select Alternative 6. The Record of Decision will document the rationale for the alternative selected.

LT-29. Expand the winter motorized closure to include Deadwood Gulch and Straight Creek to protect important elk and deer winter range.

Alternative 3 allocates this area to winter non-motorized uses. The FEIS describes the effects of winter non-motorized allocations on the Lima Tendoy Landscape, under Recreation and Travel, “Effects on Recreation and Travel Management from Non-Motorized Allocations”. The Record of Decision will document the rationale for the alternative selected.

LT-30. Retain the closure of high elevation roads as proposed to protect elk habitat and keep weeds from moving up off BLM and State lands.

The preferred alternative retains the high elevation road closures from the Draft Plan.

Selway-Saginaw Management Area

LT-31. Add a Standard for “No sediment production from timber management activities in streams draining into the Big Hole River to protect grayling.”

Forestwide aquatic standards in the Final Plan (Alternative 6) are designed to protect fisheries in all management areas from management activities (See Standards TM-1, TM-1a, RF-2, RF-3a, RF-3c, and RM-1). In addition, Andrus and Governor Creek are designated key fisheries watersheds to which Objective RF-3a, RF-2a and Standard 9 apply.

LT-32. Close the entire MA west of Saginaw and Selway Creeks to summer ORV use to protect the headwaters of the Big Hole River.

The Forest Service shares a concern about protecting the headwaters of the Big Hole River. In addition to allocating two blocks to non-motorized uses, the preferred alternative designated Saginaw Creek as a key restoration watershed. In addition to the forestwide aquatic standards designed to protect fisheries from impacts of roads, trails and recreation activities, other restoration goals, objectives and standards will apply.

LT-33. Trail 190 to Bloody Dick Peak should be closed to motorized travel.

Alternative 3 allocates the area to non-motorized uses, which would close Trail 190. The FEIS describes the effects of non-motorized allocations on the Lima Tendoy Landscape, under Recreation and Travel, “Effects on Recreation and Travel Management from Non-Motorized Allocations”. The Record of Decision will document the rationale for the alternative selected.

Madison Landscape

MD-1. Provide hiker only trailheads.

Forest Plan revision does not deal with site-specific trail or trailhead management. See Chapter One, Decision to be Made.

Lee Metcalf Additions Management Area

MD-2. Correct the map to reflect winter motorized use in McAtee Basin, as the management area describes in Alt 5.

We agree that Alternative 5 maps and direction were confusing but we will not be redoing the Management Area maps based on that alternative. The Plan published with the FEIS reflects Alternative 6 where McAtee Basin is clearly open to winter snowmobile opportunities.

MD-3. Close McAtee Basin to snowmobiles, it is too easy to trespass in wilderness from there.

Alternatives 3 closes McAtee Basin to snowmobiles. Alternative 5 closes most of the Basin but left the ridge route open for machines to move between Yellow Mules and Buck Creek. The deciding official proposes to select Alternative 6, which leaves the area open, over the other alternatives. The Record of Decision will document the rationale for the selected alternative.

MD-4. Add the recommended wilderness additions as proposed in Alternative 5.

The preferred alternative retains all of the recommended wilderness additions from Alternative 5 except the lower McAtee Basin. Alternative 3 retains ALL of the Madison recommended additions. The deciding official proposes to select Alternative 6 over the other alternatives. The Record of Decision will document the rationale for the selected alternative.

MD-5. Allocate Cowboy Heaven to “non-motorized” rather than wilderness so we can still use Trail #315. Establish a bike corridor through Cowboy Heaven to allow bikes to connect to the Spanish Peaks Trail #401, preferably on trail #368 rather than #3.

Alternative 1 and 4 do not recommend Cowboy Heaven for wilderness. Cowboy Heaven will remain non-motorized in all alternatives because there is no public access for motor vehicles. The deciding official proposes to select Alternative 6 over the other alternatives. The Record of Decision will document the rationale for the selected alternative.

The FEIS documents the rationale for excluding motorized use and mountain bikes from recommended wilderness in all action alternatives under the heading “INVENTORIED ROADLESS AREAS AND RECOMMENDED WILDERNESS, Analysis Methods and Assumptions, Recommended Wilderness.

Pioneer Landscape

PI-1. WCT must be protected from hybridization and habitat destruction from cows and ATVs (including Lambrecht, Doolittle, Squaw, Sheep and Mono, Rabbia, Odell, Wyman, Lost Horse, Gold and Boulder Creeks).

Forestwide aquatic standards in the Plan (Alternative 6) are designed to protect fisheries in all management areas from management activities (See Standards GM-1, GM-2, GM-3, GM-4, TM-1, TM-1a, RF-2, RF-3a, RF-3c, and RM-1). In addition, the preferred alternative designates Squaw, Doolittle and Cherry Creek as key fisheries watersheds. Forest Aquatic Standards 8 and 9 in the Plan are designed for additional protection of WCT in these key watersheds.

PI-2. Provide more easily accessible winter non-motorized areas for cross-country skiers, accessible from plowed roadways. Sawlog and Squaw Creek northeast of Wisdom are accessible from the highway. We ask you consider closing them to snowmobile use.

The Forest Service agrees that there is a need for more accessible non-motorized winter activities across the forest so we included a Recreation and Travel Management Objective for “Non-motorized winter activities” which states that in the Plan.

However, this location is less than desirable. The Forest Service does not want to promote skiing in an area where fording the Big Hole River is required. We did not consider allocating this area to winter use in any alternative.

PI-3. Grazing impacts may threaten tailed frogs in Wyman Creek below its confluence with Odell creek

Forestwide aquatic standards in the Plan (Alternative 6) are designed to protect native aquatic species, including amphibians, from management activities in all management areas (See Standards GM-1, GM-2, GM-3, GM-4, TM-1, TM-1a, RF-2, RF-3a, RF-3c, and RM-1). In addition, the preferred alternative designates Squaw, Doolittle and Cherry Creek as key fisheries watersheds which provides additional standards related to grazing. Forest Aquatic Standards 8 and 9 in the Plan are designed for additional protection of WCT in these key watersheds.

PI-4. Restrict travel at Dingley Lake.

Dingley Lake is included in the East Pioneer Recommended Wilderness in Alternatives 1, 2, 3, 5, and the preferred alternative. Motorized use will be prohibited by this allocation.

PI-5. The West Big Hole and East Pioneers should be joined with only some short roads penetrating the area to allow for recreation dispersed camping, some logging and ranching.

The private land in the Big Hole Valley and a major highway in between make it unlikely that the West Big Hole and East Pioneers could be joined in any type of protected status. The intent of this comment may have been to join the West and East Pioneers. Alternative 3 provides the most protection for these two areas, leaving the Pioneer Mountain Scenic Byway open with short spur roads to allow for recreation dispersed camping, some logging and livestock grazing. The FEIS describes the effects of Alternative 3 compared to other alternatives in RECREATION AND TRAVEL, “Effects by Landscape”. The deciding official proposes to select Alternative 6.

The Record of Decision will display the rationale for choosing the selected alternative over the others.

PI-6. Retain the summer and winter non-motorized designations proposed in Alt 5.

The preferred alternative retained summer and winter non-motorized designations proposed in Alternative 5 with two changes. The summer non-motorized area in Call Mountain was dropped for Alternative 6, as was a small chunk in Toomey Creek because it offered a better opportunity for fording the Big Hole River without impacting fisheries than Sawlog Creek. The Record of Decision will display the rationale for choosing the selected alternative over the others.

PI-7. Obliterate roads and restore roadless lands in Bryant Creek, East Face, Quartz Hill and West Face MAs.

Road obliteration and restoration of roadless character are not part of the Forest Plan decisions being made, see Chapter One, Decisions to be Made. However, designation of key restoration watersheds in Willow, Birch and Lost Creeks in the preferred alternative may well lead to road obliteration and subsequent restoration of roadless character where inventoried roadless areas are within those designations.

Quartz Hill management area does not include any roadless lands. See Glossary.

Bryant Creek Management Area

PI-8. Add a standard stating “No net increase in motorized trails” to limit sediment contributions to streams.

Forestwide aquatic standards in the Plan implementing Alternative 6 are designed to protect streams in all management areas from road and trail impacts (See Goals, Objectives and Standards RF-2a, RF-3a, RF-3c, RF-5, RM-1, RM-2 and RM-3). These standards will have to be met before any motorized trails could be constructed.

PI-9. Retain the management emphasis proposed in the Draft Plan.

The preferred alternative retains the emphasis proposed in the Draft Plan.

PI-10. Close to motorized use in the summer.

Alternative 3 allocates the roadless portion of Bryant Creek to summer non-motorized. The FEIS describes the effect of that level of closures in the Pioneers under RECREATION AND TRAVEL, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

Because of the history of harvest and related road construction, the portion of Bryant Creek outside of inventoried roadless is in a roaded setting and would not be well suited for a non-motorized allocation. See Glossary, Recreation Settings. Even Alternative 3, which allocates the greatest number of acres on the forest to non-motorized, did not include this piece of ground.

PI-11. Close the highline trail #99 in summer and fall to coordinate with Wisdom District closures and protect resources.

Under the current travel plan, the Wisdom District does not have closures in the area or trails adjacent to #99. The Wise River District restricts full size vehicles and in some cases, ATVs, from adjacent trail systems.

The Forest Plan makes decisions about land allocations, goals, objectives and standards. It does not make decisions about site-specific issues seasonal restrictions or closures. See the Six Decisions Made in Forest Plans, Chapter 1. While no alternative allocates a summer non-motorized block in Bryant Creek which would result in trail #99 being closed, this does not preclude the Forest Service from adjusting season of use or type of use on this trail.

PI-12. Retain the timber emphasis, but adopt a plan to remove temporary roads in this area and allow natural processes to reclaim areas.

The preferred alternative retains the timber emphasis proposed in the Draft. Obliteration of temporary roads is a site-specific decision that will be considered during travel planning when the Plan is implemented. The proposed management direction for Bryant Creek does not preclude removal of temporary roads.

Torrey Mountain Recommended Wilderness Management Area

PI-13. Limit horse use at Elkhorn Lake in the proposed Elkhorn RNA to day use only. This will be adequate to protect biological value of the RNA.

The Forest Plan makes decisions about land allocations, goals, objectives and standards. It does not make decisions about site-specific issues like type or level of use. See the Six Decisions Made in Forest Plans, Chapter 1.

The Travel Plan currently allows public use but Wise River District policy is not to promote it, provide facilities or maintain the trail inside the RNA. Overnight use in the area is undocumented and has not been raised before this as an issue.

PI-14. Close the David Creek and Jacobson Creek trails to motorized use. They have been heavily damaged.

The preferred alternative allocates this area to recommended wilderness which will prohibit motorized use.

PI-15. The boundary on the east side of the East Pioneers should extend no further than the eastern side of Boot Lake. The west side should be off limits to motorized access.

In the preferred alternative, the boundary on the east side remains on the eastern side of Boot Lake as it does in the current Plan. Both sides of the recommended wilderness are off limits to motorized access, see the Plan, East Pioneers Recommended Wilderness.

PI-16. Retain all existing motorized opportunities in the Pioneers.

Alternative 1 retains all existing motorized opportunities. Alternative 4 reduces them by the length of a trail in Walker Creek (Bryant Creek MA). The effects of Alternative 1 and 4 relative to the preferred alternative are described for the Pioneers in the FEIS under RECREATION AND TRAVEL, "Effects by Landscape". The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the preferred alternative over the others.

PI-17. Mitigate the closure of the East Pioneers for wilderness recommendation with a motorized trail system in the West Big Hole.

The preferred alternative provides an extensive motorized trail system in the lower elevations of the West Big Hole and motorized trail corridors up to the Continental Divide at Ajax and Dark Horse Lakes.

PI-18. On the south end of Baldy Mountain E1-0008 and D- 00081 the new proposal has closed some loop roads we need to have to look for cattle and put out salt in the Dyce creek area. The boundary that was in the last plan was much better because people that wanted to hike or horseback could, and people who wanted to ride motor bikes could.

Alternatives 1 and 4 allocations leave those routes open. The preferred alternative allocates portions of the area to non-motorized recreational use. Administrative access for grazing could still be authorized by the District Ranger. The effects of Alternative 1 and 4 relative to the preferred alternative are described for the Pioneers in the FEIS under RECREATION AND TRAVEL, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others

PI-19. We believe that a boundary adjustment in the north of less than one mile would allow biking to continue on Trail #152. We also want to retain a biking corridor on Trail #2 between Brown’s Lake and Mono Creek. We realize these trails have suffered resource damage from motorized users . . . solve that problem through motorized restrictions and enforcement rather than simply prohibiting mountain bikes.

Alternative 4 allocates the East Pioneers to non-motorized use instead of recommended wilderness which would leave it open to mountain bikes. No alternative breaks up the recommended wilderness with corridors. The deciding official proposes to select Alternative 6 over the other alternatives. The Record of Decision will document the rationale for the selected alternative.

The FEIS documents the rationale for excluding motorized use and mountain bikes from recommended wilderness in all action alternatives under the heading “INVENTORIED ROADLESS AREAS AND RECOMMENDED WILDERNESS, Analysis Methods and Assumptions, Recommended Wilderness.

PI-20. Leave motorized access to lakes open for sportsmen both summer and winter. It is too great a distance for most people to travel on foot.

Alternative 4 allocates much of the area to non-motorized uses but excludes corridors for motorized roads and trails. The FEIS describes the effects of Alternative 4 compared to other alternatives in RECREATION AND TRAVEL, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

PI-21. Close the road from Dinner Station Campground to the wilderness area for administrative use only, it encourages violation of the wilderness.

No alternative considers non-motorized allocations which would include this road corridor. Non-motorized allocations are intended to provide a semi-primitive setting, see FEIS, glossary. This area is in a roaded setting which would not be well suited for this allocation. See Glossary,

Recreation Settings. Even Alternative 3, which allocates the greatest area to non-motorized areas, does not include this road corridor.

PI-22. Retain the area proposed in the 1986 plan.

Only Alternative 1 precisely retains the area proposed in the 1986 Plan. Alternatives 2 and 5 retain close to the same boundary. The FEIS compares the effects by alternative in RECREATION AND TRAVEL, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

PI-23. Protect the East Pioneers from cows, road building, logging and mines.

The Recommended Wilderness designation will protect the area from logging and road building. Grazing is still permitted in recommended or designated wilderness. Mining in recommended wilderness can still occur as authorized by the 1892 Mining Law. Only Designated Wilderness protects an area from mining.

PI-24. Retain the road closures and proposed wilderness designation as proposed in Alternative 5 to offer more extensive backcountry experiences and protect resources.

The preferred alternative adds about 10,000 acres to the proposal in Alternative 5.

PI-25. Add roadless area D1-008 (East Face) onto the Torrey Mt. Wilderness Recommendation.

PI-26. Do not stop winter motorized access at Dinner Station, let us continue to access Boot, Pear, Tub, and May lakes.

Alternatives 1 and 2 leave the area open to winter motorized access. The FEIS compares the effects by alternative in RECREATION AND TRAVEL, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

West Pioneer WSA Management Area

PI-27. Close the WSA to motor vehicles. “Emphasizing” snowmobiling is unacceptable. Snowmobiles must be restricted to designated routes.

Regardless of alternative, Forest Plan direction for the West Pioneer WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. The Wilderness Study Act does not restrict snowmobile use to designated routes in the West Pioneers. This does not prevent the Forest Service from making site-specific decisions to close areas or trails in the future based on need.

PI-28. No motorized vehicles should be allowed in the West Pioneers in summer, and snowmobiles should be confined to designated routes.

Regardless of alternative, Forest Plan direction for the West Pioneer WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. The Wilderness Study Act does not restrict snowmobile use to designated routes in the West Pioneers or close the area to motorized use in summer. See the FEIS, Road and Trail Vehicle Status Map for any alternative for a display of which motorized routes the Act allows.

This does not prevent the Forest Service from making site-specific decisions to close areas or trails in the future based on need.

PI-29. Expand the WSA to the sagebrush, log to release aspen then close roads behind.

The Wilderness Study Area was established by an act of Congress. The Forest Service cannot change the boundary. Alternatives 3, 5, and 6 do expand the protections of the WSA by allocating area below (lower elevations) the WSA boundary to non-motorized uses.

All action alternatives include objectives to reduce competition of conifers with aspen.

PI-30. Leave some access roads open for light logging and disperse car campers then close them as a trail head. Make it a mountain biking destination. If it can't be wilderness, at least close some of the ridges to motorized use and rehab the roads. Plan for fire.

Regardless of alternative, Forest Plan direction for the West Pioneer WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, "Elements Common to All Alternatives". This does not prevent the Forest Service from making site-specific decisions to close areas or trails in the future based on need.

PI-31. Close at least the south end of the West Pioneers to snowmobiling to provide multi-day winter trip opportunities on terrain which won't avalanche, isn't tree infested, and has snow. Untracked meadows and deep long trails you can ski for more than a day aren't hardly available outside of Yellowstone.

Regardless of alternative, Forest Plan direction for the West Pioneer WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, "Elements Common to All Alternatives". The Wilderness Study Act does not restrict snowmobile use to designated routes in the West Pioneers. This does not prevent the Forest Service from making site-specific decisions to close areas or trails in the future based on need.

PI-32. Close snowmobile trails south of Bobcat Creek to snowmobile use to protect lynx habitat.

Regardless of alternative, Forest Plan direction for the West Pioneer WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, "Elements Common to All Alternatives". The Wilderness Study Act does not restrict snowmobile use to designated routes in the West Pioneers. This does not prevent the Forest Service from making site-specific decisions to close areas or trails in the future based on need.

As the FEIS points out (Wildlife, affected environment, first page) the Northern Rockies Lynx Amendment concludes that the BDNF is not occupied by lynx. Modeling of lynx habitat shows it widespread across all areas of the forest.

PI-33. Close the Reservoir Creek Trail #46, Meadow Creek Trail #33, Osborne Creek Trail #164, Upper Alder Creek Trail #8 and Jimmie New Creek Trail #126 in the WSA to wheeled motorized use. They all pass through wet meadows and springs and produce sediment in streams and are important wildlife habitat.

Regardless of alternative, Forest Plan direction for the West Pioneer WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, "Elements Common to All Alternatives". These trails are open to motorized use. See the FEIS, Road and Trail Vehicle

Status Map for any alternative for a display of which motorized routes the Act allows. This does not preclude the Forest Service from mitigating impacts of motorized travel or making more restrictive decisions through project work.

PI-34. Retain the proposed summer closure in the Stewart Meadows/Bear Meadows area in the southern end. It should also be closed to winter motorized access for wildlife protection.

Regardless of alternative, Forest Plan direction for the West Pioneer WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. This area does not allow motorized use on trails. See the FEIS, Road and Trail Vehicle Status Map for any alternative for a display of which motorized routes the Act allows.

PI-35. Close the summer non-motorized areas on the north half in winter as well to protect wolverine and wintering mountain goats and moose. Also close Reservoir Creek trail, it gets very little snowmobile use and would enlarge the area available between Lost Horse Creek and Stine Creek.

Regardless of alternative, Forest Plan direction for the West Pioneer WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. The Wilderness Study Act does not restrict snowmobile use to designated routes in the West Pioneers or close the area to motorized use in summer. This does not prevent the Forest Service from making site-specific decisions to close areas or trails in the future based on need.

PI-36. Protect the West Pioneers from cows, road building, logging and mines.

Regardless of alternative, Forest Plan direction for the West Pioneer WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. The Wilderness Study Act prohibits activity which would degrade the wilderness character beyond what it was when the Act established it. This precludes timber harvest and road building.

PI-37. Allocate more non-motorized areas in the WSA. The WSA is not required to provide 1977 levels of motorized use. It can be eliminated as it can in any other management area.

The Act allows for existing uses to continue but there is nothing that limits us from restricting motorized travel. The Forest Service decided not to re-look at strategic changes for WSAs by changing recreation allocations but to conform to the Court Decision..... Regardless of alternative, Forest Plan direction for the West Pioneer WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. This does not prevent the Forest Service from making site-specific decisions to close areas or trails in the future based on need.

PI-38. Protect the wilderness qualities of this large important landscape until Congress acts, by restricting snowmobile use, particularly in the north end. Limit damage to the trail network from motorcycles and ATVs.

Regardless of alternative, the West Pioneer WSA will be managed according to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. The

Wilderness Study Act does not restrict snowmobile use to designated routes in the West Pioneers or close the area to motorized use in summer. See the FEIS, Road and Trail Vehicle Status Map for any alternative for a display of which motorized routes the Act allows. There is nothing in the act that precludes the Forest Service from mitigating impacts of motorized use or further restricting uses through site-specific projects.

PI-39. Retain the non-motorized closures as proposed in the Draft Plan.

Any motorized closures that appear in the Draft Plan appear in all alternatives. Regardless of alternative, the West Pioneer WSA will be managed according to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”.

PI-40. Emphasize summer and winter non-motorized types of primitive recreation with motorized corridors limited to trails and loops associated with the Byway corridor, to concentrate motorized use around the corridor and leaving large tracts of quiet undisturbed area for wildlife.

Regardless of alternative, the West Pioneer WSA will be managed according to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”.

PI-41. Continue to allow livestock grazing in the WSA.

Regardless of alternative, the West Pioneer WSA will be managed according to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. Livestock grazing is allowed by the Wilderness Study Act.

PI-42. Close Squaw Creek drainage to summer motorized use to protect the westslope cutthroat key watershed.

Regardless of alternative, the West Pioneer WSA will be managed according to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”.

Forestwide aquatic standards in the Final Plan (Alternative 6) are designed to protect fisheries in all management areas from management activities (See Standards GM-1, GM-2, GM-3, GM-4, TM-1, TM-1a, RF-2, RF-3a, RF-3c, and RM-1). In addition, the preferred alternative designates Squaw Creek as key fisheries watersheds. Forest Aquatic Standards 8 and 9 in the Plan are designed for additional protection of WCT in these key watersheds.

East Face Management Area

PI-43. Close areas above 9,000 feet with erosive soils and sensitive plant species to ORV use, except for miners with valid claims.

Most of the terrain above 9,000 feet in the East Pioneers lies within Recommended Wilderness in all alternatives except Alternative 4 and would be closed to ORV use. For those areas outside of recommended wilderness, Alternative 3 allocates the largest percentage of higher elevations in the East Face area to non-motorized uses. No explicit elevation level was set for these allocations. The Record of Decision will document the rationale for selecting one alternative over the others.

PI-44. Add the East Face to the Torrey Mountain recommended wilderness.

Criteria for identifying suitable wilderness areas are directed by regulation and handbook direction (FSH 1909.12 71.1, 8/3/92). All inventoried roadless areas that are part of the East Face Management Area (Units 1-008B, 1-008F, 1-008D, 1-008G and 1-008H) were evaluated using these criteria. None of these units received a high enough rating or contributed to simplifying boundary management enough to be included in any alternatives. See Appendix C for a detailed description of the ratings.

PI-45. Close or shorten the deep penetrating roads such as Canyon Creek, French Creek and Willow Creek. Keep motorized use along the fringes for wildlife and scenic enhancement. Gate Trapper Creek and buy the inholdings.

These are major roads which provide significant access into the forest. No alternative considers non-motorized allocations which would include these road corridors. Non-motorized allocations are intended to provide a semi-primitive setting, see FEIS, glossary. The history of timber harvest, mining and private land access in this area results in a roaded setting which would not be well suited for this allocation. See Glossary, Recreation Settings. Even Alternative 3, which allocates the greatest number of acres on the forest to non-motorized, did not include these road corridors.

PI-46. Retain the summer non-motorized emphasis as proposed in Alt 5 for the Gorge Creek vicinity but more of Section 4 and most of Section 3 T4S, R10W should be included. Portions of Sec. 12, 13, 14 T3S, R11W, should be summer non-motorized to protect the area around Granite Lake, especially the fragile wet meadows to the east and north. Motorized access to Cherry Lake gives sufficient access as well to both Granite and Green lakes. All motorized traffic should stop at Cherry Lake.

Alternative 3 includes the area around Granite Lake in a non-motorized allocation, which would close the trails to Granite Lake. No alternative includes the portion of Section 4 around Agnes Lake in non-motorized allocations, to allow access to Agnes Lake. The FEIS describes the effects of Alternative 3 compared to other alternatives in RECREATION AND TRAVEL, "Effects by Landscape". The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

PI-47. Drop the objective to "improve motorized trail opportunities" in this MA, more opportunities are not needed here.

Alternatives 5 and 6 were developed to "balance the demand for diverse recreation opportunities, resource protection and commodity outputs", FEIS, Chapter Two, Descriptions of Alternatives. The preferred alternative increases the non-motorized area in the Pioneers from 32% to 51%. The alternative seeks to balance this by providing improved motorized trail opportunities in select management areas across the forest where those uses and the infrastructure are already developed. The East Face of the Pioneers is one of the areas in the Pioneers that best meets that criteria. Alternative 3 limits those opportunities in the East Face through more motorized allocations and tighter road density objectives. The Record of Decision will display the rationale for choosing the selected alternative over the others.

PI-48. Add a standard "no net increase in road or motorized trail density".

Alternative 3 prescribes a road density objective of 1.0 miles per square mile for the Pioneers, compared to the existing 1.2 mi/sq. mi. density. This would result in no net increases. The effects

of this road density on recreation in the Pioneers is described in the FEIS, RECREATION AND TRAVEL, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

PI-49. Retain the winter closures as proposed in the Draft Plan.

The preferred alternative retains the winter closures proposed in the Draft Plan.

PI-50. Limit snowmobile use to existing roads in the east half of this MA which is ungulate winter range.

Alternative 3 allocates the portion of East Face around Rock Creek to winter non-motorized uses. No other alternative allocates non-motorized areas in the low elevations on the east half. The Forest Plan makes decisions about land allocations, goals, objectives and standards, not site-specific management of routes. Confining snowmobile use to designated routes within areas open for use can be considered during site-specific travel planning.

PI-51. Close this MA to motorized use in summer.

No alternative considers non-motorized allocations for the entire management area. Non-motorized allocations are intended to provide a semi-primitive setting, see FEIS, glossary. The history of timber harvest, mining and private land access in a good portion of this area results in a roaded setting, not well suited for this allocation. See Glossary, Recreation Settings. Even Alternative 3, which allocates the greatest number of acres on the forest to non-motorized, did not include the entire management area.

PI-52. Include the upper Birch Creek drainage in a non-motorized area to protect wildlife habitat and as an area for primitive recreation.

No alternative considers non-motorized allocations to include this road corridor. Non-motorized allocations are intended to provide a semi-primitive setting, see FEIS, glossary. The history of timber harvest, mining and private land access in this area results in a roaded setting which would not be well suited for this allocation. See Glossary, Recreation Settings. Even Alternative 3, which allocates the greatest number of acres on the forest to non-motorized, did not include these road corridors.

PI-53. Closing the road on the east edge of the non-motorized area in Lost Creek (area 5-P10-11) will eliminate a good loop trail for motorized users. Adjust the non-motorized boundary.

The preferred alternative drops this non-motorized area, leaving these routes available for motorized use.

PI-54. Leave roads in the Dyce Creek area open to motorized use for management of fire, timber and weeds.

The preferred alternative allocations result in all but one road open in Dyce Creek.

PI-55. Open the trail from the Mule Creek road parking area at Minneopa Lake to Kelly Reservoir to motorized uses.

The current travel plan will continue to apply to that trail (restricted April-December) in all alternatives except Alternative 3, which closes the area through a non-motorized allocation. Travel restrictions in the 1996 Interagency Travel Plan still apply in both backcountry motorized and roaded areas, see FEIS, RECREATION AND TRAVEL, Effects Common to all Alternatives.

Pioneer Mountain Scenic Byway Management Area

PI-56. Leave the area proposed for winter non-motorized open, it doesn't really benefit the public or wildlife. Instead, close Vipond Park to snowmobiles – elk really do use that area.

Alternatives 2 and 4 do not allocate the area north of Gold Creek to winter non-motorized uses. No alternatives propose a non-motorized allocation in Vipond Park based on Ranger District input that Vipond Park is used more than the other unit by snowmobilers and the elk have moved out of the area by winter. The FEIS compares the effects by alternative in RECREATION AND TRAVEL, "Effects by Landscape". The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

PI-57. Close the Byway to motorized use.

No alternative considered closing the Pioneer Mountain Scenic Byway to motorized use. The Forest Service has a sizeable investment in facilities up and down the route – including 8 developed campgrounds, Crystal Park, and access to Maverick Mountain Ski Area and Elkhorn Hot Springs.

PI-58. Add roadless area F1-0008 (Pioneer Byway) from Gold Creek north to Sheep Creek to the Torrey Mt Wilderness recommendation boundary. This was originally kept out because of mineral deposit potential. Exploration showed deposits to be uneconomical for mining. Scars are healing and only cover a small portion near Black Lion Lake.

The preferred alternative includes subunit F1-008 (renamed subunit 1-008I in the FEIS Appendix C for tracking sake). See Appendix C for a detailed description of the ratings. The summary table in Appendix C shows a Moderate Capability rating for the subunit, but it was at the high end of the breakpoint, as is indicated in the narrative descriptions.

PI-59. Join the east and west Pioneers into a single wilderness. Focus the motorized use in Maverick Mt area by constructing challenging motorized trails.

The Scenic Byway road corridor and all of its associated developments divides the east and west Pioneers. This extensive road corridor will not qualify for wilderness suitability (FSH 1909.12 71.1, 8/3/92). In addition, the Forest Service will continue to manage the West Pioneer WSA according to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, "Elements Common to All Alternatives".

PI-60. Drop the objective to manage the Pioneer Loop Trail as motorized. It was originally proposed for foot and horse use, not motorized use.

The preferred alternative drops that objective.

PI-61. Improve grazing management to reduce stream bank damage along the Wise River, it is showcasing poor grazing and conflicts with recreation.

Forestwide grazing standards in the Plan implementing Alternative 6 are designed to protect uplands, riparian areas and winter range from negative impacts of grazing, see Plan. The FEIS states that the BDNF will use the allotment management planning process to determine the site-specific permit actions necessary to meet Forest Plan desired conditions, objectives, and standards.

PI-62. Retain the winter closures as proposed in the Draft Plan.

The preferred alternative retains winter closures proposed in the Draft Plan.

PI-63. Limit motorized use on the west side of the corridor to protect lynx and wolverine habitat in the West Pioneers.

Alternative 3 extends the summer non-motorized allocations on the west side of the Byway corridor. The FEIS compares the effects of non-motorized closures by landscape under RECREATION AND TRAVEL, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

PI-64. Maintain all existing dispersed campsites along the Byway and create new dispersed campsites where reasonable.

Ranger Districts will be designating dispersed campsites through the travel planning process. They may or may not consider additional sites at that time.

Quartz Hill Management Area

PI-65. Add a standard “No net increase in motorized use” to this heavily motorized area.

Alternative 3 limits motorized opportunities in Hunting District 331 (East half of the Pioneers) through summer and fall road density objectives that are tighter than the existing condition. Alternatives 5 and 6 limit any increase in motorized use in just the fall through road density objectives. The Record of Decision will display the rationale for choosing the selected alternative over the others.

PI-66. Retain the emphasis and objectives proposed in the Draft Plan.

The preferred alternative retains the emphasis proposed in the Draft Plan. (There were no objectives proposed).

PI-67. Close the area in Swamp and Adson Creeks to summer and winter motorized use.

No alternative includes the Swamp Adson Creeks in non-motorized allocations. Non-motorized allocations are intended to provide a semi-primitive setting, see FEIS, glossary. This area is in a road setting which would not be well suited for this allocation. See Glossary, Recreation Settings. Even Alternative 3, which allocates the greatest area to non-motorized areas, does not include this road corridor

West Face Management Area

PI-68. Doolittle Creek – Make the North Fork a hiker trail head and Middle Fork a horse trail head, the trails will meet a mile up on the Pioneer Loop route. Create more car camping areas along the now shorter roads, with toilet vaults. Close and rehab most the sagebrush ridge trails and eliminate the loop routes. To pay, cut some timber along the roads before you finally obliterate them. When possible burn along the roads just after logging. Keep cows out of bottom willows. Spread drivers out at the forest edge, but don't allow them to motor deep in or across the forest.

The Forest Plan makes decisions about land allocations, goals, objectives and standards. It does not make decisions about site-specific issues like gates, trail additions, types of users, or cattle herding techniques. See the Six Decisions Made in Forest Plans, Chapter 1.

PI-69. Close road 71238 and/or block off the unofficial roads that run off of it in addition to your higher closure.

Alternative 3 allocates that area from Doolittle to Salesky Creek as non-motorized, which would have the effect of closing road 71238. It remains open in all other alternatives. However, this does not preclude the Forest Service from closing or restoring unneeded roads or roads creating resource damage if they're identified during upcoming travel planning in the area.

PI-70. Add a standard stating “No net increase in motorized trails and primitive roads” in this heavily roaded area.

The Forest Service recognizes the conflict between protecting elk security and providing motorized access in the West Face management area. There are two ways the Plan can deal with this conflict, by allocating portions of the area to non-motorized uses and through road density objectives. Because of the support for roaded and backcountry opportunities in the West Face, the preferred alternative deals with the road issue by setting a wildlife fall road density objective equivalent to the current condition of .8 miles/square mile. This will cap motorized trails and roads at the current level. Rationale for selecting Alternative 6 is contained in the Record of Decision.

PI-71. Add a standard requiring a “net decrease in permanent road and motorized trail density”.

Alternatives 5 and 6 were developed to “balance the demand for diverse recreation opportunities, resource protection and commodity outputs”, FEIS, Chapter Two, Descriptions of Alternatives. The preferred alternative increases the non-motorized area in the Pioneers from 32% to 51%. The alternative seeks to balance this by providing improved motorized trail opportunities in select management areas across the forest where those uses and the infrastructure are already developed. The West Face of the Pioneers is one of the areas in the Pioneers that best meets that criteria. Alternative 3 limits those opportunities in the through more non-motorized allocations and tighter road density objectives. The Record of Decision will display the rationale for choosing the selected alternative over the others.

PI-72. Leave Road #40 in the Toomey Creek drainage open to motorized travel during hunting season. Otherwise all hunting access to this area will require fording the river on Road #180 in Sawlog Drainage. This ford is a critical grayling holding pool, fording the river should not be encouraged.

Thank you for pointing this out. We adjusted the non-motorized allocation in the preferred alternative to exclude Toomey Creek drainage for this reason.

PI-73. If the FS can't treat noxious weeds in Sawlog because of the river ford, you should close the area to motorized access. Make this area a "walk-in" experience.

Alternative 3 includes the Sawlog drainage in a non-motorized allocation, making access into Sawlog a "wade in" "walk-in" experience. The Record of Decision will display the rationale for choosing the selected alternative over the others.

PI-74. Drop the road density to .5 in this Landscape, to meet the FWP objectives for trophy bulls.

The FWP Elk Management Plan objectives for Hunting Unit 332 allow harvest of any elk all season long. The Plan is silent about trophy bulls.

The preferred alternative reduces road density objectives from 1.0 in the current and draft Plans to .8 miles / square mile. Alternative 3 drops the road density to .7 miles/square mile. The Record of Decision documents the rationale choosing the selected alternative over the others.

PI-75. Expand the non-motorized area in Walker Creek and Toomey Cr (5-P10-09, 5 P10-13) to include all of Sawlog and the remaining part of Toomey Cr.

Alternative 3 expands that non-motorized area to include the area described. The Record of Decision will display the rationale for choosing the selected alternative over the others.

PI-76. Add an objective to acquire private inholdings in Squaw and Warm Springs Creeks.

We considered adding specific land adjustment objectives by management area for the Plan. However, the Forest's history of successful land adjustments is based on opportunity and willingness of landowners rather than Forest priorities or objectives. We responded by establishing a Forestwide goal in the preferred alternative to improve national forest management through purchase, exchange, or other authority as opportunities arise. If the opportunity arises to acquire these inholdings, the Forest Plan will support that action.

PI-77. Do not allocate suitable timber lands from Salefsky Creek to Walker Creek in the north and the entire lower Warm Springs drainage in the South.

While the preferred alternative allocates lands suitable for timber production in the West Face management area, no suitable timber land is portrayed north of Salefsky Creek or in the Warm Springs drainage north of Wood Canyon. These areas were excluded from the definition of suitable timber lands because they overlap with key fisheries watersheds or inventoried roadless areas, See Plan, Timber Harvest Classification Protocol.

PI-78. Manage for non-motorized use in summer.

Alternative 3 includes all of the areas in the West Face that meet the setting criteria for summer non-motorized allocations. Parts of the West Face are in a roaded setting which would not be well suited for this allocation. See Glossary, Recreation Settings. Even Alternative 3, which allocates the greatest area to non-motorized areas does not include the roaded portions of the West Face in non-motorized. The Record of Decision will display the rationale for choosing the selected alternative over the others

PI-79. Expand the winter closure east to include the entire MA to protect prime lynx habitat.

Alternative 3 includes the entire MA in winter non-motorized allocations. The FEIS compares the effects of non-motorized closures by landscape under RECREATION AND TRAVEL, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

As the FEIS points out (Wildlife, affected environment, first page) the Northern Rockies Lynx Amendment concludes that the BDNF is not occupied by lynx. Modeling of lynx habitat shows it widespread across all areas of the forest.

PI-80. Close all roads that are not being maintained to FS standards in this heavily roaded area.

The Forest Plan makes decisions about land allocations, goals, objectives and standards. It does not make decisions about site-specific issues like closure of roads in poor maintenance condition. See the Six Decisions Made in Forest Plans, Chapter 1. Road or trail closures would be a result of Plan allocations for non-motorized recreation or recommended wilderness. As we do transportation analysis to implement travel decisions and watershed restoration, the minimum necessary road system will be addressed on a site-specific basis.

PI-81. Do not close road Black Mountain Road #2400 because I use it to access dense down and standing dead timber for firewood.

Road 2400 remains open in all alternatives.

Tobacco Root Landscape

TB-1. Allocate the high country to recommended wilderness.

Alternative 3 recommends 40,000 acres in the high country of the Tobacco Roots as wilderness. The preferred alternative does not. The FEIS compares the effects of alternatives, Inventoried Roadless Areas and Recommended Wilderness, Summary of Effects by Alternative. The Record of Decision will display the rationale for choosing the selected alternative over the others.

TB-2. Develop a system of single track trails in the North Tobacco Root Mountains.

Forest Plan revision does not deal with site-specific additions to road or trail systems. See the FEIS, Chapter One, “Decisions to be Made”. Opportunities are addressed primarily through allocations of land for various uses. Non-motorized and backcountry recreation allocations proposed by the preferred alternative in the north end of the Tobacco Roots are compatible with developing this suggestion.

TB-3. There are not enough summer non-motorized opportunities in this landscape.

Alternative 3 allocates 58% of the Tobacco Root Landscape to non-motorized uses in summer, converting 80 miles of road and trail to non-motorized opportunities. The effects of these closures compared to those proposed in the preferred alternative are described for the Tobacco Roots landscape in the FEIS, RECREATION AND TRAVEL, “Effects by Landscape”. The

Record of Decision will display the rationale for choosing the selected alternative over the others.

TB-4. Retain all the non-motorized proposals in Alt 5.

The preferred alternative retains all the summer non-motorized proposals in Alternative 5. It adjusts the winter non-motorized area to leave the road open above Mammoth for 3 miles and leave the slope above Mill Creek open.

TB-5. Road use should be restricted in the Tobacco Roots and no new roads built.

Alternative 3 allocates 58% of the Tobacco Root Landscape to non-motorized uses in summer, converting 80 miles of road and trail to non-motorized opportunities. The effects of these closures compared to those proposed in the preferred alternative are described for the Tobacco Roots landscape in the FEIS, RECREATION AND TRAVEL, “Effects by Landscape”. The Record of Decision will display the rationale for choosing the selected alternative over the others.

TB-6. Improve the balance of recommended wilderness, primitive non-motorized and managed motorized areas, protecting mountain goat and wolverine habitat.

All action alternatives raise levels of non-motorized area in the Tobacco Roots, allocating areas important to mountain goat and wolverine habitat. Alternative 3 raises the summer non-motorized balance to 58% and the winter balance to 67%. The preferred alternative raises the winter non-motorized levels, those most important to mountain goats and wolverine, from the current 5% to 52%. See FEIS, RECREATION AND TRAVEL, “Effects by Landscape” and WILDLIFE, “Effects on wildlife from Recreation and Travel”.

TB-7. Retain and improve on your proposal to leave the south end of the Landscape open for motorized and leaving the north end for non-motorized users.

The recreation allocations proposed in Alternative 5 have been retained except for two adjustments to winter non-motorized, to accommodate snowmobiles traveling up the road beyond Mammoth, and to allow for an existing play area on the slopes north of Mill Creek.

TB-8. The revised Forest Plan should correct the information and mapping of the Tobacco Roots Roadless Area 1-1013 to include the Moggolian Lode Claim and Mill Site.

We corrected the information in Appendix C for area 1-013 to account for the information shared by Tobacco Mountain Gold, see the Plan, #1-013.

TB-9. Close, shorten or gate roads in South Meadow Creek, North Meadow Creek, South Willow Creek, and Mill Creek. Close random jeep trails anywhere, especially in sagebrush.

The roads referred to here are well traveled, constructed, graveled, system roads providing access to large areas of the Forest. No resource or social issues were identified specific to any of these roads which would drive us to consider closing them. No alternative considered closing any of these.

Alternative 3 non-motorized allocations would result in the closure of 80 miles of roads and trails, many of them 2-track jeep or ATV routes. The preferred alternative would close 2 miles of

trail. See the FEIS, RECREATION AND TRAVEL, “Effects by Landscape”. The Record of Decision will display the rationale for choosing the selected alternative over the others.

Brown Back Management Area

TB-10. Do not close the Pole Canyon area for elk wintering, they winter in Shaw Basin and Temple Ranch.

This comment is correct in that winter range is mapped from Perry Canyon north and on sections 7 and 8 north of Pole Canyon. However, the non-motorized allocation described in the Draft Plan was for both winter non-motorized recreation and wildlife security.

Alternatives 1, 2, and 4 leave Pole Canyon area and all of Brown Back open to winter use. The effects of these closures compared to those proposed in the preferred alternative are described for the Tobacco Roots landscape in the FEIS, RECREATION AND TRAVEL, “Effects by Landscape”. The Record of Decision will display the rationale for choosing the selected alternative over the others.

TB-11. Close more of this MA to summer motorized use to prevent weeds and protect watersheds.

Alternative 3 allocates more of this Management Area to summer non-motorized uses. See the FEIS, RECREATION AND TRAVEL, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

Meadow Creek Management Area

TB-12. Gate the road to South Meadow Lake, don’t make loop trails and make mining companies pick up historic junk piles.

The Forest Plan makes decisions about land allocations, goals, objectives and standards. It does not make decisions about site-specific issues like gates, trail additions, and garbage. See the Six Decisions Made in Forest Plans, Chapter 1.

TB-13. Designate a winter non-motorized loop trail in South Meadow Creek.

The Forest Plan makes decisions about land allocations, goals, objectives and standards. It does not make decisions about site-specific issues like gates, trail additions, and garbage. See the Six Decisions Made in Forest Plans, Chapter 1. While no alternative allocates a winter non-motorized block in the lower end of South Meadow, this does not preclude the Forest Service from designating a non-motorized loop trail in the area.

TB-14. Protect the winter range on the eastern edge from snowmobile use and limit snowmobiles to designated routes.

Alternative 3 allocates the largest portion of the eastern edge to winter non-motorized uses. Alternative 5 has the next highest amount with Alternative 6 close. See the FEIS, RECREATION AND TRAVEL, “Effects by Landscape” and WILDLIFE, “Big Game Winter Range Effects”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

Mill Creek Management Area

TB-15. Close the road to full size vehicles in two miles and make the rest an OHV trail.

The Mill Creek road is a popular high standard road which accesses developed campgrounds, mining claims and private lands beyond the first two mile stretch. No resource or social issues were identified specific to this road which would drive us to consider closing it.

TB-16. Retain the management direction proposed in Alternative 5.

The preferred alternative retains the management direction for Mill Creek proposed in Alternative 5.

Middle Mountain Management Area

TB-17. Close high alpine areas to motorized use to protect soil and vegetation.

All alternatives prohibit cross-country travel, based on the 2001 OHV Plan Amendment for Montana, North Dakota and South Dakota which is incorporated in Plan direction, see the Plan, Recreation and Travel Management, Standard 4.

Alternative 3 allocates most of the high alpine area in Middle Mountain to non-motorized uses. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

TB-18. Close trail #160 as proposed in Alt 5 but leave trail #154 off the South Boulder Road open to motorized use.

Between the Draft and Final EIS, Trail 160 was removed from the trail inventory below section 28. There is no longer a visible trail on the ground. Trail #154 remains open in the preferred alternative.

TB-19. Offer more non-motorized trail opportunities in this area before motorized use builds up any more.

Forest Plan revision does not direct site-specific decisions like constructing additional roads and trails. However, miles of non-motorized trails may increase in some alternatives as a result of land allocations (like recommended wilderness) which convert trails from motorized to non-motorized. In the case of the Middle Mountain area, non-motorized allocations in Alternatives 2 and 3 close some roads and trails which could contribute to meaningful non-motorized trail opportunities. The Record of Decision will display the rationale for choosing the selected alternative over the others.

The Plan for the preferred alternative includes a standard for Middle Mountain, “no expansion of motorized trails”.

TB-20. Retain the winter non-motorized area of Alt 5 but offer more summer non-motorized in Cataract, Curly Creek and McGovern Creek drainages.

The preferred alternative retains the winter non-motorized allocations proposed in Alternative 5 for this area. Alternatives 2 and 3 offer more summer non-motorized in the area described than Alternative 5 or 6. The effects of these changes by alternative on the Tobacco Root Landscape

are described in the FEIS, RECREATION AND TRAVEL, “Effects by Landscape”. The Record of Decision will display the rationale for choosing the selected alternative over the others.

TB-21. Recommend wilderness for this MA.

Appendix C evaluates the wilderness suitability of Tobacco Root inventoried roadless area #1-013 and displays the effects of different alternatives on the area. Alternative 3 recommends Middle Mountain for wilderness. The FEIS describes the effects of wilderness recommendations for Alternative 3 compared to other alternatives. The Record of Decision will display the rationale for choosing the selected alternative over the others.

TB-22. Close the trail from Curley Lake to Sailor Lake to motorized vehicles.

Alternative 3 allocates more of this Management Area to summer non-motorized uses, which has the effect of closing the Curley Lake and Sailor Lake trails/roads. See the FEIS, RECREATION AND TRAVEL, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

TB-23. Retain motorized closures between Louise Lake and Manhead Mountain.

The preferred alternative does retain the non-motorized allocation that results in these closures.

TB-24. Restrict horse use on the Louise Lake and Lost Cabin Trails. Horse trailers are eroding the road to the trailhead and it has not been maintained in years.

The Forest Plan makes decisions about allocations, goals and objectives. We did not address type of use on trails within non-motorized allocations. That is a site-specific decision that would be made during future travel planning.

Ramshorn Management Area

TB-25. Make the summer non-motorized closure a winter closure as well before snowmobiling use does develop there.

We did not consider closing part of the Ramshorn area in any alternative. This area is hard to reach in the winter by road and is not popular snowmobile terrain. Winter closures directed at cross country skiing were designed, under any alternative, to provide opportunities for skiers with easy access to highways or roads without competition from snowmobiles, see Chapter 2, Elements Common to All Action Alternatives, Non-motorized Allocations. The intent of these allocations was not to provide remote experiences difficult to reach by the ordinary skier.

TB-26. Add summer non-motorized area in Harris and California Creek key watersheds.

Non-motorized allocations are intended to provide a semi-primitive setting. Because of the history of mining, harvest and private land access, this area is in a roaded setting and would not be well suited for this allocation. See Glossary, Recreation Settings. Even Alternative 3, which allocates the greatest number of acres on the forest to non-motorized, did not include this piece of ground.

South Boulder Corridor Management Area

TB-27. Leave the road above Mammoth open in winter to the Bismark Lake parking area. .

We received this comment from a number of Mammoth residents and made this change in the preferred alternative. It will remain open in winter.

TB-28. Close the road back a few miles sooner to make a larger non-motorized area.

The South Boulder road is a heavily used system road that accesses a reservoir, private land, mining claims and two National Recreation Trails. There were no specific issues identified with the road itself. Even Alternative 3, which maximizes non-motorized allocations, did not include the South Boulder road.

TB-29. Retain the management direction proposed in Alt 5.

The preferred alternative retained the management direction for South Boulder Corridor proposed in Alternative 5, with the exception of adjusting the winter non-motorized allocation on the road above Mammoth.

South Willow Corridor Management Area

TB-30. Add more non-motorized winter closures in Section 22 and 23 above the campground. Consider closing the road above Potosi Campground to motorized winter traffic. It is moose habitat and good cross-country skiing.

The purpose of winter non-motorized allocations is explained in Chapter 2 of the FEIS, “Elements Common to All Action Alternatives”. No alternative allocates the extent of the South Willow road to non-motorized uses. The preferred alternative provides ample non-motorized areas in South Willow, on both sides of the Canyon with easy access from the end of the plowed road. The road corridor above the plowed trailhead was left open in all alternatives to retain a popular snowmobile route to Granite Lake and Bell Lake, the only route that remains open accessible from the Pony/Harrison area.

The FEIS describes the effects of winter closures in the Tobacco Root Landscape under RECREATION AND TRAVEL MANAGEMENT, “Effects by Landscape”. The preferred alternative increases winter non-motorized opportunities in this Landscape from 5% currently, to 57%.

Tobacco Root Peaks Management Area

TB-31. Close high alpine areas to motorized use to protect soil and vegetation.

Alternative 3 allocates most of the high alpine areas in the Tobacco Root Peaks to non-motorized. Alternative 6 allocates more area than Alternative 5 to non-motorized. Where roads are left open, the Management Area has an objective to mitigate impacts to other resources. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

TB-32. Close the area around Hollowtop Lake to summer motorized use.

Alternative 3 allocates the area around Hollowtop Lake to summer non-motorized. The FEIS describes the effects of Alternative 3 compared to other alternatives in RECREATION AND

TRAVEL, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

TB-33. Increase the size of the non-motorized area. Offer more non-motorized trail opportunities in this area before motorized use builds up.

Alternative 3 allocates most of the high alpine areas in the Tobacco Roots Peaks to non-motorized. Alternative 6 allocates more area than Alternative 5 to non-motorized. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

Forest Plan revision does not direct site-specific decisions like constructing additional trails. However, miles of non-motorized trails will increase in some alternatives as a result of non-motorized land allocations which convert trails from motorized to non-motorized. In the case of the Tobacco Root Peaks area, non-motorized allocations in Alternatives 3 close some roads and trails which could contribute to meaningful non-motorized trail opportunities.

TB-34. Provide more non-motorized trails, especially to mountain lakes.

Alternative 3 allocates most of the high alpine areas in the Tobacco Roots Peaks to non-motorized, leaving access to Hollowtop, Albrow, and the Twin Lakes basin non-motorized. Alternative 6 allocates more area than Alternative 5 to non-motorized but does not add any popular lake trails to non-motorized. The FEIS describes the effects of Alternative 3 compared to other alternatives in RECREATION AND TRAVEL, “Effects by Landscape”, “Tobacco Roots Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

TB-35. Retain the closure at the head of Indian Creek as proposed in Alt 5.

The preferred alternative retains this closure as proposed in Alternative 5.

TB-36. Add non-motorized areas in the South Fork of Mill Creek, section 21, 28 and 27, 26 and 34 to protect wolverine and lynx habitat.

The preferred alternative includes non-motorized areas in all of the sections mentioned here.

TB-37. Make the corridor to Granite Lake non-motorized to reflect the current status of the road.

This comment is in error. Granite Lake road is currently open to motorized vehicles. The preferred alternative includes the road in a roaded allocation which reflects the current status of the road.

TB-38. Extend the non-motorized area 5-TR-01 into the Daisy Creek/Virginia Creek area, to close Bell Lake all the way to South Willow Creek, and to fill the area between South Indian Creek and Mill Creek.

Alternative 3 allocates most of the high alpine areas in the Tobacco Roots Peaks to non-motorized, including Bell Lake, the fringes to Indian and Mill Creek. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the others.

The Daisy Creek/Virginia Creek area is not allocated non-motorized in any alternative. Non-motorized allocations are intended to provide a semi-primitive setting. Because of the history of mining and harvest this area is in a roaded setting and would not be well suited for this allocation. See Glossary, Recreation Settings. Even Alternative 3, which allocates the greatest number of acres on the forest to non-motorized, did not include this piece of ground.

TB-39. Leave the trails to Thompson Reservoir, Rossitor, Sunrise, and Twin lakes open to motorized vehicles. There is light enough use that hikers and riders can share the area.

These lakes on the west side of the Tobacco Roots are already closed to motorized vehicles in the current travel plan. The Forest Service recognizes there are a limited number of lakes in the Tobacco Roots available for hikers and horsemen alone. We don't propose to reduce the opportunity for non-motorized hikers to access lakes under any alternative.

Twin Lakes in North Meadow Creek remain open to motorized use in the preferred alternative.

Wisconsin Management Area

TB-40. Close deteriorating roads.

We did not consider allocating this area to non-motorized in any alternative. This area of the Tobacco Roots has a higher concentration of private land in patented claims than the rest. Road access is tied to many of these. The preferred alternative includes an objective to mitigate impacts of roads to soil and water.

TB-41. Close the trails to motorized use

Trails in the Wisconsin Management Area are currently all closed to motorized use and will remain so. Only the roads are open.

Upper Clark Fork Landscape

UCF-1. The revised Forest Plan should retain the proposed motorized closures for O'Neil Creek.

The preferred alternative retains the non-motorized allocations proposed in the Draft for O'Neil Creek.

UCF-2. Develop an OHV route from Ontario Creek to Basin Creek mine area. Develop an OHV loop from Delmoe Lake to Our Lady of the Rockies.

Forest Plan revision does not direct site-specific decisions about system roads and trails. While roads or trails may be closed as a result of Plan allocations for non-motorized recreation or recommended wilderness, the Plan does not consider site-specific additions to the system, changes to locations, or closures other than those affected by allocations. Alternatives 1, 2, and 4 make recreation allocations that would allow development of OHV routes in these areas. The FEIS compares the effects of alternatives on recreation opportunities under RECREATION AND TRAVEL, "effects by alternative". The Record of Decision will document the rationale for selecting the final alternative

UCF-3. Retain the non-motorized areas as proposed in Alternative 5.

Forest Plan revision does not direct site-specific decisions about system roads and trails. While roads or trails may be closed as a result of Plan allocations for non-motorized recreation or recommended wilderness, the Plan does not consider site-specific additions to the system, changes to locations, or closures other than those affected by allocations. Alternatives 1, 2, and 4 make recreation allocations that would allow development of OHV routes in these areas. The FEIS compares the effects of alternatives on recreation opportunities under RECREATION AND TRAVEL, “effects by alternative”. The Record of Decision will document the rationale for selecting the final alternative

North East Fleecer Management Area

UCF-4. Increase non-motorized winter skiing and snowshoeing access and restrict snowmobiles.

The FEIS displays the rationale for winter non-motorized allocations in Chapter 2, “Elements Common to all Action Alternatives”. Each alternative has a range of acreage in non-motorized allocations depending on the emphasis of the alternative. No alternative increases non-motorized winter allocations in North east Fleecers. This does not preclude establishment of ski and snowshoe trails during site-specific implementation.

UCF-5. Include a standard for “No net increase in motorized trails”.

The Forest Plan addresses road and trail density through landscape road density goals, Plan, Wildlife. The Northeast Fleecers, hunting unit #341 are currently at a fall road density of .6 miles per square mile. The Plan sets an objective to reduce density in #341 to .5 miles/square mile. This will trigger a reduction in motorized roads and trails. Little or no increase in motorized trails could occur and still meet the goal. The south end of the management area, within Hunting District #319 meets the Fall Hunting Season objective of .6 mi. /sq. mi. Again, no increase in motorized roads and could occur and still meet the goal.

UCF-6. Strike the misleading statement that the Beal mine has been reclaimed. The stream still suffers from toxic runoff and the public is paying to clean it up.

That statement has been removed from the description of the Northeast Fleecer management area.

UCF-7. Close upper German Gulch and Divide Creek to motorized use in summer (WCT habitat).

Alternative 3 allocates two blocks of non-motorized area in the north end of the Fleecers, German Gulch area. The FEIS describes the effects of Alternative 3 compared to other alternatives in RECREATION AND TRAVEL, “Effects by Landscape”. The deciding official proposes to select Alternative 6. The Record of Decision will display the rationale for choosing the selected alternative over the other

More importantly for the protection of WCT habitat, the preferred alternative designates German Gulch as a key fisheries watershed. The FEIS concludes that alternatives with the comprehensive strategy for fisheries, based on key watersheds, will provide the greatest rate of improvement for westslope cutthroat trout. See AQUATIC RESOURCE MANAGEMENT, “Effects on Aquatic Species from Aquatic Species Management”.

Backyard Butte Management Area

UCF-8. Allocate all of Thompson Park to non-motorized use year around, not just the east side. Mountain bikes should be allowed.

The preferred alternative extends the non-motorized allocation down to the road corridor (established at 300 feet). The Forest Plan does not include mountain bike closures in non-motorized areas, only in Recommended Wilderness.

UCF-9. Allow motorized use in the western end of the MA – it is easily accessed from Little Basin Cr Rd and provides reasonable motorized opportunities. The current OHV trails have been mapped by the FS and users and no expansion or restriction is needed.

The non-motorized allocation proposed in the Draft was dropped in this area. Motorized use may continue as currently allowed.

UCF-10. Please reconsider your proposal to allow motorized vehicles on the trails adjacent to Camp Castle Rock. I feel this will dramatically change the safety, security, and tranquility of this special Girl Scout sanctuary.

We clarified in the FEIS, Chapter 2, “Elements Common to All Alternatives” that current travel plan restrictions on types of use and season apply to roaded and backcountry allocations in the preferred alternative and all areas outside of non-motorized allocations in Alternatives 1-5. Current closures to motorized use around Camp Castle Rock will continue to apply under all alternatives.

UCF-11. Retain winter non-motorized areas and increase summer non-motorized opportunities.

The preferred alternative retains winter non-motorized area proposed in the Draft and increases summer non-motorized opportunities from 16% to 17%.

UCF-12. Retain proposed direction for Alt 5 which recognizes the urban demands on this MA.

The preferred alternative retains the management area direction for this MA proposed in Alternative 5.

Basin Municipal Watershed Management Area

UCF-13. Add sections 11, 14, and 12 to the non-motorized allocation.

Because of the private land inholdings in these sections, only portions of each section were considered in non-motorized allocations, regardless of alternative.

Butte North Management Area

UCF-14. Adopt a strategy to remove roads no longer needed to promote responsible recreation use.

The Forest Plan has three strategies which may result in reduced road and trail densities, non-motorized allocations, road density goals by Landscape and Hunting District, or designation as a

key fisheries or restoration watershed. No alternative proposes non-motorized allocations in the Butte North MA.

The wildlife road density objective for Hunting District #215 in Alternative 6 is 1.5 miles per square mile, which will require eventual closure of 52 miles of roads and trails.

Columbia Gulch is designated a key fisheries watershed. The following standards may lead to the removal of roads no longer needed to promote resource uses: Aquatic Standards 8 and 9 for key fisheries watersheds and Standard RF-2c which is applied forestwide. Site-specific roads analysis and travel planning will consider which roads need to be reduced in the strategy to maintain the minimum roads necessary.

UCF-15. Increase security for wildlife in this area and add a standard to maintain and improve wildlife connectivity.

Security for wildlife is addressed in the preferred alternative through road density goals by Landscape and Hunting District. The wildlife road density objective for Hunting District #215 is to reduce the existing condition of 1.9 miles per square mile to 1.5 miles per square mile.

Upper Rock Creek Landscape

URC-1. Make protection of water quality/fisheries the primary management goals for the rock creek watershed.

The preferred alternative (Alternative 6) does this. Outside of wilderness or recommended wilderness, every management area in Upper Rock Creek landscape emphasizes native fish conservation, except for Upper Willow management area. No suitable timber base was allocated in the Rock Creek watershed.

URC-2. Protect the Rock Creek drainage from development.

We feel the preferred alternative does this. In addition to the designated wilderness, the preferred alternative recommends three additional wilderness areas or add-ons, it maintains the Sapphire wilderness study area, allocates several blocks of non-motorized area and establishes a native fish emphasis (key fisheries watersheds) in all but one management area. In addition, the preferred alternative does not allocate suitable timber land in Rock Creek drainage.

URC-3. Do not allocate suitable timber lands in the Rock Creek watershed.

The Plan does not allocate suitable timber lands in the Rock Creek watershed.

URC-4. Coordinate standards and objectives in Rock Creek with the Lolo National Forest using their approach to wilderness, timber and recreation and the Beaverhead-Deerlodge aquatic standards.

We have coordinated with the Lolo National Forest throughout the Forest Plan Revision process, especially with roadless area evaluations and recommendations for wilderness. The Lolo National Forest chose to develop their new plan under the 2000 Planning Rule, while the BDNF completed the Plan under the 1982 Planning Regulations. The two Plans will make slightly different decisions and have a different product as a result.

The aquatic standards were developed based on the Northern Region approach to viability of native fish populations and are consistent with other Forests.

URC-5. Retain the watershed protection and restoration emphasis in Rock Creek.

The plan retains the watershed protection and restoration emphasis proposed in the Draft Plan. The majority of the landscape is designated key fisheries watershed.

URC-6. Establish a multi-forest watershed conservation plan that prevents sediments from roads and ATVs fouling the pristine waters of Rock Creek.

The preferred alternative emphasizes watershed and fisheries conservation in Rock Creek. See Plan, Rock Creek Landscape, Management Area direction. Forestwide aquatic standards The FEIS finds that Alternatives 3, 5, and 6 provide substantially greater benefits to aquatic resources based on extensive prescriptive standards forestwide, and emphasizing westslope cutthroat and bull trout conservation through an adequate number and distribution of key watersheds. This is based on the Northern Region approach to viability of native fish populations and is consistent with other Forests.

URC-7. Close or shorten West, Middle, and Ross forks and all branching roads from East Fork Reservoir.

Alternative 3 allocates 74% of the Rock Creek Landscape in either non-motorized or recommended wilderness allocations. These allocations result in road closures in the watersheds mentioned. The FEIS compares the effects of these allocations between alternatives in RECREATION AND TRAVEL, “Effects by Landscape”. The Record of Decision documents the rationale for the final alternative selection.

URC-8. Retain all non-motorized allocations proposed in Alt 5.

The preferred alternative retains all of the non-motorized allocations from alternative 5 in either non-motorized or recommended wilderness allocations.

URC-9. There are many areas in the Rock Creek Landscape along the Anaconda-Pintler boundary that could be recommended for addition.

Yes. The preferred alternative adds lands in upper East Fork to the Anaconda-Pintler Wilderness. Other areas along the boundary are allocated to non-motorized uses.

URC-10. Include Suitable timber lands in Rock Creek, especially on the western and southern side of Granite County and allow harvest under the Healthy Forests Act.

We included suitable timber lands in Rock Creek in Alternatives 1, 2, and 4. The preferred alternative does not include suitable timber land in Rock Creek but it allows harvest for purposes such as fuel reduction, aspen restoration, or to meet other management objectives, see Plan, Timber, Goals, “Lands Where Timber Harvest is Allowed”. The Record of Decision will document the rationale for selection of the final alternative in regard to suitable timber.

URC-11. Provide more snowmobile use northwest of the AP wilderness.

Opportunities for snowmobile use are available in the preferred alternative in East Fork and the upper end of Middle Fork drainages, including Moose Lake. Opportunities are unchanged in this area except for the high elevation fringe above Carp Creek and Dexter Basin.

URC-12. Manage the Sapphire Crest trail as yearlong non-motorized route.

Regardless of alternative, Forest Plan direction for the Sapphires WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. The Forest Plan will not change the status of Trail #313, which is currently non-motorized from the AP Wilderness to Frog Pond Basin and motorized north and west of that. This does not prevent the Forest Service from making site-specific decisions to close areas or trails in the future based on need.

East Fork Management Area

URC-13. Close the summer non-motorized area along the Anaconda-Pintler boundary should to snowmobiles. Both RNAs should be closed to motorized use.

The preferred alternative recommends most of this non-motorized area for wilderness, which closes it to snowmobiles. Both RNAs would lie within the recommended wilderness boundaries, closing them to snowmobiles as well.

URC-14. Remove all campsites next to the East Fork of Rock Creek just below the East Fork Reservoir and prohibit any camping.

Forest Plan revision does not deal with site-specific decisions like removing dispersed campsites. See the FEIS, Chapter One, “Decisions to be Made”. Opportunities are addressed primarily through allocations of land for various uses or management area objectives. Travel planning scheduled to follow issuance of the revised Forest Plan will determine whether or not to designate or remove dispersed campsites.

URC-15. Add Carp Creek and Copper Creek to the AP Wilderness.

We evaluated the suitability of the Upper East Fork (1-426) and North Carp area (!-425) inventoried roadless area for wilderness. Criteria for identifying suitable wilderness areas are directed by regulation and handbook direction (FSH 1909.12 71.1, 8/3/92). The Upper East Fork (1-426) inventoried roadless area above Carp Creek had a “High” wilderness suitability rating and was recommended wilderness in the preferred alternative. The North Carp area (#-425) rates “Low” was not considered in any alternative. See Appendix C for a detailed description of the ratings.

Middle Fork Management Area

URC-16. Include a statement which acknowledges the role cabins owners have played as good stewards of the forest.

No issues were identified related to cabin owners on private land or in recreational residences on Forest Service land. There is no need to discuss in the FEIS effects, positive or negative, they’ve had on the forest.

URC-17. Eliminate motorized impacts in this management area especially in key areas of upper Lutz, Meyers, and Cougar Creek.

The preferred alternative allocates the Cougar Creek drainage to non-motorized uses. Myers Creek Trail is within the Sapphires WSA, is currently non-motorized and will remain so under any alternative.

Non-motorized allocations are intended to provide a semi-primitive setting. The upper end of Lutz Creek has a long history of access and is considered a roaded setting and would not be well suited for this allocation. See Glossary, Recreation Settings.

Ross Fork Management Area

URC-18. Manage the western part of this management area as winter non-motorized to protect lynx

The Canada lynx is no longer on the forest list of T&E species. On May 12, 2006 Regional Forester Kimbell, and Fish & Wildlife Service Regional Director King signed an amendment to the Lynx Conservation Agreement classifying the Beaverhead-Deerlodge NF as unoccupied by lynx per the National Lynx Survey. The current US Fish & Wildlife Service species list no longer shows the lynx on the forest:

http://montanafieldoffice.fws.gov/Endangered_Species/Listed_Species/Forests.html.

Consequently the forest is no longer required to consult on management effects on lynx.

Sapphires Management Area

URC-19. Keep the Sapphires and Trail 313 non-motorized.

Regardless of alternative, Forest Plan direction for the Sapphires WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. The Forest Plan will not change the status of Trail #313, which is currently non-motorized from the AP Wilderness to Frog Pond Basin and motorized north and west of that. This does not prevent the Forest Service from making site-specific decisions to close areas or trails in the future based on need.

URC-20. ATVs must be accommodated on part of trail 313, the Sapphire Crest Trail.

Regardless of alternative, Forest Plan direction for the Sapphires WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. The Forest Plan will not change the status of Trail #313, which is currently non-motorized from the AP Wilderness to Frog Pond Basin and motorized north and west of that. The portion of Trail 313 currently open to motorized vehicles will remain so.

URC-21. We request a meaningful disclosure or discussion of the disposition of Trail #313 in the Draft Plan or DEIS.

Regardless of alternative, Forest Plan direction for the Sapphires WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. The Forest Plan will not change the status of Trail #313, which is currently non-motorized to Frog Pond Basin and motorized north and west of that.

URC-22. Close the entire management area to snowmobiles to protect important wildlife habitat.

Regardless of alternative, Forest Plan direction for the Sapphires WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. The Forest Plan will not change the status of current snowmobile use in the Sapphires WSA.

Upper Willow Management Area

URC-23. Include the west side of this area (closed to motorized use) in the Quigg recommended wilderness to give better protection to those lands.

The preferred alternative includes the entire roadless area portion of the non-motorized allocation in the wilderness recommendation.

URC-24. Close the area south of Corduroy Creek to summer motorized use to protect Bull Trout habitat.

Alternative 3 allocates this area to non-motorized uses. The FEIS compares the effects of these allocations between alternatives in RECREATION AND TRAVEL, “Effects by Landscape”. The Record of Decision documents the rationale for the final alternative selection.

URC-25. Keep Upper Willow free of knapweed by restricting motorized vehicles.

Alternative 2, 3, 4, 5, and 6 are more restrictive on motorized vehicles than they are currently. Alternative 3 allocates most of the area to non-motorized uses. Alternatives 2, 4, and 5 allocate about ½ of the area, Alternative 6 allocates less. The FEIS compares the effects of these allocations between alternatives in RECREATION AND TRAVEL, “Effects by Landscape”. The Record of Decision documents the rationale for the final alternative selection.

West Fork Management Area

URC-26. Reinstate the wildlife refuge at Skalkaho Pass. Close larger areas to snowmobiles – clear to Lost Trail Pass.

The Skalkaho was a game preserve for summer range. Elk summer range has not identified as an issue since the original Plans were written in the 1980’s.

Most of the area between West Fork Rock Creek and Lost Trail Pass is either Sapphires Wilderness Study Area (WSA) or the Anaconda Pintler Wilderness. Regardless of alternative, Forest Plan direction for the Sapphires WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, “Elements Common to All Alternatives”. The Forest Plan will not change the status of current snowmobile use in the Sapphires WSA. The Anaconda Pintler Wilderness will prohibit snowmobile use.

URC-27. Manage the Mt Emerine roadless area as summer non-motorized to protect secure wildlife habitat. Close from Sand Basin Creek northeast to Coal Gulch in winter.

The preferred alternative allocates the area around Mt Emerine to summer non-motorized uses.

Winter non-motorized closures are designed to protect low elevation winter big game habitat, high elevation wolverine or mountain goat habitat, or provide accessible quiet recreational opportunities, see Chapter 2, “Elements Common to all Action Alternatives”. The Mt Emerine roadless area was not a high priority for these purposes and was not included in an alternative.

URC-28. The Skalkaho Road should be eliminated to connect the Pintlers with the Skalkaho area.

The Skalkaho Road is not within the Forest Service jurisdiction to close.

Quigg Management Area

URC-29. Enlarge to include non-motorized areas in the Upper Willow MA and give them permanent protection.

The preferred alternative enlarges the Quigg Recommended Wilderness to include the roadless area portion of the non-motorized area. .

Stony Management Area

**URC-30. Close Little Stony Creek and Sections 11, 1, and 36 to summer motorized use.
Close the area south of Camp Creek to winter motorized use.**

The preferred alternative recommends the north half of Stony inventoried roadless area (#1-808), which includes Little Stony Creek, as wilderness. This same area will be closed to winter motorized use. The recommendation excludes the portions of road corridor passing through sections 11, 1, and 36.

URC-31. Ensure consistency on Trail #313, the Sapphire Crest Trail between all adjacent forest management.

Regardless of alternative, Forest Plan direction for the Sapphires WSA will conform to the Wilderness Study Act, P.L. 95-150, see FEIS, Chapter 2, "Elements Common to All Alternatives". The Forest Plan will not change the status of Trail #313, which is currently non-motorized from the AP Wilderness to Frog Pond Basin and motorized north and west of that. The portion of Trail 313 currently open to motorized vehicles will remain so.

NARRATIVE SUMMARY OF PUBLIC CONCERNS

The volume and variety of public comment demonstrates the importance place in the heart and minds of the Beaverhead-Deerlodge National Forest to many people across the country. Largely the issues revolve around recreation. Motorized users express a sense of entitlement. They want to maintain or increase opportunities and insist they can share trails with non-motorized users. Hikers and horseback riders feel squeezed out by increasing motorized use and the increase ability of machines to go farther and higher without any skill required of the rider.

Those who live in areas without public land access write about preserving wild country for the sake of wildness as development on private land increases. Local people with the luxury of living close to 3.38 million acres of public land see wilderness, recommended wilderness, and roadless areas as restricting their enjoyment of motorized use. All users appreciate the space for solitude, others want to be able to experience it, or have their children to have the same experience. One person wrote that in the future people will not look to the Beaverhead-Deerlodge for a resort experience. She said they will come here to experience a palpable silence rare in other places.

All types of recreation enthusiasts place special value on the Beaverhead-Deerlodge National Forest. Some only dream of being able to visit, some make annual trips, others are full or part time residents with lineage back to the gold rush. The letters came from Alaska to Australia. Long time southwest Montana residents also wrote to express their expectations and hopes for preservation of the wildland experience on the BDNF.

The fact that so many people took the time to comment on this issue also indicates that they expect the Forest Service to consider and acknowledge their concerns. The content analysis

process allows decision makers to be able to evaluate each concern individually, as well as collectively by considering not only what it is that people would like the agency to do, but also the many reasons why. In response to these comments, decision makers will further analyze each concern and determine whether it requires a further explanation or clarification of processes and policies, additional analysis of options, incorporation of new information, or changes in the Final Plan.

INDIVIDUAL LETTER RESPONSES

Beaverhead County

Comment 1: The County has previously expressed that it believes the format of the plan is far superior to previous plans. It is readable and information is relatively easy to access. We ask that this format be retained in the Final Plan. In addition, the detailed maps offered on Compact Disk have been exceedingly useful in helping to understand the ramifications of the preferred alternative.

Response: Thank you for identifying those items in the plan you find to be valuable. The format of the Revised Forest Plan is similar to that of the Draft.

Comment 2: The Commissioners ask that the use of place based management areas be continued.

Response: Thank you for identifying those items in the plan you find to be valuable. The place based management areas are continued in the Revised Forest Plan.

Comment 3: County personnel and residents of Beaverhead County have attended many informational presentations addressing the Draft Plan. In the explanation of the Draft Plan's purpose or voice, when questioned about specific projects or site-specific decisions, the Land and Resource Management Plan has been presented as a strategic plan, one that outlines the strategy to achieve or move toward desired future conditions over the next 15 years. In essence, we have been told this is the strategy that Forest Service specialists, supervisor, or district rangers use to guide themselves on proposed projects. The Commissioners support the Draft Plan as a strategic document.

However, Alternative 5 of this "strategic" plan makes abundant, and the Commissioners believe too many, site-specific decisions. The Commissioners ask that a new preferred alternative be developed that makes no site-specific decisions. The County believes that this is more consistent with the spirit of the new Planning Regulations recently adopted by the Forest Service. If the County were to ask, "Why is this Draft Plan making some site-specific decisions, particularly travel management, and not others?" and the Beaverhead—Deerlodge/Regional decision makers were to answer, "Because we can", the Commissioners would find that answer and rationale unacceptable on ethical and legal basis.

The County is concerned that travel management site-specific decisions are being made by allocation when in fact those decisions would be better made in a separate NEPA process that deals with travel management. The Commissioners suppose this inconsistency was brought about as a matter of opportunity and convenience by Beaverhead—Deerlodge National Forest decision makers and quite possibly by Regional decision makers.

At one level, the Commissioners suppose that the incumbent Forest Supervisor (who has now moved to a different Forest), seized the opportunity to attain his travel management agenda by allocation without the expense, time, and unfortunately due process of developing a separate travel management plan. And, this was accomplished by the clause in the new planning regulations that allowed Revised Forest Plans started under the old regulations to be completed under the new regulations. The Commissioners believe that if indeed this Draft Plan were developed under the new regulations, no site-specific decisions would result in the “strategic” plan. With our limited understanding of the new regulations versus the old regulations, the appearance of “slipping under the wire” by exercising an interpretive “loop hole” is allowing decisions to be made by the preferred alternative that current thinking by national Forest Service planners and policy makers would disallow.

Without question, the OHV use issue, motorized travel issue, and travel management are overwhelming, complex, challenging, polarized, politically charged, tough, and to some extent no-win situations. However, the Commissioners ask that this issue be dealt with in a separate process that deals specifically with travel management. Restricting motorized use by allocation to resolve the OHV/motorized issues on the Forest may be a shortcut to achieve a travel management agenda, but the Commissioners are convinced to make a decision on travel management in this fashion deprives County residents of their due process on site-specific travel management.

At a different level, the Commissioners suppose that District decision makers are using allocation to address tough, complex, or chronic site-specific problems with a broad brush.

For example, let’s imagine a road on a District has been a chronic problem. Rather than allowing due process for site-specific NEPA on moving the road or fixing the problem, an allocation to summer non-motorized for an area that includes the “chronic problem” essentially makes the problem go away without further effort or expense on the District’s behalf. The Commissioners believe this is an inappropriate use of allocation to resolve site-specific problems and ultimately results in more restrictions to access and use of the resources within the County’s boundaries. As such, this type of misuse of the Forest Plan’s allocations cause an undue economic burden on local communities and the County.

Currently the County has been embroiled in a road closure controversy with private individuals as a result of their backlash actions precipitated by attempted Forest Service closures of roads without apparent sufficient NEPA process. The Commissioners believe allocation closures without site-specific NEPA process will result in more backlash actions and consequently more problems for the County. The Commissioners therefore ask that all travel management decisions be made as a result of developing a Beaverhead—Deerlodge Travel Management Plan.

Response: Chapter I, Page 6 of the Draft EIS and Chapter I of the Final EIS state the six decisions a forest plan makes. However, a forest may choose to make additional decisions if warranted. After the explanation of the six decisions a forest plan makes both EIS state that this plan will make some site-specific decision. This is necessary to:

- Reduce user conflicts, and to protect resource values such as threatened and endangered species, clean water (as defined by the Clean Water Act), and wilderness values (as defined by the wilderness act).

- Carry forward existing decision into the revised plan. An example of this would be the OHV Amendment, which restricts off road or trail travel. This decision was a cooperative decision including the BLM, State of Montana, and the Forest Service. To allow motorized cross country travel again, until a new travel management decision can be developed and signed does not make sense.
- To provide direction that focuses on the issues appropriate for travel management, and not have to re-debate decision made at the Forest Plan level. Use an area recommended for wilderness as an example. The Forest Plan's desired condition and objectives for these areas are to preserve the wilderness character until congress can act upon the recommendation and to provide a non-motorized setting.

Therefore, the Regional Forester directed the ID Team to include some site-specific decision during the revision process as outline in Chapter I of the Final EIS, under the heading "Decisions to be Made".

Since this type of decision was displayed in the Proposed Action, Draft EIS, and Draft Plan, the public has been informed and have had an opportunity to provide comment. The comments received have indicated the public clearly understands the decision being made in the revision process and that they may affect some motorized travel.

We appreciate your request for a BDNF Travel Management Plan. Site-specific travel management will occur after forest plan revision. Issues such as poor road /trail location, resource issues, loop trail opportunities, new trail segments, etc. will be dealt with thru the site-specific analyses.

Comment 4: The Commissioners believe that Beaverhead County as a local government representing many local communities dependent on the resources within the County's boundaries for social and economic survival has unique privilege and status with regard to cooperating with the Forest Service during the planning process and influencing the plan. Through verbal and written comment, by active participation on the ID Team, by formal and informal meetings with the ID Team Leader, Beaverhead—Deerlodge Forest Planner, Beaverhead-Deerlodge Forest Supervisor, and B—D District Rangers the County's position on Forest issues such as Inventoried Roadless and Recommended Wilderness has been expressed. (Those full positions will not be restated here but simply summarized as:

- 1.) The Roadless Inventory is inaccurate and contains large areas and acreages that do not meet the criteria for roadless, and**
- 2.) The County believes that there is adequate Designated Wilderness and no further areas within the County's boundaries should be recommended as wilderness (with the exception of those the County supported in written comment associated with the Proposed Action).**

Therefore, the County takes umbrage at the lack of reference to the County's position on issues in the Draft EIS. Specifically in Volume II, Appendix C, throughout the text regarding Evaluation of Roadless Areas for Wilderness, Updating the Roadless Inventory, and Evaluation of Roadless Areas for Potential Wilderness there is no reference to the County's position of opposition to areas within county boundaries recommended for wilderness pages 54-472.

In comparison, there are numerous references to the Montana Wilderness Association, the Wilderness Society, and the Greater Yellowstone Coalition in support of recommending virtually all inventoried roadless areas as wilderness. This falsely presents the perception there is little or no opposition to recommending inventoried roadless areas for wilderness designation, for example the East Pioneers and Snowcrest Mountain, based on support by public interest when in fact there is opposition by local government, individuals and other NGOs.

This also appears to elevate the status of select Non-Government Organizations above input. Clearly this is not the intention of the Organic Act of 1897, Multiple Use and Sustainable Yield Act, and The National Forest Management Act. The Commissioners ask that the County's position on Inventoried Roadless and Evaluation of Inventoried Roadless for Potential Wilderness be exposed fully disclosed and clearly stated in the Draft EIS. In addition, the Commissioners ask that the County position be given due consideration and not be discounted or ignored. The County also asks that non-government organizations not be given a greater voice and thus more influence on the Final Plan than cooperating agencies and/or treat select NGO comments as if they were Federal Advisory Committee Act recommendations.

In addition, due to the omission of the County's position in the Draft EIS, the County supposes the analysis may be flawed. The Commissioners ask that the analysis be revisited to determine if the criteria for evaluation of inventoried roadless for wilderness potential was applied equitably to all areas and that the County's unique privileged position to influence the plan was considered. If the ID Team contends that the County's position was duly considered, then explain why no reference to the County's opposition on areas recommended for wilderness was referenced in the Draft EIS.

"NFMA requires that the USFS's planning process be "coordinated with the land and resource management planning processes of State and local governments." 16 U.S.C. § 1604a; 36 C.F.R. § 219.7. Pursuant to such coordination, the USFS must review local government plans, comments and alternatives, must assess the impact of proposed USFS management on those plans and alternatives, must print these assessments in the environmental impact statement ("EIS"), and must attempt to reconcile any conflicts identified therein. Id. National Environmental Policy Act ("NEPA") regulations require a similar coordination and consistency process. 40 C.F.R. § 1502.16; 1506.2."

Where in the Draft EIS are the printed assessments of the Draft Plan's impact on Beaverhead County's Resource Use Plan? If there is no such assessment, why not?

Response: The interdisciplinary team (IDT) reviewed the roadless area inventory and found that all roadless areas meet the roadless area criteria. No specific area was mentioned in this comment. Volume II of the DEIS (Appendix C) utilized some of the past wording to describe interest in an area. These have been revised in the Final EIS. No assessment concerning Beaverhead County was made since the county participated in the process as a cooperating agency. Our expectation was that the Beaverhead and Madison County Representative would inform the IDT any time proposals were not meeting county plans.

Comment 5: In lieu of developing a new preferred Alternative the Commissioners would support Alternative 4 as the preferred alternative and ask that Alternative 4 be

implemented as the Final Plan. In addition, the Commissioners would ask that Alternative 4 be modified as specified in further comments.

Response: The Forest recognizes and appreciates the county identifying their preferred alternative. Alternative 6 was developed to positively address public comments on the Draft Plan and FEIS.

Comment 6: However, the Commissioners see no reasonable course of action but to ask the Forest Service to develop a new or series of new Alternatives for consideration as the Final Plan. Information from Public meetings, deliberation by the Commissioners, and dialogue with county residents find the Preferred Alternative (Alternative #5) to be lacking in consistency to the extent possible with the County's Resource Use Plan.

Response: We acknowledge your interest in seeing other alternatives. Based on public comments, an additional alternative was developed.

Comment 7: NFMA obligates the Forest Service to "balance competing demands on national forests, including timber harvesting, recreational use, and environmental preservation." Throughout Volume I of the Draft EIS pp. 243-295 reference is made to "increasing" allocation for non-motorized use or providing more non-motorized trail opportunities. In addition there is reference to Alternatives 1 and 4 providing the fewest non-motorized opportunities. The Commissioners have found no references to areas or trails in the Beaverhead—Deerlodge National Forest where non-motorized use is restricted or prohibited. In essence 100% of roads, trails, acres, areas, essentially the entire 3.3 million acres are available and non-motorized use is allowed. What restricts the non-motorized users use of the Beaverhead—Deerlodge is their personal choice of how and where to engage in their chosen activities.

Is the purpose of the recreation and travel management of the Beaverhead—Deerlodge Forest to provide "EXCLUSIVE" opportunity to those users that prefer non-motorized recreation? Does that represent a balance of competing demands? The County does not support designation of areas for EXCLUSIVE use by non-motorized users when in fact that category of user now enjoys privilege or use on the entire Forest. Does the Beaverhead—Deerlodge intend to provide "EXCLUSIVE" motorized opportunities by allocation that would restrict or deny access to non-motorized users?

All alternatives with the exception of the No-Action Alternative further restrict motorized use on roads, trails, acres, and areas. Please explain how this unrestricted non-motorized use of the entire Forest and entire Forest infrastructure is "balanced" by further restricted motorized use. The Commissioners ask that this imbalance of competing demands be balanced in a newly developed alternative.

Further restricting motorized access and use of the Forest does not diminish demand for opportunities to pursue those activities. Page 259 of the Draft EIS states that Alternative 5 will only meet the demand for motorized trails "if growth of these popular activities levels off." The Commissioners believe that growth for motorized activities will not level off, but continue to grow. Therefore, the Commissioners believe that the action of restricting motorized recreational use on the Beaverhead—Deerlodge National Forest will only pass this use onto adjacent county and private land managers. How does the Forest plan to mitigate or reconcile this action as directed by NFMA? Please address in the Final EIS and

Final Plan why management direction is so unbalanced in favor of non-motorized use. The County is dependent on resources within its boundaries on lands administered by B-D National Forest. Timber, minerals, some recreation, and community development are strongly dependent on motorized use of the Forest. The Commissioners ask that motorized use management direction of the Forest be as consistent as possible with the County's Resource Use Plan.

Response: The Forest Service has a nationally recognized system for planning for recreation use on National Forest Lands. This system is the Recreation Opportunity Spectrum (ROS). ROS identifies different recreation setting ranging from an "Urban" setting (highly developed) to a "Primitive" setting (least developed). The four most common recreation setting on the BDNF are "Roaded Modified", "Roaded Natural", "Semi-primitive Motorized", and "Semi-primitive Non-motorized". Further description of ROS can be found in the FEIS, Chapter 3, under the heading of Recreation

The Forest developed a range of alternatives using a mix of these settings based on public comments, recreational demands, and resource issues. This range is displayed in the Final EIS.

All but one alternative has most of the forest in one of three motorized settings. The reason there are reductions in all alternatives from the current motorized use on the forest is the fact that the current Forest Plan provided little direction for summer and winter motorized travel. Motorized travel on the Forest has evolved as technologies and users have increased without clear Forest Plan direction, or evaluation of the effects of that increase. This increase in motorized use will create resource impacts. Motorized use can adversely affect soils, water, wildlife, fisheries, vegetation, and wilderness character, as well as, create conflicts with other recreational users. These other recreation users are also increasing.

The demand for motorized recreation may increase, just as other uses are also increasing; however, the use must be managed to meet other resource demands and protection. This is why a range of alternatives was developed and analyzed. The Forest does not agree with the exclusive use argument made above. The Forest is unable to find any research or analysis that supports a discussion that just because an area restricts motorized travel, then other areas should restrict other users. As mentioned above, the allocation of recreation setting is based on resource issues. Different uses have different impacts and, therefore, restrictions.

The Forest Plan does not identify exclusive use areas but rather sets a strategy and manages for a particular recreation setting that people can expect when they go to that area. Site-specific project planning may identify specific uses for an area as guided by the Forest Plan.

Comment 8: The Commissioners support the entire Vegetation objective and standards in the Draft Forest Plan using direction provided by either Alternative 4 or 5.

- a. **The Commissioners support the entire Forested Vegetation objectives and standards. The Commissioners ask that timber harvest be used to the maximum extent possible and as the preferred means to achieve the desired outcomes where Douglas-fir, Lodgepole pine, Aspen, Whitebark Pine/Sub-Alpine Fire Type are to be treated.**
- b. **The Commissioners ask that the dependence on wildland fire use be minimal and that no more than 50% of the total acreage for each objective be achieved through wildland fire use. In essence, the Commissioners ask that**

vegetation management be proactive and begin immediately upon implementation of the Final Plan. Plus, the Commissioners ask that projects to achieve forested vegetation objectives be pursued and projects to achieve forest vegetation objectives not wait until a convenient wildland fire event provides opportunity. Use wildland fire as a supplement to projects for manipulation of forested vegetation.

Response: The Forest acknowledges the Counties support of Alternatives 4 and 5, and interest on how the Forest Plan is implemented.

Comment 9: The Commissioners support with one exception the Wildlife Objectives and Standards.

Under the Linkages Objective, the Commissioners do not support any further land acquisition by the Forest Service to increase its holdings. The Beaverhead County Resource Use Plan is extremely clear on the position of the county residents that the Federal agencies including the Forest Service do not acquire any additional lands in Beaverhead County. No net gain in acres administered by the Forest Service.

The Beaverhead—Deerlodge National Forest is comprised of a number of island mountain ranges surrounded by private lands. The Commissioners ask that the Beaverhead—Deerlodge Forest acknowledge its limited capability to provide linkage opportunity and not become actively involved in acquisition of surrounding private lands for linkage areas, corridors, or other land for species including but not limited to Federally listed species.

Response: The Forest acknowledges the County's Resource Use Plan and its interest in no net gain of lands administered by the Forest Service. Whether or not the Forest Service acquires any land is a site-specific project level decision.

Comment 10: The Commissioners are concerned about the unforeseeable consequences of the objectives and standards of the Aquatics section of the Draft Plan. County comments on the AMS and the Proposed Action have a general theme of “no net loss” as a result of implementation of a revised forest plan and management activities of the Forest with regard to resources available for residents of Beaverhead County. The Aquatics section of the Draft Plan contains language that appears to apply such stringent standards that there will be loss of AUMs, recreation opportunity, timber, minerals, and an overall loss of access to resources on the Forest.

Comment 10a: MUSYA and NFMA do not elevate any single use, value, resource or ecological factor above any other, nor do they require that national forest land use plans be contingent upon such consideration. The entire Aquatics section appears to attempt to accomplish just that and elevate the aquatic and hydrologic aspects of the Forest above all other multiple uses.

Response: NFMA requires the Forest Plan to provide for species viability. The current forest plan was reviewed and a need to improve the aquatic strategy to provide for the viability of fish species, particularly bull trout, westslope cutthroat, and grayling was identified. All alternatives identify an aquatic strategy.

Comment 10b: There is an objective for Wild[fire] Impacts for reduction of fuels to reduce the risk of adverse wildfire impacts. But under the Timber Management heading in Table

3, TM-1 vegetation management can only be used to “restore or enhance physical and biological characteristics of the RCA. The Commissioners find this objective and standard to be in conflict with one another and ask that any standard support all objectives or they be removed.

Response: This vegetation standard has been modified to include treatment for protection of urban interface areas.

Comment 10c: The Commissioners object to the language in standard RF-3e. This narrowly defines the use of a road and excludes other multiple use needs such as recreation. Please omit this language from the final plan.

Response: After reviewing the Draft Forest Plan, we were unable to find RF-3e.

Comment 10d: The Commissioners object to the language in standards GM-1a, GM1-b, GM-4 and GM-4a. How does the Beaverhead—Deerlodge Forest proposes to differentiate between grazing of all animals on the forest that graze along riparian areas. The Commissioners contend that the removal of forage by elk, deer, antelope, even rabbit and other herbivore grazing is indistinguishable from grazing by cattle. The Commissioners suppose that the monitoring by the Forest Service is insufficient to distinguish between effects from grazing by differing species and classes of animals. However, these standards only suggest that changes to the permitted grazing of cattle are the recourse to meet the objective of riparian protection. If wild grazing ungulates are found to be the cause or contributors of Riparian Area degradation, will their grazing standards be adjusted? What are the grazing standards for wild grazing ungulates? If there is no legal authority to elevate ecological factors above other multiple uses what authority is the basis for these standards.

Response: GM-1a and GM-4 do not pertain to lands in Beaverhead County. These two Standards only apply west of the Continental Divide.

A Forest Plan sets strategic direction. It’s Objectives and Standards do not pertain to natural process, although some natural events may help or hinder the achievement of a desired condition. Wildlife are part of a natural process, and their numbers are managed by the State of Montana. If wildlife are determined to be a source of concern (and they are at times) the Forest would work with the State of Montana to correct the problem (which we do). However, grazing of livestock on National Forest Lands is a management action directed by the Forest Plan, and implement through a site-specific developed allotment management plan.

Comment 10e: Will the outcome of application of standards GM-1a, GM-1b, GM-4 and GM-4a be the Forest Service managing elk grazing? By what method? Will the Forest Service begin managing all grazing of wild grazing ungulates? The Commissioners ask that the Final Plan make clear how the Forest Service intends to manage all grazing ungulates to meet these standards or remove these standards.

Response: No, the Forest has no intention of managing elk grazing. Elk numbers are managed by the State of Montana. The Forest Plan will apply only to livestock grazing permits. Concerns with wildlife issues will be coordinated with the State of Montana Fish Wildlife and Parks. This has been clarified in the Final EIS.

Comment 10f: The Commissioners ask why the Beaverhead—Deerlodge National Forest intends to elevate the aquatic and hydrologic characters of the Forest above all other multiple uses and asks the Forest to site the legal authority to do so.

Response: Aquatics and hydrology have not been elevated above all other multiple uses; however the Forest Plan does establish Desired Conditions, Objectives and Standards to protect these resources. The authority to develop management prescriptions in the form of Desired Conditions, Objectives, and Standard for the protection of aquatics (including fish species) and hydrology are the National Forest Management Act, Code of Federal Regulations – 36 CFR 219.9, 36 CFR 219.19(a), 36CFR 219.23, 36 CFR 219.27(a)(1), (4), (5), (6), (e), (f), Endangered Species Act, and the Clean Water Act.

Comment 10g: Throughout the Aquatics objectives and standards the stringent language “eliminate the activity” is used, for example RM-2 and objective page 24. The Commissioners would prefer all means to rectify any problem or issue be attempted to correct or mitigate the results before the activity be “eliminated”. What method will be used to discover an activity that needs to be eliminated? If in fact Forest Service management itself is found to be the cause of failure to meet Riparian Management Objectives will Forest Service management Objectives and Standards be eliminated? Which ones? If Forest Service management is eliminated as the activity that prevents attainment of RCA objectives, what entity will inherit the management responsibilities?

Response: The statement above is a good example of how wording in the Forest Plan can be taken out of context. The standard is not to just eliminate the activity, but first attempt to mitigate. The wording of RM-2 states, “Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific site closures are not effective in meeting RMO’s and avoid adverse effects on inland native fish and sensitive aquatic species, eliminate the practice or occupancy.” This standard does exactly what the commissioners request stated above, which is to “prefer all means to rectify any problem or issue be attempted to correct or mitigate the results before the activity be eliminated.”

The remainder of this comment is unclear as to the Commissioner’s intent, and therefore the Forest is unable to provide a response.

Comment 10h: The Commissioners object to Standard LH-4. The Commissioners do not support any further land acquisition by the Forest Service to increase its holdings. The Beaverhead County Resource Use Plan is extremely clear on the position of the county residents that the Federal agencies including the Forest Service do not acquire any additional lands in Beaverhead County. The B-D has been extremely clear and vocal that it is perpetually under funded and understaffed to adequately steward and manage its current land and resources. No net gain in acres administered by the Forest Service.

Response: Standard LH-4 has been restated as an Objective rather than a Standard.

Comment 10i: The Commissioners support only Key Watersheds for fish conservation. We ask that all Restoration Key Watersheds be removed from the Final Plan. See attached map.

Response: The Forest recognizes and appreciates the County preference to removing all Restoration Key Watersheds. After examining all alternatives and public comments, Alternative

6 was developed. Alternative 6 also proposes restoration key watershed although some are different than those in Alternative 5.

Comment 10j: On pages 27-28 of the Draft Plan the standard refers to grazing as found to be a major contributor. The Commissioners ask how that will be determined. The Commissioners ask how the Forest Service will differentiate between grazing by wildlife or by domestic livestock. The commissioners ask what method of monitoring will be used to make the determination. The Commissioners ask that every effort be exhausted to help any permit holder attain compliance prior to “mandatory” actions outlined in 16.2 Section 1. The Commissioners see this standard as one that has potential for far reaching unintended consequence for allotment permit holders in Beaverhead County. The Commissioners ask that this Objective and Standard be removed from the Final Plan.

Response: The determination of grazing issues will be based on site inspections using standard Forest protocol. Every effort to help a permit holder attain compliance is always our first priority.

Comment 11: The Commissioners support the Soils Objectives and Standards.

Response: Thank you for identifying those items in the Plan that you find beneficial. The soils objectives have remained the same in the Final Plan.

Comment 12: The Commissioners find little in Recreation and Travel Management Objectives and Standards that they can support. Again, referencing the afore mentioned statutes and regulations, the County stresses the Forest Service is required by law to “balance” competing demands for multiple uses of Forest Resources. Recreation is specifically cited as a use that NFMA directs the Forest Service to “balance”. As listed on pages 294-295 in Volume I of the Draft Environmental Impact Statement, all of the Legal and Administrative Framework statutes reference providing “...accessibility to all citizens...” and “...to provide for the ever-increasing needs of an expanding population...” The Commissioners believe this section of the Draft Plan does not “balance” competing demands, but selects a single multiple use, specifically non-motorized use, for preferential management actions. Unfortunately, throughout the Draft Plan, niche statements, which the County objects to and considers to be a result of perspective and not fact, represent a kind of “group think” that was used to develop the Objectives and Standards particularly in the recreation and travel management section of the plan. The analysis found in the Draft EIS states that the preferred alternative (Alternative 5) does not and will not meet the growing demand for motorized recreation on the Beaverhead—Deerlodge National Forest. Yet there is no analysis in the Draft EIS that indicates there is a lack of non-motorized trails, acres, or areas. The Draft EIS does not support any decision to increase non-motorized allocations. The Forest Service has been directed by the 9th Circuit Court to have the facts support the findings and the findings support the facts. The Commissioners ask that the facts that support the need for additional non-motorized allocations be made clear.

Response: The alternatives were developed to display a range of uses from which the deciding official could choose. The Recreation Objectives have been modified based on public comment.

Comment 12a: Please amend the first Objective to include providing winter-motorized opportunities with a variety of challenge levels, close to communities.

Response: The revised forest plan does not include an objective of including providing winter-motorized opportunities with a variety of challenge levels, close to communities, because these opportunities already exist.

Comment 12b: Please amend the second Objective to include developing self-guided motorized trail loops.

Response: Self guided tours have been dropped.

Comment 12c: Please drop, remove, and/or abolish any Objective in the Forest Plan for developing a recreation and tourism marketing plan. The Commissioners believe there is no authority to develop a marketing plan. The Commissioners believe there is currently conflict between recreation and tourism users and that any marketing would only intensify those conflicts. The Commissioners believe that with claims of reduced Forest Service budgeting, all available fiscal resources need to be devoted to resource management. They ask that no resources be used for creating positions, hiring, contracting, or supporting in any way a marketing plan for recreation and tourism.

Response: The marketing plan has been removed in the Revised Forest Plan.

The Forest Lacks Authority To Market Single Multiple Use. The Counties are unaware of any U.S. Code (USC), Code of Federal Regulations (CFR), Forest Service Handbook, Manual or other citation directing the B-DNF to prepare a marketing plan for the full range of multiple uses or that a single or narrow range of multiple uses be marketed. The Commissioners would request the Plan disclose these citations.

The Commissioners are also concerned that singling out a single multiple use to receive preferential treatment through “marketing” may create process and equal protection claims by those disadvantaged by the lack of a comparable marketing plan.

If the B-DNF is to have a marketing plan, the Commissioners believe the marketing of the full range of multiple uses without preference or omission would be most consistent with both the County plans and the federal requirements of equal protection. The full range of multiple uses to be marketed equally would include uses such as recreation, solitude, wilderness values, wildlife as well as motorized recreation and production of forage, forest products, minerals, oil and gas.

Marketing Is a Secondary Priority

B-DNF has identified the lack of adequate or full budgets as preventing implementation of the Forest Plan as approved. A marketing program will simply further divide what is characterized as an already too small pie among the various programs. The B-DNF is required and authorized by law to provide multiple uses that meet the various standards and conditions. The Commissioners are not aware of any requirement that the B-DNF engage in “marketing”. As such, the Commissioners believe it would be most consistent with federal law and County Plans if any marketing was done only after all other B-DNF requirements are fully satisfied. An example of a legal requirement to be fully satisfied prior to initiating a marketing plan would be the Montana Noxious Weed laws at MCA 7-22-2116 (1). Section 1 states, (1) It is unlawful for any person to permit any noxious weed to propagate or go to seed on the person's land, except that any person who adheres to the noxious weed management program of the person's weed management district or who has

entered into and is in compliance with a noxious weed management agreement is considered to be in compliance with this section. The Commissioners ask the B-DNF be certified “weed free” before any marketing plan is considered.

Unreliable Marketing Plan Forecasting Makes the Forest Plan Voidable

The marketing program's future budgets and relative importance in the Forest will be dependent on the programs effectiveness. Forecasting future recreation demand, and the increase due to marketing are problematic:

The lack of reliable data on historic and existing recreation use levels and trends means there is no basis for making reliable forecasts of future demand and/or the effectiveness of any recreation marketing program.

The Forest is not an experienced, reliable, or impartial forecaster. A recent example of error in forecasting future recreation demand might be the projected use levels and resource allocation made for the recent Lewis and Clark activities in the Summer of 2005. It appears the actual numbers of visitors were approximately an order of magnitude (1/10th) of those forecast.

The budgeting process requires the various specialists and their programs to compete for limited funds. Unlike marketing, all the other programs that have verifiable or measurable results associated with their budgets. This ambiguity may encourage exaggeration or “puffery” as marketing competes for limited budgets and/or attempts to explain any deviations from the marketing program's projections.

The ambiguity and conflict of interest is especially problematic in light of the recent 9th Circuit Court of Appeals Ruling on NRDC v. USFS (No. 04-35868, D.C. No. CV-03-00029-J-JKS Opinion) which held that a Forest Plan relied on inaccurate demand forecast was voidable. Because the Forest budget is limited, with the various programs competing Forestwide for a set budget, an overly optimistic and erroneous, recreation forecast would result in decisions and resource allocations detrimental to the other programs. This could potentially render the entire Forest Plan voidable.

The Commissioners ask that in the Recreation and Travel Management Section of the Final Plan, all references to a Marketing Plan be dropped. And furthermore, no resources be used by the Forest Service to develop a Marketing Plan for the Beaverhead—Deerlodge National Forest.

Response: After examining all of the alternatives and public comments, the Deciding Official decided to drop this Objective from the Revised Forest Plan.

Comment 12d: Please add an Objective with appropriate standards for Motorized Allocations.

Response: Without specific information the Forest is unable to add additional standards for motorized allocation.

Comment 12e: The Commissioners have presented their position on non-motorized allocations in the General Comments section of this document. Most troubling is that the Commissioners can find no facts, rationale, or analysis in the Draft EIS for the need of allocation of certain areas to non-motorized summer travel. For one example, the Lima-

Tendoy is not a popular hiking or horse/livestock recreation destination due to the limited water (actually no water on the east side), lack of attractive destinations such as lakes, streams, fishing, or scenic peaks. Hunters that access the area by existing roads using motorized vehicles or ATVs mostly use it. These roads are proposed to be closed with no reason, rationale, or analysis. This appears to be arbitrary, capricious, and unjustified. Using the Soils analysis in the Draft EIS, there appears to be little justification for closure by allocation based on likely resource damage. Consequently, the Commissioners are confused as to why an area like the Lima-Tendoy is being allocated to non-motorized summer travel when non-motorized users do not use that area.

Response: The Forest acknowledges that Beaverhead County does not support some of the non-motorized allocations and that the County supports Alternative 4. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Plan. Alternative 6 proposes modification to this area based on this comment. Some areas still remain as non-motorized to allow for security areas with a generally motorized area.

Comment 12f: Restated here, the Commissioners ask that no site-specific decisions on roads or trails be made without the due process afforded by a separate NEPA process in development of a Travel Management Plan. The County is providing a map to clarify its position on specific roads and motorized trails within the boundaries of Beaverhead County. Consequently, the Commissioners ask that Alternative 4 be modified to reflect the suggested changes by the County. Here again, the Commissioners believe the analysis in the Draft EIS is in error. For example in page 446 of the economic analysis there is discussion of effects to the social environment of recreation and travel management. "...non-motorized users would most likely favor...which increases the acres and trails of non-motorized opportunities." The Commissioners ask how can you increase opportunity from 100%. And the Commissioners contend that all users of the Beaverhead—Deerlodge National Forest are both motorized users (do any recreationists walk to the trailheads?) and non-motorized users (motorcycle, snowmobile or ATV recreationists get off of their machines and walk).

Response: Beaverhead County is a cooperating agency with a representative on the ID Team. Through their representative, the County has participated in the development of the issues. Recreational opportunities are evaluated using the direction outlined in Forest Service Manual, which utilizes the Recreational Opportunity Spectrum (ROS). This is explained in the Final EIS.

The definition of non-motorized opportunities has been misrepresented in this comment.. Please refer to the glossary for clarification

Alternative 6 was developed in response to public comments on the Draft EIS and Draft Plan. Alternative 6 proposes 60% of the Forest for motorized use management and 40 % for non-motorized activities.

Comment 12f.i: Non-Motorized Trails: The Commissioners believe non-motorized trails and uses are important to the County and its residents. Non-motorized trails include the following:

- hiking trails
- foot paths

- horse, wagon and cart trails
- ungulate trails
- fur-bearer and predator trails
- bicycle paths

Virtually all non-motorized trails are “user built”, have not been authorized by the Forest and are essentially “non-system” trails.

The Forest lacks either a complete inventory or representative sampling of non-motorized trails. The Draft does not describe “non-system” non-motorized trails or estimate the mileage of these trails. The Draft does not disclose the absence of a non-motorized trail inventory or propose a reasonable rationale as to why the inventory is unnecessary.

The lack of a non-motorized trails inventory and the presentation of non-motorized trails in the Draft is misleading to the reader. A 28 September 2005 letter-to-the-editor in the Dillon Tribune illustrates the problems created by the presentation in the Draft:

Proportionally, non-motorized trail mileage is significantly less than motorized trails.

The relationship is that motorized trails are closed to create non-motorized trails.

It is problematic that the Draft fails to accurately communicate both the on-the-ground conditions and the relationship between motorized and non-motorized trails. If both the “system” and “non-system” roads and trails are considered, it is clear that:

Proportionally, non-motorized trail mileage is one (10x) or 2 (100x) orders of magnitude greater than motorized trails.

Non-motorized trails generally “pioneer” or open an area to trails. A small minority of these existing non-motorized trails are then utilized by motorized users. An existing “one track” trail becomes one half of a “two track” motorized trail.

It is unclear to the reader if the Forest has met its legal requirements for analysis and disclosure of non-motorized trails based on the text of the Draft.

The analysis and disclosure must be adequate so the public can understand the nature, scope and impacts of the decision. The lack of public comment on “non-system” non-motorized trails is one indication the disclosure and analysis may be inadequate. The 28 September 2005 letter-to-the-editor in the Dillon Tribune is included as an example of this lack of public understanding.

The text of the Draft is a reflection of the interdisciplinary team's analysis and understanding of the condition, trends and inter-connected nature of the various resources and uses. The Draft's lack of disclosure and analysis of all non-motorized trails may be an indicator of the interdisciplinary team's lack of understanding of the condition, trend and impacts non-motorized trails have on other uses and resources.

Non-motorized trails have similar impacts to motorized trails, including but not limited to:

- serving as vectors for the introduction and spread of noxious weeds
- potential for erosion due to the trails' linear nature

- **sedimentation of and run off into streams**
- **soil compaction**
- **access to or through environmentally and/or culturally sensitive areas**
- **corridors for predators**
- **disruption of elk/wildlife security**
- **infringement and impacts on sensitive species habitat—wolverine, lynx, grizzly bear, sage grouse**

The Draft's analysis and range of alternatives are silent on disclosure, analysis management and/or mitigation of non-motorized trails and their impacts. Aside from permitted non-motorized activities, the Draft does not propose to remedy these deficiencies during the life of the Plan, ie: inventory, analysis, monitoring, mitigation. The Draft lacks any citations, rationale or findings to support these omissions. These omissions could be an indication that the interdisciplinary approach to non-motorized use on “non-system” trails is incomplete.

The Commissioners are also concerned that impacts from non-motorized use may be incorrectly attributed to other users and those users improperly sanctioned. Specifically, permitted non-motorized uses are monitored, such as livestock grazing, analyzed, and managed, while un-permitted non-motorized uses without permits are generally considered to be without impact and something to be encouraged without limitation.

Response: This comment is based entirely on a misinterpretation or a redefining of the term “trail”, as well as, a misrepresentation of the motorize/non-motorized issue. These are clarified below as well as in the FEIS and Final Plan:

1. “Trails” were defined on page 310 of the Draft Forest Plan and page 20 of Volume II of the Draft EIS. Trails are defined as, “A commonly used term denoting a pathway for the purpose of travel by foot, stock, or trail vehicles. (FSM 2352.05). Trails, for the purpose of Forest Plan Revision are **not** ungulate, fur-bearer, and/or predator trails (game trails). There are thousands if not tens-of-thousands of miles of game trails across the Forest, but these are not considered part of a managed trail system.
2. “User built” does not include paths that have been developed by the continued use of wildlife or livestock.
3. The Forest Plan revision process does not emphasis or promote non-motorized trail. A Forest Plan makes suitability determinations and land allocations. The alternatives in the Draft EIS and the Draft Forest Plan identify “areas” that are suitable or not suitable for motorized recreation, not a trail by trail summary of motorized verses non-motorized trails.
4. The Forest Plan revision process did not distinguish between “system” and “non-system” trails. The Forest identified and displayed all trails known to the Forest.

As for resource damage, the Forest disagrees with the commissioner’s statement that non-motorized trail have similar impacts to motorized trails. The Forest could not find any information to support this conclusion. To the contrary, there is information that motorized trails have more impacts on resources.

Comment 12f.ii: Cumulative impacts of motorized closures include:

Encouraging and justifying road closures on private lands accessing Forest lands. If it is reasonable or necessary to close roads and trails to motorized use on Forest lands, co-adjacent land managers will follow the Forest's lead and would similarly find it to be reasonable or necessary to close roads and trails on private lands for similar reasons instead of working the problem.

Encouraging and attracting subdivision in remote areas of the Counties, far from other development and/or services. Wilderness, recommended wilderness, inventoried roadless areas closed to motorized travel are all very attractive building sites for “environmentally conscious” people seeking to commune with nature.

Additionally, the following disclosures may help to clarify the situation to both the public and interdisciplinary team:

- 1. There is no monitoring or other information to suggest the existing non-motorized trails are insufficient to meet current and/or expected future use levels.**
- 2. 100% of the Forest is open to travel on non-motorized trails.**
- 3. 0% of the motorized trails are closed or restricted in any way to non-motorized users.**
- 4. Virtually 100% of Forest users are motorized users, ie: users drive to wilderness area trailheads.**

Response: The Forest has found no credible science, studies, or other information, pertinent to the alternatives, supporting the cumulative effects mentioned in this concern.

The Forest does not agree with the bullets statement above as either incorrect, or not relevant to the issues identified through the scoping process.

Comment 12g: The Draft EIS in Table 117 summarizes primary recreation activities on the Beaverhead—Deerlodge National Forest. The Commissioners’ interpretation of this Table is that the greatest number of users and use of this Forest by percentage (68+%) is based on motorized use. Why then does this Draft Plan emphasize increasing non-motorized allocation? It begs the question, “Who or what kind of user is using the Forest, and therefore who or what kind of user is the Forest Service managing this Forest for?” The Commissioners again stress that the Forest Service is required to have the facts support the findings. And the Commissioners again state by statute and regulation that the Forest Service is required by law to afford local government privilege to influence the plan. The Commissioners suppose that the bias against motorized use as apparent in the preferred alternative is a result of non-local and/or local affiliate members of national NGOs’ pressure or influence. The Commissioners ask that the County’s position be afforded its legal privilege in influencing the Final Plan more so than any NGO.

Comment 12h: Specific changes to Alternative 5 summer travel status with roads and trails map.

Area 5-PIO-11. This area is identified as becoming non-motorized summer, but lands that are open to motorized summer travel surround it. Additionally, previous discussions with past Forest Supervisor Debbie Austin identified this area as appropriate for development

of motorized loop trails. Although no loop trails were constructed, the County was lead to believe the B-D National Forest did have and does have intention to build loop trails in this area. The Commissioners ask that this area be dropped from allocation to summer non-motorized. Further, the Commissioners ask that motorized loop trails be developed in this area.

Area 5-LT-01. The Commissioners have offered support for the Italian Peaks Recommended Wilderness with a boundary modification. The Commissioners ask that the area of non-motorized summer travel match the proposed boundary of the Italian Peaks Recommended Wilderness. County residents that are landowners adjacent to or contiguous with the Forest boundary foresee problems with the proposed allocations. By restricting hunting motorized access to the proposed Italian Peaks Recommended Wilderness boundary they experience greater problems with trespass, congestion, and hunter vehicle concentrations. Here again the allocation serves to displace Forest users to private lands. In addition, harvest of big game decreases depredation on local area ranchers forage and hay supplies. By continuing to allow use of roads in 5-LT-01, greater hunter success on elk herds mitigates private landowner depredation problems. The Commissioners ask that the summer travel status for 5-LT-01 reflect only non-motorized allocation in the Italian Peaks Recommended Wilderness with the boundary modification noted on the submitted map.

Additional areas that are surrounded by motorized summer travel allocations that the Commissioners would ask to have the summer non-motorized allocation be removed are:

- 5-BN-08
- 5-BH-09
- 5-BH-10
- 5-PIO-12
- 5-PIO-13
- 5-LT-02
- 5-LT-03
- 5-LT-04
- 5-LT-05
- 5-LT-06
- 5-LT-07
- 5-LT-08

If allocations are not removed, then the Commissioners ask that roads be “cherry stemmed” to continue to allow motorized access to these areas either by vehicle or OHV. (See Map)

Response: Area 5-PIO-11 has been changed to allow motorized use and area 5-LT-01 has been modified in Alternative 6, which is being proposed as the preferred alternative. The other areas

mentioned above were evaluated and some modification or changes were made in Alternative 6. See revised forest plan for specifics.

Comment 13: The Commissioners can support all of the Objectives in the Special Designations Section with the exception of:

Comment 13a: Wild and Scenic Rivers (Eligibility)

- i. The Commissioners contend that within the boundaries of Beaverhead County there are no streams or reaches that meet the criteria for eligibility to be considered for classification as Wild and Scenic Rivers.
- ii. The Commissioners note streams in the region include the Yellowstone, Middle Fork of the Salmon, Firehole, Henry's Fork and Smith Rivers as well as the Armstrong DePuy and Nelson spring creeks.
- iii. The Commissioners contend there is no information contrary to the aforementioned opinion and as such no protection on supposed eligibility is warranted. The Commissioners propose that all streams in Beaverhead County be dropped from further consideration for eligibility for Wild and Scenic River designation.

Comment 13b: The Standard offers protection to their potential classification pending suitability studies.

- i. The Commissioners ask that all streams be released from protection and be considered for eligibility only after suitability studies are completed.
- ii. The Commissioners ask that the Final Plan provide completion dates for suitability studies for any streams within the County boundaries and that those completion dates fall within 6 months of Plan implementation.
- iii. If the Final Plan does not provide completion dates for the suitability studies, then the Commissioners propose that all streams in Beaverhead County be dropped from further consideration for eligibility for Wild and Scenic River designation.

Response: Beaverhead County has been a cooperating agency and has had an individual on the ID Team since the beginning of the revision process. This is the first time this issue has been raised.

The Wild and Scenic Rivers Act and Forest Service policy lays out the requirement for the evaluation of rivers for wild and scenic river statues. The Forest has followed this process.

The Forest is unable to set a timeline for completion of the suitability studies of the rivers identified in the Forest Plan, since the forest must receive funding to complete the studies.

Comment 13c: The Commissioners can support all of the Objectives in the Special Designations Section with the exception of: Recommended Wilderness:

The Commissioners cannot support and fervently oppose Recommended Wilderness allocation for the East Pioneers and the Snowcrest Mountain areas. The Commissioners contend that there is adequate Designated Wilderness in Montana and adequate Designated Wilderness within a reasonable travel distance from the Beaverhead—Deerlodge National Forest. The Commissioners are providing a map with those areas the County can support for Recommended Wilderness. See Attached Map.

i: The Draft EIS states that analysis of areas for Potential Wilderness were based on three criteria. Those criteria were:

1) Capability 2) Availability 3) Need

The Commissioners contend that the application of these criteria to areas for potential wilderness was not uniformly applied which has resulted in a flawed analysis. For example, under the heading Proximity to Other Designated Wilderness and Population Centers there is inconsistency throughout the analysis. One measure is “adjacent to” another measure is “closest” Designated Wilderness; while in others the measure is one day’s travel time. However, in considering those areas that use “one day’s travel” only Designated Wilderness in Montana is listed. The Commissioners in viewing Designated Wilderness within one day’s travel time from the Beaverhead—Deerlodge National Forest contend that would include Designated Wilderness in Montana, Idaho, Wyoming, Oregon, Washington, North Dakota, and Utah. And to support the position that there is adequate Designated Wilderness, Designated Wilderness within one day’s travel time would entail 127 separate Designated Wilderness areas for a total of 13,905,931 acres of wilderness designation. This does not consider other Federally administered area, specifically Yellowstone National Park or Glacier National Park and others, that manage backcountry with parallel restrictions for enhancement of wilderness characteristics for an additional approximate 3 million acres.

ii: Through public information presentations and discussion with the B—D Forest Supervisor, Tom Reilly, it was stated that the lands within the area of the proposed East Pioneers Recommended Wilderness do not meet the Regional needs assessment. As presented to the County there is no need for more “rock and ice” wilderness. The core of the East Pioneers contains some of the Forest’s highest mountains and as such is mostly a “rock and ice” area. Therefore it does not meet the “Need” criteria. This area is a legacy from previous Plans and unsuccessful Wilderness Bills. There is no objective rationale for including this area in Recommended Wilderness allocation. The Commissioners suppose that national and local affiliates of non-local national NGOs have exerted pressure to include this area. The Commissioners contend that the aforementioned statutes and regulations cited support the County’s position in opposition to this area as Recommended Wilderness in the Final Plan and has more meaning and carries more weight by law than pressure from non-local NGOs.

iii: The analysis of the East Pioneers for wilderness designation in the Draft EIS state that this area has features that should exclude it from consideration based on “untrammelled by man” character such as Charcoal Kilns, Coolidge, MT ghost town, Elkhorn Mine and Hecla Mine and ghost town in Trapper Creek. According to the analysis in the Draft EIS most of the East Pioneers has either no, low, low to moderate, or low to medium Natural Integrity. This area also has a history of use by hunters and motorized users. Therefore, the Commissioners contend it does not meet the “Capability” criteria. Failing two out of three criteria must remove this area from consideration as Recommended Wilderness. The Commissioners ask that the allocation to Recommended Wilderness for the East Pioneers be removed.

iv: The Snowcrest Mountain Recommended Wilderness allocation appeared in the preferred alternative after public interest and comment showed overwhelming support for

removing the West Big Hole Recommended Wilderness allocation presented in The Proposed Action. When asked by the Commissioners of Beaverhead and Madison Counties why it first appeared in the Draft EIS in Alternatives 3 and 5, the incumbent Forest Supervisor, Tom Reilly gave as rationale, “We have to give the other guys something after removing the West Big Hole allocation.” There is no direction within any statute, regulation, or legal framework presented in the Draft EIS that directs the Forest Service to “give the other guys something” or follow a policy of quid pro quo. This appears to be a situation where the Forest Service decision makers have manufactured findings that are not supported by facts or have manufactured facts to support their findings. In addition, the Commissioners can find no reference of their opposition to the Snowcrest Mountain Recommended Wilderness allocation in the Draft EIS. This omission further taints the process and creates the perception that the Snowcrest Mountain Recommended Wilderness allocation is a result of personal agenda, sympathies, or favoritism on the part of the decision maker. The Commissioners ask that the Snowcrest Mountain area be removed from the allocation to Recommended Wilderness.

v: The Commissioners would support the Italian Peaks Recommended Wilderness allocation as presented in Alternative 5 with modification to the boundary. See map. Residents of Lima, MT and the immediate local area have a long standing tradition, 35 years or more, of travel to Dead Man Lake with local Boy Scout and Girl Scout troops for an annual excursion and campout. The organizers of this event typically access the vicinity proximate to the lake with motorized vehicles to help children that are too small or in other ways incapable of making a long hike into the event. The Commissioners ask that the boundary of the Italian Peaks Recommended Wilderness be modified to accommodate motorized travel into Dead Man Lake.

vi: The Caribou-Targhee National Forest administers lands contiguous with the Beaverhead-Deerlodge National Forest along the Continental Divide continuously along the boundary of the Italian Peaks Recommended Wilderness. Motorized summer use on trails and winter motorized cross-country use is allowed on these Caribou-Targhee administered lands. The Commissioners envision conflict and enforcement issues with two different standards or allowable uses on lands that are only separated by geo-political boundaries. Manageability becomes a major obstacle to designation for wilderness and thus recommending this area for wilderness allocation. Local residents report that there is considerable use by snowmobiles using access from the Idaho side of the Divide. The Commissioners ask that no action to discontinue motorized summer or winter travel whether by summer non-motorized allocation or recommended wilderness allocation be taken until the two Forests implement travel and recreation plans, objectives, standards, or allocations that are identical for these contiguous lands. The Commissioners ask the B-D Forest to resolve the discrepancies in summer and winter travel status with the Caribou-Targhee National Forest prior to any change in allocation for this area.

vii: The Commissioners oppose the Recommended Wilderness allocation for Electric Peak. Removing this popular area from winter motorized travel eligibility only acts to displace recreationists not reduce demand. Although there maybe some increase in moneys spent in the County from displaced recreationists, it would not offset the potential conflicts from concentration or overcrowding that may create a burden for the County.

viii: There is inconsistency between National Forest administrations of recommended wilderness. Some Forests continue to allow motorized uses in recommended wilderness areas as the Beaverhead—Deerlodge did in the previous Plan. Why is this major shift in use in recommended wilderness a standard in the Draft Plan? The Commissioners ask that this standard be removed from the Final Plan.

Response: The Forest acknowledges that Beaverhead County does not support many of the proposed recommended wilderness areas identified in Alternative 5, as well as the motorized restriction. The Forest has reviewed the wilderness evaluation and updated the FEIS, including Appendix C as needed. Alternative 4 as it relates to wilderness recommendations and commodity production was developed to address many of your concerns. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Plan.

Comment 14: The Commissioners ask that the Objectives, Standards, and determination of suitable range and suitable timber as per Alternative 4 be used in the Final Plan. Specifically under Timber Suitability Determination Protocol: II. Suitable Timber Determination (A.) 2,3, and 4, the Commissioners ask that these be deleted from the Final Plan or determined by site-specific NEPA and not by allocation or mapping software determinations.

Response: To clarify, the final suitability call is made at the site-specific project level using the criteria outlined in the Forest Plan. The mapping of suitable timber or range lands is only a modeling exercise to facilitate forest level planning. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Plan.

Comment 15: Area residents have responded to the Commissioners asking that under Fire Management the Wildland Fire Use Objective allocation be modified from Alternative 5 to reduce the area for eligibility by providing a minimum 2-mile buffer between National Forest boundaries and all other land ownership. The Commissioners are submitting a map of their proposed modification to Alternative 5 (to be used to modify Alternative 4), see map.

Response: Thank you for providing a map clarifying your desire for fire management. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Plan. Alternative 6 provides the Forest Service, State of Montana, and local governments the maximum flexibility to manage wildfire situations by using the appropriate management response (AMR). In addition, a standard was added to the revised forest plan requiring coordination with County, State, Tribal, and other Federal agencies in the development of fire use plans. A common goal to protect life and priority remains paramount.

An alternative to include a 2 mile buffer and the rationale for not fully considering this alternative can be found in the FEIS, Chapter II, under the heading of “Alternatives Considered but not Analyzed in Detail”.

Comment 16: The Commissioners ask that the Objectives and Standards and management direction associated with Air Quality, Scenery, Heritage, Minerals, Oil and Gas, and Infrastructure as per Alternative 4 be used in the Final Plan.

Response: The Forest acknowledges that Beaverhead County supports Alternative 4. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Plan.

Comment 17: The Commissioners do not support any further land acquisition by the Forest Service to increase its holdings. The Beaverhead County Resource Use Plan is extremely clear on the position of the county residents that the Federal agencies including the Forest Service do not acquire any additional lands in Beaverhead County. No net gain in acres administered by the Forest Service. The Commissioners therefore ask that with regard to Beaverhead County the Objective Acquisitions and all Standards associated with that Objective be removed from the Final Plan.

Response: The Forest Plan sets forth the criteria for land acquisition. The acquisition or disposition of lands by the Forest Service is determined by site-specific project level analysis and decisions. The Beaverhead County Resource Use Plan will be considered

Comment 18: The Commissioners in reading the niche comments associated with management areas find that these statements represent only a narrow perspective and as such support a narrow range of multiple uses. They are a classic example of “the shortest distance between two points is a preconceived idea” and represent an unacceptable example of “group think” or “agency think”. The Commissioners ask that niche statements either be developed with community participation by the local residents mainly impacted by management area Objectives and Standards or be dropped entirely from the Final Plan.

Response: The niche statements for each management area have been dropped from the Revised Forest Plan.

Comment 19, Final Comments: There appears to be little if any rationale or substantiated reason or analyses in the Draft EIS for increasing areas for exclusive non-motorized summer travel allocation. In addition, these allocations further impact County access to resources in determinations of but not limited to suitable timber. Suitable timber quantity directly affects ASQ. No deficiency in non-motorized summer travel was found, which is consistent with non-motorized travel and recreation having allowable use on 100% of the Forest. A significant change in direction for management in recommended wilderness is Standard #2 under Special Designations; Recommended Wilderness. Other National Forest administrations find motorized use within recommended wilderness areas manageable. The Snowcrest Mountain Recommended Wilderness area appears for the first time in the preferred alternative as a result stated by the incumbent Forest Supervisor, as “We had to give the other guys something....”

Response: The rationale for increasing the areas allocated as non-motorized comes from public comment, whom have concerns about providing non-motorized recreation and protecting wildlife, water quality, fisheries, and threatened and endangered species. These concerns come from the public as well as other agencies and the need to meet the laws which govern the management of National Forest lands.

Alternatives are developed in an attempt to resolve conflicts. In attempting to resolve conflict, alternatives are frequently developed to “give the other guy something” and to find compromise to these contentious issues. It is not reasonable to develop an alternative which only addresses one side of an issue and not attempt to find some resolution.

Comment 20: The Aquatics section Objectives and Standards appear to be an attempt to elevate specific ecological factors above all other multiple uses and quite possibly be the

avenue to justify removal of multiple uses (grazing, timber harvest, recreation access) from the Forest important to the County.

Response: The aquatic strategy is an attempt to meet NFMA direction by developing a strategy which provides for the viability of aquatic species, particularly bull trout, westslope cutthroat, and grayling. It is part of a multiple use strategy.

Comment 21: All in all, the Commissioners suppose this cumulative management direction in the preferred alternative is a prejudice against the local communities, local government, and access to resources. It may very well represent a bias for agendas of non-local national NGOs. The Commissioners ask that the Final EIS and the Final Plan expose all environmental consequences, rectify unwarranted biases and give NGOs due consideration as only public comments.

Response: As demonstrated by the fact Beaverhead County had a member on the ID Team, there was no attempt or intention to bias the analysis against local communities or governments. Over 160 meetings were held with interested people and groups. The alternatives in the FEIS were developed to address the issues we heard and to attempt to find reasonable trade-offs to hard and contentious issues. The environmental consequences of these alternatives are presented in Chapter 3 of the FEIS.

Comment 22: The Commissioners ask that the Beaverhead—Deerlodge National Forest Supervisor's Office, and to whatever extent it becomes involved the Regional Forester's Office, proceed as rapidly as possible to finish this process and get a Final Plan drafted, signed, and implemented. The Commissioners ask that completion of the Final Plan and its implementation become a priority for personnel, budget, and any other consideration within the Supervisor's and Regional Forester's Offices. To the extent possible, the Commissioners would ask that the Final Plan be prepared, signed, and implemented in 2006.

Response: The Forest and Region acknowledge Beaverhead County's request and are making every attempt to complete the revision process in a timely manner.

Bureau of Land Management, Dillon Field Office

Big Hole Landscape

Comment 1: While the Dillon RMP does not designate the transmission line crossing the Idaho- Montana boundary near Lemhi Pass as a corridor, it also does not prohibit expansion of the line on BLM lands as the Forest does on page 81 of the Draft Forest Plan. BLM would consider any applications received in this area on a case-by-case basis.

Response: Thank you for pointing this out and providing information concerning the BLM resource management plan.

Gravelly Landscape

Comment 2: Forest lands in the Green Mountains and Idaho Creek niche are designated for winter non-motorized use, while BLM lands to the north and west of these areas are currently open between May16 – December 1 in accordance with the Southwest Montana Interagency Visitor/Travel Map designations. Given the timeframe of the seasonal

restriction and the lower elevation of BLM lands, this deviation in management is probably not an issue since little if any snow is available on the lower elevation lands during the summer and early fall months.

Response: Thank you for pointing this out and providing information concerning the BLM resource management plan.

Comment 3: Forest lands in the Greenhorn Mountains niche and the Idaho Creek niche are considered unsuitable for timber production (page 153 and 157), due to the Gravelly Landscape being considered Occupied Grizzly Bear habitat. The Dillon RMP identifies the BLM lands in the Barton Gulch and Idaho Creek areas that are adjacent to these niches as a priority area for vegetation treatments of forested habitats, which could provide commercial timber products as well as improve forest health. Hopefully the designation of this area as unsuitable for timber production will not preclude the Forest's ability to manage for forest health if and when issues arise.

Response: The determination of this area being unsuitable for timber production does not preclude the Forest's ability to manage the vegetation, including for forest health concerns.

Comment 4: Management of the Centennial Recommended Wilderness niche as a wilderness study area and for non-motorized winter use as proposed in the Forest Plan Revision's preferred alternative would resolve long-standing inconsistencies between Forest management and BLM management in the area. See attachment for detailed rationale. We strongly support the recommendation in the preferred alternative of your Draft Forest Plan to carry the Mount Jefferson area forward as proposed wilderness.

Response: The Forest recognizes the BLM's support for Mount Jefferson as a recommended wilderness area. Mt Jefferson is allocated as winter non-motorized in Alternatives 2, 3, and 5. Alternatives 1 and 4 allow for motorized winter use. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Forest Plan. Management under Alternative 6 would designate the north half of Mt. Jefferson as recommended wilderness which conforms to the adjoining BLM management. The south half would be open to snowmobiling and closed to summer motorized uses.

Jefferson, Lima-Tendoy, Pioneers, and Madison Landscapes

Comment 5: No Issues were identified

Tobacco Root Landscapes

Comment 6: Several Areas of adjacent BLM lands are open to snowmobile use where the Forest Service proposes no-motorized winter use, but again, this is likely not a concern given the low elevation of the BLM lands on the fringe of the Forest.

Response: Thank you for pointing this out and providing information concerning the BLM resource management plan.

Comment 7: Management of the Brownback niche seems consistent with BLM's proposed decision to drop the Tobacco Root Tac-On WSA lands that lie adjacent to Forest lands on the west side of the landscape. The preferred alternative in the Forest Plan Revision does not recommend forest lands adjacent to this area for wilderness. If as a result of public

comment this were changed and adjacent lands were recommended, it would be inconsistent with the Dillon RMP.

Response: Thank you for pointing this out and providing information concerning the BLM resource management plan. This did not change from Alternative 5 to Alternative 6.

Forests for the Future (Coalition)

This comment consists of two large documents; one is in response to the DEIS (referred to as Document 1) and the other is in response to the Draft Forest Plan (referred to as Document 2). To respond to these comments through a standard content analysis process would not be practical nor would it provide a quality response that tracks well with the thought process of the comments and points being made by the Forest for the Future Coalition (Referred to as the Coalition).

Therefore, the Forest decided to respond to Document 1 in two ways. First, the Forest would use the Executive Summary as an outline and responds to the main topics identified. These points are discussed in more detail in the body of the document; however, the main concerns are stated well in the executive summary. The body of the text was also examined as the response was developed. Second, since the Coalition proposed an “Alternative 5 Modified”, the Forest chose to respond to the majority of Document 1 as a separate alternative. The responses to the Coalition’s comments are identified below.

Document 2 is largely suggested word changes to the Draft Forest Plan. These word changes were summarized and responses developed. Word changes that are grammatical in nature will not be responded to, although appreciated. The summary of comments and responses are listed below.

Document 1 Comments

Comment 1: The BDNF Draft Analysis of the Management Situation (2002) describes the need for healthy forests, and the discussion in Revision Topics notes the public support for healthy forests. The BDNF developed Alternative 5 recognizing the Forest as part of a largely disturbance-dependent ecosystem. Both the Draft Plan and DEIS recognize that the century of human-induced interruption of disturbance levels in the BDNF has created far more older-age timber stands than occurred historically. The documents recognize that the aspen vegetation community is now outside the HRV with associated need for future disturbance. However, this Alternative chooses to limit one of the most available and predictable management tools that can replicate historic levels of disturbance. Alternative 5 was designed to manage only 212,000 acres of 2,319,460 forested acres (9 percent) for some level of timber production. Instead of a reasonable level of disturbance designed and implemented using timber harvest, Alternative 5 relies on use of fire as the principal agent to manage most of the BDNF forested acres. This is envisioned to successfully occur in a political atmosphere with low tolerance for wildfire and smoky air sheds and with no expectation of more fire management funding. Forest cover types and elevations common to the Forest have short burning windows, and prescribed burning is manageable and applicable only in limited circumstances. Management using wildfire offers far less predictable results and geographic certainty than well-designed timber management projects.

Response: This comment misrepresents Alternative 5 and therefore draws inaccurate conclusions. The following are those items stated above which are incorrect for Alternative 5.

“However, this Alternative (5) chooses to limit one of the most available and predictable management tools that can replicate historic levels of disturbance. Alternative 5 was designed to manage only 212,000 acres of 2,319,460 forested acres (9 percent) for some level of timber production.”

Response: This statement implies that Alternative 5 limits timber harvest as a management tool to only 212,000 acres. This is incorrect. The Draft EIS and Draft Forest Plan identified vegetative and fuels objectives where timber harvest could be an appropriate tool to accomplish those objectives. This would include lands in addition to the 212,000 acres of land suitable for timber production. Alternative 5 identified 1,197,000 acres of lands available for timber harvest in addition to the 212,000 acres of lands suitable for timber production. Alternative 5 does not limit timber harvest to only the 212,000 acres. Page 35 of the Draft Forest Plan identifies two objectives which encourage the use of timber harvest as a tool to accomplish project objectives where resources can be protected.

The 212,000 acres of lands suitable for timber production only refers to those lands where timber production is the management emphasis. The definition of “Timber Production” is defined in 36 CFR 219.3, which states, “The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use.” These are areas where growing timber as a crop is the main emphasis. Forested lands, outside of these 212,000 acres, are available for timber harvest to achieve other objectives such as forest health, fuels reduction, salvage, insect and disease management, as well as, for wildlife, aquatic, or other resource objectives.

Just because forested lands are not allocated to “timber production” does not mean that other lands will not be managed.

The statement which refers to timber harvest as the, “most available and predictable management tools that can replicate historic levels of disturbance” is an over simplification and not totally supported by science. Timber harvest may replicate some historic levels or disturbance elements, but timber harvest can have adverse effects that have to be taken into consideration. These are usually analyzed at the project level.

This clarification of the Alternative 5 has been explained to the Coalition on several occasions prior to the end of the comment period. The Final EIS and Final Forest Plan have been modified to clarify this issue.

Instead of a reasonable level of disturbance designed and implemented using timber harvest, Alternative 5 relies on use of fire as the principal agent to manage most of the BDNF forested acres.

Response: Alternative 5 does not rely on fire as the principle agent to manage most of the BDNF forested lands. There is no wording in Alternative 5 or the Draft Plan which would indicate this. As described above, timber harvest may be used as a tool to achieve a variety of management objectives if resource values can be protected. Prescribed fire or other management tools may also be used to achieve management objectives.

The Final EIS does recognize fire (wildfires) as being the principle element of vegetative change on the Forest and probably will continue to be the principle element of change. This is not because the Forest chooses for it to be, but because the Forest can not eliminate wildfire from the Forest. The Coalition's own analysis supports this conclusion. Page 9-20 states, "Treatments between alternatives do not treat enough acres to show significant effects to fire occurrence." In other words, even under an aggressive mechanical treatment scheme as indicated by Alternative 5 modified, the Forest cannot treat enough area to alter the acres burned by wildfire.

The Forest does embrace the appropriate management response to wildfire including "Wildland Fire Use for Resource Benefits", but this is similar to the use of timber harvest; it would only be used where management objectives would be achieved and resources protected.

This is envisioned to successfully occur in a political atmosphere with low tolerance for wildfire and smoky airsheds and with no expectation of more fire management funding.

Response: As mentioned above, the Forest does not expect to use fire as the principal agent to manage the forest. The Forest expects to use a variety of tools to achieve management objectives, including timber harvest and prescribed fire.

The Forest's policy on wildfire is the same as the National Policy; wildfires are to be suppressed with firefighter and public safety the priority. The appropriate fire suppression strategy will be used, which considers safety, suppression cost, and resource values. Wildfires are suppressed using emergency fire fighting funds.

Forest cover types and elevations common to the Forest have short burning windows and prescribed burning is manageable and applicable only in limited circumstances. Management using wildfire offers far less predictable results and geographic certainty than well-designed timber management projects.

Response: The use of prescribed fire does have short burning windows and is limited in some circumstances. Timber management also has limitation. The decision to achieve a desired condition or accomplish a management objective by using prescribe fire, timber harvest, or other means is best made at the site-specific or project level; not a the forest plan level.

The statement above, again infers that the Forest has decide to use wildfire as the primary management tool. Wildfires are unwanted events and are to be suppressed as stated above. The Forest has no intention of using wildfire as a management tool and there is nothing in the Draft or Final EIS which indicates this is the case. The suppression of all wildfires is Forest Service policy and not a forest plan decision.

To summarize, the total of this comment misrepresents Alternative 5 as pointed out above. This misrepresentation then leads to inaccurate conclusions. The Forest does not intend to use wildfire as a tool to manage the Forest. Timber harvest, as a tool, is available over a much larger area of the forest than indicated by this comment. In response to comments similar to this, Alternative 6 was developed. Alternative 6 proposes 299,000 acres of suitable timber and an additional 1,614,000 acres available for timber harvest.

Comment 2: The Coalition's Alternative 5 Modified is similar to Alternative 5 in its objectives in that it also recognizes and supports the need for healthy forests and viable wildlife populations within a disturbance-dependent ecosystem. It is appropriate to allocate enough of these landscapes to the suitable timber base to provide for healthy forest

ecosystems and viable wildlife populations by scheduling well-designed and ecologically supported forest disturbances to provide age class diversity and species needs. Commercial timber harvest on allocated suitable lands can be an effective and efficient tool to accomplish aspen regeneration and protection as a seral component of coniferous stands and landscapes. Commercial timber harvest can be used as a key management tool to both financially and operationally accomplish the BDNF vegetation management objectives. Commercial timber production is vegetation management.

Alternative 5 Modified is developed on a science-based concept of maintaining the disturbance-dependent ecosystem by directing and designing timber management prescriptions and actions to enhance and protect resource values. Based on the best available science, landscape modeling, and detailed GIS analysis, there are 824,589 acres that can reasonably be managed to benefit forest health and ecosystems without adversely affecting other resource values. Alternative 5 Modified has been developed to provide more predictable outcomes and a greater beneficial flow of goods than BDNF Preferred Alternative 5. To protect existing resource values, Alternative 5 Modified deletes from potentially suitable timber land:

- Those landscapes with less than 50 percent timber cover
- Lands over 45 percent slope
- Most Inventoried Roadless Areas (IRAs) difficult to road temporarily or with scattered timber
- Areas withdrawn from timber such as designated Wilderness Areas and Research Natural Areas
- Lands with difficult tree regeneration
- Mass-failure prone soils
- Riparian Habitat Conservation Areas.

Such lands would continue to be managed principally with non-commercial timber harvest and wildland fire use where management objectives can be achieved by these methods.

Remaining lands (824,589 acres, which is 24 percent of the BDNF) are suitable to be managed for ecosystem health using appropriate levels of timber production. Harvest levels needed to assure a desirable mix of vegetative age classes with associated disturbance on these acres amount to 46 MMBF (million board feet) annually, a figure which serves as the Allowable Sale Quantity (ASQ) for Alternative 5 Modified. At the same time, timber values are used to offset some restoration investment costs and provide jobs and raw materials to local communities. Alternative 5 Modified provides a lower level of risk to species viability than Alternative 5 by managing age class distribution closer to historic conditions. By adding to the suitable timber base, jobs and benefits under Alternative 5 Modified will be greater. Additional harvest would be appropriate on some remaining unsuitable acres where other objectives are incompatible with timber production and where associated yield would not contribute to ASQ.

Recognizing the existing public controversy, high construction and maintenance costs, and resource impacts of new permanent roads, Alternative 5 Modified manages timber using

the existing road network, with new roads predominantly temporary or short-term specified. Alternative 5 Modified supports closure or obliteration of roads and motorized trails not needed for management in the foreseeable future. Much of the timber harvest in the first decade would be directed toward restoration of those areas previously fragmented by small patch cuts and an existing road network.

Most timber management opportunities in IRAs are near the fringes of these areas and are often close to existing roads in or outside of these IRAs. Under Alternative 5 Modified, special provisions would be designed into timber management in IRAs to minimize the need for additional roads and to rehabilitate some existing roads in project areas encompassing IRAs. Most new roads constructed in IRAs would be of short duration and obliterated following harvest to maintain the roadless character while still providing for needed vegetation treatments. Only 68,549 acres (3.7 percent) of the 1,865,945 acres of current inventoried roadless lands would be reallocated from roadless to permanent roaded management, an area including 8,886 acres from USFS recommendations.

Recreation areas, scenic corridors, and travelway corridors would continue to be managed for timber production by using modifications to timber prescriptions to retain needed canopy; treatment unit design, and location to meet the appropriate Visual Quality Objective. Such techniques would follow successful application of similar prescriptions in other visually sensitive forested lands. With some minor exceptions, most acres in these areas will continue to be managed to provide the appropriate disturbance regimes while supplying timber production.

Timbered lands suitable for management outside IRAs, but closed to motorized travel, would continue to be managed as suitable for timber production to accomplish needed vegetative diversity treatments, with special considerations to ensure that future public travel opportunities are manageable as non-motorized. The non-motorized recreation opportunities would be maintained by use of largely temporary or short-term specified roads, with recreationists only temporarily affected until new vegetation is established on both treatment areas and obliterated roads.

Land appropriate for timber production in Rock Creek and other key watersheds would continue to be managed for vegetative diversity and forest health. Recognition of riparian habitat conservation areas and watershed fisheries values in project design will assure that nationally recognized resources will be protected while the continued fuel buildup that could contribute to unusually intense fires with uncharacteristic, severe effects will be reduced. A primary emphasis during the first decade of management in Rock Creek and other restoration-emphasis watersheds would be to re-enter some already developed areas with previous harvest to restore patch sizes representative of those naturally occurring prior to fire suppression. During these re-entries, unneeded roads would be obliterated and others treated to reduce chronic sedimentation introduction to streams. Based on potential impacts of modern, ground-based logging technology, slopes up to 45% slope on productive forested lands would be allocated as suitable timber. Within sensitive soils slopes over 35%, ground-based equipment would be precluded. On sensitive soils within 35 to 45% slopes, low impact methods such as one-end-suspension skyline and helicopter logging would be acceptable.

Stewardship contracting is a preferred administrative contracting mechanism for most timber harvest in Alternative 5 Modified in conjunction with conventional contracts. Stewardship contracts allow resource values to be exchanged for performance of local forest management actions and improvements. Stewardship contracting improves the ability of the Forest to accomplish projects that otherwise may not be funded. The work generated by these additional projects provides jobs and income for local communities.

Response: “Alternative 5 Modified” was considered and evaluated; however, it was determined this alternative would not be considered in detail. The rationale for not considering this alternative in detail can be found in the Final EIS, Chapter II, under the heading “Alternatives Considered but not Analyzed in Detail”. The rationale is also listed below:

- This alternative is similar to Alternatives 1 for the amount of suitable land for timber production. It is also similar to Alternative 5 when compared to Alternative 5 Modified for acres available for timber harvest to achieve a variety of vegetative objectives. Alternative 5 identified 1,197,000 acres available for timber harvest to achieve a variety of management objectives..
- This alternative redefines the term suitable lands for timber production and misrepresents what Alternative 5 states or what the Draft Forest Plan states. When the definition of suitable for timber production used by Alternative 5 Modified is compared to Alternative 5, there is nothing presented in Alternative 5 Modified that can’t be accomplished in Alternative 1, 2, 4, or 5
- This alternative is inconsistent in its analysis. On one hand it proposes a large suitable timber base with a restoration theme, however, the outputs (ASQ) are based on a maximization growth and yield model; a model which maximizes timber outputs, not restoration. This model assumes a different philosophy than what Alternative 5 Modified is proposing and therefore over estimates actual outputs. These exaggerated outputs are then used to support the economic and other analysis proposed by the Coalition.
- Because the outputs derived for Alternative 5 Modified are different than how the outputs for the other alternatives were derived, the results can not be compared. Alternative 5 modified did not use a budget constraint as did Alternatives 1, 2, 3, 4, and 5. If these alternatives were to remove the budget constraint, as did Alternative 5 Modified, the output would be very similar to Alternative 5 Modified. This would change the economic analysis of the other alternative, resulting in similar economic effects.
- Many of the assumptions involved in Alternative 5 Modified are speculation and have no basis to support the outputs or desired results.
- Much of what is discussed in this alternative can be accomplished with any of the alternatives. Restoration projects identified in Document 1 are site-specific, which would be analyzed through a site-specific analysis. It is this site-specific analysis which determines the restoration needs and whether or not a product could be removed as part of the restoration effort. All alternatives allow these types of projects.

- This alternative, if implemented to the degree stated, would likely have adverse effects on sensitive and listed fish and wildlife species, and further degrade water quality. Areas on the forest, which have been managed to the level identified in this alternative, have struggled to meet resource desired conditions.

Comment 3: The Coalition identified several important economic problems with the DEIS. First, economic goals and objectives were not specified, and no measurable criteria were presented. Without this information it is not possible to fully or accurately compare or evaluate the economic effects of alternatives. Furthermore, the DEIS does not calculate tradeoffs or opportunity costs for fire effects and prescribed burning versus timber management or the lack thereof B two important components of the Draft Plan.

Response: Economic goals and objectives are not required in order compare or evaluate the economic effects of alternatives. The FEIS describes in detail the Regional Economic Model IMPLAN and data the model uses: a prediction of outputs (board feet, animal unit months of grazing, recreation visitor days, etc) and an estimation of costs and revenues associated with those outputs. See the FEIS, Social and Economic Impacts, Analysis Methods and Assumptions. IMPLAN is a well accepted methodology for estimating comparative effects between alternatives. See the review of IMPLAN published in Thomas G. Johnson, Daniel M. Otto and Steven C. Deller (editors), "Community Policy Analysis Modeling", 2006, Blackwell Publishing Professional, Ames Iowa posted on the following website:

http://fsweb.ftcol.wo.fs.fed.us/imi/economic_center/about_implan.html

Based on this comment we have improved the discussion of opportunity costs in the Social and Economic Effects section. Also see the Benchmark Analysis section of the Analysis of the Management Situation published in the Plan.

Comment 4: The cost of the current (Alternative 1) prescribed burning program will be \$2.6 M over 10 decades. Although the Forest Plan covers only approximately fifteen years, long-term investments are important to consider, given that ecological effects may not be manifested during the planning cycle. This value will enable the USFS to determine whether the prescribed burning program is viable in conjunction with values at risk and costs.

Response: When looking at changes in the economic effects, the regulations 219.12(g) require those effects to be look at for each alternative, not selected portions of an alternative. This is what is done in Economics and Social Values, Affected Environment section of the FEIS. The analysis you provide in your comments only looks at a subset of an alternative and not the economic effects of the alternative as whole. A partial analysis does not fulfill the requirement of looking at the effects on the alternative in its entirety.

We do agree that long-term investments are important to consider. This is why we examine the net public benefit of various alternatives by calculating the present net value of revenues and expenditures made over a period of 50 years. The results are presented in the FEIS, Social and Economic Impacts, Effects on Economic Efficiency.

Comment 5: The Coalition examined IRAs and calculated opportunity costs not provided in the DEIS. We compared BDNF Alternative 1 (No Action), BDNF Preferred Alternative 5, and Alternative 5 Modified. Alternative 5 Modified provides the highest economic value and thus is the basis for calculating opportunity costs. Compared to Alternative 5

Modified, the opportunity cost of Alternative 1 is \$21.7 M over 10 decades given a moderate harvest level. The opportunity cost of the Preferred Alternative is \$50.7 M over 10 decades. Looking at only the planning horizon (one decade), the opportunity cost of Alternative 1 is \$8.6 M, and Alternative 5 is \$20.1 M.

Response: We improved the discussion of opportunity costs of roadless area management in the FEIS; see Effects to the Economic Environment from Inventoried Roadless Area management. Also see the benchmark analysis in the Analysis of the Management Situation for a discussion of opportunity costs of maximizing timber harvest compared to maximizing roadless area protection.

Comment 6: The Coalition examined the proposed road reclamation in Rock Creek and provides a comparison of expected costs between the Preferred Alternative and the Alternative 5 Modified. Assuming an annual average of 20 miles of restoration, over 10 years, at a cost of \$3,500 per mile, we calculate the total present net value (PNV) to be \$567 K. Under the Preferred Alternative, this value is to be appropriated funding. The Coalition proposes to allocate 155,749 acres to suitable timber to optimize resources under the Alternative 5 Modified and to offset the cost of road reclamation. Under this scenario, the USFS would derive net benefits of \$1.07 M over 10 years rather than a net cost. If stewardship contracting were used to administer such treatments, the Forest could secure timber receipts by harvesting a portion of this timber for future investment in this local area.

Response: We address this comment in the FEIS, Effects to the Economic Environment from Timber Harvest. Timber harvest on the BDNF is not limited by the acres of suitable timber allocated but by the budget available for designing timber sales and carrying them through the appropriate environmental analysis process. Stewardship contracting does not provide a resolution for budget limitations on the planning end of the process. Increasing the acres of suitable timber available will not change this situation. In the Timber Production, Analysis Methods and Assumptions section of the FEIS you can find a discussion the limitations of budget versus ASQ and acres available for harvest.

No alternative in the FEIS sets road reclamation or restoration targets or ceilings so we are not sure what you were comparing. Stewardship contracting is a tool available under any alternative. Stewardship contracting is utilized in the Plan which implements Alternative 6, see Forest plan, Appendix D, Schedule of Timber Sales and Related Activities. Under any alternative except Alternative 3, offering timber sales through stewardship contracting could result in increased restoration opportunities.

Comment 7: Missing in the DEIS is recognition by the BDNF that commercial timber harvest is a key management tool to both financially and operationally accomplish the BDNF vegetation management objectives. Commercial timber management is vegetation management, especially on timber suitable lands.

Response: Page 35 of the Draft Plan identified two objectives emphasizing the desire of the Forest to utilize forest products, which includes commercial timber, if desired conditions can be achieved and resources protected. The DEIS and FEIS (Chapter 3, under the heading of Economics and Social Values) both recognize timber harvest as economically beneficial to communities.

The statement "...that commercial timber harvest is a key management tool to both financially and operationally accomplish the BDNF vegetation management objectives" is not understood. The Forest understands that commercial timber harvest is a way of achieving vegetation management objectives, but it is not the only way. The FEIS or draft Forest Plan does not use the term "suitable timber lands". The Forest has "lands suitable for timber production" and "land suitable for timber harvest". It is not understood which one this comment is referring to.

Comment 8: Also missing is recognition that the dominant BDNF ecosystems are disturbance-dependent and disturbance-adapted. Allocating a greater proportion of these landscapes to the suitable timber base will provide for healthy forest ecosystems by scheduling ecologically necessary disturbances for age class diversity, stand structures, and species needs.

Response: The DEIS recognizes the ecosystems on the Forest are fire dependent which is the same as disturbance based. Fire is the disturbance. Assuming "suitable timber base" is the same as "lands suitable for timber production", then we disagree with the correlation between the disturbance dependant ecosystem and allocation of land for the purpose of timber production. If the term is referring to lands suitable for timber harvest, Alternative 5 identifies 1,197,000 acres as available for timber harvest.

Comment 9: Restoration of quaking aspen is a commendable objective; however, the BDNF recommended conversion of 8% of lodgepole pine forest to quaking aspen is not well founded in the literature nor in the BDNF forest inventory. The BDNF should recognize quaking aspen as a seral component of younger age classes of coniferous forest. Further, the BDNF should recognize that commercial timber harvest is an effective and efficient tool to accomplish aspen regeneration and protection.

Response: The Forest does recognize that much of the aspen is a seral stage in coniferous forest and this has been clarified in the Final EIS and Final Forest Plan.

Timber harvest can be an effective and efficient tool to accomplish aspen regeneration and protection. Specific treatments to favor aspen will be analyzed at the site-specific analysis level

Comment 10: Not allocating timber suitable acres due to scenic value alone, such as in foreground and middle ground viewing areas, is inconsistent with the timber harvest design methods to achieve scenic integrity found in the Agriculture Handbook #701, Landscape Aesthetics (USFS, 1995).

Response: If the reference here is to lands suitable for timber production, then Alternative 5 choose not to make the growing, tending, and regeneration of a crop of trees the major emphasis in our most sensitive visual corridors. The main emphases in these areas are recreation and visuals. Alternative 5 was designed to remove possible conflicting management emphases in the same area. This management conflict was identified in the implementation of the current Forest Plan.

If on the other hand, the term refers to those areas as lands suitable for timber harvest, then there is no inconsistency since these lands are available for timber harvest to achieve scenic integrity or other resource objectives found in Agriculture Handbook #701.

To clarify, this handbook does not set direction on how to establish a management emphasis for an areas, it describes how to protect the scenic integrity of an area depending on the management action desired.

Comment 11: Fire and insects are the most prevalent disturbance agents driving landscape vegetation dynamics on the BDNF. It is important to properly characterize the past, present, and future roles of these disturbance agents and their potential impacts under the alternative management scenarios presented in the DEIS. Where tradeoffs exist between alternatives, those impacts and opportunity costs need to be disclosed. The DEIS did not do an adequate job analyzing fire hazard/risk and insect conditions or present a management approach offering proactive treatments addressing these problems.

Response: The Final EIS (Chapter 3, under the heading of Vegetation) was updated to better disclose the analysis of insect condition, both past, present and future as it relates to the alternatives. The DEIS, Chapter 3, pages 298 through 300 described the natural fire regimes and identifies the acres on the BDNF. It also displayed the acres that are within the natural range, as well as the number of acres outside the historic range. This description is also in the Final EIS (Chapter 3, under the heading Fire Management).

There were no trade-offs identified between alternatives as it relates to fire and insect infestations. As the Coalition's analysis has concluded, which is consistent with other similar analysis, management actions have little effect, if any, on wildfires at the landscape scale for the BDNF, even under intensive management as prescribed by the Coalition's alternative. As described in FEIS (Chapter 3, under the heading of Vegetation) treating vegetation to affect insect outbreaks has had minimal success, if any. Therefore, the alternatives would have no measurable differences between them. Management action can have an effect at the site-specific level; however, these would be evaluated at the project level and not at the forest plan level. The Forest Plan does include objectives to reduce fuels in urban interface areas and to work with State and Counties on implementing their community fire plans.

Comment 12: The BDNF DEIS and Draft Plan did not sufficiently characterize historic fire regimes.

Response: The DEIS, Chapter 3, pages 298 through 300 described the natural fire regimes and identifies the acre on the BDNF. It also displayed the aces that are within the natural range, well as the number of acres outside the historic range. This description is also in the Final EIS, Chapter 3, under the heading Fire Management.

Comment 13: The BDNF DEIS and Draft Plan did not sufficiently analyze fire hazard/risk to resources and communities.

Response: As stated in the response to Comment 11 above, the risk is difficult to address since analysis indicates that, at a Forest scale, we are unable to affect wildfire and therefore its effects. Wildfire is and will continue to be a natural disturbance across the landscape. We will also continue to take the appropriate management response to a wildfire. These are common to all alternatives and therefore the effects are the same.

The effects of wildfire can be altered at a site-specific level (i.e. urban interface, communities, or specific locations for specific resources or other values at risk), but this would be evaluated at the project level as part of implementation. This is also common to all alternative since all alternative have an objective to protect urban interface areas and resource values. No alternative

restricts taking action to reduce hazards or risks to communities or specific resources. The Forest will also continue to work with State and Counties on their community fire plans.

Comment 14: The BDNF DEIS and Draft Plan did not sufficiently analyze the impact of reducing ASQ and the subsequent potential impacts of uncharacteristic wildfire behavior and insect activity.

Response: This comment indicates a correlation between ASQ and uncharacteristic wildfires and insect activities. The Forest does not find any science to support this correlation. The Final EIS was updated to better disclose the analysis of impact the different management activities and effect on wildfire and insect activities.

The Coalitions own analysis demonstrated there is no correlation between alternatives and wildfires behavior. See pages 9-20 of the Collations comments. When comparing similar outputs between alternatives the Collations analysis also demonstrates very little differences between alternatives as well.

Comment 15: The BDNF DEIS and Draft Plan did not sufficiently analyze the ability and effectiveness of fuel treatments to meet objectives.

Response: This comment is not clear on which objective(s) are being addressed here. The comment is also not specific as to what fuel treatment to analyze. Fuel treatments include but not limited to timber harvest, post and post removal, firewood removal, limbing of trees, mechanical removal of brush, and/or different types of prescribe fire.

It is not possible to address the effects of fuel treatment to meet a forest plan objective. This analysis would be completed at the site-specific project level where specific objectives would be identified. The project analysis would look at several means to accomplish the site-specific objectives. This may include timber harvest or prescribed fire as tool to accomplish the objectives.

Comment 16: The BDNF DEIS and Draft Plan did not sufficiently address mitigation and land management direction following wildfire.

Response: The direction for management activities in an area burned by wildfire is the same as other management activities. The Forest Plan sets the strategic direction for protection of resources and viability of species. It is the site-specific project which will analyze effects and identify mitigation for projects in an area following wildfire. Without specific concerns related to wildfire, we are unable to address this comment further.

Comment 17: The BDNF DEIS and Draft Plan did not sufficiently include provisions for salvage operations following wildfire/insects.

Response: The Forest Plan has been updated to better clarify the use of salvage operations, including operations following wildfire and insect outbreaks.

Comment 18: The value of timber harvest as a management tool is underestimated in the DEIS and underutilized in the Draft Plan. There is no scientific or social justification for reduction in suitable timber acres and consequences of this reduction are not disclosed.

Response: There is nothing the Forest could find in the DEIS or Draft Forest Plan that supports this comment. The Forest Plan does not utilize one activity or another. The Forest Plan is a strategic document that identified desired conditions and objectives. The use of timber harvest to

accomplish those desired conditions and objectives are available on 1,197,000 acres of forested lands. It is at the site-specific project level where the determination is made concerning whether or not timber harvest is the best means to accomplish the objective for that project. The Draft Forest Plan, page 35, identified objectives to utilize forest products when possible where resource protection can be achieved.

The Final Forest Plan was updated to better clarify this.

Comment 19: In contrast to the unpredictable and risky use of wildfire, managing vegetation using timber production to achieve desired vegetative conditions is a proven technique, with results having a high correlation with expectations. Timber management prescriptions are developed by certified professional silviculturalist, and treatment prescriptions are developed to meet site-specific vegetation objectives developed by an interdisciplinary team of specialists.

Response: As stated earlier, and it can not be emphasized enough, the Forest has no intention of using wildfire as a management tool to achieve resource objectives. The Forest was unable to find anything in the DEIS or Draft Forest Plan that would allow the Forest to manage a wildfire to achieve resource benefits. Forest Service Policy does not allow this and states that all wildfires are to be suppressed. Allowing wildfires to burn is not a decision a Forest Plan can make.

Comment 20: Of the 2.7 million acres of forested lands, a minimum of 824,589 acres are suitable and feasible for timber production to meet a variety of natural resource objectives. The arbitrary reduction of 676,000 acres of suitable timber to only 212,000 acres in BDNF Preferred Alternative 5 is inconsistent with the BDNF= stated need to dramatically increase vegetative diversity and improve forest health.

Response: Alternative 5 allocates 1,197,000 acres as suitable for timber harvest. This timber harvest could occur to meet other resource objectives as long as resources are protected. In addition to these 1,197,000 acres of land suitable for timber harvest, 212,000 acres have been identified as having the management objective of growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs for industrial or consumer use.

In response to comments, Alternative 6 allocated 1,614,000 acres suitable for timber harvest and allocated 299,000 acres suitable for timber production. Because the comments indicated confusion on this topic, the Final EIS and Forest Plan were updated to provide better clarification.

Comment 21: Sensitive timber management offers opportunities for restoration of fragmented wildlife habitat and for the obliteration of unneeded roads on previously harvested areas. Most suitable timberland can be managed with short term or temporary roads from existing roads and a mosaic of naturally occurring patch sizes to mimic natural disturbance patterns.

Response: It is at the site-specific project level that this type of decision is made. There is nothing in any of the alternatives that would restrict a project from considering such actions.

Comment 22: The DEIS concludes that old-growth forests are at or above historic levels and that there are no old growth obligate species. The Coalition agrees, although we contend the BDNF has old growth associated species. The DEIS concluded that no further

need existed for analysis of old growth associated species. The Coalition feels this is a serious omission.

Virtually every plan has been challenged in the courts on its strategy for addressing old growth associated species. Without some analysis of changes in old growth forests, including situations resulting in acreage increases, and an assessment of effects on species viability for old growth associated species, the DEIS will remain extremely vulnerable to court challenge.

Response: The Final EIS has been updated to better clarify and disclose the discussion on old-growth.

Comment 23: The DEIS discloses a huge decline in availability of the seedling/sapling age class. The DEIS concludes this could reduce foraging habitat for lynx or varying hares. No further analysis is done to quantify this impact or to show how long-term viability will be ensured for lynx or other early seral forest-dependent species. Other forests that have successfully defended challenges against their compliance with the Lynx Conservation Assessment and Strategy (LCAS) always have included a detailed assessment of the availability of unsuitable, foraging, and denning habitat and then demonstrated how the mix of plan standards, management areas, and planned action will ensure compliance with the LCAS.

Of greatest concern, the Preferred Alternatives outcome suggests that the availability of early seral forests will remain at levels substantially below the HRV, suggesting that the BDNF does not intend to restore foraging habitat for the lynx. The DEIS ignores the opportunity to use regulated timber harvest as a tool to restore lynx habitat.

Response: Since the development of the DEIS, the Forest has been reclassified as not being occupied by lynx. The management provisions for lynx habitat no longer apply to the BDNF. The latest T&E list (USFWS 8/8/2007) no longer include lynx. Consequently, there is no consultation requirement for the species under ESA.

Comment 24: The DEIS analysis of elk security is excellent. As disclosed in the DEIS, road management is the best tool to assure maintenance of security, and the DEIS Elk Security Objective clearly identifies situations where increased road management would be needed. Unfortunately, the Elk Security Standard shows a lack of resolve to meeting the objective.

In its current wording, the standard requires that the forest *only need avoid making the situation worse*. Unfortunately, in situations where open road density is excessive, this unwillingness to address the problem will shift the burden to provide elk security components from road management to retaining higher-than-desirable levels of vegetative density. Conifer stands that need vegetative treatment won't be accessible because dense stands of trees will be used to compensate for excessive open road density. Forest health and habitat for other wildlife species will suffer as a result.

Response: Alternative 6 proposes the following 2 wildlife standards (amongst others):

Standard 1: From October 15 to December 1 Hunting Units that exceed the open motorized road and trail density objective will have no net increase in designated open motorized roads and trail mileage. (Scale – Hunting Units on National Forest lands)

Standard 2: Landscapes that exceed the open motorized road and trail density objective will have no net increase in designated open motorized roads and trail mileage. (Scale – Landscapes on National Forest lands)

In addition, the proposed forest plan contains objectives to attain desired open road and trail densities in landscapes or hunting units where those densities are not currently being met. These objectives will be addressed during site-specific travel planning on each respective unit (Forest Plan, Wildlife section).

The BDNF has very low open motorized road/trail densities currently with 1.3 miles per square mile during the summer season and 1.0 mile per square mile during the Fall hunting season as overall forest averages (see FEIS, Chapter 3, Wildlife Habitat Management for specifics). These numbers include both motorized roads and trails. Most of the scientific information/studies on wildlife security only address roads. Because elk habitat and big game security is a revision topic, the ID Team analyzed motorized effects from both roads and trails. This approach clearly illustrates a willingness to address issues from a wildlife perspective.

It is not anticipated vegetative treatment opportunities will suffer because of this forest plan direction. Effects and tradeoffs will be analyzed at the site-specific, project level.

Comment 25: The DEIS has no analysis of fire-dependent wildlife species like black-backed woodpeckers, although the DEIS suggests the species would be addressed in the Biological Evaluation (BE) after the Record of Decision (ROD). That latter statement is likely untrue since the black-backed woodpecker is no longer designated sensitive in Region 1 and since BEs are limited to species designated sensitive or federally listed.

Court challenges suggest that the DEIS must provide some analysis of how viability for fire-dependent species will be assured.

Response: The Final EIS (Chapter 3, under the heading of Wildlife Habitat Management) has updated its discussion on black-backed woodpeckers.

Comment 26: Areas closed to motorized travel are designated as unsuitable for timber harvest. The Coalition finds this puzzling.

The BDNF certainly has no shortage of wilderness or roadless areas where recreationists can find solitude in the absence of timber harvest activities. Elk security can be provided by careful road management in areas intensively managed for timber. The Coalition finds no science-based or social-based rationale for that decision.

Response: Areas allocated to a non-motorized semi-primitive setting are not unsuitable for timber harvest. Timber may be removed from these areas to accomplish resource objectives.

Since the emphasis for these areas is a semi-primitive non-motorized setting, it would be confusing to overlay another management emphasis which conflicts with the recreation emphasis.

Comment 27: The DEIS contends that designating the Rock Creek drainage as unsuitable timber is compatible with the completed landscape analyses. The Coalition finds this to be untrue.

For instance, the Rock Creek Landscape Analysis identifies substantial treatment needs in the Stony Creek, Middle Fork, and Willow Creek drainages, yet no suitable lands are

allocated in Rock Creek, nor is any science-based rationale provided that explains this omission. There are high fisheries values within watersheds needing restoration in Rock Creek. Careful timber harvest has been shown to be the most economically efficient method of restoring road-related watershed impacts. Our economic analysis shows that precluding timber harvest in Rock Creek drastically limits restoration opportunities within Rock Creek and further compromises the drainage=s forest health.

Response: The DEIS is completely compatible with the Rock Creek Landscape Assessment. The vegetative treatments identified in the Rock Creek Landscape Assessment are for resource reasons. The FEIS, Alternative 6, allocates Rock Creek as suitable for timber harvest, which includes harvesting timber to achieve vegetative objectives. The only harvest not suitable in Rock Creek is for timber production. The Rock Creek Landscape Assessment **does not** identify a need for managing lands within the Rock Creek watershed for timber production.

Comment 28: The Draft Plan fails to provide a coherent, balanced approach for managing timber resources in IRAs. The Coalition had identified approximately 476,000 acres within IRAs that contain suitable timber and where management direction should be changed to allow timber production.

Response: The Coalitions Alternative was considered but not carried forward as an alternative considered in detail. The rationale for this can be found in the Final EIS, Chapter II, under the heading “Alternatives Considered but not Analyzed in Detail”.

Alternative 6 does allow the harvest of timber to achieve resource objective. Considering the values and interest that IRA provide, the Forest feels this is a coherent and balanced approach to the management of these lands.

Comment 29: Timber management in roadless areas becomes less contentious and more palatable if roadless values can be maintained in the long term using either existing roads, no roads, or temporary roads to manage vegetation. Most potentially suitable timber identified by the Coalition is on the outside fringe of roadless areas, meaning it can be easily managed for timber production using forwarders or temporary roads accessed from outside the roadless areas.

Response: This alternative was considered but not carried forward as an alternative considered in detail. The rationale for this can be found in the Final EIS, Chapter II, under the heading “Alternatives Considered but not Analyzed in Detail”.

The 9th Circuit Court has ruled that the construction of roads and harvesting of timber is an irreversible/irretrievable commitment of a roadless area.

Comment 30: The Draft Plans fails to adequately address reducing the risk of fire in Wildland Urban Face (WUIs), especially in areas of where WUIs overlap with IRAs. Of the 476,000 acres of IRAs identified by the Coalition as containing significant amounts of suitable timber, approximately 105,000 acres overlap with the WUIs defined in the Community Wildfire Protection Plans (CWPP) for the seven counties encompassed by the BDNF. Additionally, there are approximately 115,000 acres of unsuitable timber lands that overlap with the CWPP WUIs. The Coalition recommends adjusting the boundaries of IRAs to exclude areas where there is suitable timber within WUIs. The Coalition will also support specific recommendations the County governments may make regarding WUI management.

Response: Page 37 of the Draft Plan identifies an objective to “Reduce risk from unplanned and unwanted wildfire to communities and resources by prioritizing the following: Treat high risk areas adjacent to communities...”

Pages 34 and 35 of the Draft Plan also identify areas outside of those lands suitable for timber production may harvest timber for other resource values. This includes reducing fuels to meet the objective stated in the previous paragraph.

This comment is a continuation of the Coalitions misunderstanding of Alternative 5’s intent concerning timber harvest. The Final EIS and Final Plan have attempted to clarify this.

Comment 31: The BDNF is experiencing an epidemic of mountain pine beetle infestations. Differences in insect infestation between alternatives are indicated through the Coalition’s SIMPPLLE modeling.

Response: The Forest agrees with the coalitions SIMPPLLE modeling which indicates a slight difference in mountain pine beetle with significantly different acres available for timber harvest. However, the coalition did not analyze the alternative equally. For Alternative 5 the Coalition did not use projected ASQ, instead use the projected output based on budge of approximately 9 mmbf. For Alternative 1 the Coalition used the outputs used in original Forest Plan analysis (1987) of 40.3 mmbf, and used 51.3 mmbf from an unconstrained budget for Alternative 5 modified.

If the alternatives were compared equally using ASQ from the 2004 spectrum runs with an unconstrained budget, and the acreages from their table 9.3.5-1, the outputs would be; Alternative 1 – approx 30 mmbf from 215,000 acres, Alternative 2 – 12 mmbf from 675,000 acres, and Alternative 5 modified – 51.3mmbf from 1,138,000 acres.

The second error in the comparison and use of the SIMPPLLE model is the coalition did not use the acres allowable for timber harvest equally between alternatives, but rather only used lands suitable for timber production for Alternative 1 and 5, but used all available lands for timber harvest for their Alternative 5 modified. If this analysis was done accurately the results would be; Alternative 1 – 58.2 mmbf from approximately 1,293,000 acres, Alternative 5 – 44.0 mmbf from 978,000 acres, and Alternative 5 modified – 51.3mmbf from 1,138,000 acres. The analysis would then indicate there is very little difference between alternatives.

The Forest does agree with the analysis which indicates a reduction, although slight, in mountain pine beetle infestations if the Forest was able to treat large acreage over a couple of decades. However, this also does not tell the whole story.

The Forest, because of budget, politics, Federal laws, legal rulings, and public opinion has never been able to treat the number of acres to achieve the result identified here. It seemed inappropriate to disclose effects that are hypothetical when there are no indications these types of outputs could ever be achieved. They have never been achieved in the last 15 years, under the best of conditions. Instead the Draft EIS presented the outputs which are expected based on planned and foreseeable budgets. The facts are that outputs are determined by budget, not by lands available for timber harvest. The outputs, even under Alternative 5 modified, would be approximately 9.0 mmbf and therefore the effects would be similar to Alternative 1, 2, 3, 5. They would be similar to Alternative 4 if additional funding was allocated for timber harvest as Alternative 4 does. But even then the outputs are only estimated to be approximately 15.0 mmbf.

This has been better disclosed and information updated in the Final EIS, Chapter III, under the heading of “Suitable Timber”.

Comment 32: SIMPPLLE modeling between the Alternatives shows that the levels of vegetative treatments are inadequate to substantially effect fire occurrence, though the issue of fire risk/hazard needs to be addressed at a better resolution.

Response: The Forest strongly agrees with the Coalitions SIMPPLLE analysis and conclusion which is stated on page 9-20 of their comment stating, “Treatment between alternatives do not treat enough acres to show significant effects to fire occurrence”. This includes an Alternative 5 modified, with 1,138,000 suitable timber acres and harvesting an unprecedented 51.3 mmbf for 100 years. The Forest’s conclusion based on experience and modeling similar to this over the last 80 years, is the Forest is not able to mechanically treat enough acres to significantly affect wildfires. However, the Forest can identify specific areas to treat, like urban interface, and make a difference.

The discussion concerning fire risk/hazards in the Final EIS, Chapter III, under the heading of “Fire and Fuels”, has been improved.

Comment 33: The BDNF appears to give inaccurate representations of quaking aspen and lodgepole pine in HRV. ERG has taken steps to remedy this problem, but in order to fully correct this problem we suggest that the SIMPPLLE results in Plan be rectified to help provide a solid basis for making better management decisions.

Response: The Forest reviewed ERG’s SIMPPLLE run concerning quaking aspen. Our conclusion is the SIMPPLLE model, as with any model, can be changed to achieve different results. ERG modified SIMPPLLE parameters based on their assumptions, and achieved a different output. We do not necessarily disagree with the changes and, in fact, believe it helps to provide a range. As stated by ERG, the SIMPPLLE model is not intended to make accurate predictions, but rather estimates of general trends and estimate of historical conditions. The Forest sees no need to change the modeling since ERG’s modeling comes to the same conclusion identified by the ID Team; aspen is declining on the Forest. Although ERG’s outputs are about half of the Forest’s runs; ERG’s outputs still indicate approximately a 600,000 acre to 400,000 acres short fall between historical range of variability and current condition. This would not change the forest’s desired condition to restore aspen across the landscapes, and in fact, strongly supports the Forest position. The Forest’s objective to restore approximately 70,000 acres of aspen is still well short of achieving historical levels. The reason for only 70,000 acres is again budget driven. If more is achieved great. But based on historical outputs, Alternative 5 estimated approximately 70,000 acres as a reasonable objective to achieve in the next 10 years, so as to move the Forest towards a desired condition.

Comment 34: There are several policy problems with the DEIS and related Draft Plan. Most of the comments Sections describe contradictions with NEPA, the CEQ or the NFMA. The Shipley Group Inc. in their document How to Manage the NEPA Process/Write Effective NEPA Documentation (2004), discusses that in order to prove that one has completed the heart (emphasis theirs) of the NEPA process that a history of the Alternative development should be included. The Shipley Group manual goes on to state: “Proving appropriate public involvement is a wise legal and political move.” The Coalition believes there was neither appropriate public involvement and that the range of alternatives is

deficient. There may be enough flaws to stipulate revisiting the process although the Coalition hopes to work with the USFS within the existing framework.

Response: The public involvement for the forest plan revision effort is documented in the Final EIS, Chapter II. The Coalition, as represented by ERG, has met with Forest Service officials on numerous occasions, have been briefed on the alternatives, and have never been turned away on any request for information or meetings. Outside of these comments, ERG does not identify any other flaws and/or why the public involvement is deficient.

Comment 35: The Coalition believes that the BDNF did not provide a full range of alternatives as required under Council of Environmental Quality (CEQ) guidelines. The DEIS does not appear to be consistent with NEPA. The current alternatives described in the DEIS do not truly reflect policy direction for alternative development that directs the agency to “Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.”

Response: The Forest has gone back and reviewed its alternatives. After public comment, Alternative 6 was created. The Coalition does not provide any information as to what alternatives should have been developed and, therefore, we are unable to respond. The Forest did consider the Coalitions alternative presented in their comments. This alternative is addressed in the Final EIS, Chapter II.

Comment 36: In the DEIS, the budget limitations and reductions are applied disproportionately to timber harvest, but that is not the case with prescribed fire or especially in the case of using unlimited investment dollars for such high-ticket items as aspen treatment, improving channel conditions in the Rock Creek watershed or road density reduction projects.

Response: Budget limitations were not disproportionately applied to timber harvest or any other resource. Estimates were developed using alternative emphasis areas and estimates based on historical funding levels. Estimated and projected budgets were used, as well as, historical outputs to help determine objectives.

Comment 37: The Coalition, having a good working relationship with the counties surrounding the BDNF, wants to ensure the Plan is consistent with locally adopted plans, especially CWPPs, as this may afford us the opportunity to manage WUIs.

Response: The Final Forest Plan is consistent with locally adopted plans.

Comment 38: It is extremely important for the BDNF to work with stakeholders and counties to develop the best scientifically based, locally qualified roadless management policy. Given the fact that the current policy development is based on national requests to states, and the governors’ requests to counties, we expect the BDNF to finalize a rational approach to roadless areas. Our suggested overall management objective is to maintain and enhance these IRA areas as long-term quiet areas (see Chapter 6). Alternatively, should the USFS decide not to accept this Coalition-sponsored IRA management concept, we will work with local governments and congressional offices to remove that suitable timber from formal IRA designation.

Response: The Forest has developed a range of alternatives dealing with roadless areas. The Forest has responded to other comments by the Coalition concerning roadless areas. Please refer to our other responses. Currently, inventoried roadless areas are being managed in accordance with the 2001 Roadless Area Conservation Rule.

Comment 39: Sub-Basin Review Landscape Assessment documents have been developed for specific areas to aid in future management decisions (USFS, 2002) and to help develop the Desired Future Conditions (DFCs), based on HRV. This information is to be used to determine the relative sustainability of the landscape. The DEIS and the Draft Plan do not follow direction of the Sub-Basin Review Landscape Assessments. Two examples are the Rock Creek Assessment and the Gravelly Landscape Analysis.

Response: Sub-Basin Reviews and Landscape Assessment do provide information that was used in the development and analysis of the revised forest plan. However, Sub-Basin Reviews and Landscape Assessment do not provide direction. After reviewing this comment and the Sub-Basin Reviews and Landscape Assessment, the Forest did not find any areas of inconsistencies except where additional or new information exists.

Comment 40: The BDNF Plan Revision process presents an opportunity for the agency to demonstrate its commitment to collaborative analyses involving scientific and technical data necessary to validate the plan's science-based components. The Coalition suggests that current USFS analytical methods fail to reasonably assess (1) the historical amount of old growth in the planning area and (2) the historic character of the disturbance regime (i.e., planning areas susceptibility to uncharacteristic fire).

Response: The discussion on old growth and disturbance regimes (fire) can be found in the Final EIS, Chapter III, under the headings "Vegetation" and "Fire and Fuels".

Comment 41: The DEIS consistently failed to address the Cumulative Effects of the Preferred Alternative to the communities surrounding the BDNF. The USFS must also recognize the interdependence of maintaining viable wood processing businesses in surrounding communities to accomplish planned forest vegetative treatments, as well as to maintain economic benefits to the community.

Response: The Forest understands and recognizes the interdependence of maintaining viable wood processing businesses in surrounding communities to accomplish planned forest vegetative treatment and the economic benefits to communities. These have been disclosed in the Final EIS, Chapter III under the head "Economics".

Comment 42: The analysis must address the impact of BDNF decisions, such as the Preferred Alternative reduction of wood supply to local mills, on the individual and collective health of surrounding communities, as well as the potential for those communities to develop new opportunities to utilize forest products, including small diameter material.

Response: The Forest is not able to address this comment since the Preferred Alternative does not reduce the wood supply to local mills. The effects of the alternatives are disclosed in the Final EIS, Chapter III under the head "Economics".

Comment 43: The Forest has not used any modeling to predict landscape vegetation trends from the various management alternatives. In order to produce the best available data

upon which to base plan revision decisions, the Coalition contends the agency should analyze the impact of management alternatives on future forest vegetation patterns and structure, and fire and insect susceptibility.

Response: The Forest has reviewed the work the coalition has developed using the SIMPPLLE model and finds it adequate and acceptable. This has been utilized in the analysis and has been added to our effects analysis. See the Final EIS, Chapter III.

Comment 44: In the DEIS, the budget limitations and reductions are applied disproportionately to timber harvest, but that is not the case with prescribed fire or especially in the case of using unlimited investment dollars for such high-ticket items as aspen treatment, improving channel conditions in the Rock Creek watershed or road density reduction projects.

Response: See response to Comment 36.

Comment 45: The Coalition, having a good working relationship with the counties surrounding the BDNF, wants to ensure the Plan is consistent with locally adopted plans, especially CWPPs, as this may afford us the opportunity to manage WUIs.

Response: The Forest agrees with the need to be able to manage WUIs.

Comment 46: It is extremely important for the BDNF to work with stakeholders and counties to develop the best scientifically based, locally qualified roadless management policy. Given the fact that the current policy development is based on national requests to states, and the governors' requests to counties, we expect the BDNF to finalize a rational approach to roadless areas. Our suggested overall management objective is to maintain and enhance these IRA areas as long-term quiet areas (see Chapter 6). Alternatively, should the USFS decide not to accept this Coalition-sponsored IRA management concept, we will work with local governments and congressional offices to remove that suitable timber from formal IRA designation.

Response: The Forest thanks the Coalition for their comment and suggestion. Please see our response to Comment 38 concerning roadless areas.

Document 2 Comments

Document 2 consists of specific word changes to the Draft Forest Plan which the coalition suggests to implement the Coalition's alternative. These suggestions range from page number changes, comments, suggested word deletions, suggested word addition, and format changes. Many of the suggestions are repeated numerous times throughout the documents.

These comments were addressed by the following:

- Page number changes: Since the page numbering is a result of words added to or deleted from the Draft Forest Plan there is nothing to respond to other than to agree that the changes would result in changes in page numbers.
- Format changes: Format changes were suggested to fit the preference of the Coalition in presenting their information in the Draft Forest Plan. There is nothing to respond to other than to agree that the changes they made are reasonable to display their suggested information.

- Addition and deletion of wording: Word additions ranged from individual words to entire sentences resulting in changes to forestwide objectives and standards, and management area management emphasis. Word deletions ranged from individual words to entire sentences, which were usually needed to insert the Coalitions wording. These wording changes were review and addressed as follows:
- Word changes which reflected implementation of the coalition's alternative were considered addressed in the response to comments outlined in Document 1. For example, the Coalition increased the acres of lands suitable for timber production in Document 1. In Document 2, (Changes to the Draft Forest Plan) the wording was changed which would allow more acres to be suitable for timber production. It was felt the appropriate place to respond to this comment was in document 1 rather than document 2.
- Wording that clarified or better stated an objective or was grammatical in nature were reviewed and accepted if appropriate.
- Between Draft and Final, some wording in the plan was either dropped or altered significantly based on other comments. In these cases, suggested changes would no longer be appropriate.

Environmental Protection Agency Montana Office

Introduction to Official Comments

A. The EPA appreciates the considerable efforts of the Beaverhead-Deerlodge National Forest's (BDNF) in synthesizing a great amount of input and information during development of this draft Forest Plan Revision and EIS that addresses resource management practices, levels of resource production and management, and availability and suitability of lands for resource management for the next 10 to 15 years. The BDNF contains some of the most important headwater streams and aquatic habitat in Montana, and includes lands capable of providing fish, wildlife and plant diversity on a large scale, as well as high quality recreational opportunities to meet growing demand for public recreation. We are pleased with the development of the BDNF's Forestwide Aquatic Strategy providing a consistent and integrated strategy for protection for streams and riparian areas, restoration of water quality and watersheds, and conservation of fish and other aquatic species. We commend the BDNF for recognizing the importance of watersheds as a key management unit and providing information in the draft Forest Plan/EIS at this scale.

Response: Thank you for the support of the aquatic strategy.

B. We support the concept of establishing restoration watersheds where watershed plans will be developed and implemented to identify and prioritize actions for fish conservation and to restore water quality, riparian functions, and watershed conditions to fully support beneficial uses. Although it is not clear how the 15 key restoration watersheds in the preferred alternative were identified and selected. The DEIS indicates that there are 129 functioning-at-risk and 166 non-functioning stream reaches on the BDNF; and that the Inland West Watershed Initiative (IWWI) rated 74 watersheds (6th level HUCs) as being in

a “poor” condition with low geomorphic, hydrologic, & biotic integrity; and that 269 water quality impaired stream reaches are present on the BDNF (i.e., 303(d) listed waters). The relationship between these varying stream/watershed assessments, and the identification and selection of the key restoration watersheds are not clear.

Response: The restoration watersheds were selected using the Regional protocol. The rationale for selection has been included in the EIS, Chapter 3.

C. Also, many of the watersheds with water quality impaired streams listed under Section 303(d) of the Clean Water Act are not among the 15 key restoration watersheds identified in the preferred alternative. The presence of 269 impaired 303(d) listed waterbodies, 74 watersheds in “poor” condition, and 129 functioning-at-risk and 166 non-functioning stream reaches on the BDNF, while only 15 key restoration watersheds are identified in the preferred alternative indicates that many impaired or non-functioning streams and degraded watersheds are not located in key restoration watersheds. This creates concerns that many impaired waters, degraded watersheds, and non-functioning streams may not be restored.

Response: The Forest Plan horizon is 10 to 15 years. The identification of restoration key watershed was to prioritize watersheds we felt could have assessment and restoration activities completed in this timeframe. It is not possible for the forest to restore all watersheds in 10 to 15 years. The Forest also recognized the State TMDL process would be looking at all 303d listed watershed in a separate process. The TMDL process would identify additional restoration needs as well.

D. We believe it is incumbent on the BDNF to work towards restoration of all impaired waters where Forest activities have contributed to the water quality impairment. The BDNF should coordinate with the State and EPA during their preparation of Total Maximum Daily Load (TMDL) source assessments, and where completed TMDLs indicate that restoration work is needed, the BDNF should have a means of planning and prioritizing the restoration work. We suggest that all watersheds with 303(d) listed waters where Forest activities contribute to the water quality impairment be considered watersheds with a restoration emphasis, and that watershed restoration prioritization criteria and/or a decision tree for determining restoration priorities be developed and presented in the final EIS and Forest Plan. We believe this will more clearly show that management direction is consistent with Clean Water Act requirements to restore 303(d) listed waters or at least put them on a path toward restoration of full support of beneficial uses. We recommend that the BDNF modify the Aquatic Strategy accordingly.

Response: As mentioned above, restoration key watersheds are not an identification of watersheds in need of restoration, but rather a prioritization and identification of which watershed we will focus our energy on in the next 10 to 15 years. It is not reasonable for the Forest to complete restoration activities in all of the Forest watersheds. The Forest also recognizes that the TMDL process will be looking at all 303(d) watersheds and identifying restoration activities.

E. Management of roads and motorized uses is an important issue in watershed and forest management, since roads are often the major anthropogenic sediment source adversely affecting hydrology, water quality, and fisheries of streams in National Forests. The DEIS acknowledges that improperly designed and poorly maintained roads can modify natural

drainage networks and accelerate erosional processes resulting in increased stream sedimentation, degradation of aquatic habitats, and altered channel morphology. Roads and motorized uses also increase wildlife encounters with humans, fragmenting and degrading wildlife habitat, reducing wildlife security, displacing wildlife and changing behavior, increasing stress, reducing reproductive success, and increasing mortality. Roads also are a major vector for spreading weeds.

Response: The Forest agrees with EPA comment.

F. The EPA supports improvements in road drainage, reductions in sediment delivery from roads, improvement or removal of road stream crossings, and road decommissioning and reductions in road density to improve watershed conditions and aquatic health in area streams, as well as to protect wildlife. We believe roads not needed for access and management which cannot be adequately maintained should be closed and/or decommissioned, so that road networks are limited to those that are necessary and which can be adequately maintained within agency budgets and capabilities. We recommend adopting a management Objective indicating that road networks be limited to those necessary for management and recreational access which can be adequately maintained within agency budgets and capabilities to meet the Riparian Management Objectives, and roads that cannot be adequately maintained within agency budgets and capabilities to meet the Riparian Management Objectives will be closed and/or decommissioned.

Response: We believe the revised forest plan, as a strategic document, outlines desired conditions, goals, objectives and standards to accomplish what is suggested in your comment.

G. EPA also has concerns about increasing use of off-road vehicles (ORVs), especially on steep slopes, fragile soils, wet meadows, and around water bodies, and about user-created roads/trails that may be trampling and removing vegetation, compacting soils, and contributing sediment to surface waters and adversely impacting water quality/fisheries. Public user demand and motorized recreational access has increased significantly over the last 15 years, and ORVs and snowmobiles can access areas much further into the forest than they could historically. Roads/trails often tend to become wider and rutted with heavy motorized use, creating a need for monitoring road conditions and carrying out needed repair and erosion control.

Response: The Forest agrees with this comment.

H. We are pleased that the draft Forest Plan includes a Standard prohibiting year round wheeled motorized cross-country travel. We are concerned, however, that the proposed Off-Road Use Objective and Standard does not call for closing, obliterating and revegetating user-created non-system roads causing resource damages. The Off Road Use Objective simply states that resource damages, user conflicts, and related problems should be minimized, including new user-created roads/trails associated with motorized cross-country travel. We support closing, obliterating and rehabilitating user-created non-system roads causing resource damages. We recommend that an Off-Road Use Standard be added to require closure and rehabilitation of user-created non-system roads causing resource damages. Additional recommendations for supplements or modifications to the Forestwide Objectives and Standards regarding road and other forest management issues are included in our more detailed comments.

Response: The Forest agrees and the revised forest plan supports the restoration of user created routes where resource damage is occurring. The creation of user created routes is already prohibited.

I. In regard to the alternatives evaluated in the DEIS, the EPA considers Alternative 3 to be the environmentally preferred forest management alternative, since Alternative 3 would result in the greatest amount of watershed protection and restoration; highest level of fisheries and wildlife conservation and protection; increased limitations on motorized uses and reductions in road density to protect resources; and increased protection for more pristine areas with unique resource values. While we consider Alternative 3 to be environmentally preferred, we recognize that the Forest Service has multiple use responsibilities and must consider many competing needs and balance many environmental, social, economic, and resource management trade-offs. The preferred alternative (Alternative 5) also has many merits and desirable features, and was developed to balance the demand for diverse recreation opportunities; resource protection, and commodity outputs; emphasize aspen restoration; manage motorized and non-motorized uses to minimize user conflicts and protect resource values; and to develop a consistent and integrated aquatic strategy to provide for protection for riparian areas, aquatic species, and clean water. Accordingly, the EPA does not object to selection of Alternative 5 as the preferred alternative.

Thank you for identification of your preferred alternative.

J. We believe the desirable features and merits of Alternatives 3 and 5 justify their consideration over Alternatives 1, 2 and 4. We have greater levels of environmental concerns regarding Alternatives 1 and 4 due to their reduced emphasis upon watershed restoration and fish and wildlife protection and conservation; increased motorized uses and higher road densities; and reduced protection to more pristine areas with unique resource values. We also believe opportunities are available to improve the preferred alternative to better optimize and balance environmental and resource management trade-offs and address the significant issues. We recommend that the BDNF consider supplements and modifications to its preferred alternative for such improvements. We have identified desirable features EPA considers particularly worthy of including in a modified preferred alternative, and included specific recommendations to supplement and/or modify management direction in the preferred alternative in our more detailed comments. We have also included guidance for “Incorporating Source Water Protection into the Federal Land Management Planning Process” at the end of our detailed comments.

Response: Based on response to comments, Alternative 6 has been developed attempting to improve resources protection as well as meeting the needs of other resources. The responses to your more detailed comments follow.

K. EPA’s more detailed comments, questions, concerns and recommendations regarding the analysis, documentation, and/or potential environmental impacts of the BDNF’s Draft Revised Forest Plan and EIS are enclosed for your review and consideration as you complete the Final Forest Plan and EIS. Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action and alternatives in an EIS, the BDNF’s Draft Revised Forest Plan and EIS has been

rated as Category EC-2 (Environmental Concerns - Insufficient Information). EPA's DEIS rating criteria are attached.

Response: Responses to the more detailed comments follow.

L. As can be seen from the enclosed comments, while EPA is generally supportive of the revised management direction in the draft Forest Plan and appreciates the development of a Forestwide Aquatic Strategy, we have concerns regarding the level of watershed protection and restoration, and management direction for roads and other management issues related to environmental and resource protection. We recommend modification of the preferred alternative to better optimize and balance environmental and resource management trade-offs. We have identified desirable features EPA considers worthy of including in a modified preferred alternative as well as recommendations for modified or supplemented management direction in our more detailed comments.

Response: Thank you for your support of the preferred alternative. Alternative 6 has been developed in response to yours and others comments with the intent of improving the final revised forest plan.

M. The EPA appreciates the opportunity to review and comment on the draft Forest Plan Revision and EIS. If we may provide further explanation of our comments and concerns please contact Mr. Steve Potts of my staff in Missoula at 406-329-3313 or in Helena at (406) 457-5022, or via e-mail at potts.stephen@epa.gov Thank you very much for your consideration.

Official EPA Comments

Comment 1: The EPA appreciates the considerable effort of the Beaverhead-Deerlodge National Forest in synthesizing an enormous amount of input and information during development of this draft Forest Plan Revision and EIS addressing resource management practices, levels of resource production and management, and availability and suitability of lands for resource management for the next 10 to 15 years.

We consider Alternative 3 to be the environmentally preferred alternative, since Alternative 3 would result in the greatest amount of watershed protection and restoration; highest level of fisheries and wildlife protection and conservation; greater limitations of motorized uses and reduction in open road density; and increased protection to more pristine areas with unique resource values. While we consider Alternative 3 to be environmentally preferred, we recognize that the Forest Service has multiple use responsibilities and must consider many competing needs and balance many environmental, social, economic, and resource management trade-offs. The preferred alternative, Alternative 5, also has merits and desirable features, since it was developed to balance the demand for diverse recreation opportunities, resource protection, and commodity outputs; emphasize aspen restoration; manage motorized and non-motorized uses to minimize user conflicts and protect resource values; and to develop a consistent and integrated aquatic strategy to provide for protection for riparian areas, aquatic species, and clean water. Accordingly the EPA does not object to selection of Alternative 5 as the preferred alternative.

We believe the desirable features and merits of Alternatives 3 and 5 justify their consideration over Alternatives 1, 2 and 4. We have greater levels of environmental concerns regarding Alternatives 1 and 4 due to their reduced emphasis upon watershed restoration and fisheries and wildlife protection and conservation, increased motorized uses and road density, and reduced protection to more pristine areas with unique resource values.

Response: The Forest thanks EPA for identifying their alternative preferences and concerns.

Comment 1a: We also believe that opportunities are available to improve the preferred alternative to better optimize and balance environmental, social, economic, and resource management trade-offs and address the significant issues. We recommend that the BDNF consider supplements and modifications to its preferred alternative for these purposes. In general, the desirable features EPA considers particularly worthy of including in a modified preferred alternative include:

Protect areas with unique resource values, particularly population strongholds and key refugia for listed or proposed species and narrow endemic populations, high quality waters, riparian areas, wetlands, and aquatic species; including riparian protections to protect water quality & riparian areas and gain recovery of native fish populations (e.g, INFISH).

Response: Each alternative was developed with an aquatic strategy to protect those items listed above. The reference to INFISH above as an existing aquatic strategy already exists on the portion of the Forest lying west of the Continental Divide. Utilizing this strategy on the Forest east of the Continental Divide was part of Alternative 5 and included in Alternative 6.

Alternatives 3, 4, 5, and 6 were developed identifying Key Fish and Restoration watershed as well. The purpose of identifying these watersheds was to protect population strongholds and key refugia for listed and sensitive species.

i: Promote watershed restoration to achieve water quality that fully supports beneficial uses in cooperation with State/EPA TMDL development and implementation efforts.

Response: Restoration key watersheds were developed for just for this reason. Alternatives 3, 4, 5, and 6 have identified restoration watershed and/or restoration objectives to promote watershed restoration to achieve water quality that fully support beneficial uses in cooperation with State/EPS TMDL development and implantation. Restoration key watersheds do not replace the TMDL process, which is a separate process and has established timelines for completion. Restoration key watersheds are in addition to the TMDL process, and looks at a larger restoration need than just streams.

ii: Reduce road impacts to water quality, fisheries and wildlife; identify road network needed for access and management which can be adequately maintained within budgets and capabilities; close/decommission roads that can't be maintained, including user-built roads causing resource damage; minimize new road construction and locate roads away from streams; identify existing road conditions that cause or contribute to nonpoint source pollution/stream impairment, and promote conduct of necessary road maintenance to correct deficiencies, and reduce nonpoint source pollution from roads.

Response: The Forest Plan outlines a strategy for the Forest. The Forest Plan does not identify the road network or individual roads to be decommissioned or are causing resource problems.

The Forest Plan does identify non-motorized areas, in which roads and trails would be restricted to motorized use. The individual roads and trails concerns discussed above are determined at the site-specific travel management level or through watershed assessments.

iii: Control and direct ORV use to protect resources (i.e., wildlife habitat and security) and prevent erosion, including adequate policing and enforcement (i.e., off-road vehicles should be restricted to designated routes to stop cross-country travel that causes resource damages).

Response: All alternatives restrict cross-country travel to wheeled motorized travel. Policing and enforcement is not a Forest Plan decision, however, your concerns have been acknowledged by the Forest.

iv: Improve watershed/aquatic monitoring & assessment programs to identify impacts, detect problems, measure restoration success, and make changes to management based on monitoring (adaptive management), and address coordination efforts and budget needs for monitoring.

Response: We agree monitoring and assessment of aquatic and watershed conditions could be improved. We have addressed these in the Plan, Chapter 4.

v: Integrate National Fire Plan direction, including restoring more natural fire disturbance regimes to forest ecosystems, and evaluation of role of fire and other natural disturbance processes (e.g., insects, disease) & ecosystem processes (e.g., flows, cycles of nutrients & water) and their dynamics in developing revised direction for vegetation and fuels management. Assure participation in Montana/Idaho State Airshed Group to minimize air quality impacts of prescribed fire.

Response: Participation in Montana/Idaho Airshed Group is a requirement of the Forest as part of Forest Service policy and the Forest's responsibility to meet the Clean Air Act, Participation in Montana/Idaho Airshed Group is expected to continue in compliance with federal and state standards.

vi: Focus fuels management in WUIs, and areas of high and severe fire risk, and include consideration of water quality, fisheries, and wildlife impacts of fuels management actions.

Response: The Final Forest Plan identified an objective to focus management in WUI's and high and severe fire risk areas. The Final Forest Plan will also establish objectives and standards for the protection of other resources see Final Forest Plan, under the appropriate heading.

vii: Prevent continued loss and promote long-term sustainability of old growth stands, and restore where possible the geographic extent and connectivity of old growth; and retain adequate snags and woody debris for wildlife habitat and necessary ecological structure and functioning (e.g., soil productivity, nutrient cycling, etc).

Response: The modeled large size class that includes old growth as defined in Green et al. is within historic range of variability when compared to current Forest Inventory and Analysis data. The actual historic range of variability for old growth as a subset of the large size class on the B-D has never been determined on a landscape basis. We however have a larger current percentage of old growth (22.9%) on the forest than the average for all other forests in the region except the Gallatin at 25.5%.(Bush, et al 2007) We thus believe we have adequate old growth to meet vegetation diversity goals and coarse filter needs for associated species and that the modeled

historic range for the mid size class provides for replacement of large size class and old growth types in the future.

The Forest Plan identifies a desired condition, objectives and standards for vegetation, which includes old growth, so as to provide for the long term sustainability of old growth as well as other vegetative structural stages.

The Final Forest Plan will also include desired conditions, objectives, and standards or other resources such as wildlife, which include snag and woody debris. See Final Forest Plan, Forestwide, under the heading of vegetation, wildlife, and soils.

viii: Reduce threats of weed invasion and strategies for prevention, early detection, and control procedures for weed management using integrated weed management, with mitigation to avoid herbicide transport to surface or ground waters.

Response: The Forest completed a noxious weeds EIS for the prevention, reduction, detection, and treatment of noxious weeds. This document is the Forest's implementation guidance. The Final Forest Plan identifies the need and emphasis for treating noxious weeds. See the Final Forest Plan, Forestwide direction, under the heading of Vegetation.

ix: Maintain and restore degraded wildlife habitats, evaluating road management, habitat characteristics, security, displacement, fragmentation, connectivity; wildlife movement corridors, forest openings, edge effects; and promote T&E and sensitive species recovery.

Response: The Forest Plan is a document to achieve the desires stated in this comments. The alternatives that were developed and the forest plan itself lays out the strategic direction for ensuring wildlife protections. See Final EIS and Final Forest Plan under the heading of Wildlife. However, without more specific information as to what wildlife habitat, where it has been degraded, how to restore the habitat, this comment could be applied to any forest plan or any plan any where.

x. Forest Plan consistency with the Interior Columbia Basin Strategy

Response: After review, the Forest believes the Final Forest Plan is consistent with the Interior Columbia Basin Strategy. This comment does not identify where the Draft Forest Plan was not consistent with the Interior Columbia Basin Strategy, therefore the Forest is unable to be more specific.

xi: Coordinate with interested Indian Tribes and provide opportunities for meaningful Tribal input.

Response: The Forest Supervisor coordinated, and continues to coordinate, both in writing and in person with Indian Tribes so as to provide opportunities for meaningful input.

Comment 1b: Specific recommendations for supplementing or modifying the management direction in the preferred alternative are included in our subsequent comments. We note that the BDNF will need to evaluate and analyze the impacts (e.g., watershed and water quality, wildlife impacts) of any new modified preferred alternative, and display those impacts in the FEIS, to allow for public disclosure, and to allow the decision maker to make a reasoned choice among alternatives. Discussion of additional alternative evaluation in the FEIS from evaluation of a modified preferred alternative may also better explain to

the public the many trade-offs involved in making land management decisions, and may lead to improved public acceptance of decisions.

Response: The Final EIS has been updated to include analysis of changes since the Draft EIS.

Comment 2: The vision statements of Forestwide Desired Condition (Forest Plan, page 4) generally appear appropriate, although we have a few suggestions as follows.

Comment 2a: We suggest that the 1st bulleted vision statement be slightly modified to clarify that the reference to full support of designated beneficial uses is understood to reflect the water quality condition, since the way this statement is currently worded could allow it to be understood that support of designated uses applies to terrestrial ecosystems. We suggest modification as follows,

“Ecological processes, which affect the chemical, physical and biological components of aquatic and terrestrial ecosystem are present and functioning to provide the diversity of forest, shrub land, grassland, riparian and aquatic communities, including water quality fully supporting designated beneficial uses.”

Response: The desired condition statement was modified as suggested.

Comment 2b: We suggest that the 5th bulleted vision statement have an additional statement added to assure that livestock grazing and production of forest products and service be carried out in a manner consistent with the long-term sustainability of resources so that the Forest’s bounty can be sustained for use and enjoyment by future generations.

“People and communities benefit from programs & infrastructure that support livestock grazing and an array of forest products and services consistent with the long-term sustainability of resources so that the Forest’s bounty that can be sustained for use and enjoyment by future generations.”

Response: This addition to the statement is not needed. Forest Service policy and Federal law already require that programs, services, and output be consistent with long-term sustainability of the resources. This has been clarified in the introductions statement to the Final Forest Plan.

Comment 2c: We suggest that the 7th bulleted vision statement have an additional statement added to assure that mineral and energy resource exploration, development and production occur in a manner consistent with protection and maintenance of healthy aquatic and terrestrial ecosystems.

“Mineral and energy resources are explored, developed, and produced according to national direction consistent with protection and maintenance of healthy aquatic and terrestrial ecosystems.”

Response: This addition to the statement is not needed. Forest Service policy and Federal law already require that programs, services, and output be consistent with protection and maintenance of other resources. This has been clarified in the introductions statement to the Final Forest Plan.

Comment 3: The proposed Standard for All Vegetation (Forest Plan, page 7) indicates that a prescription for manipulating forest vegetation must be approved by a certified silviculturalist. There are many factors in addition to silvicultural factors that should be considered when manipulating forest vegetation (e.g., wildlife habitat and security, snag

retention for wildlife, old growth, retention of adequate soil organic matter and nutrients, soil compaction, protection of rare and sensitive plants, large woody debris for riparian areas, water yield and erosional processes, other ecological and hydrological processes).

While we agree that involvement of a silviculturalist is appropriate, other biological, hydrological, and ecological disciplines also need consideration. We believe specialists in such disciplines should also be consulted when manipulation of forest vegetation is proposed (e.g. wildlife biologists, hydrologists, soil scientists, ecologists, botanists). We recommend revision of this Standard to require approval of prescriptions for manipulating forest vegetation by an interdisciplinary team, (perhaps you could indicate that such a team must include a certified silviculturalist, or even be managed by a silviculturalist, but expertise in other disciplines should also be consulted).

Response: All vegetation projects are developed and analyzed using an interdisciplinary team (ID Team) consisting of a variety of specialists as you mentioned. However, Forest Service policy requires that forested vegetation prescription must be approved by a certified Silviculturist. This standard has been removed from the revised forest plan because it is Forest Service policy and already required. The revised forest plan does not need to restate existing policy.

Comment 4: EPA supports the draft Forest Plan Noxious Weed Objective to prevent new and reduce or eliminate existing infestations of non-native or noxious weed species (Forest Plan, page 8). The Forest Service publication *Stemming the Invasive Tide* states: “The problem of noxious weeds and non-native invasive species threatens every aspect of ecosystem health and productivity. The increasingly devastating effects include reducing biological diversity, impacting threatened and endangered species and wildlife habitat, modifying vegetative seral stages, changing fire and nutrient cycles, and degrading soil structure.” Weeds can out-compete native plants and produce a monoculture that has little or no plant species diversity or benefit to wildlife.

EPA supports BDNF’s integrated pest management for control of weeds (e.g., effective mix of cultural, education and prevention, biological, mechanical, chemical management, etc.). While EPA fully supports control of noxious weed infestations, it is important to note that weed control chemicals can be toxic and have the potential to be transported to surface or ground water following application. EPA encourages prioritization of management techniques that focus on non-chemical treatments first, with reliance on chemicals (herbicides) being the last resort. Management direction should assure that water contamination concerns of herbicide usage be fully evaluated and mitigated. Herbicide drift into streams and wetlands could adversely affect aquatic life and wetland functions such as food chain support and habitat for wetland species. All efforts need to be made to avoid movement or transport of herbicides into surface waters that could adversely affect fisheries or other water uses (i.e., use mitigation measures avoid herbicide drift to streams and wetlands, during ground and aerial applications of herbicide such as adequate streamside buffers, mechanical weed removal adjacent to streams, flagging aquatic areas on the ground,, spray nozzles that produce larger droplets to reduce drift, use of photodegradable dyes in herbicides, use of GPS technology or ground radio contact with pilots, use of spray detection cards, wind monitoring, herbicide monitoring, etc.,).

The 2002 BDNF Noxious Weed Control EIS included mitigation measures for aerial applications of herbicides in response to concerns about the potential for toxic chemicals to

drift or otherwise be transported to aquatic areas and other sensitive areas (e.g., increased streamside buffer zone width to 300 feet, changed wind speed restriction to 6 mph for aerial applications, provided on-the-ground field monitoring of herbicide drift). These mitigation measures reduced our concerns regarding potential drift and transport of herbicides to surface and ground waters and other sensitive areas, although they did not entirely eliminate such concerns.

We appreciate the inclusion of Riparian Area Management Objective RA-3 (Forest Plan, page 25) indicating that herbicides, pesticides and other toxicants and chemicals will be applied in a manner to protect inland native fish and aquatic species and meet RMO's.

Response: The Forest agrees that protecting areas from adverse effects of implementing a noxious weed control program is important. This is the reason we developed the 2002 BDNF Noxious Weed Control EIS.

Comment 5: Weed seeds are transported by wind and water, animal fur, feathers and feces, but primarily by people. The greatest vector for spread of weeds is through motorized vehicles—cars, trucks, ATVs, motorcycles, and even snowmobiles. A single vehicle driven several feet through a knapweed site can acquire up to 2,000 seeds, 200 of which may still be attached after 10 miles of driving (Montana Knapweeds: Identification, Biology and Management, MSU Extension Service.) Off-road vehicles are designed to, and do, travel off-trail, disturbing soil, creating weed seedbeds, and dispersing seeds widely. We believe an effective noxious weed control program must include restrictions on off-road vehicle cross-country travel, and we fully support the Off-Road Use Standard prohibiting wheeled motorized cross-country travel (Forest Plan, page 29).

Response: The Forest Service is in the process of requiring motorized vehicle use to be limited to designated routes. Providing education to vehicle users on the need to inspect vehicles for noxious weed seed sources and proper cleaning is an on-going program. We are a participant in the Continental Divide Weed Barrier Zone project coordinated by Montana State University that is working to improve prevention education, early detection of new invasive, along with regular inspection of designated routes and treatment of new noxious weed introductions. This project along with existing suppression efforts appears to be the primary practical methodology available to the Forest Service at the present time to help stem this difficult problem of noxious weeds

Comment 6: Is there a need to supplement the proposed Noxious Weeds Objective with more specific additional Standards or Guidelines? For example,

“Use only weed-free hay, straw or mulches for soil stabilization, and weed-free native seed sources for revegetation.”

Response: This is the Forest's current policy.

Comment 7: EPA supports proposed Vegetation Objectives to restore or develop upward trends in declining habitats such as aspen and ponderosa pine. We support adoption of vegetation management direction to bring vegetative composition, structure, pattern, and function within historic ranges of natural variability, and to contribute toward ecological sustainability, and restore declining tree species such as aspen, Ponderosa pine, and whitebark pine. We also draw your attention to one of our fire management comments regarding factors to consider in addressing fuel loads and fire risk (comment #50).

Response: The Forest Service acknowledges the EPA support for the vegetation objectives.

Comment 8: EPA supports protection of old growth habitats that maintain and restore large, native, late-seral overstory trees and forest composition and structure within ranges of historic natural variability. Old growth tree stands are ecologically diverse and provide good breeding and feeding habitat for many bird and animal species, which have a preference or dependence on old growth (e.g., barred owl, great gray owl, pileated woodpecker). Much old growth habitat has already been lost, and we believe it is important that management direction prevent continued loss of this habitat and promote long-term sustainability of old growth stands, and restore where possible the geographic extent and connectivity of old growth (e.g., using passive and active management-such as avoiding harvest of old growth trees, leaving healthy larger and older seral species trees, thinning and underburning to reduce fuel loads and ladder fuels in old growth while enhancing old growth characteristics). Also, lands outside the forest boundary have often not been managed for the late-seral or old growth component, so Forest Service lands may need to contribute more to the late-seral component to compensate for the loss of this component on other land ownerships within an ecoregion.

The draft Forest Plan includes an Old Growth Objective and Standard to maintain at least 10% old growth stands for each vegetation type (Forest Plan, page 8). The DEIS indicates that old growth stands have never been systematically inventoried and ground verified on the BDNF (DEIS, page 79), but includes Table 10 showing an estimate of forestwide old growth by cover type that appears to show existing old growth levels that are considerably higher than 10% (e.g., average % old growth for Douglas-fir is estimated at 19.8 %; lodgepole pine 14.2%; limber pine 28%; whitebark pine 29.5%; Englemann spruce 34.4%; Subalpine fir 30.6%). The FEIS should discuss these percent old growth by cover type estimates in Table 10, and explain why the proposed Forest Plan Old Growth Objective and Standard proposes to only maintain 10% old growth, when it appears that existing old growth is much higher than 10%. It would appear that proposed direction may allow significant reduction in existing old growth.

Response: The current total old growth estimate for all types on the B-D based on FIA data processed by the Region One Old Growth Algorithm shows 22.9% of the forested types on the B-D meet the definition of old growth in Green et al. The region does not have evidence that any species are “old growth dependent” at the present time. Rather there are “old growth associated species” and other values for which the retention standard is designed to maintain. The 10% retention standard on a forestwide basis would retain approximately 44% of the existing old growth on a forestwide basis from alteration by deliberate management activities. The 10 percent is not a goal to achieve, but rather a minimum, which will be monitored over time. Management activities are not expected to reduce existing old growth by more than one or two percent. However, if old growth is reduced by other means, like wildfire or insect epidemics, than management activities would be restricted. Additional old growth may be retained under the vegetation diversity matrix as part of the large size class where old growth is a subset of that class.

Comment 9: The Interior Columbia Basin (ICB) Strategy indicates that direction developed in Land and Resource Management Plans should:

- **provide for re-patterning succession and disturbance regimes and achievement of sustainable landscape conditions, thereby contributing to reduction of events such as uncharacteristically large and severe wildland fires;**
- **address ways to maintain and secure terrestrial habitats comparable to those classified by the science findings as “source” habitats that have declined substantially from historical to the current period, and habitats that have old growth characteristics;**
- **address opportunities to re-pattern these habitats when and where necessary, maintain and guide expansion of the extent and connectivity of source habitats that have declined;**
- **address the restoration of the important vegetation characteristics of these habitats (such as species composition, vegetation structure, snags and coarse woody debris) which various terrestrial species need to survive and reproduce.**

The proposed Vegetation Objectives and Standards in the draft Forest Plan do not specifically use the language recommended in the ICB Strategy, but it appears that the draft Objectives and Standards are generally consistent with the intent of the ICB Strategy. Does the BDNF consider the proposed Vegetation Objectives and Standards to be consistent with ICB Strategy recommendations for Land and Resource Management Plans?

Response: The BDNF chose to use the Region 1 vegetation diversity matrix described in the FEIS Chapter 3 Vegetation section as the basis for course filter maintenance of plant and animal species viability, as well as vegetation diversity within modeled historic range. We believe this approach is generally consistent with the ICB strategy.

Comment 10: We believe the Forest Plan should maintain and protect high quality wildlife habitat for productive and diverse populations of wildlife species (species viability); maintain or improve connectivity and security; reduce wildlife fragmentation and displacement; avoid impacts upon species of special concern and contribute to recovery of listed species and habitat. The draft Wildlife Habitat Objective to manage vegetation for a diversity of vegetation types to meet “wildlife needs” is very general (Forest Plan page 8). It is not clear to us if the provisions in the subsequent Wildlife Objectives involving various management plans and conservation strategies adequately address the habitat needs of all wildlife species on the Forest. We are concerned that the proposed direction may not adequately address wildlife habitat protection needs for all species.

This general Wildlife Habitat Objective may need to be supplemented with additional guidance or Standards to provide more specific vegetation management direction pertaining to the habitat needs of the individual species that are present on the Forest (big game species, T&E species, raptors, migratory birds, woodpeckers, sage grouse, owls, bats, amphibians, etc.). Without additional information or guidance regarding specific wildlife habitat needs (i.e., forage, denning/nesting, forest openings, security, winter survival, connectivity, reproduction, etc.) the proposed Wildlife Habitat Objective appears to be less meaningful.

We recommend consideration of supplemental Wildlife Habitat Standards to meet the specific habitat needs of the major wildlife species on the Forest (e.g., big game species, Canada lynx, grizzly bear, wolverine, bald eagle, woodpeckers, northern goshawk, sage grouse, owls, bats, amphibians), and encourage consultation and dialogue with the U.S. Fish & Wildlife Service and Montana Dept. of Fish, Wildlife & Parks in developing such species specific Habitat Standards.

Response: This LRMP revision is notably different from the first iteration by not posing species specific direction. Sustainability of wildlife populations is being driven by habitat management within the historic range of variation (HRV). Habitats that are > 20% of HRV are deemed to provide for viable populations of all species that use those habitats (Farig 2000). The vegetation section discloses declines of aspen habitat and early seral lodgepole are the greatest concerns for managing for species viability on the B-D.

No critical habitat areas are identified for these species. The FEIS elucidates federally listed species direction has been and will be incorporated to meet the most current knowledge as developed. Canada lynx and grizzly bear are no longer on the Forest T&E list. The bald eagle was de-listed effective 8/08/2007; the National Bald Eagle Management guidelines will be applied for managing the eagle as a Forest Service sensitive species. The remaining listed wildlife species will be the grey wolf. Consultation will occur with the Fish & Wildlife Service.

Grizzly Bear direction is provided by the Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests (ROD April 2006) and is incorporated by reference.

Wolverine denning habitat over much of the Forest Service will be protected from motorized disturbance under the preferred alternative.

The black-backed-woodpecker and northern goshawk will be managed according to Northern Region Guidelines expected in the fall of 2007.

Sage grouse have been and will continue to be managed according to the Connelly (2000) guidelines.

A biological evaluation will be prepared for all sensitive species, avian, and terrestrial wildlife species on the Forest. The State elk plan has been used to coordinate w/FWP concerns with road densities, the primary criterion for assessing secure habitat for elk and other large ungulates and carnivores. State area biologists are routinely consulted for their input at the project level NEPA development.

Comment 11: We are pleased to see Wildlife Objectives to minimize grizzly bear conflicts and provide grizzly bear security, maintain wildlife landscape linkages and connectivity, and manage sensitive species and T&E species and promote recovery of listed species.

Response: Thank for your comment. Lower road densities provide for secure habitat as defined in the grizzly bear amendment (ROD April 2006).

Comment 12: It is known that roads and motorized uses increase wildlife encounters with humans resulting in habitat degradation, displacement, increased wildlife mortality, changes in wildlife behavior, increased stress, and reduction of reproductive success. We support limitations on motorized travel and reduced road density for protection of wildlife habitat and security, and key corridors for wildlife migration. Table 51 (DEIS, pages 177)

indicates that road density varies in BDNF watersheds from 0.1 to 1.5 mi/mi², and Table 29 (DEIS, page 119) shows open road density for the preferred alternative ranging from 0 to 1.9 mi/mi², which on a relative basis is low compared to road densities seen on other Forests. We would expect, therefore, that road impacts on the BDNF may be reduced in comparison to the level of road impacts on Forests with higher road densities.

The proposed Elk Security and Wildlife Secure Areas and Connectivity Objectives and Standards establishing road densities from 0 to 2 mi/mi² by hunting districts and landscapes, therefore, generally appear to be reasonable for balancing access needs with wildlife and resource protection needs. Although we note that the USFWS in its 1998 Bull Trout Interim Conservation Guidance identified the importance of road densities for bull trout conservation, showing general exclusion of bull trout in watersheds with high road densities (e.g., over 1.7 mi/mi² of roads), and showing bull trout strongholds to have low road densities (e.g., an average 0.45 mi/mi² of roads). We support low road density in bull trout watersheds. Figure 38, page 124, appears to show hunting districts 210-216 may include bull trout habitat, and Table 32 showing Fall total open road density (DEIS, page 123), indicates that hunting districts 212-215 have total open road densities ranging from 1.4 to 1.7 mi/mi² for the preferred alternative, which is on the upper end of bull trout tolerance. Do the proposed road density objectives for elk and wildlife adequately consider road effects on watershed integrity, water quality and fisheries effects of roads, particularly effects to bull trout?

Response: The fall road density objectives for 210-216 have been modified and range from 0.8 – 1.6 miles per sq mile. The Upper Rock Creek landscape has a summer open road density objective of .9 mi/sq mi. We believe that these objectives are compatible with aquatics concerns. Of note is the analysis methodology included both roads and trails which is a very conservative measure of motorized impacts.

Comment 13: We support the retention of adequate snags to support survival and reproduction of snag dependent wildlife species (e.g., woodpeckers), and are concerned about the adequacy of the proposed single Snags Objective to retain an average of only 4 snags per acre greater than 10 inches DBH of which one is at least 15 inches DBH, and single Snag Standard to retain all snags 20 inches DBH or greater (Forest Plan, Wildlife section). Will this provide adequate snag habitat for all vegetative cover types and snag dependent species? Is there a need for additional snag retention in some cover types and for some species, or additional guidance to indicate that snags should be retained in clusters, or to have guidelines for retaining live trees for future snag recruitment, or to assure that nest trees will not be disturbed?

Response: These snag objectives are compatible with the Northern Region Snag protocol (2000), Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern (Samson 2005, amended 2006), and the Habitat Estimates For Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher (Samson 2006).

Currently the forest exceeds the number of snags needed to maintain species viability (FEIS, Chapter 3, Wildlife Habitat Management). The forest has a large component of mid to older age trees, particularly for lodgepole pine. These trees are susceptible to insect attack, most notably

bark beetles. Many of these stands are also in condition class 2 or 3 for fuels and therefore susceptible to fire. Because of this snags levels are expected to increase as result of continued insect activity and fires across the landscapes.

Comment 13a: The Interior Columbia Basin (ICB) Strategy for riparian conservation areas says management direction must include elements to provide an amount and distribution of woody debris sufficient to sustain physical and biological complexity. Does the BDNF believe that the proposed Snags Objective and Standard adequately sustains physical and biological complexity?

Response: We do. These snag objectives are compatible with the Northern Region Snag protocol (2000), Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern (Samson 2005, amended 2006), and the Habitat Estimates For Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher (Samson 2006).

Currently the forest exceeds the number of snags needed to maintain species viability (FEIS, Chapter 3, Wildlife Habitat Management). The forest has a large component of mid to older age trees, particularly for lodgepole pine. These trees are susceptible to insect attack, most notably bark beetles. Many of these stands are also in condition class 2 or 3 for fuels and therefore susceptible to fire. Because of this snags levels are expected to increase as result of continued insect activity and fires across the landscapes.

Comment 14: We support retention of adequate large woody debris to provide wildlife habitat and necessary ecological structure and functioning (including soil productivity and nutrient cycling), and are concerned about the adequacy of the direction to retain only 6 pieces/acres. We have seen other Forests propose higher levels of large woody debris retention in order to assure adequate soil productivity and nutrient cycling (e.g., 11 logs/acre). How do the woody debris direction in the Wildlife section of the Forest Plan (Forest Plan, page 11) relate to the woody debris requirements in the Soils section (Forest Plan, page 28)? Will the proposed Large Woody Debris Objective of 6 pieces/acre of varying sizes for lodgepole and Douglas-fir types provide adequately for wildlife habitat and soil productivity and nutrient cycling in all areas of the BDNF?

Response: Soils and wildlife have different needs for woody debris. The large woody debris wildlife standard was developed specifically for wildlife needs. This wildlife requirement may not suffice for soils just as soil requirements may not meet wildlife needs. Some Forest and or projects may have large sizes of material or heavier tonnages per acre because their vegetation types are different than the BDNF. What is proposed for wildlife is based on the most recent science or provides the strategic direction for site-specific project planning.

Comment 15: The Interior Columbia Basin (ICB) Strategy identifies the Forest Service responsibility to provide habitat for productive and diverse populations of terrestrial wildlife species thereby contributing to: 1) diversity of plant and animal species; 2) recovery of listed species; and 3) societal use of plant and animal populations, including wildlife viewing, hunting, harvest, and satisfaction of Tribal treaty rights. The ICB Strategy indicates that management plan direction should address maintenance and restoration of habitats that have declined substantially, and address multi-scale analyses, road management, exotic species, and monitoring and adaptive management.

The proposed Wildlife Objectives and Standards in the draft Forest Plan do not specifically use the language in the ICB Strategy, but they appear to be generally consistent with the intent of the ICB Strategy. Does the BDNF consider the proposed Wildlife Objectives and Standards to be consistent with ICB Strategy recommendations for Land and Resource Management Plans?

Response: While the ROD for the ICB strategy was not issued, the MOU (2003) does support use of the science displayed in the ICB strategy. We believe that the wildlife objectives and standards are compatible, particularly the use of FIA to track vegetation components needed for diversity, as well as the objectives for road density.

Comment 16: Appendix B in Volume II of the DEIS indicates that the Biological Assessment and Evaluation for Wildlife will be complete in the FEIS (DEIS, Volume II page 42). It is important that the FEIS disclose potential impacts on listed species and the effectiveness of alternatives and mitigation measures, since proposed management direction could affect threatened or endangered species (e.g., grizzly bear, bald eagle, lynx, gray wolf, bull trout, etc.). The FEIS should also include the associated U.S. Fish & Wildlife Service (USFWS) Biological Opinion or formal concurrence for the following reasons:

- (1) NEPA requires public involvement and full disclosure of all issues upon which a decision is to be made;**
- (2) The CEQ Regulations for Implementing the Procedural Provisions of NEPA strongly encourage the integration of NEPA requirements with other environmental review and consultation requirements so that all such procedures run concurrently rather than consecutively (40 CFR 1500.2(c) and 1502.25); and**
- (3) The Endangered Species Act (ESA) consultation process can result in the identification of reasonable and prudent alternatives to preclude jeopardy, and mandated reasonable and prudent measures to reduce incidental take. These can affect project implementation.**

The FEIS and Record of Decision should not be completed prior to the completion of ESA consultation. If the ESA consultation process is treated as a separate process, the Forest Service risks USFWS identification of additional significant impacts, new mitigation measures, or changes to the preferred alternative. If these changes have not been evaluated in the FEIS, a supplement to the EIS would be warranted.

Response: The consultation will indeed be done on the preferred alternative prior to the ROD. As previously noted, the only remaining listed terrestrial and avian species for the BDNF is the grey wolf. Bald eagles were delisted 8/8/2007.

Comment 17: BDNF watersheds contain important headwater rivers and streams feeding downstream water sources (e.g., Big Hole, Beaverhead, Ruby, Jefferson, Clark Fork Rivers, Rock Creek, Silver Bow Creek, etc.). Headwater streams serve as the key interface between the surrounding landscape and larger waterbodies. Healthy headwater streams provide habitat to relatively distinct and diverse invertebrate assemblages, assimilate nutrients, organic matter, and sediments, and export high quality water and provide goods and services important to the public interest (e.g., water supply, recreation, flood control, and ecological values). We are pleased that Alternatives 2, 3, 4, and 5 include a watershed approach to management of hydrology and watershed processes to facilitate long term

ecological sustainability. We agree that Alternatives 3 and 5 would more readily provide a mechanism to restore watersheds and water quality (DEIS, page 184).

Response: The BDNF draft forest plan recognizes that the forest contains some of the most important headwater streams and aquatic habitat in Montana. Therefore, the draft forest plan emphasizes the importance of watersheds as a key management unit. The draft forest plan also emphasized watershed issues by:

State of the art Forest Plan guidelines that maintain high quality aquatic ecosystems: BDNF Forestwide Aquatic Conservation Strategy that provides a consistent and integrated strategy for the protection of streams and riparian areas.

Restoration strategy to improve water quality and watershed condition: key restoration watersheds were established to identify and prioritize actions for fish conservation and to restore water quality, riparian functions, and watershed conditions to fully support beneficial uses.

In terms of impaired waters, the draft forest plan states, “Where waters are listed as impaired and TMDLs and Water Quality Restoration Plans are not yet established, ensure management actions do not further degrade waters, but promote water quality restoration to support beneficial uses.” Draft Forest Plan page 11.

Comment 17a: The Interior Columbia Basin (ICB) Strategy says that maintaining and restoring the health of watersheds, riparian, and aquatic resources on FS lands are necessary to sustain aquatic and terrestrial species and provide water of sufficient quantity and quality to support beneficial uses. ICB Strategy elements to achieve this include riparian conservation areas; management of landslide prone areas; protection of aquatic population strongholds; multi-scale analyses; maintenance of aquatic habitat; prioritization of restoration needs; restoration of fish passage and connectivity of fragmented aquatic habitats; and monitoring and adaptive management. The ICB Strategy also indicates that a successful aquatic strategy requires cooperation with involved regulatory agencies, and identification of best habitats and most robust populations to use as focal points from which populations can expand, adjacent habitat can be rehabilitated, or the last refugia of a species can be conserved. The Strategy says that units revising plans shall:

Identify sub-watersheds that are population strongholds for listed or proposed species or local narrow endemic species.

Provide management that recognizes that conservation and restoration of small watersheds will ensure short-term persistence of important aquatic populations, while conservation and restoration of habitat networks throughout large basins will provide for long-term stability, productivity, and biological diversity.

In general, we are very pleased with the development of the BDNF’s Forestwide Aquatic Strategy and the Aquatics Objectives and Standards in the draft Forest Plan (Forest Plan, pages 13-28), especially appreciating the references to managing municipal watersheds and restoring degraded waters to meet the goals of the Clean Water Act and Safe Drinking Water Act; and assuring that management actions are consistent with TMDLs and promote water quality restoration to support beneficial uses. We consider the Forest’s Aquatics Strategy to be consistent with the ICB Strategy. Although we do have questions

and concerns about the identification of key restoration watersheds, which are discussed in our following comments (i.e., see comments # 18, 19, and 20 immediately below).

Response: The method used to select key restoration watersheds has changed between the draft forest plan and the final. There was a need to have a process that was unbiased, risk based, and repeatable. Therefore, a methodology was developed that ranked watersheds based on factors that have an influence on watershed condition. The methodology is based on the identification, evaluation, and ranking of anthropogenic activities that are known to influence watershed condition. The forest selected those anthropogenic activities most likely to negatively influence watershed condition or reflect watershed concerns (e.g., 303(d) reaches). This method is intended to start a process of ‘linking’ activities with similar influences on watershed condition into an evaluation of watershed risk. This is an important step in addressing the additive influences of multiple activities on the water resource.

The analysis is based on the sum of quartile rank values for the individual activities analyses by watershed. Once an activity is analyzed in relation to other HUC’s at the forest scale, the results are divided into quartiles, to give an indication an idea of the relative importance across the Forest continuum. The potential effects for all anthropogenic activities will be analyzed by cumulating the percentile ranking for each of the identified anthropogenic activities. For every analysis, each of the 6th HUC intersecting the National Forest were assigned an ordinal value of 0, 1, 2, 3, or 4.

Once all watersheds have been evaluated and ranked for all evaluation criteria, a cumulative score is assigned to that watershed. The cumulative score for all watersheds at the forest-scale are again divided into quartiles with the highest scores being assigned to those watersheds with the highest risk of degraded watershed conditions.

The watersheds selected for further analysis and called key restoration watersheds were selected from this ranked list.

Comment 18: We appreciate the development of Watershed and Habitat Restoration and Fisheries and Wildlife Restoration Objectives and Standards in the Aquatic Strategy. We support the concept of establishing restoration watersheds where watershed plans will be developed and implemented that identify and prioritize actions to restore water quality, riparian functions, and watershed conditions to fully support beneficial uses (Forest Plan, page 27). It is not clear, however, how the 15 key restoration watersheds were identified and selected for the preferred alternative (i.e., key watersheds shown in DEIS, Figure 3, page 36).

The DEIS indicates that there are 129 functioning-at-risk and 166 non-functioning stream reaches on the BDNF (DEIS, page 160); and that the Inland West Watershed Initiative (IWWI) rated 74 watersheds (6th level HUCs) as being in a Class III condition with low geomorphic, hydrologic, and biotic integrity (DEIS, page 183); and that there are 269 water quality impaired stream reaches on the BDNF (i.e., 303(d) listed waters, DEIS, page 154). The relationship between these functioning-at-risk and non-functioning stream reaches, IWWI watersheds with low hydrologic integrity, and 303(d) listed stream reaches, and the identification and selection of the key restoration watersheds is not clear.

It would be helpful to public understanding to discuss and correlate the results of these varying watershed, stream and water quality assessment processes, including discussion of

consistencies and inconsistencies between the assessment results, and the relationships of these assessments to the identification and selection of the key restoration watersheds.

Response: The FEIS reflects the changes suggested in your comments.

Comment 19: Figure 52 (DEIS, page 182) shows many watersheds to be in “poor” condition, but the accompanying narrative in the DEIS does not clearly indicate if these watersheds shown as being in “poor” condition in Figure 52 are the 74 watersheds (6th level HUCs) that were classified in the IWWI assessment as being in a Class III condition with low geomorphic, hydrologic, and biotic integrity (DEIS, page 183). This should be clarified in the FEIS.

Response: The FEIS reflects the changes suggested in your comments.

Comment 19a: The DEIS also states that these degraded watersheds are in need of further evaluation to determine if degraded conditions actually exist, and if so, what needs to be done to correct the problems. It is not clear how or when these 74 watersheds will be evaluated and when and how watershed problems will be corrected. Also, comparison of the 15 key restoration watersheds in the preferred alternative (DEIS, Figure 3, page 36), with the degraded watersheds in Figure 52 does not show much of a correlation between the watersheds in “poor” condition and the selection of the key restoration watersheds.

Response: The watershed condition assessment completed as part of the IWWI analysis was an early attempt to describe watershed condition at the forest scale. The IWWI used a combination of both qualitative and anecdotal data. The IWWI data was disclosed in the DEIS since it represents data that the forest has concerning watershed condition. However, since the late 1990’s the forest has developed better data that can be used to generate a more quantitative analysis to describe watershed condition and risk. The most current state of the art data to describe watershed condition and risk is presented in the document titled, “A Method to Identify Priority Restoration Watersheds for Use in the Region 1 Integrated Restoration and Protection Strategy”. This document can be found in the project file. It is from this analysis that the 15 key restoration watersheds were derived for use in the FEIS.

Comment 20: Thank you for discussing impaired waters (i.e., Clean Water Act 303(d) listed waters) and Total Maximum Daily Loads (TMDLs), and stating that the BDNF works cooperatively with the Montana DEQ to restore impaired waters (DEIS, pages 154-157). The draft Forest Plan indicates that key restoration watersheds will require development and implementation of watershed plans identifying and prioritizing actions to restore water quality, riparian functions, and watershed conditions to fully support beneficial uses (Forest Plan, page 27). Figure 50 (DEIS, page 155) showing watersheds with 303(d) listed streams seems to correlate fairly well with the 15 key restoration watersheds with the preferred alternative in that most key restoration watersheds shown in Figure 3 include water quality impaired streams.

However, some key restoration watersheds may not include 303(d) listed streams (which is surprising since there are 269 impaired BDNF waters on the 303(d) list), and there are many watersheds with 303(d) listed waters that are not among the 15 key restoration watersheds in the preferred alternative. The presence of 269 impaired waterbodies, as well as 74 watersheds in “poor” condition, and 129 functioning-at-risk and 166 non-functioning

stream reaches on the BDNF, while only 15 key restoration watersheds are identified in the preferred alternative creates concerns that many impaired waters may not be restored.

We believe it is incumbent on the BDNF to work towards restoration of all impaired streams where Forest activities have contributed to the water quality impairment. The BDNF should coordinate with the State and EPA during their preparation of TMDL source assessments, and where completed TMDLs indicate that restoration work is needed, the BDNF should have a means of planning and prioritizing the restoration work. We suggest that all watersheds with 303(d) listed streams, where Forest activities contribute to the water quality impairment, be considered watersheds with a restoration emphasis, and that watershed restoration prioritization criteria and/or a decision tree for determining restoration priorities be developed and presented in the final EIS and Forest Plan. We believe this will more clearly show that management direction is consistent with Clean Water Act requirements to restore all 303(d) listed streams on the BDNF or at least put them on a path toward restoration of full support of beneficial uses. We recommend that the BDNF modify the Aquatic Strategy accordingly.

Response: On page 11, under the heading of Watersheds, the draft forest plan specifically addresses how the forest intends to manage streams on the state 303(d) list. The primary mechanism to identify and address degraded conditions across the forest is the Watershed Analysis. The draft forest plan is designed to protect or restore all streams whether they are listed on the state 303(d) list or not. As new streams are added to the state 303(d) list, the forest will work closely with the Department of Environmental Quality to address any specific concerns on National Forest System lands to ensure that water quality standards are met and beneficial uses are fully protected.

The method used to identify key restoration watershed is discussed in detail under comment 17a.

Comment 20a: EPA's policy is that management activities on National Forests should not result in further degradation of 303(d) listed waters, and should be consistent with long-term water quality restoration plans and TMDLs prepared by the State and EPA to facilitate restoration. When new management activities are proposed in watersheds of 303(d) listed streams, we generally recommend that restoration activities be carried out in association with the management activities if the activities may produce pollutants so that control of existing pollutant sources offsets pollutants generated from the management activities. This helps demonstrate project consistency with long-term water quality restoration. Of course all possible efforts to avoid or minimize pollution from the management activity should also occur (i.e., careful project planning and BMPs to minimize pollution). We also believe that watershed restoration activities that compensate for pollutant production during management activities in watersheds of 303(d) listed streams should be implemented within a reasonable period of time activities (e.g., 5 years).

We appreciate the inclusion of language in the draft Forest Plan Objectives that ensures that management actions are consistent with TMDLs, and do not further degrade waters, but promote water quality restoration to support beneficial uses (i.e., Watersheds Objective in Forest Plan, page 11). As you may know, Montana's approach is to include TMDLs as one component of comprehensive Water Quality Restoration Plans (WQRPs).

TMDLs/WQRPs contain eight principal components:

1. Watershed characterization (hydrology, climate, vegetation, land use, ownership, etc.)

2. Description of impairments and applicable water quality standards.
3. Pollutant source assessment and estimate of existing pollutant loads, including pollutant loads in tributaries to 303(d) listed waters.
4. Water quality goals/restoration targets.
5. Load allocations (i.e., TMDLs).
6. Restoration strategy
7. Monitoring Strategy
8. Public involvement (30 day public comment period, informational meetings, etc.)

The load allocations and targets established by TMDLs/WQRPs inform land managers how much sediment, nutrient or other pollutant discharge may be too much (i.e., prevent support of beneficial uses). A WQRP provides a means to track the health of a stream over time. If a WQRP has not restored beneficial uses within five years, the Montana DEQ conducts an assessment to determine if:

- the implementation of new and improved BMPs are necessary;
- water quality is improving but more time is needed to comply with WQS; or
- revisions to the plan will be necessary to meet WQS.

The Montana Dept. of Environmental Quality (MDEQ) and EPA are under a Court Ordered schedule to prepare TMDLs. Montana has divided the State into TMDL Planning Areas, grouping streams with similar water quality problems and land ownership as much as possible on a watershed basis. Each TMDL planning area may include 4 to 10 impaired watersheds that have specific TMDL preparation needs. Pending completion of a TMDL in Montana, new and expanded nonpoint source activities may commence and continue, provided those activities are conducted in accordance with (MCA 75-5-703). The Administrative Rules of Montana (17.30.602) define these as “methods, measures, or practices that protect present and reasonably anticipated beneficial uses.”

“Reasonable soil, land and water conservation practices” include but are not limited to structural and nonstructural controls and operation and maintenance procedures. Appropriate practices may be applied before, during, or after pollution producing activities. It is important to note that “reasonable soil, land and water conservation practices” are differentiated from BMPs, which are generally established practices for controlling nonpoint source pollution. BMPs are largely practices that provide a degree of protection for water quality, but may or may not be sufficient to achieve Water Quality Standards and protect beneficial uses. “Reasonable soil, land and water conservation practices” include BMPs, but may require additional conservation practices, beyond BMPs to achieve Water Quality Standards and restore beneficial uses.

We recommend that the BDNF contact the Montana DEQ (i.e., Darrin Kron, TMDL Development at 406-444-4765, Mark Kelley, Federal Consistency Coordinator at 406-444-3508, and/or Robert Ray, TMDL Implementation at 406-444-5319) to ensure

interagency collaboration adequately addresses TMDL/WQRP requirements in the Forest Plan revision and EIS.

Response: The forest fully appreciates the importance of meeting its commitments under the Clean Water Act and will continue to work closely to insure that our actions are consistent with TMDL's, address 303(d) listed segments on National Forest System Lands, and prevent degradation of water quality on all reaches within the National Forest System Lands. We have been actively involved in both the Ruby and Big Hole TMDL development.

Comment 21: The proposed Aquatics Objectives (Forest Plan, pages 11-13) are very good, although we want to note that we consider compliance with State Water Quality Standards to be such a primary principle of aquatic resource protection and attainment of Clean Water Act goals that we recommend that it be incorporated somewhere in the Objectives. We recommend that a statement be included, perhaps in the initial Watersheds Objective, to indicate that management activities should be carried out in compliance with State Water Quality Standards.

Response: The FEIS reflects the changes suggested in this comment.

Comment 21a: Water Quality Standards are established by the States and approved by EPA (in accordance with 40 CFR Part 131). Water Quality Standards (WQS) include designated uses for water bodies (e.g., fishing-aquatic life, public water supply, recreation, agriculture, etc.), and narrative and numerical water quality criteria for support of the designated uses, and they protect high water quality with an Antidegradation or Nondegradation Policy. Forest Plan Goals, Objectives, Standards, Guidelines should clearly state that water quality should be maintained and/or restored to attain compliance with Montana WQS (e.g., Montana WQS are found in ARM 17.30 Subchapter 6). Accordingly, we recommend that the second sentence in the initial Watersheds Objective (Forest Plan, page 11) be revised to read,

“Provide water chemistry and temperature that comply with State Water Quality Standards to support native aquatic species reproduction and survival.”

Response: The FEIS reflects the changes suggested in this comment.

Comment 22: We support the proposal to develop consistent and integrated aquatic and riparian direction across BDNF administrative units east and west of the continental divide. The Riparian Management Objectives (RMO's) in the draft Forest Plan for west of the continental divide appear to be the 1995 INFISH RMO's, but the RMO's for east of the continental divide are somewhat different based on entrenchment ratios, Width/Depth ratios, sediment particle size, as well as water temperature, large woody debris and bank stability (Forest Plan, pages 13-14). We understand the basis for the 1995 RMO's west of the divide, and it is our understanding that the proposed RMO's east of the divide are based on site-specific monitoring carried out by the BDNF. It would be helpful to public understanding if a reference and/or brief summary of the basis for these proposed eastside RMO's were provided in the final Forest Plan and FEIS.

Response: The forest chose to retain the RMO's on the west side of the divide in order to remain consistent with the Biological Opinion for Bull trout in the Columbia River basin. The data used to define the forest riparian management objectives (RMO's) on the east side of the divide came from geomorphic data collected on nearly 200 reference reaches on the Beaverhead-Deerlodge

National Forest and from streams in the greater Yellowstone ecosystem. The data has been presented in peer reviewed documents, symposia posters, and internal working documents by Pete Bengeyfield (Forest hydrologist, retired) over the last several years. The forest believes the RMO's presented in the draft forest plan result from the use of the best science available to us to determine the desired physical condition of streams across the forest. The source of this data is located within the project file.

Comment 23: Wetlands are significant environmental resources that have experienced severe cumulative losses nationally. Wetlands provide a wide range of important functions and values, increasing landscape and species diversity, and protecting water quality and beneficial uses. For these reasons EPA considers the protection, enhancement, and restoration of wetlands to be a high priority. Potential impacts on wetlands include: water quality, habitat for aquatic and terrestrial life, flood storage, ground water recharge and discharge, sources of primary production, and recreation and aesthetics. Executive Order 11990 requires that all Federal Agencies protect wetlands. In addition national wetlands policy has established an interim goal of No Overall Net Loss of the Nation's remaining wetlands, and a long-term goal of increasing quantity and quality of the Nation's wetlands resource base (for information on Federal wetlands policies see website, <http://www.usace.army.mil/inet/functions/cw/cecwo/reg/aug93wet.htm>).

The DEIS does not include much specific discussion of potential management direction impacts to wetlands. Accordingly, we recommend that additional discussion or at least a summary of potential management direction impacts to wetlands be included in the FEIS. We are pleased that wetlands protection is addressed in the Forest Plan Aquatics Strategy with a 150 foot buffer to be applied to wetlands greater than 1 acre and a 100 foot buffer to wetlands less than 1 acre (RMO's in Forest Plan, pages 14-15). We encourage the BDNF to include direction to assure that projects tiered to the Forest Plan delineate and mark perennial seeps and springs and wetlands on maps, and on the ground, so that wetlands are included in RHCA's and disturbance to wetlands is avoided.

Response: The forest recognizes the importance of wetlands. The Aquatic Strategy Objectives and Standards are designed to protect both riparian areas and wetlands. The DEIS on page 163 states that, "For the purposes of this analysis, riparian ecosystems, wetlands, lakeside zones, and floodplains will be referred to collectively as riparian ecosystems or riparian areas."

Comment 24: We also want to note that the Forest Plan revision and EIS should recognize that discharge of fill material into wetlands and other waters of the United States is regulated by Section 404 of the Clean Water Act, 33 U.S.C. 1344, which is administered jointly by the U.S. Army Corps of Engineers and EPA. Section 404 permits from the Corps of Engineers are required where dredge or fill activity is proposed in waters of the U.S. Section 404(f)(1)(A) exempts the discharge of dredged or fill material from silvicultural activities such as harvesting of forest products from 404 permit requirements unless the flow and circulation of navigable waters is impaired or the reach reduced.

Section 404 wetland mitigation policies require evaluation of all less environmentally damaging project alternatives. For non-water dependent activities, such as roads, alternatives to siting roads in aquatic areas, including wetlands, are presumed to be available unless demonstrated otherwise (i.e., avoid siting roads in aquatic areas). We recommend that the Forest Plan ensure consultation with the Corps of Engineers where

appropriate to determine applicability of 404 permit requirements and silvicultural exemptions to specific project level forest construction activities in or near streams or wetlands, (e.g., contact Mr. Allan Steinle of Corps of Engineers Montana Office in Helena at 406-441-1375). The 404(b)(1) Guidelines (found at 40 CFR Part 230) and Corps of Engineers, EPA, and USFWS Wetland Specialists should be consulted to provide specific environmental criteria and guidance when FS projects need a 404 permit.

See our recommendation below (comment #28) in regard to Standard RF-4a relative to the need for obtaining appropriate permits, including 404 permits, for construction of stream crossings. This 404 permitting requirement actually applies to all activities involving deposition of dredged or fill material in waters of the U.S., including wetlands, not just construction of stream crossings, unless the activity falls under the silvicultural exemption. Contact the Corps of Engineers for specific guidance regarding the 404 permit silvicultural exemption.

Response: The forest appreciates this comment and will ensure that the Corps of Engineers will be consulted in all projects that may require section 404 wetland mitigations and obtain clarification on the need for a 404 permit.

Comment 25: The ICB Strategy indicates that riparian conservation areas or appropriate direction need to be identified in FS management plans based on the best available science and appropriate ecological and geomorphic criteria. The Strategy says direction must include elements to:

- **Achieve physical integrity of aquatic ecosystems;**
- **Provide an amount and distribution of woody debris sufficient to sustain physical and biological complexity;**
- **Provide adequate summer and winter thermal regulation;**
- **Provide appropriate amounts and distributions of source habitats for riparian- or wetland-dependent species; and**
- **Restore or maintain water quality and hydrologic processes.**
- **Restore or maintain naturally functioning riparian vegetation communities**

The proposed Forest Aquatics Strategy appears to address these recommended elements in the ICB Strategy. Does the BDNF consider the proposed Forest Aquatics Strategy to adequately address these elements?

Response: The forest has worked extremely hard to develop an aquatic strategy that creates riparian conservation areas or appropriate direction based on the best available science and appropriate ecological and geomorphic criteria that will:

- * Achieve physical integrity of aquatic ecosystems;
- * Provide an amount and distribution of woody debris sufficient to sustain physical and biological complexity;
- * Provide adequate summer and winter thermal regulation;

- * Provide appropriate amounts and distributions of source habitats for riparian- or wetland-dependent species; and
- * Restore or maintain water quality and hydrologic processes.
- * Restore or maintain naturally functioning riparian vegetation communities.

The forest believes the Aquatic Strategy addresses the intent of the ICB strategy.

Comment 26: We appreciate the inclusion of Timber Management Objectives in the Aquatics Strategy (Forest Plan pages 15-16). Is there a need for any supplemental direction for example to limit tractor skidding on slopes less than 35 percent, or to minimize skid trails and temporary roads and other soil disturbances that pose erosion and sediment transport risks?

Response: The Forest Plan needs to set the strategic direction. It is the site-specific project level analysis which will determine any additional direction or mitigation measures for a project.

Comment 27: We support the exclusion of riparian areas from the suitable timber base and the INFISH riparian buffers and key restoration watersheds in Alternatives 3 and 5 to reduce riparian ground disturbance and protect stream channels and water quality (DEIS, Table 57, page 189).

Response: The Forest thanks EPA for their support on these issues. Alternative 6 also includes this same direction.

Comment 28: Roads are often the major anthropogenic sediment source adversely affecting hydrology, water quality, and fisheries of streams in National Forests, and as stated earlier (comment #12) roads degrade and fragment wildlife habitat, displace wildlife and change wildlife behavior, and increase wildlife stress and mortality. The DEIS acknowledges that improperly designed and poorly maintained roads can modify natural drainage networks and accelerate erosional processes resulting in increased stream sedimentation, degradation of aquatic habitats, and altered channel morphology (DEIS, page 191), and indicates that there are 6,671 miles of roads on the Forest of which 92.6% are open part of the year (DEIS, page 250).

The EPA supports improvements in road drainage, and reductions in sediment delivery from roads, and road decommissioning and reductions in road density, particularly removal of road stream crossings to improve watershed conditions and aquatic health in area streams. We believe roads not needed for management should be closed and /or decommissioned, so that road networks are limited to those that are needed and which can be adequately maintained within agency budgets and capabilities. How many of the 6,671 miles of roads on the Forest are needed and properly maintained?

We are concerned that there is often inadequate funding and resources to properly maintain roads and keep them in fair to good condition, and to keep them from delivering excess sediment to area streams (see our comments #29 and #62). We believe roads that cannot be properly maintained should be decommissioned. We particularly support closing and obliterating user-created non-system roads that cause resource damages.

Response: The Forest Plan gives strategic direction for the Forest. All action alternatives provide direction for identifying and correcting sediment sources (including roads) as you

suggest. However, through site-specific travel planning the actual road by road determination will be made concerning which roads are needed, which ones should be closed, and which ones need to be decommissioned or restoration work completed on. The Forest is currently in the process of doing site-specific travel planning.

Comment 28a: Bull trout are exceptionally sensitive to the direct, indirect, and cumulative effects of roads. As noted earlier, the USFWS in its 1998 Bull Trout Interim Conservation Guidance identified the importance of road densities for bull trout conservation, showing general exclusion of bull trout in watersheds with high road densities (e.g., over 1.7 mi/mi² of roads), and showing bull trout strongholds to have low road densities (e.g., an average 0.45 mi/mi² of roads). As noted in comment #12 above, we support low road density in bull trout watersheds, and hunting districts 212-215 in bull trout habitat have total open road densities ranging from 1.4 to 1.7 mi/mi² for the preferred alternative, which is on the upper end of bull trout tolerance. Would it be possible to reduce road density in these bull trout habitat watersheds? At the very least it should be assured that forest roads are not contributing amounts of sediment to bull trout waters that would impair bull trout recovery.

Response: See Response to Comment 12 above.

Comment 28b: We are generally pleased with the Road Management Objectives and Standards in the draft Forest Aquatics Strategy. We do, however, have some suggestions for additional direction to further assure reduced adverse effects to water quality and fisheries from roads. These include:

- **Consider adding language to Objective RF-2 or a new Objective to indicate that; Road networks are limited to those necessary for management and recreational access which can be adequately maintained within agency budgets and capabilities to meet Riparian Management Objectives, and roads that cannot be adequately maintained within agency budgets and capabilities to meet Riparian Management Objectives will be closed and/or decommissioned.**
- **Consider adding an item or Guideline for Standard RF-2c to; Avoid constructing roads on unstable landtypes or landslide or mass failure prone areas. Such areas should be identified for avoidance prior to road design and construction.**
- **Consider additional measures for Standard RF-2d in regard to avoiding sediment delivery to streams from the road surface.**
- **Provide adequate numbers of waterbars, rolling dips and ditch relief culverts to avoid drainage running on or along roads;**
- **Avoid placing ditch relief culverts where they may discharge onto erodible slopes or directly into streams.**
- **Where possible install cross-drainage above stream crossings to prevent ditch sediments from entering streams.**
- **Minimize road use during spring thaw periods that causes rutting and channeling of snowmelt and runoff, and during wet periods that may erode road surfaces to minimize erosion and sediment delivery to streams.**

- **Consider a Guideline for Standard RF-2e to; Stream crossing should simulate natural stream grade and substrate as much as possible in fish bearing streams (use bridges, arches and open bottom culverts wherever possible).**

Response: The Forest has reviewed and considered the additional wording provided. The additional wording is not needed, as it is provided for by Forest Service manual or handbook, already included in other parts of the Forest Plan, or are better addressed at the project level.

Comment 28c: The references to “Key Watersheds” in Standards RF-3a, RF-3b, RF-3c, RF-4 appear to say that worthwhile road management activities that reduce impacts to riparian areas, water quality, and fisheries should occur in Key Watersheds. We believe such worthwhile activities should occur for road management in all watersheds, not just Key Watersheds. The way these Standards presently read it may allow it to be construed that only Key Watersheds need to be protected from increased sedimentation. We do not believe this is the intent. We suggest that the word “Key” be removed from these Standards so that the term “Watersheds” alone is used in these Standards, to avoid any misunderstanding, and to make it clear that all watersheds need to be protected from increased sedimentation.

Response: You are correct in that it is not the Forests intent to only limit restoration to Key watersheds. However, with over 300 watersheds on the Forest, the key watersheds were developed to focus the Forest workload over the next 10 to 15 years. There is also other wording in the aquatic section of the plan which provides the direction to correct these problems, as they are found, through site-specific project planning.

Comment 28d: Consider a Guideline for Standard RF-3e to; Leave culverts or other crossing structures on closed or decommissioned roads, only when they can be maintained on a regular basis to minimize or prevent the risk of failure and associated resource damage.

Response: This addition to the statement is not needed. Forest Service policy already requires this.

Comment 28e: We suggest adding an additional Standard RF-4a regarding construction of stream crossings. For example:

Construction of stream crossings should occur during periods of low stream flow (usually in late summer or early fall). Special care should be taken to avoid or minimize impacts to the stream channel and to riparian vegetation during construction. Stream banks disturbed during construction should be revegetated. Operation of equipment within the channels of creeks and rivers only occurs if absolutely necessary and with proper permits and authorizations (e.g., Clean Water Act 404 permits, Montana DEQ 318 authorizations and Montana DFW&P 124 authorizations).

Response: After consideration, this additional statement is not needed as there are other standards that provide the same protection. The timing of implementation and other mitigation is best left to the site-specific project analysis. Also, terminology like “should” or “avoid” do not produce clear standards. Having the proper permits is already required and not necessary to restate in a Forest Plan.

Comment 29: We support the intent of Roads Management Standard RF-2c (Forest Plan, page 16) and Recreation Management Standard RM-1 (Forest Plan, page 19) regarding road and trail design and planning to avoid impacts to water quality or riparian areas, although we have concerns that funding to address the road/trail maintenance and closure and rehabilitation needs is often insufficient. Without adequate funding for road maintenance and closure/rehabilitation of roads adverse impacts to soil and water resources from roads and trails will continue. We recommend that the Forest Plan identify a need for adequate funding to maintain roads to prevent damage to water quality and fisheries, and to close and rehabilitate roads, especially user-created roads causing resource damages. Perhaps this could be added to Roads Management Standard RF-2c, item #3 as follows:

“3. Criteria that govern road operation, maintenance and management, with provision of adequate funding to maintain roads to prevent damage to water quality and fisheries, or closure and rehabilitation of roads causing resources damages which cannot be adequately maintained.”

Response: Funding may limit our ability to maintain roads and trails. The Forest is always looking at ways to be more efficient with the funds it does receive. However it is Congresses role to allocate funds. It is not appropriate for a forest plan to identify a need for adequate funding.

Comment 30: We are pleased that the Grazing Management Objectives and Standards in the Forest’s Aquatic Strategy appear to address the need to assure that grazing does not adversely impact riparian habitat, stream bank stability, water quality, and fisheries (Forest Plan, pages 18-19). The DEIS indicates that there are 169 stream reaches where grazing is responsible for non-functioning or functioning-at-risk stream reaches (DEIS, page 180). Is it believed that the Grazing Management Objectives and Standards will bring these 169 stream reaches into proper functioning condition?

Response: Yes, our monitoring indicates if we meet the grazing requirements, an upward trend will be achieved.

Comment 31: We appreciate the inclusion of Recreation Management Objectives and Standards in the Forest’s Aquatic Strategy (Forest Plan 19-20). EPA encourages locating campground facilities, and concentrated public recreational uses away from ecologically sensitive resources, and restricting motorized access to camping in ecologically sensitive areas, and identifying/designating camping sites to avoid sensitive areas and/or to encourage camping or concentrated public use in areas that are more resilient and can more easily recover from impacts and/or accommodate public use with less impacts. Recreation Management Standards RM-1 and RM-2 appear to address this issue, although we suggest consideration of incorporating additional language such as,

“Campground facilities and concentrated public recreational use areas should be located away from ecologically sensitive areas and located in areas that are more resilient and can more easily recover from impacts and/or accommodate public use with less impact.”

Response: These are decisions best left to the site-specific project level when a campground or other facility is proposed. As you cited above, there is language within the Forest Plan to achieve this goal for dispersed sites.

Comment 32: The Minerals Management Objectives included in the Aquatic Strategy address the need to prevent release of acid mine drainage or other toxic or hazardous materials during planning and design of mine waste facilities (Standard MM-3, Forest Plan, page 20). We believe prevention of release of acid or toxic or hazardous materials to surface and ground waters should apply to overall planning and design of all mine facilities in all areas (not just waste facilities and not just in riparian areas). We also suggest that a Standard be included to address the need to minimize surface disturbance, control water runoff, minimize erosion and sedimentation, and protect hydrologic function and integrity. We recommend that such a Standard be incorporated into the Mineral Management direction in the Aquatic Strategy. For example,

“Locate and design mine facilities and mine water management to minimize surface disturbances, control water runoff, minimize erosion and sedimentation, protect hydrologic function and integrity, and prevent the release of acid or toxic or hazardous materials to surface or ground waters.”

Response: These are decisions best left to the site-specific project level when a mineral proposal is identified.

Comment 33: We appreciate the inclusion of Fire Management Objectives regarding the need to consider and protect water quality and fisheries during conduct of prescribed fire and control or suppression of wildfire (Forest Plan, page 22). Is there is a need to incorporate additional language into Objective FM-1 to assure that, Bladed firelines, for prescribed fire and wildfire, need to be stabilized with water bars and/or other appropriate techniques to control excessive sedimentation or erosion, and that firelines should be rehabilitated to reduce erosion and sediment transport risks following the fire?

Response: Firelines and other disturbance resulting from prescribed fire or fire suppression activities need to meet Forest Service policy and Forest Plan direction. Forest Service policy and the Revised Forest Plan provide direction for maintaining stream function, which includes control of sediment. How to achieve these goals are best determined at the site-specific project level, include fire suppression mitigation.

Comment 34: Thank you for discussing municipal watersheds on the BDNF (DEIS, page 157). The DEIS indicates that six cities rely on surface water sources originating on the BDNF (i.e, Butte, Dillon, Sheridan, Anaconda, Philipsburg, and Deer Lodge). We note that our records show that the Town of Basin utilizes a water source on the BDNF (Basin Creek) and a portion of Basin Creek is classified A-1 by the State as a public water supply, although the Montana DEQ has informed us that a Source Water Delineation and Assessment Report was completed for the Town of Basin, which shows that they currently use 3 groundwater wells adjacent to Basin Creek and the Boulder River for water supply, rather than a surface water source.

The 1996 Amendments to the Safe Drinking Water Act require States with primary enforcement authority for public water supply supervision programs (such as Montana) to carry out a source water assessment program for all public water systems (PWSs) within the State. Information on the Montana Source Water Protection Program can be found at <http://deq.state.mt.us/wqinfo/swp/index.asp> . We are enclosing guidance for “Incorporating Source Water Protection into the Federal Land Management Planning Process” at the end of these comments.

It may also be of interest to know that there is a Memorandum of Understanding among several Federal Agencies, including USDA, in support of this program, called the Federal Multi-Agency Source Water Agreement, that can be found on the web at <https://www.denix.osd.mil/denix/Public/News/OSD/Water/water2.html> . In addition there is a USFS document entitled, "Drinking Water from Forests and Grasslands", General Technical Report SRS-39, that is meant for the Forest Manager, that may be of interest.

Response: Source water protection plans have been completed for those functioning municipal watershed on the forest. There was no interest by those managing these watershed to update the source water protection plans and therefore were not identified as a need to change or address in the revision process.

Comment 35: It is important that long-term soil productivity be maintained by limiting detrimental soil disturbance, retaining organic matter and vegetative cover on the ground, and assuring sustainability of soil microbiotic communities. We appreciate the inclusion of Soils Objectives and Standards in the draft Forest Plan (Forest Plan, page 28), although it is not clear to us if the proposed Soils Objectives and Standards in the draft Forest Plan that reference soil protection prescriptions in the FSH and FSM and other sources are fully protective of long-term soil productivity. Does the BDNF consider these Soils Objectives and Standards to provide for adequate maintenance of long-term soil productivity?

Response: Yes, the Forest believes the Region 1 soil protocol and Forest Plan direction are adequate to protect long term soil productivity in compliance with the National Forest Management Act.

Comment 36: We agree with the statements in the DEIS that recreational impacts, specifically off-road vehicles (ORVs) and all-terrain vehicles (ATVs) cause rutting, erosion, and loss of ground cover from user created roads and trails, trampling vegetation, vegetation removal, and soil compaction (DEIS, page 190). Public user demand and recreational access has increased significantly over the last 15 years, and motorized vehicles such as ATVs and snowmobiles can access areas much further into the forest than they could historically.

EPA is concerned about increasing use of ORVs and ATVs, especially on steep slopes, fragile soils, wet meadows, and around water bodies, and about user-created roads/trails that may be contributing sediment to surface waters and adversely impacting water quality/fisheries. Roads/trails often tend to become wider and rutted with increasing motorized use, creating a greater need for monitoring road conditions and carrying out needed repair and erosion control. ORV/ATV use also causes adverse effects to wildlife habitat and security and spreads noxious weeds.

Executive Orders 11644 and 11989, "Use of Off-Road Vehicles on Public Lands," require agencies to ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands. It is important that appropriate limitations and restrictions be placed on off-road motorized vehicle use to protect against erosion, transport of sediment to streams, spread of noxious weeds, and degradation of terrestrial and aquatic habitat by off-road motorized vehicle use, especially in environmentally sensitive areas such as wetlands.

We are pleased that the draft Forest Plan includes a Standard prohibiting year round wheeled motorized cross-county travel (Forest Plan, page 29). We support prohibiting motorized cross-county travel, so that off-road use is closed unless lands are specifically designated for motorized use. This reverses the situation, in which all lands are open unless posted with closure signs. Closing lands for motorized use unless they are designated as open to such use reduces uncertainty about allowable uses, and removes the incentive for illegal motorized recreationists to tear down and remove signs.

We are concerned that the proposed Off-Road Use Objective or Standard does not call for closing, obliterating and revegetating/rehabilitating user-created non-system roads causing resource damages. The Off Road Use Objective just indicates that resource damages, user conflicts, and related problems be minimized, including new user created roads/trails associated with motorized cross-country travel. We support closing, obliterating and revegetating/rehabilitating user-created non-system roads causing resource damages, as well as restricting cross-country travel off designated routes. We recommend that a Standard be added to require closure and rehabilitation of user created non-system roads causing resource damages. For example,

“Roads and trails created by unauthorized motorized cross-country use that adversely impact water quality, fisheries, wildlife habitat and security, and other resources will be closed and/or decommissioned and restored.”

Response: This statement is not needed. Roads and trails created by unauthorized motorized cross-country travel are illegal and therefore closed now. Decommissioning and restoring such damage is a site-specific decision requiring NEPA.

Comment 37: We also believe an inventory and evaluation of Forest roads and trails should be carried out to identify road maintenance needs, and surplus roads should be obliterated and lands restored. Improving road conditions (road drainage and BMPs) and reducing the miles of Forest roads, and road density, and limiting roads for administrative and maintenance purposes should mitigate some of the sedimentation created by erosion. We have suggested in our comments below regarding monitoring and adaptive management (comment #63e below) that a monitoring element be added to require monitoring and evaluation of road conditions in regard to road drainage, erosion, and sediment transport, to prioritize road BMP implementation and maintenance needs and focusing of limited road maintenance funding upon the greatest needs.

Response: Transportation planning is a site-specific decision which the Forest is in the process of completing. See also response to Comment 63e.

Comment 38: Off-road violations often occur due to lack of policing and enforcement. Closures of roads and trails created by cross-country travel need to be policed and enforced. We believe attention should be given to the issue of enforcement in the Forest Plan and EIS. We suggest that the extent of existing off-road use and violations by ORVs be evaluated and discussed in greater detail. Travel management restrictions should be enforceable and enforced. The recent Gallatin National Forest Travel Management Plan included enforceability criteria for travel management alternatives so that alternatives could be evaluated for their enforceability (enforceability ratings were assessed for each alternative). Their Travel Plan included a commitment to develop a Travel Plan implementation enforcement strategy tiered to their Gallatin Forest Law Enforcement

Plan, with the Enforcement Plan updated annually with specific program emphases, personnel needs, costs and fund sources.

We recommend that the BDNF consider development of an Enforcement Strategy and a road and trail use inspection and enforcement program to assure that ATVs, ORVs and snowmobiles will not violate motorized vehicle access limitations, and damage aquatic and terrestrial resources. We have heard of many off-road violations on certain areas of the Forest (e.g. in the Pioneer Mountains).

Adequate enforcement funding is needed to have an effective policing and enforcement program that assures that motorized access does not cause damage in restricted areas. We encourage the BDNF to develop and fund an effective enforcement strategy, to assure that ORVs and snowmobiles will not violate motorized vehicle access limitations. Are there adequate funds for enforcement and for monitoring off-road vehicle use to identify resource impacts? It is also important that adequate resources be devoted to user education and signage to promoting public understanding of travel restrictions improve compliance with the Forest Travel Management Plan.

Response: We agree enforcement is an important factor in successfully implementing the revised forest plan. An enforcement strategy would be part of implementation. This strategy would be similar regardless of the alternative selected. It also needs to be pointed out that enforcement is not managed at the local level. Law enforcement personnel and budget are managed at the Washington Office level.

Comment 39: Snowmobile use can have adverse effects upon wildlife, increasing wildlife encounters with humans, causing wildlife displacement, habitat degradation, changes in wildlife behavior, increased stress, potential impairment of reproductive success, and increased wildlife mortality, and snowmobile noise reduces solitude. The DEIS indicates increased snowmobile use has displaced; moose from the West Fork Madison River area; elk from winter range at Berkin Flat in the Jefferson Ranger District; and wolverines in high mountain basins (DEIS, page 113). It is not clear how the proposed Recreation and Travel Management Objectives and Standards address the potential adverse impacts of snowmobile usage upon wildlife and characteristics of solitude. We believe the FEIS should more clearly disclose how the winter motorized use restrictions will affect these wildlife impacts and solitude. We encourage the BDNF to give greater consideration to the effects of snowmobile use on wildlife and solitude characteristics as the final management direction is developed in the Forest Plan.

Response: The FEIS preferred alternative restricts motorized access on 39% of the forest. Key wildlife concerns for restricting winter motorized access are wolverine denning habitat and big game winter range to include deer, elk, and mountain goats. Strict prohibition of snowmobiles is part and parcel of winter motorized use restrictions.

Comment 40: Snowmobile emissions can also be an environmental concern. Much information is available regarding snowmobile noise and pollutant emissions and environmental effects. Most snowmobiles (and ATV's) used in mountain environments utilize 2-stroke engines, which mix the lubricating oil with the fuel and both are expelled in the exhaust. These engines allow up to one third of the fuel/oil mixture delivered to the engine to be passed into the environment virtually unburned. As stated in the U.S. Department of the Interior document, AAir Quality Concerns Related to Snowmobile

Usage in National Parks@, Feb. 2000, hydrocarbon emission rates from 2-stroke snowmobile engines are about 80 times greater than those found in a 1995-96 automobile engines. A majority of these hydrocarbons are aromatic hydrocarbons, including polyaromatic hydrocarbons, which are considered to be the most toxic component of petroleum products, and aromatic hydrocarbons are also associated with chronic and carcinogenic effects.

The actual and potential environmental and human health effects from snowmobile emissions of noise, hydrocarbons and carbon monoxide are probably best summarized in the Park Service's recent Final EIS for winter use management in Yellowstone and Grand Teton National Parks (<http://www.nps.gov/grte/winteruse/update.htm>). Additionally, there are numerous studies underway to more clearly determine what environmental effect these pollutants may have. EPA recommends that the BDNF monitor the results of these studies and consider the results when evaluating future management direction for winter snowmobile use.

Increased snowmobile pollutant emissions could be particularly problematic in areas where snowmobiles congregate (e.g., trailheads) and during short periods of poor air dispersion (e.g., valleys where frequent inversion conditions may trap air pollutants). Some visitors and employees at Yellowstone National Park have experienced health effects from over-snow vehicle emissions even though Ambient Air Quality Standards have not been exceeded. In general, snowmobile emissions are worst when the engine is first started and hasn't yet warmed. For this reason trailheads are areas where this concern is greatest. If there are heavily used trailheads with large numbers of snowmobiles where stable air is present, the Forest should consider placing signs or implementing patrols on heavy use mornings to encourage users to limit idling time. The EPA & MDEQ also encourages use of the newer less polluting 4-stroke engine snowmobiles (e.g., <http://www.deq.state.mt.us/CleanSnowmobile/solutions/engine/four-stroke.asp>).

Response: Thank you for your comment. This issue has been determined to be non-significant to the decision among the alternatives. Please refer to the updated information that has been provided in Chapters III of the FEIS. Odor generated by combustion engines, particularly two-cycle engines, can diminish a non-motorized user's experience of Forest trails. However, this is a recreation (user satisfaction) issue rather than a general air quality issue. Air Quality is not significantly affected by potential motorized use of Forest roads and trails under any of the alternatives (FEIS, Chapter 3, Air Quality).

Comment 41: Also, some Forests have policies that prohibit off-trail snowmobile use until at least 6 inches of snow has accumulated. Snow in higher elevation areas is susceptible to wind movement which can leave bare or thinly covered areas that would be difficult or impossible to avoid given the speed of snowmobiles. Plant communities, biodiversity and water quality in higher elevation shallow-soil ecosystems may be extremely vulnerable to soil or vegetation disturbance. The impact of a road cut, a pioneered trail or other disturbance, can extend well downslope of the disturbed area, and adversely affect plant communities, biodiversity and water quality. Fragile vegetation in higher elevation areas may need protection against such use, since impacts to some fragile vegetation for all practical purposes may be irreversible. We support limiting snowmobiles to designated routes. We also suggest ending the snowmobiling season early enough to reduce potential

snowmobile use in marginally snow covered areas that could result in damage to fragile vegetation. Are additional management direction or measures needed to protect fragile vegetation from off-trail snowmobile use?

Response: The Forest considered this comment, but could find no evidence of the effects portrayed in this comment taking place on the BDNF. No additional management direction or measures were identified. If these types of adverse effects from snowmobiling were identified, the Revised Forest Plan would provide the direction necessary to support restricting use.

Comment 42: We also suggest referencing Recreation Management Objectives and Standards RM-1 and RM-2 and Roads Management Objectives and Standards RF-1, RF-2, RF-2a, RF-2b, RF-2c, RF-2d, RF-2e, RF-2f, RF-3a, RF-3b, RF-3c, RF-4, RF-5 that are part of the Forest's Aquatics Strategy into the Recreation and Travel Management Objectives and Standards on Forest Plan pages 29 and 30 to assure that BDNF staff overseeing recreation and road management are fully aware of these Aquatics Objectives and Standards that provide for protection of water quality and riparian areas during recreation and travel management.

In order to better assure that the stream and riparian protection Objectives and Standards are integrated into and acknowledged in the recreation and travel management program we suggest that you add a Recreation and Travel Management Objective to assure consistency with Aquatic Resource Objectives and Standards. For example,

“Recreation and Travel management shall be carried out in a manner consistent with the Objectives and Standards in the Forest's Aquatic Strategy.”

Response: Repeating standards or attempting to reference readers to all of the section which may be pertinent to any one project would be difficult to accomplish. The forest would rather stress that all sections of the Revised Forest Plan be consulted when evaluating a project.

Comment 43: The DEIS indicates that there are nine rivers eligible for Wild & Scenic River designation on the BDNF (DEIS, Table 127, pages 473). Of these nine rivers we believe the West Fork Madison River and Rock Creek have particular merit for designation. We also recommend consideration of including in the Wild & Scenic Rivers Objective (Forest Plan, page 31) a commitment to develop a management plan for any designated and eligible Wild and Scenic River.

Response: The Revised Forest Plan was updated based on comment and now includes an objective to complete suitability studies for the nine eligible wild and scenic river.

Comment 44: The DEIS clearly lists the current recommended wilderness areas by name and acreage in Table 100 (DEIS, page 333), and shows on maps the proposed wilderness recommendations for the alternatives in Chapter 2 (DEIS Figures 9-13, pages 42-46). We did not see a tabulation similar to Table 100, however, that clearly disclosed the specific areas recommended for wilderness for Alternatives 2-5. The preferred alternative proposes approximately 249,000 acres of recommended wilderness (DEIS, page 26) comprised of eleven areas (DEIS Figure 13, page 46), while 196,000 acres are recommended for wilderness in Alternative 2, and 707,000 acres in Alternative 3, however, the names and acreages of the eleven areas that total 249,000 acres for Alternative 5 or for the 196,000 acres for Alternative 2, or 707,000 acres for Alternative 3, do not appear to be clearly

disclosed. The FEIS should list or more clearly identify the specific areas recommended for wilderness under each alternative.

Response: The FEIS has been updated to include individual acreage for all recommended wildernesses by alternative.

Comment 45: Wilderness study areas and roadless areas often provide population strongholds and key refugia for listed or proposed species and narrow endemic populations due to their more natural undisturbed character. EPA supports protection of the pristine character and integrity of remaining minimally disturbed roadless and wilderness study areas to prevent further fragmentation and degradation of wildlife habitat, and to maintain or restore solitude and primitive recreation characteristics in such areas. The BDNF includes 53 inventoried roadless areas totaling approximately 1.9 million acres that may have potential for future wilderness designation (DEIS, page 328), yet only 249,000 acres are recommended for wilderness in the preferred alternative.

We support consideration of additional wilderness recommendations, including the Snowcrest area west of the Gravelly Mountains, and the West Big Hole in the preferred alternative. The Snowcrest area is very scenic, includes grizzly bear and wolf habitat, and is critical for Yellowstone-area wildlife migrating into the Centennial Valley and beyond to the wild lands of central Idaho. The West Big Hole area has been recommended as wilderness since 1979 and has been included in most past Montana Wilderness bills, and is threatened by increasing levels of motorized recreation, especially snowmobiling, that are adversely impacting this area, threatening wildlife including mountain goat and wolverine populations as well as Wilderness values. Alternative 5 in the Draft Forest Plan calls for splitting the Big Hole range up into “Special Management Areas” to accommodate all user groups. We believe the West Big Hole area should be managed as a Recommended Wilderness to protect its pristine character and integrity and to prevent further fragmentation and degradation of wildlife habitat and populations, and to maintain or restore solitude and primitive recreation characteristics. We also support inclusion of the Sapphire and West Pioneer Wilderness Study Areas as well as Stony Mountain and Anaconda-Pintler additions for recommended wilderness.

Response: The Forest thanks EPA for identifying their choice for recommended wilderness. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Plan.

Comment 46: We have concerns about continuing to allow motorized recreation within roadless areas that may have potential adverse effects on roadless values, especially in recognition of trends of increasing public use of ORV's that can access previously inaccessible lands and cause resource damages. One of the National Strategic Goals regarding the use of motorized equipment in wilderness (FSM 2326.02) is to “Exclude the sight, sound, and other tangible evidence of motorized equipment or mechanical transport within wilderness, except where they are needed and justified.” It is not clear whether this Goal would be met in areas near the Anaconda-Pintler and Lee Metcalf Wilderness, and the other recommended Wilderness Study Areas. Site visits to areas with motorized recreational use adjacent to these areas may be required to confirm whether sight, sound or odor from motorized use are tangible from within the wilderness boundary. If there are likely impacts, the Forest should indicate whether motorized use that causes the impact is “needed and justified.” It is important that our last remaining pristine areas remain

unspoiled and natural in order to provide clean water and air, sanctuary for native wildlife and plant species, and opportunities for low impact human recreation. We encourage the BDNF to include adequate restrictions on motorized uses in remaining roadless and wilderness study areas to protect the pristine characteristics of such areas, unless such uses are “needed and justified.” We recommend consideration of an additional Objective as follows,

“Assure that provisions of access to roadless lands is limited to where such access is absolutely needed and justified.”

Response: The Forest thanks EPA for articulating their preference for the management of roadless areas. Each alternative allocated roadless areas for a variety of uses. Effects to inventoried roadless areas are disclosed in the FEIS, Chapter 3 and Appendix C.

Comment 47: As you know livestock grazing operations can impact water quality and aquatic habitat. We appreciate the inclusion of Grazing Management Standards within the Forest’s Aquatics Strategy, and streambank disturbance limitations in the Table 5 Livestock Grazing Standards (Forest Plan, page 33). We suggest referencing Grazing Management Standards GM-1a, GM-1b, GM-2, GM-3, GM-4, GM-4a from the Aquatics Strategy in the Table 5 Livestock Grazing Standards (Forest Plan, page 33) to assure that livestock operators and BDNF staff overseeing grazing allotments are fully aware of these Standards that provide for protection of water quality and riparian areas, as well as the other Aquatic Objectives for Watersheds, Stream Channels, Riparian Areas, Riparian Habitat, and Channel Integrity (Forest Plan, pages 11-13) that grazing activities need to adhere to.

In order to better assure that the stream and riparian protection Objectives and Standards in the Forest’s Aquatic Strategy are integrated into and acknowledged in Livestock Grazing management we recommend that you include an additional statement in the Livestock Grazing Objective for Forage Use to include consistency with Aquatic Resource Objectives and Standards. For example,

“Utilization of forage by domestic livestock will maintain or enhance desired structure and diversity of plant communities on grasslands, shrub lands, and forests. Use will be managed to protect or restore riparian function and defined at the allotment level, in a manner consistent with the Objectives and Standards in the Forest’s Aquatic Strategy.”

Response: See response to Comment 42.

Comment 48: EPA believes there is a need during timber management to assure protection, maintenance, and/or restoration of water quality and riparian areas, and to promote recovery of T&E species and their habitat, and protect characteristics and values of roadless areas. It is important that ecosystem integrity be maintained to allow sustainable levels of timber production along with other resource uses and maintenance of other desired values over the long-term, as social and economic desires for timber production are considered.

We appreciate the inclusion of Timber Management Objectives and Standards in the Forest’s Aquatic Strategy (Forest Plan, pages 15-16). Similar to earlier comments, we suggest referencing Timber Management Standards TM-1 and TM-2 (Forest Plan pages 15-16) from the Aquatic Strategy with the other Timber Objectives and Standards (Forest

Plan pages 34-37) to assure that BDNF staff overseeing timber management are fully aware of these Timber Standards relating to protection of water quality and riparian areas.

In order to better assure that the stream and riparian protection Objectives and Standards in the Forest's Aquatic Strategy are integrated into and acknowledged in the Timber management program we recommend that you include language in the Suitable Timber Lands Objective to assure consistency with Aquatic Resource Objectives and Standards. For example, adding a statement at the end of this Objective as follows,

“... Timber management shall be carried out in a manner consistent with the Objectives and Standards in the Forest's Aquatic Strategy.”

Response: See response to comment 42.

Comment 49: EPA supports the need to update Forest Plans to reflect national fire management strategies and policies to address the risk of catastrophic fire and to support reduction of fire risk and severity (e.g., 1995 Federal Wildland Fire Management Policy and Program Review; National Fire Plan). The Interior Columbia Basin scientific findings identify fire as a major natural disturbance process in forest ecosystems to keep fuel density in check and to maintain healthy forest ecosystems. It is known that fire suppression over the last 100 years has changed the structure and composition of forest ecosystems, causing build up of forest fuels, unnatural forest conditions and caused a shift from frequent low intensity ground fires to less frequent severe crown fires, and resulted in increases in wildfire severity and area burned.

EPA supports efforts to restore the natural role of fire to the forest ecosystem, although increasing development on private lands adjacent to National Forests makes full restoration of natural fire disturbance regimes difficult, since risks to human lives and property need to be considered. We believe Forest Plan revisions offer opportunities to promote increased public understanding of the necessary role of fire in forest ecosystems, and to restore more natural fire disturbance regimes to forest ecosystems. We believe additional attention should be directed at improving public education programs to increase public understanding on the need for and value of fire in forest ecosystems.

The Fire Management Objectives in the draft Forest Plan (Forest Plan, page 37) do not include public education programs to increase public understanding on the need for and value of fire in forest ecosystems. We recommend including a Fire Management Objective for improving public education regarding fire management. For example;

“Improve public understanding of the role of, and need for, fire in forest ecosystems.”

Response: During the revision process, the topic of having an objective concerning education was discussed. The final outcome of those discussions is education is not a forest plan decision, but part of an implementation plan. Therefore, objectives stating the need to provide education were not developed. The Forest does agree with this comment though and plans on having education as part of the implementation plan.

Comment 50: The EPA supports improved reintroduction of fire into Federal land management programs to allow fire to play its natural role and provide resource benefits, consistent with public health and environmental quality considerations (e.g., judicious use of prescribed fire to control forest fuel loads, and to influence forest composition and

structure, and reduce risk from unplanned and unwanted wildfire to communities and resources). We are pleased that all the action alternatives allow wildland fire use. We recognize and support the national goal reduce the risk of uncontrolled wildfire in wildland-urban interface areas (WUIs), and to emphasize fuels management in WUIs and areas of high or severe fire risk.

We also believe risks of wildfire should be evaluated versus the effects of active restoration designed to reduce those risks (i.e., water quality, fisheries and wildlife effects). Thresholds for acceptable environmental impacts around WUI's and areas of severe fire risk may be higher due to the need to protect communities and resources and to avoid severe impacts that may be associated with catastrophic wildfire. In developing direction to manage fire risk and fuels many factors need to be considered, including the following:

- a) Normal fire return intervals and mortality levels from disease or insects;
- b) Post-treatment landscape vs. desired forest age class, composition, structure (How far outside the natural range of variability and disturbance regimes are areas to be treated? What forest types (e.g., cold, moist, or dry), stand densities and species composition are to be treated? Do these vary from similar sites that have experienced natural disturbances? Are fuels treatments directed at density management, thinning from below, strategically placed treatment units, etc.);
- c) Funding for fuels treatments (Are large trees being cut to fund fuels reduction? Are wildlife or restoration funds available to carry out fuels reduction to meet desired future conditions?);
- d) Trade-offs of adverse water quality, fisheries, wildlife impacts of fuels treatments (Will fuels reduction require new road construction or reconstruction of roads? Will riparian areas, wetlands, and other important habitats be treated differently than the rest of the landscape?);
- e) Monitoring (Is pre- and post-project monitoring proposed?).

We encourage the BDNF to consider these issues and questions as fire and vegetation and fuels management direction and guidance for the Forest Plan revision are finalized. Perhaps additional Standards and/or Guidelines addressing these issues and questions could be developed in association with the Fire Management Objectives.

Response: The final EIS has been updated to expand the discussion on wildland fire use and areas at risk. See the Final EIS, Chapter III, under the heading "Fire and Fuels". For effects to the different resources, see the Final EIS, Chapter III, under the heading for the specific resource area. Some of the questions asked above are not forest plan decisions, but part of the implementation direction found in the Fire Management Plan or will be addressed in site-specific project planning. Funding is not discussed in the Final EIS as it is not part of the forest plan decision.

Comment 51: The EIS indicates that 244,000 acres on the BDNF out of 3,380,000 acres or about 7.2% of the Forest are in Condition Class 3 with high departure from natural fire frequency and fuel composition conditions; and 409,000 acres of the BDNF, or 12.1% of the Forest are in Condition Class 2 with moderate departure from natural fire frequency and fuel composition conditions (DEIS, Table 82, page 300). The Condition Class Objective in

the draft Forest Plan calls for reducing effects of wildfire by reducing acres of fuels in Condition Class 2 and 3 for all fire regimes by approximately 70,000 to 105,000 acres across the Forest. This amounts to reducing fuels on about 11 to 16% of the acreage in Condition Class 2 and 3. Will this be this adequate to reduce fire risk and severity? How was it determined that 70,000 acres to 105,000 acres was the targeted fuels reduction goal? Will areas in Condition Class 3 be prioritized over those in Condition Class 2 for fuels and fire risk reduction?

Response: The objectives were developed by looking at the Forests past treatment level and estimate of future budgets to determine what might be a reasonable expectation in the next 10 years. An assumption made during the revision process is alternatives needed to reflect realistic and/or projected budget.

Comment 52: We support the Fire Management Objective to complete wildland fire use plans with 3 years to allows wildland fire use for resource benefits (Forest Plan, page 37; DEIS, pages 296-310). Although we also encourage more complete discussion of policies regarding situations where wildfires will be allowed to burn as a natural occurrence, since the public should be fully aware of the Forest Service’s decision making process to allow natural fires to burn uncontrolled vs. where and when fire suppression will be practiced.

Response: A decision made during the revision process was not to restate items in the forest plan which already exists in other documents. The directions for implementing a wildland fire use program already exist in the Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy (2003), and the Forest’s Fire Management Plan. These documents are referred to in the Final EIS and Final Forest Plan.

Comment 53: We appreciate the inclusion of Fire Management Objectives and Standards in the Forest’s Aquatic Strategy (Forest Plan, pages 22-23). Similar to earlier comments, we suggest referencing Fire Management Objectives Standards FM-1, FM-2, FM-3 and FM-4 from the Aquatic Strategy with the other Fire Management Objectives (Forest Plan, page37) to assure that BDNF staff overseeing fire management are fully aware of these Fire Management Objectives and Standards relating to protection of water quality and riparian areas. In order to better assure that the stream and riparian protection Objectives and Standards in the Forest’s Aquatic Strategy are integrated into and acknowledged in the fire management program we suggest that you add a Fire Management Objective to assure consistency with Aquatic Resource Objectives and Standards. For example,

“Fire management shall be carried out in a manner consistent with the Objectives and Standards in the Forest’s Aquatic Strategy.”

Response: A decision made during the forest plan revision process was not to restate and/or duplicate direction in one location of the forest plan in another location. This increases the size of the document considerably. It is understood that the resource needs are found in each individual resource section and that all sections need to be review during project development.

It is not necessary to develop an objective which states, “Fire management shall be carried out in a manner consistent with the Objectives and Standards in the Forest’s Aquatic Strategy.” because it is all ready part of Forest Service policy. That policy states all projects need to meet the direction within a forest plan. If the Forest put this statement in the forest plan then it would need to be stated for all other resources. This would be unnecessarily redundant.

Comment 54: We appreciate the commitment in the Air Quality Objectives to maintain air quality to meet Federal and State air quality standards, the State Implementation Plan (SIP), and future Regional Haze Requirements, as well as to meet Idaho/Montana Airshed Group Smoke Management Plan requirements (Forest Plan, page 37).

Response: Thank you for your comments.

Comment 55: Thank you also for evaluating and discussing air quality impacts associated with the proposed Forest Plan Revision (DEIS, pages 346-357). We have several comments on this air quality discussion

a) The first paragraph of the Analysis Methods and Assumptions section (DEIS, page 346) introduces the six criteria pollutants. The bullets following the introductory paragraph list the criteria pollutants except they fail to include sulfur dioxide (SO₂). We recommend that sulfur dioxide be added to this list.

Response: Thank you for your comments; we have updated the Final EIS to reflect this.

b) We suggest adding dust emissions connected with traffic on unpaved roadways to the list of key indicators (DEIS, page 347).

Response: Thank you for your comments; discussion regarding impacts of fugitive dust is located in the FEIS, Chapter 3, under the heading of Air Quality. Dust emissions are considered under both visibility and particulate matter emissions in the list of key indicators. Key indicators are components that the Forest can substantiate through continued monitoring efforts. The Forest Service hosts four IMPROVE aerosol sampling sites in the Region located in areas that are representative of air quality near Class I areas. The closest IMPROVE site to the B-D is the Sula Peak sampler located on the Bitterroot National Forest.

c) In the first paragraph in the Affected Environment - Regional Considerations section (DEIS, near the bottom of page 3470 we suggest revising "nitrous oxide" to "oxides of nitrogen." This term covers both nitric oxide (NO) and nitrogen dioxide (NO₂), which are discussed on pages 346 and 348.

Response: Thank you for your comments, the EIS has been updated to reflect this change.

d) The first paragraph of the Affected Environment - Forestwide Considerations section (DEIS, page 349) refers the reader to www.epa.gov for information on stationary sources. It might be more convenient for interested readers to be directed to AirData: <http://www.epa.gov/air/data/index.html>, Clean Air Markets - Data and Maps: <http://cfpub.epa.gov/gdm/>, or the Envirofacts Data Warehouse: <http://www.epa.gov/enviro/index.html>.

Response: Thank you for your comments, the FEIS, Chapter 3, under the heading of Air Quality has been updated to reflect this change.

e) The first paragraph in the Direct and Indirect Effects - Effects to Air Quality from Vegetation Management section (DEIS, bottom of page 352) mentions prescribed burning, but does not describe the differences among the alternatives related to air quality effects of prescribed burning. We recommend referring the reader to the section, Effects to Air Quality from Wildland Fire Use and Fire and Fuels Management, pages 353 to 354.

Response: Thank you for your comments, the FEIS, Chapter 3, under the heading of Air Quality has been updated to reflect this cross reference.

f) The bullets listed at the beginning of the section on Direct and Indirect Effects - Effects to Air Quality from Wildland Fire Use and Fire and Fuels Management summarize the Draft R1 Forest Plan Revision Guidance to preparers of project-level NEPA documents. We suggest adding a reference to the draft Smoke NEPA Guidance, Air Resource Smoke Impacts From Prescribed Fire on National Forests & Grasslands of Montana, Idaho, North Dakota, & South Dakota in Regions 1 & 4, June 2005.

Response: Thank you for your comments. Your comment has highlighted this reference.

Comment 55a: EPA is also interested in having Forest Plan direction consistent with the Interim Air Quality Policy on Wildland and Prescribed Fires. This Policy was developed with the active involvement of stakeholders, including the U.S. Department of Agriculture, to integrate the public policy goals of allowing fire to function in its natural role in maintaining healthy ecosystems and protecting public health and welfare by mitigating the impacts of air pollutant emissions on air quality and visibility. A copy of the Interim Air Quality Policy can be found at: <http://www.epa.gov/ttn/oarpg/t1/memoranda/firefnl.pdf>, and a fact sheet can be found at: www.epa.gov/ttn/oarpg/t1/fact_sheets/firefl.pdf. EPA air quality guidance can be found at www.epa.gov/ttn/oarpg/t1pgm.html. We suggest that the FEIS advise that project-level NEPA documents for prescribed fire treatments should discuss the EPA Interim Air Quality Policy on Wildland and Prescribed Fires and discuss the Forest Service's involvement in developing certified smoke management plans. For example,

"Project-level NEPA documents involving treatments with prescribed fire should discuss the EPA Interim Air Quality Policy on Wildland and Prescribed Fires, and disclose how the Forest Service is cooperating in developing smoke management plans in the area of the BDNF and describe how prescribed burns will be conducted in accordance with any plans that are developed."

Response: The Forest will continue to work with EPA on the development of smoke management plans. This may be done at the Forest level or Regional level. This process is separate from a Forest Plan. Project level NEPA will discuss the impacts on air quality according to Forest Service, EPA, and State requirements.

g) While the introduction to the Environmental Consequences section (DEIS, page 351) states, "None of the alternatives considered are expected to substantially change existing air quality," the alternatives are likely to have different potential impacts. The second paragraph following the list of bullets that ends on page 354 mentions differences among alternatives. Only Alternative 3 exceeds the preferred alternative (Alternative 5) in acreage available for wildland fire use (i.e., the remaining three alternatives place more emphasis on vegetation management). The maps of lands available for wildland fire use (DEIS, Figures 29 to 33, pages 62 to 66) show differences that could bear upon air quality. For example, under Alternative 2 strips along the boundaries of several units are unavailable for wildland fire use (see Figure 30); however, the section on effects to air quality does not explain the reason for creating the strips or their significance. We recommend that this section explain

in more detail the differences in potential air quality impacts among the alternatives.

Response: Wildland fire use (WFU) is discussed in the Fire/Fuels section. Because WFU events are the result of “natural ignitions”, the effects of different alternatives cannot be adequately addressed because it is unknown when and where these ignitions might occur. Therefore potential impacts to air quality as a result of smoke generated from WFU events are closely coordinated with the MT DEQ Air Resources Management Bureau. All WFU events are required by the annual USDA FS major open burn permit to be reported to the DEQ within 72 hours after completion of Stage II of the WFIP (Wildfire Implementation Plan). The MT DEQ maintains fire information on its public website for interested parties at:

<http://www.deq.state.mt.us/FireUpdates/index.asp>

h) In the first paragraph in the Cumulative Effects section (DEIS, page 356) the sentence beginning, "The Montana/Idaho State Airshed Group," appears to be incomplete. The context suggests a statement about consultation is missing. Please revise as appropriate.

Response: Thank you for your comment, this has been revised.

References to the Montana Air Quality Division (DEIS page 348) should be revised to reflect the current organization of MDEQ. See current MDEQ organizational chart at <http://www.deq.state.mt.us/about/org/OrgChartDEPT.pdf> .

Response: Thank you for your comments, the EIS will be undated to reflect this change (Montana DEQ--Air Resources Management Bureau).

Comment 56: It may be helpful to the public and Forest staff to better understand how the Smoke Management Plan works.

“BDNF is a member of the Montana/Idaho Airshed Group, whose membership includes those agencies with an interest in the use of wildland and prescribed fire for resource management purposes and are committed to conserving Montana’s air quality. Montana is divided into 10 Airsheds and the BDNF is located in Airsheds 6 and 7. The Montana DEQ requires that members submit a list of planned burns to the monitoring unit in Missoula. From information contained in the permit application, the monitoring unit issues daily decisions in the Fall season that can either restrict or permit burning to proceed/continue.

To protect Class I air quality related values, ambient air quality standards, and visibility protection, the BDNF will follow State Airshed Group guidelines for best available control technology (BACT) and ensure that particulate concentrations do not exceed ambient air quality standards or interfere with visibility protection control measures. The BDNF recognizes that current sources of air emissions exist on the Forest that typically include residential woodburning, vehicles, industry, agricultural windblown dust, etc.,

Burning seasons and notifications BDNF will follow under Montana rules are as follows:

During the period of December through February, no burning will be conducted as open burning is generally prohibited by State rule (ARM 17.8.606), but exceptions may occur under certain essential conditions.

Prescribed burns during the period of March through May, will conform to the guidelines applicable to the General Open Burning Season that requires good or excellent ventilation and other conditions as outlined in the Montana rule (ARM 17.8.606).

Prescribed burns must conform with the Best Available Control Technology (BACT) year-round as outlined in ARM 17.8.606 and any other conditions set forth in the permit.”

Response: Thank you for your comments, it provided a good example of how a smoke management plan works. In addition, requirements for coordination with the Smoke Management Unit are discussed in individual Forest Fire Management Plans (FMPs) and subsequent prescribed fire burn plans. Specific requirements are not discussed in the Forest Plan, in case those requirements are amended or otherwise changed. The Forest Plan should only provide the overall guidance and direction for use of prescribed fire to accomplish stated objectives. This information will be incorporated into project-level NEPA, as referenced by current agency guidance and direction.

Comment 57: The Table 4 Lease Terms and Prescribed Stipulations in the draft Forest Plan (Forest Plan, page 40) appear appropriate, although we note that westslope cutthroat trout habitat and arctic grayling are given NSO or CSU stipulations, yet there are no special stipulations identified for the threatened bull trout. We recommend consideration of a NSO stipulation for bull trout habitat.

Response: The oil and gas decision only applies to the Beaverhead Unit. There are not bull trout on the Beaverhead Unit of the BDNF.

Comment 58: The DEIS states that only three oil & gas wells have been drilled on the BDNF (all in Beaverhead unit) and they were all dry (DEIS, page 390). Is it likely therefore that oil and gas drilling activity is not expected on the BDNF during the life of the Forest Plan?

Response: There are oil and gas leases on the Beaverhead unit. It would be entirely speculative as to whether or not there will be oil and gas drilling activities on the BDNF.

Comment 59: The DEIS includes brief discussion of locatable minerals and mining activities on the BDNF (DEIS, page 389), and mentions acid mine drainage from “old mine workings,” noting that efforts have been made to divert acid mine drainage into wetlands to adjust pH levels and attenuate metals (page 392). However, little specific information is provided regarding the “old mine workings” or of other active and inactive mining activities, although Table 53 (DEIS, page 179) identifies the number of active and abandoned mines by landscape.

We recommend that the BDNF identify active and abandoned mines on or adjacent to the Forest that pose risks of environmental degradation, particularly acid mine drainage or mobilization and transport of toxic or hazardous materials, and present such information in the FEIS. Perhaps active or inactive mine sites with potential environmental problems could be shown on Figure 69 summarizing mineral deposits (DEIS, page 388). It would also be helpful if a map was provided identifying sites of such active and inactive mines, valid pre-existing rights, and areas open to and withdrawn from mineral entry (Montana DEQ has mine site map resources, contact Vic Anderson at 406- 444-4972).

Response: This information would be part of a watershed assessment along with identification of the restoration activities needed. These activities would then be site-specific projects. It would be difficult to show a map of active and inactive mines as this is constantly changing.

Comment 60: EPA appreciates the cooperation of the Forest Service in developing a common mine waste repository on the Basin Creek Mine site (DEIS, page 391), and in addressing environmental problems associated with abandoned mine sites.

Response: Thank you for your comment.

Comment 61: We appreciate the inclusion of Minerals Management Objectives and Standards in the Forest's Aquatic Strategy (Forest Plan, pages 20-21). Similar to earlier comments, we suggest referencing Minerals Management Objectives Standards MM-1 through MM-6 from the Aquatic Strategy with the other Minerals Management Objectives (Forest Plan page 39) to assure that BDNF staff overseeing minerals management are fully aware of these Minerals Management Objectives and Standards relating to protection of water quality and riparian areas. In order to better assure that the stream and riparian protection Objectives and Standards are integrated into and acknowledged in the fire management program we suggest that you add a Minerals Management Objective to assure consistency with Aquatic Resource Objectives and Standards. For example,

“Minerals management shall be carried out in a manner consistent with the Objectives and Standards in the Forest's Aquatic Strategy.”

Also, please note our comment #32 above with a suggested addition to the Mineral Management Standard in the Aquatics Strategy.

Response: See response to Comment 42.

Comment 62: We appreciate the inclusion of the Transportation System Objective to identify the minimum transportation system and to construct, manage, and maintain roads and trails (Forest Plan, page 41). As stated previously (comments #28 & 29) we have concerns that funding to address the road/trail maintenance and closure/rehabilitation needs is often insufficient. Without adequate funding for road maintenance and closure/rehabilitation of roads adverse impacts to soil and water resources from roads and trails, especially user-created roads/trails, will continue. We recommend that the Forest Plan identify a need for adequate funding to maintain existing roads to prevent damage to water quality and fisheries, and to close and rehabilitate roads causing resource damages.

We also believe there should be a continuing road inspection, evaluation and maintenance program in place to identify road drainage and BMP needs, including an inspection, evaluation and road maintenance program for closed, but unobliterated, roads (see also comment #63e). We recommend that a Transportation System Objective or Standard be included to assure that the roads system be inventoried and evaluated to identify roads adversely affecting water quality and aquatic habitat, and needed maintenance work to correct the problems. For example,

“Inventory for condition then prioritize, plan, and implement rehabilitation, remediation, relocation, or de-commissioning projects for all roads adversely affecting water quality and aquatic habitat by 2015. Implementation of road maintenance and reconstruction projects will follow identified priorities, based on the availability of funding.”

Response: Addressing funding issues are not a Forest Plan decision. Watershed assessment and site-specific travel management plan are the tool the Forest has identified to evaluate roads and restoration needs. To identify another inventory would only be redundant taking time from actual restoration activities.

Comment 63: We agree with the statement in the draft Forest Plan that adaptive management is the foundation of planning and management (Forest Plan, page 285). We consider monitoring and adaptive management to be an integral part of forest management, since monitoring to identify and understand the impacts of management actions, and feedback of monitoring results to managers, is critical to the success of a land management plan.

It is only through monitoring of actual effects that occur that the BDNF will be able to determine whether: 1) goals and objectives are being met; 2) assumptions and indicators used in developing and implementing the plan are valid; and 3) estimates or predictions made in the analysis, including cumulative effects, are accurate; and 4) if mitigation is effective or should be increased or decreased or otherwise adjusted to be meet project goals and objectives. A properly designed monitoring plan will also quantify how well the preferred alternative resolves the issues and concerns identified during scoping, and provides the data to improve predictive methodology and modify mitigation.

We are pleased that the draft Forest Plan includes Chapter 4 addressing monitoring and evaluation, with Table 5 summarizing monitoring activities for evaluation of aquatic and terrestrial health, recreation opportunities, fire protection, timber production, socio-/economics, emerging issues, National Historic Preservation Act, and NFMA compliance.

We have particular interest in the role of monitoring and adaptive management in watershed protection and restoration, since the success of watershed restoration is dependent on monitoring programs that measure and evaluate progress toward achievement of watershed restoration goals. The ICB Strategy notes that monitoring and adaptive management is an important element in maintaining and restoring the health of watersheds, riparian, and aquatic resources, and are key to achieving the short and long-term intent of the Strategy. The Strategy says a continuing process of planning, implementing, monitoring, evaluating, and incorporating new knowledge into management strategies for adjustment purposes should be used, and that revised management plans need to be compatible with the monitoring procedures and efforts identified by the Interagency Implementation Team (IIT) Biological Opinion efforts, ongoing efforts of the Northwest Power Planning Council, and State water quality efforts.

We appreciate the inclusion of aquatic health monitoring and indicators in the Forest Plan monitoring table (Forest Plan, Table 5, page 288), including status and trend monitoring using Regional Aquatic Protocols, completion of watershed plans, stream and riparian transects at 5 year intervals, annual BMP review of two projects, and mayfly sampling on integrated stream reaches at the lower end of 6th code HUCs. Although we have a few comments on these aquatic monitoring elements as follows:

a) We believe there should be review of all projects to assure that BMPs are implemented and effective, rather than review of only two projects per year for BMP implementation and effectiveness. The achievement of Water Quality Standards for nonpoint source pollution generating activities occurs through the implementation of BMPs, and although

BMPs are designed to protect water quality, they need to be monitored to verify their effectiveness. If found ineffective, the BMPs need to be revised, and impacts mitigated. It is through the iterative process of developing and implementing BMPs and mitigation measures, and monitoring effectiveness of BMPs and mitigation measures, with adjustment of measures where necessary, that Water Quality Standards for support of beneficial uses are achieved.

b) While we are pleased that monitoring of the distribution and abundance in populations of the mayfly (*Drunella doddsi*) is proposed a water quality indicator, and we agree that the mayfly is generally a sensitive indicator organism, we note that use of a single macroinvertebrate species may not adequately assess all potential impacts upon water quality or overall beneficial uses or aquatic ecosystem integrity. A concern with relying on a single organism as an overall indicator of water quality is that there may be other environmental factors that can affect distribution of that organism, that may complicate conclusions about the "health" of a particular waterbody. We are pleased that Table 5 indicates that mayfly distribution and population will be correlated to temperature, which is an important environmental factor affecting stream biota, but still caution that assumptions on the health of a stream based on monitoring of one species may cause those streams where that species is naturally lower in abundance to be labeled as unhealthy when that may not be the case.

We continue to recommend use of a suite of metrics (e.g., a biological index), or some type of predictive model, instead of relying on a single indicator organism. For example, the BDNF may want to consider using the Montana DEQ's mountain metrics or Leska Fore's metrics (see <http://www.seanet.com/~leska/>). We made this suggestion earlier, and it was not followed, perhaps, due to funding or resource considerations, however, we still want to express caution about limitations on use of a single indicator organism, and we continue to recommend use of a suite of biological metrics over use of a single species as an indicator organism. Although we support use of a single biological indicator over use of no biological indicator at all. We acknowledge and appreciate the BDNF's intent to use a biological indicator to evaluate aquatic health.

c) We believe the Forest Service should make a strong, explicit commitment to funding monitoring activities, especially watershed/water quality monitoring, such as that in the Forest Service Pacific Northwest Region's Forest Monitoring and Evaluation Guide in which the Regional Forester stated,

"All programs and projects should contain appropriate levels of monitoring funds in their costs - or they should not be undertaken." (USDA FS 1993).

EPA supports linking the approval of projects tiered to the Forest Plan to availability of funding for conducting needed monitoring and evaluation. The Forest Plan indicates that the amount of monitoring and data collection is constrained by budgets, and discusses prioritization of monitoring activities, identifying "drivers" for determining priorities. We believe the presence of 269 impaired 303(d) listed streams on the BDNF should be included among the "drivers" for monitoring of aquatic health. The presence of so many streams out of compliance with Clean Water Act goals should be an important driver for assuring that watershed and water quality restoration is prioritized, and that monitoring is carried out to evaluate the success of restoration efforts.

d) We also believe the final Forest Plan and EIS should discuss how future budget decisions may affect monitoring and evaluation if financial commitments and operating budgets for monitoring and evaluation programs are reduced.

e) Since road conditions and travel management have such an important influence on watershed and water quality conditions, we suggest that a monitoring element be added under Aquatic Health to require monitoring and evaluation of road conditions in regard to road drainage, erosion, sediment transport and aquatic impacts, so as prioritize road BMP implementation and maintenance needs, and allow focusing of limited road maintenance funding upon the greatest needs (see also comment #62).

Response: We recognize that road conditions and travel management influence water quality and have incorporated several monitoring measures in the Revised Forest Plan, Chapter 4, to respond to this concern directly and indirectly. Monitoring of random response reaches across the forest (in a project with Rocky Mountain Research Station) will answer the question of whether watershed health is improving or not. Sample points strategically located in key restoration watersheds will address whether restoration activities (which will likely include road maintenance, travel management, or road obliteration) have resulted in improved conditions. Annual review of forest projects will answer the question whether BMPs (to prevent erosion, sediment transport, and aquatic impacts for example) are being implemented and are effective.

Your point of focusing limited budgets on the greatest need is a good one. The restoration key watersheds concept (included in Alternatives 3, 4, 5 and 6) is designed to focus work, and consequently our limited budget, in priority areas on priority needs. Plan monitoring includes a performance element to measure whether that is actually happening.

Comment 64: We also believe information should be provided in Forest Plan Chapter 4 on how the public can receive information on monitoring results (e.g., identification of monitoring contact person or persons).

Response: We maintain a monitoring page on the forest website which directs the public to the documents available for distribution and provides contact information.

Comment 65: We did not see much discussion of monitoring and adaptive management in the DEIS associated with the draft Forest Plan. We believe the DEIS should include some discussion of monitoring and adaptive management in regard to adequacy of the proposed monitoring and evaluation program to identify environmental impacts that may occur during the planning period, particularly cumulative impacts and environmental trends and status. Identification of impacts that occur is needed to adapt management or otherwise assure effective mitigation and environmental and resource protection.

Response: We agree that monitoring is an important element, in fact the key element, in adaptive management. Based on this comment, we have added information to the introduction of Chapter 4 in the Plan to better describe how the BDNF will adapt to the evaluation of monitoring data. We have also modified some monitoring elements to better articulate the questions of concern. Monitoring questions and performance measures are designed to detect those critical impacts that may occur during the planning period, particularly changes in trend or status that do not meet our goals or desired conditions

Monitoring is not discussed separately in the Environmental Impact Statement, however, because it creates no environmental effects in and of itself. Environmental effects are created by

management actions or lack of actions, not monitoring. Monitoring provides us a feedback loop on whether goals, objectives and standards designed to assure resource protection are in fact doing so. That feedback leads us to a decision about further action, which may or may not be amending the Forest Plan.

Comment 66: Executive Order 13175, “Consultation and Coordination With Indian Tribal Governments,” was issued on November 6, 2000 to assure meaningful consultation and collaboration with tribal officials in the development of Federal policies with tribal implications, and to strengthen U.S. government-to-government relationships with Indian tribes. We are pleased that the BDNF maintains coordination and consultation with the Shoshone-Bannock and Confederated Salish-Kootenai Tribes in accordance with the Forest’s required mandates (DEIS, page 425); and that traditional cultural properties were identified in consultation with the affected Tribes; and management Objectives were designed to protect large scale sites (DEIS, page 441) so that all alternatives positively address American Indian rights and interests (DEIS, page 450).

Response: We thank EPA for their support of the Revised Forest Plans direction concerning Tribal Governments.

Comment 67: The narrative at the end of the 4th paragraph on DEIS page 154 refers to Figure 17 on the next page, however, the figure on the next page is Figure 50. This should be corrected.

Response: We thank EPA for pointing out this discrepancy. The FEIS has been updated to correct these types of discrepancies.

Comment 68: There appears to be a typographical error in Table 58 (DEIS, page 190) where 27 fish conservation watershed are shown for Alternative 3 instead of 57 fish conservation watersheds.

Response: We thank EPA for pointing out this discrepancy. The FEIS has been updated to correct these types of discrepancies.

Comment 69: Table 100 (DEIS page 333) shows that there are currently 172,720 acres of recommended wilderness, yet in other areas of the DEIS the no action alternative is reported to include 174,000 acres of recommended wilderness (DEIS, pages 22, 31, 307).

Response: We thank EPA for pointing out this discrepancy. The FEIS has been updated to correct these types of discrepancies.

Montana Fish, Wildlife & Parks, Regions 2 & 3

Comment 1: We have reviewed the Draft Environmental Impact Statement (DEIS) and Draft Forest Plan (DFP) for the Beaverhead-Deerlodge National Forest. We appreciate the opportunity to comment on this plan as well as our earlier opportunity to provide preliminary scoping comments. We consider our earlier scoping concerns still valid and request that you review and consider them along with our following comments on your final Draft. Some of our response will reference your letter of August 11, 2005 where you address some of our earlier scoping concerns and comments. While the Draft documents included a glossary of terms, we suggest you provide a quick guide to acronym terms as well. Additionally, an index to the roadless area maps in Appendix C (Vol. 2 of the DEIS)

would have been helpful. As always, we appreciate your continued commitment to involve our field staff on all future project proposals that could potentially impact the fish, wildlife and recreational resources MFWP is responsible for managing.

Response: The additions of an acronym section, as well as index to the roadless area maps have been incorporated into the Final FEIS and Final Plan.

MANAGEMENT INDICATOR SPECIES (MIS)

Comment 2: The selection of the wolverine as the only mammalian Management Indicator Species continues to be a serious concern. Wolverines are a low-density species, which are difficult to detect and primarily use landscapes that are not actively managed by the Forest Service. There is no proven monitoring tool for wolverine, it is unclear how they will respond to management activities and it will be extremely difficult to accurately detect changes in populations. (Extraordinary effort will be needed to make any statistically valid conclusions at a landscape scale- see Bill Zielinski's research on fisher in California for an idea of the effort needed to detect population changes with a rare forest carnivore). Using wolverine as an MIS has the potential to halt many actions and activities across the Forest for lack of site-specific data. Fish, Wildlife and Parks' ability to conduct furbearer surveys is limited to a few snowmobile routes annually. Some of these routes are in areas that are marginal wolverine habitat; some could construe the absence of wolverines on these routes as a problem. Further, wolverines travel over extensive areas and are not detected some years in the best of habitat. A recent court ruling has reemphasized the importance of using "actual, quantitative population data" for MIS monitoring as reflected in the 9th Circuit's decision on the Fishlake National Forest logging project in Utah.

While we have specific concerns over the use of the wolverine for MIS, we do applaud the commitment to monitor the mayfly, *Drunella doddsi* forestwide. We further suggest the addition of the large native freshwater clam to the aquatic monitoring program for all of the reasons noted in our prior comments on the Proposed Action.

Our initial recommendation (during scoping) to include other wildlife such as elk and Westslope Cutthroat Trout (WCT) as MIS, was based on their abundance and importance. There is good long-term monitoring data available on their populations and we know something about how they respond to land management activities. We acknowledge your explanation (scoping letter response) as to why you do not consider these other species appropriate for MIS. However, we continue to question if the MIS concept can be considered valid if you are intending to use only the wolverine and the mayfly. In subsequent discussions with you on this subject, we are encouraged by your assurance that the other species will be taken into account during the analysis of site-specific projects. This assurance is critical for our field staff to continue to make meaningful input during the development and implementation of these projects so that we don't lose the ability to protect fish, wildlife and habitat resources on a site-specific basis (regardless if particular species are or are not designated as MIS).

There is almost no discussion of monitoring, standards or goals for nongame and big game species. The Forest Service under the National Forest Management Act has an obligation to manage federal lands for a variety of species, but there is only cursory attention to non-Threatened and Endangered wildlife in the Draft Forest Plan.

Regardless of your final decision on the use of MIS, we strongly support your commitment to monitoring as noted in the Draft Forest Plan. Monitoring and evaluation within an adaptive management context can be used to guide all realms of management. Clear standards, guidelines and objectives are needed so that management actions can be tied to direction from the Forest Plan.

Response: The Code of Federal Regulations (36 CFR 219.19 (a)(1)) instructs that “certain vertebrate and/or invertebrate species present in the area shall be identified and selected as management indicator species and the reasons for their selection will be stated. These species shall be selected because their population changes are believed to indicate the effects of management activities.” All species, which were identified as MIS candidates through public comment, were evaluated in accordance with this reference.

We agree that the wolverine occurs at low densities, but research in the Pioneer Mountains and adjacent mountain ranges (Squires et al 2003) and the Gravelly/Madison/Centennial landscapes (Inman et al 2003) has documented wolverines in the Pioneer, Gravelly, Flint, Madison, Centennial, and Anaconda-Pintler ranges.

Squires work has reported male home ranges of 1445 Km² (557 sq mi) and female home ranges of 178 Km² (69 sq mi) while Inman has reported female wolverine home ranges at 754 Km² (291 sq mi) and male home ranges of 910 Km² (351 sq mi). These large home ranges suggest that wolverines are widely distributed albeit at acknowledged low densities. RMRS and BDNF personnel are currently conducting winter (2005-2006) surveys in the Lima-Tendoy/Bitterroot ranges per research station methods. This additional work has documented occurrence of this species in previously unsurveyed areas. We expect additional presence of wolverines in the Tobacco Root and Highlands mountains as this survey work expands. The winter survey method will be included in the forest monitoring plan.

The wolverine was selected to help determine if snowmobile use is indeed adverse to natal denning habitat. The species is an R1 sensitive species and has been previously petitioned for listing (1995, 2000) under the Endangered Species act. There are conflicting reports of the adverse effect of winter recreation on female denning habitat. Despite the conflicts, the BDNF modeled denning habitat based on criteria in Heinemeyer et al (2001) from the Targhee NF to identify areas that would be closed to snowmobile use to protect vital habitat. Monitoring will help to determine if there is indeed a cause/effect relationship to snowmobile use.

During the interdisciplinary team process, mechanized winter recreation was identified as the single activity that can occur across virtually the entire forest with the exception of designated wilderness. Cross-country wheeled motorized activity has been prohibited since July 1, 2001, vegetation management including timber harvest is limited at the forest scale, virtually all elk management units have reached or exceeded State population objectives under existing roads management, the State is trying to reduce elk and some deer numbers through management of hunting pressure, and the BDNF inventoried roadless areas encompass approximately 55% of the landbase. At the forest scale snowmobile use is the predominant activity that can occur that is subject to management.

All parties must be cognizant; however, that fur trapping may quite likely be the most detrimental factor and could markedly confound any potential determinations of the effect of snowmobile use. The large home ranges and low densities leave open the distinct possibility of

entire mountain ranges being depopulated by even low levels of trapping. This activity is outside the management control of the Forest Service.

Based on this and other comments, elk and mountain goats were added to the MIS list in Alternative 6.

LIVESTOCK GRAZING

Comment 3: While we support the implementation of your stated grazing standards on livestock allotments, we continue to encourage the use of grazing systems (i.e. rest-rotation) that emphasize rotational livestock movements and rest pastures that take into consideration the long-term health and vigor of the vegetation. Our staff is more than willing to work with your range personnel and permittees in the planning and implementation of such systems.

Response: The actual grazing system selected for a grazing allotment is part of the site-specific allotment management plan (AMP). The Forest plan will not change the current rest-rotation systems. The Forest will continue to work closely with FWP's in planning and implementing the livestock grazing program.

TIMBER

Comment 4: Timber Standards, #5, page 34 of the DFP - In the discussion of Timber Standards you need to define what “adequately restocked” means. It’s hard to understand what this really means without this definition.

Response: The definition of “adequately restocked or stocked” has been added to the glossary.

Comment 5: Gravelly suitable timber exclusions, #12, page 36, DFP - The Gravellys are apparently excluded from the suitable timber base. This action is favorable due to the inherent lack of security cover in the area as well as the high inherent wildlife and aesthetic values of the area. We strongly support this proposal.

Response: The Gravellys have been excluded from lands suitable for timber production in Alternative 6. However, the Gravellys are available for timber harvest. The differences between these two have been clarified in the Final EIS and Final Plan. The Forest acknowledges your support for no suitable timberlands in the Gravelly Landscape.

Comment 6: Timber Management, page 33, Table 2, Vol. 1, DEIS - Though the amount of suitable acres varies between alternatives, the output of 9 mmbf remains the same among alternatives 1, 2 & 5. This table can be somewhat misleading in that although the suitable acres for alt 5 is less than that of alt 1, the harvest is the same. This basically means a much higher harvest rate on fewer available acres. We are concerned about how prescriptions might change to create this higher per acre output. We assume the “estimated output” is, in fact, an estimate and not a “target.”

Response: You are correct; outputs are only estimates and not targets. There has been confusion concerning why the output is similar between alternatives, although the acres of suitable base may change significantly. The reason the output stays the same is because outputs are largely controlled by budget, not by acres of suitable base. This has been better explained in the Final EIS, Chapter III, under the heading of Suitable Timber.

Comment 7: Fuels Management, page 33, Vol. 1, DEIS - Alternatives 3-5 list plans to reduce condition class 2 & 3 timber by 70,000 – 105,000 acres. While we recognize the concerns regarding fuel reduction, we are hopeful this does not pre-empt FWP’s ability to recommend protection for key coniferous growth habitats for wildlife when they are identified during individual project reviews.

Response: The Forest will continue to work closely with FWP in the development and implementation of any fuels or vegetative projects.

WILDLIFE

Comment 8: Winter Range, pages 104 & 106, Vol. 1, DEIS - The Draft EIS implies that the Beaverhead-Deerlodge provides primarily “spring calving, summer range, and fall ranges” and that the majority of winter range for elk is privately owned.

Spring calving, summer range, and fall ranges occur primarily on this Forest. (page 104).

Winter range carrying capacity on the national forest is not as high as the majority of the winter range is in private ownership. (page 106)

Response: This has been clarified in the Final EIS, using the latest mapping provided by Montana FWP. See Chapter III, under the heading Wildlife in the Final EIS.

Comment 9: The document should be changed to reflect that the National Forest provides critical winter range in most Elk Management Units and winter range is a complex pattern of both private and public lands wherever elk occur. Over the years we have spent countless hours mapping winter ranges; perhaps these resources need to be reviewed between the biologists of our respective agencies. Our field biologists are more than willing to help in this endeavor.

Response: As noted above, the BDNF has worked with Montana Fish, Wildlife & Parks to provide a better portrayal of elk winter ranges.

Comment 10: Wildlife Objectives, page 8, DFP - An objective must be measurable and achievable. The first objective (listed below) described for wildlife is too general; there is no way to measure progress toward this objective:

Wildlife Habitat: Manage vegetation for a diversity of vegetation and habitat types to meet wildlife needs.

Response: Diversity of habitat is crucial towards maintaining a broad range of wildlife that can persist on the forest. As noted in the vegetation section, there is a pronounced bulge (Table 4) in mid-seral age classes for all the major conifer types. More importantly lodgepole pine is modeled as occupying 3-7 times the historic proportion of forest. This is paralleled by a 12-17 fold reduction in quaking aspen. The primary BDNF vegetation management objective will be to produce an increasing trend in aspen and a reducing trend in lodgepole. Diversity in habitat types and seral stages is expected to produce a more resilient landscape that can support a diversity of wildlife.

As noted in Samson (2006), Gallant et al. (2003: 385) in the Greater Yellowstone Ecosystem found “ the primary forest dynamic in the study area is not the fragmentation of conifer forest by logging, but the transition from a fire-driven mosaic of grassland, shrub land, broadleaf forest, and mixed forest communities to a conifer-dominated landscape.” Area of conifer-dominated

landscapes increased from 15% of the study area in the mid 1850's to 50% in the mid 1950's. Moreover, "substantial acreage previously occupied by a variety of age classes has given way to extensive tracts of mature forest" in the Greater Yellowstone Ecosystem.

Samson (2006) further notes "intermediate but neither young or old forest structure are abundant and well-distributed; and increased connectivity of the forests is placing mature and late seral forest at risk. This is because areas such as old growth now no longer persist in fire-protected refugia but are embedded in a well-connected matrix of intermediate-aged forest that permits the rapid spread of fire and insect outbreaks with a spatial-temporal pattern unlike the historic landscape."

In summary, this objective was not well stated and has been restated to better meet the criteria of an objective.

Comment 11: Specific Wildlife Habitat Objectives, page 8, DFP - You reference the Vegetative Section under the Wildlife Habitat section. However, it would be helpful to list specific wildlife habitat objectives. There are no standards provided for this objective or even guiding concepts such as those listed as bullet points under Linkages, or Sensitive Species, or Federally Listed Species. It is unclear as to whether there is any "force of law" attached to the bulleted point or whether they are merely suggestions that may or may not be followed.

Response: Wildlife references vegetation because the habitat is what the Forest Service manages. Montana Fish Wildlife and Parks manage populations and have developed objectives related to wildlife populations. This comment did not suggest any specific objectives for wildlife outside of vegetation or habitat and we were unable to identify additional objectives.

The bullet points are there to identify that there are other management direction that needs to be referenced. They are not part of the Forest Plan. This has been clarified in the Final Forest Plan.

Comment 12: Format for Objectives, pages 8-11, DFP - The format changes between different Objectives from Standards (as are provided for Grizzly Bear Conflicts) to bulleted points listed for other Objectives. Many of the bullet points are not action items and it is not clear how these points will be applied.

Response: The "bulleted points" serve to highlight existing tools and approaches that are available to manage for linkages, Forest Service sensitive, and Federally listed species. The points are not meant to be all inclusive. Sensitive and federally listed species are subject to changing direction depending on updated scientific information and changes in listing classifications. Forest Service policy clearly directs that sensitive species warrant special management consideration. A biological evaluation (BE) of the preferred alternative will be done for all Northern Region sensitive species that occur on the forest. Preparation of BEs for all NEPA documents is Forest Service policy.

All projects require an evaluation of the effects on federally listed species (Biological Assessment-BA). Depending on the determinations of effects there may be no consultation with the US Fish & Wildlife Service, informal consultation with the Service and written concurrence on may affect but not likely to adversely affect, and formal consultation on likely to adversely affect listed species. Formal consultation will result in a biological opinion (BO) from the Service which can include terms and conditions and incidental take statements. Development of a BA is part and parcel of the Forest Service NEPA process.

The use of bullet statements has been clarified in the Final Forest Plan.

Comment 13: Elk Security, page 10, DFP - Open road density will provide an effective way to evaluate habitat security for big game. Road density is one of the few variables on the landscape that our respective agencies can effectively manage to produce desired outcomes for wildlife. As we have pointed out in previous correspondence, planning for motorized use will be the cornerstone of any responsible land management. Unless designated route travel plan implementation is taken seriously, and actual motorized route densities are less than 1.5 miles per square mile, meeting wildlife objectives will be difficult. We recommend the Forest work in conjunction with MFWP and the MFWP Elk Management Plan on issues of elk security. We support and recommend open road densities that are 1 ½ miles or less per square mile as a key component of elk security. We recognize that road closures would be required (as opposed to just not allowing any more new roads) in certain locations to reach this objective.

Response: Thank you for your support of the open road density approach. Table 1 under elk security displays that only 2 of the 29 hunting districts that encompass portions of the forest have Fall open road density objectives over 1.5 miles/sq mi. Eight hunting districts have a road density objective of 1.0 to 1.5 miles/sq mi. The remaining 19 hunting districts have open road density objectives of 1 mi/sq mi or less. The 2 units that have been proposed for open road and trail densities greater than 1.5 miles per square miles have been reviewed.

Comment 14: Herd Units vs. Hunting Districts in evaluation of security timber needs, scoping letter - In your response to our scoping comments regarding security areas and the use of herd units rather than hunting districts, you indicated a willingness to explore this issue further with us. We would be willing to have our field biologists meet with you to discuss this issue if a resolution is needed before the final Plan is adopted. FWP will continue to evaluate individual projects within the context of their potential impacts to local habitat, as the hunting district scale is too large to detect changes that could be important.

The draft Plan indicates that it is an adaptive management document, but targets “no net increase” in road density in areas that already exceed the proposed forest plan standard of 2 miles of motorized road/trail per square mile, rather than targeting a reduction down to the 2-mile standard. This approach doesn’t appear to be adaptive (note below).

Elk Security Standard 1: (page 10, DFP) Units that exceed the open motorized road/trail objective will have no net increase in open motorized roads and trails. (Scale: Hunting Unit District)

Wildlife Secure Areas and Connectivity: Provide secure areas for ungulates, large carnivores, and connectivity, while recognizing the variety of recreational opportunities. Manage open motorized roads/trails density by landscape to achieve levels at or below the following: Standard 1: Landscapes that exceed the open motorized road/trail objective will have no net increase in open motorized roads and trails.

Response: As per our agencies meeting in Butte on February 2, 2006, we have mutually agreed the hunting district scale encompassing national forest lands is appropriate.

The Forest has clarified, in the Final Forest Plan, that open road density objectives constitute a ceiling. Since it is an objective it reflects the Forest desire to achieve the result in the next 10 to

15 years. The standard provides the minimum requirement so the Forest does not move away from achieving the objective. This objective will mainly be achieved through site-specific travel planning and not individual projects.

For those hunting districts that have road densities below objectives, the expectation is that additional roading up to the objective ceiling can occur. Any projects that may exceed road density objectives will require the closure of roads to remain at or below the objective ceiling. Specific road closures will be determined by project specific NEPA. We expect that Forest service and State biologists will continue to work closely at the project level to evaluate specific impacts.

Secure areas are defined as >10 acres and > 1/3 mile from an open motorized road or trail. This definition is based on the secure habitat definition for grizzly bears from the Final Conservation Strategy for the Grizzly Bear in the Yellowstone Ecosystem (2003). We consider secure habitat for grizzly bears as providing for wildlife security and connectivity. Figures 43 & 48 of the DEIS graphically display the location of secure areas for summer and fall respectively. Table 34 shows that 23 of the 29 hunting districts lands on the BDNF exceed 50% secure habitat. The remaining 6 range from 33% to 47% secure habitat. We believe the synergy of low open road densities and secure habitat provide for a high degree of permeability for large wildlife movement across the BDNF.

Figures 43 & 48 display there can be less resistance to movement along the western edge of the forest due to the absence of interstate highways, other road impediments, and private land developments. There is contiguous forest ownership (Targhee NF) bordering BLM lands along the Centennial Mountains and BDNF borders with the Targhee to the south; Salmon-Challis, Bitterroot, and Lolo to the west, and Targhee-BDNF (Lee Metcalf Wilderness)-Gallatin NF to the east. Permeability to wildlife along a Gravelly-Tobacco Roots-Boulder River axis to the Helena NF is much more problematic to the large areas in between that are in private ownership and transected by Interstate highways 90 & 15.

Comment 15: Winter range in Perkin's Gulch, Baggs Creek and Racetrack Creek – these areas should be given a winter non-motorized designation.

Response: The Forest acknowledges FWP interest to have these areas allocated as winter non-motorized. Alternative 6 identified Racetrack Creek as winter non-motorized, but does not carry that allocation for Perkin's Gulch or Baggs Creek.

Comment 16: Road densities in the Clarkfork and Rock Creek Landscapes - A maximum of 1 mile of open road per square mile should be the objective in the Clarkfork, Upper Clarkfork and Upper Rock Creek landscapes. Existing road densities within Upper Rock Creek are below .5 mile per square mile and should be maintained.

Response: The current road density of the Upper Rock Creek landscape is approximately 0.9 miles per square mile. The motorized density objectives referred to in the revised forest plan include both motorized roads and trails. This is a more stringent object than just measuring roads. Alternative 3 recommended a summer road/trail density of 0.9 miles per square mile. The current open motorized road/trail density for Clark Fork, Upper Clark Fork and Upper Rock Creek landscapes are 1.8, 2.0, and 0.9 respectively. The objectives for these areas under Alternative 6 are 1.9, 2.0, and 0.9 respectively. To get Clark Fork and Upper Clark Fork to 1.0 miles per square mile would require the closure of approximately 690 miles of currently used

motorized roads and trails. This would be a 36% reduction of the current system. With the amount of intermingled private lands, mining claims, and access to important destinations, obtaining an objective of 1.0 miles per square mile would greatly impact the public.

To address elk habitat during hunting season, open motorized road/trail densities were reduced during the big game hunting season. In order to maintain consistency with FWP hunting units (HU), the road density objectives were tied to HUs in the plan. The Clark Fork/Flints and Upper Clark Fork included hunting units 210, 212, 213, 215, 340, and 341. Fall open motorized road/trail density objectives are 0.9, 1.4, 1.4, 1.5, 1.4, and 0.5 respectively. The Clark Fork and Upper Clark Fork landscapes have been heavily impacted by past mining and timber harvest activities. These open road/trail density objectives are an improvement over the existing condition. See Final EIS, Chapter 3, under the heading of Wildlife Habitat Management for the effects of the alternatives

Upper Rock Creek encompasses HUs 211 and 216. Fall open road/trail density objectives are 0.5 and 0.8 respectively. These open road/trail densities provide 73% and 63% secure habitat. We believe this to be compatible for providing wildlife movement and for reducing roads impacts to fisheries.

Comment 17: Road densities in hunting districts 212, 213, 214 & 215 - Big-game security is of particular concern in hunting districts 212, 213, 214 and 215. These districts have high road densities and large numbers of hunters. Reduction of open roads during hunting season would benefit big game. In the Flint Foothill and Uplands Niches the large number of open roads are making it difficult for FWP to meet its elk population objectives.

Response: We agree high road densities can be detrimental to hunted big game species. Fall road density objectives for HDs 212, 213, 214, & 215 are 1.4, 1.4, 1.6, and 1.5. These objectives are ceilings and constitute less motorized road and trail density than the current condition. Consequently, we expect an improvement even with timber production on suitable timberlands and motorized recreation.

Comment 18: Definition of “secure areas,” Glossary, DFP – In the definition of “Secure Areas”, as found in the glossary of the DFP, it states these areas are 1/3 of a mile from a road and larger than 10 acres. We feel this definition provides for greater management options to protect important wildlife habitats, especially in lightly forested areas such as the Gravelly Range and Tobacco Roots. Actual security should be assessed by considering surrounding conditions related to adjacent cover and road densities.

Response: We agree this definition provides more flexibility. We also expect that FWP and BDNF biologists will continue their collaboration on site-specific NEPA projects.

Comment 19: Elk Security, HD 318 emphasis, page 10, DFP- The Elk Security Objective states: “Provide elk security during the general rifle season, provide a variety of recreational opportunities, and provide support for Montana’s fair chase emphasis.” The objective goes on to define a road density level for hunting district 318 that is unacceptable at 2 miles of road per square mile of land. In case of hunting district 318, user created routes and other existing routes results in a road density in excess of 2 miles/square mile in much of the Boulder River Landscape. On a Landscape where hunting seasons constitutes most of the “use”, managing elk habitat at a road density of 2 miles/square mile of land is not in the best interest of the elk population resource. The 2005 Montana Elk Management

Plan for Hunting District 318 states, “Off-road motorized travel has resulted in pioneering of travel routes and thus reduced habitat security and habitat effectiveness... 96% of elk habitat occurs within one mile of lands that are open to motorized travel.” The Elk Plan indicates that the elk population has declined in the Deerlodge Elk Management Unit (HDs 318, 215 and 335) by 10% since 1996.

Response: We agree HD 318 has been impacted by past motorized recreation, mining, and other management activities. Table 34 of the EIS and table 1 of the plan display per cent secure habitat (32%) and road density objectives (1.8) respectively. The motorized road and trail density objective is indeed less than the current condition. Consequently, we expect an improvement in wildlife security. The Whitetail, Bull Mountains, Little Boulder and Little Boulder/Galena Gulch niches will have extensive areas of both winter & summer non-motorized allocations which should provide for increased security. We acknowledge that the Elk Plan has identified population declines in the area. We expect that reductions in motorized road and trail density to 1.8 mi/sq mi can contribute to maintaining healthy elk populations in the area.

Comment 20: Thermal cover? - No mention is made of thermal cover in the entire Forest Plan. Thermal cover is extremely important to keep big-game cool in the summer and warm in the winter and should be addressed. (Note the results of lab research on the Starkey experiment station are not pertinent to elk in wild environments).

Response: During the interdisciplinary process, the decision was made to focus on road densities as the most effective measure, forestwide, to manage for wildlife security. Christensen et al (1993) discusses road management as the most significant consideration on elk summer range. Forested vegetation management on the BDNF does not play an important role in managing thermal cover at the forest scale. Estimated suitable timberland under the preferred alternative amounts to 299,000 acres available for growth and yield management (Table xx). Another 1,614,000 acres of forested land is potentially available for harvest to meet other resource objectives. In 1987 the acres of combined even-aged and uneven-aged harvest peaked at a total of approximately 6000 acres (Figure 67). This declined to a combined total of approximately 1000 acres in 2002. At 2002 levels it would take 974 years to impact all the forested acres available for timber harvest. BDNF vegetation management will have nowhere near the impact on thermal cover that fire, insects, and disease will have. Despite this we expect to maintain the FWP and Forest Service biologist collaborations that occur at the site-specific NEPA project level. Specific concerns regarding local thermal cover needs can be addressed at the project level.

Comment 21: MFWP Elk Plan Objectives, scoping letter - In your response to our earlier scoping letter, you indicate you found MFWP Elk Plan objectives related to timber management to be unattainable for some areas. We would appreciate a clarification on this.

Response: As FWP has noted we view attainment of elk management objectives to be problematic for those HDs north of Butte. This includes HDs 215 & 318 with 29% and 32% secure habitat respectively (Table 34).

Comment 22: Bears and food storage, page 9, DFP - The summer of 2005 was an extremely challenging year for black bear problems in the Big Hole and Dillon areas. FWP employees spent hundreds of hours dealing with human-food habituated bears in these areas. With the recent poaching of a grizzly bear on the Mount Haggin WMA, south of

Anaconda, we should collectively consider how we are going to address garbage disposal and food storage on all the Forest as well as BLM and FWP properties. It is quite likely that grizzly bear range will expand significantly during the life of the plan and food storage orders will become the norm across the forest and other jurisdictions. It is also time to start rigorously enforcing what camp cleanliness and food storage orders we have on the books. We encourage a multi-agency approach that considers both black and grizzly bears.

Response: We agree garbage disposal and food storage issues are likely to increase. The BDNF food storage order currently encompasses the entirety of the Madison, Gravelly, and Tobacco Root ranges. As grizzly bear range expands, we expect to expand food storage controls. This will be coordinated with the State. The Forest also agrees a multi-agency approach should be considered which includes both black bears and grizzly bears. This would be accomplished as part of implementation. This would not be a forest plan decision. Special orders can be issued by the Forest Supervisor without a plan amendment.

Comment 23: Stipulations, page 39, DFP - Where are the standards for the Deerlodge Unit? Only the Beaverhead Unit is mentioned.

Response: The existing oil and gas leasing decisions are being brought forward in the revision process. New oil and gas leasing decisions are not being for the Deerlodge unit of the B-D.

Comment 24: Surface Occupancy, page 40, DFP - We continue to recommend no surface occupancy for mineral development and time limitations for associated exploration and off-site activity. It appears there were no changes indicated for the Oil and Gas standards from those listed in previous scoping documents.

Response: A blanket standard of no surface occupancy (NSO) would preclude development of oil and gas on the Forest, contrary to national policy. NSO and other stipulations are used to protect identified resources.

Comment 25: Adaptive approach, grazing, page 32, DFP - Please define “adaptive approach” as used in Allotment Management Plans.

Response: Adaptive approach or adaptive management has been added to the glossary for the Final EIS and Final Plan.

Comment 26: Management Plans, page 32, DFP -. Do all allotments have management plans? Are the objectives for allotments presently with management plans being met? Is this information available for individual allotments?

Response: Most allotments have management plans. Compliance with those plans varies. The information is available for specific allotments.

VEGETATION

Comment 27: Model for “historic condition.” - We agree that the use of historic condition is the baseline for evaluating existing ecological condition. We also think that in certain areas there are other resource considerations, such as wildlife, that should drive specific vegetation management decisions.

Response: The Forest agrees.

Comment 28: Aspen, browse, page 7, DFP - Ambitious aspen restoration goals are identified in the plan. These goals are laudable but will be difficult to obtain without large-

scale timber harvest and/or landscape level burning. FWP will hopefully be able to provide a sustained window for aspen regeneration if we are successful in reducing elk populations. Please recognize that the aspen restoration targets of 13,340 to 66,700 acres will involve many failures, for a variety of reasons, and that this acreage is very small in the context of the total forest acreage. FWP, in cooperation with USGS, has developed techniques to quantify browsing effects on deciduous species and is ready and willing to assist the Forest Service in evaluating wildlife browsing impacts. At the same time we need to be careful about “blaming” a moose or elk for impacting browse species that are already declining from natural succession and fire suppression over the last century. Moose are particularly adept at surviving in a climax environment and exploding in population growth in early seral environments. FWP attempts to manage moose populations to address habitat condition.

Response: The Forest agrees and also looks forward to working with FWP to achieve the aspen objective.

Comment 29: Forested Vegetation Objective (page 7 in DFP) - erroneously references “wildlife population structure” – a likely typographical error.

Response: Thank you for pointing this out, it has been corrected.

Comment 30: Sagebrush & Unique Habitats, page 8, DFP - Sagebrush is not listed as a Unique Habitat but perhaps should be.

Response: We consider the sagebrush/grasslands to be one of our major habitats rather than a unique habitat as defined in the glossary of the FEIS ie: Unique Habitat- “Areas usually small in size that provide life requirements of plant or animal species that are not met on the general landscape.” As such we intend to manage sagebrush/grasslands as a major type rather than a unique habitat.

Comment 31: Sagebrush MOU – The draft Plan does not appear to mention the agreement between FWP and the Forest on the management of Big Sagebrush. This document should be in force and utilized (Memorandum of Understanding, US Dept of Agriculture, Forest Service, Beaverhead/Deerlodge National Forest and State of Montana, Region 3, MFWP).

Response: The BDNF is committed to maintaining its active collaboration between FWP and Forest Service biologists. The MOU is in effect as of its renewal in December 2002. Memoranda of Understanding are not Forest Plan connected as the document clearly states that any of the participants can cancel the agreement following a 60 day notice. No part of the agreement modifies existing agency authorities.

The key direction in the document (VI) is the recognition to “coordinate with each other as well as share a broader vision of how their coordinated actions can contribute to successfully implementing an ecosystem approach to resource management...” The document emphasizes coordination, collaboration and involvement (VIII. A - H). We believe the local Forest Service and FWP biologists are successfully meeting this direction.

Comment 32: Noxious Weeds, page 8, DFP -. Areas where weeds have a “high likelihood of establishment and spread” should be identified. For example, disturbed soils created by roads, logging and mineral extraction are obvious areas where weeds can easily get established and spread.

Response: The identification of these areas is not a forest plan decision, but rather inventories that can be accomplished at any time. The Forest agrees with the example given for an area of “high likelihood”. These areas would be identified during implementation.

Comment 33: Old Growth, page 8, DFP - The following Objective is not clear – 10% of what?

Old-Growth: Maintain at least 10% old-growth, well distributed across the forest by the following types: Douglas fir, Lodgepole pine, Limber pine, Whitebark pine, Englemann spruce, and Sub-alpine fir types.

Response: This objective has been clarified in the Final Forest Plan.

Comment 34: Old Growth by timber type, page 8, DFP - How many classified forest acres occur on the BDNF? How many acres occur in each of the above listed types? Does 10% refer to existing forested units? How can this objective be independently verified? This objective needs to be clearly stated.

Response: The discussion on old growth has been improved to clarify and answer these questions. See Final FEIS, Chapter III, under the heading Vegetation.

Comment 35: Timber treatments, page 7, DFP - Your objectives propose to increase early age classes for all tree species and reduce older age classes. In some specific areas this objective might be weighed against the loss of key habitat security (e.g. relative to wildlife species more dependent on old growth habitats). Forests in old age classes have specific attributes that are not interchangeable with structural stages. The Forest Plan needs to address old growth management more directly. Maintenance of 10% of the Forest in old age classes may not be sufficient to support existing wildlife populations.

Response: The Final EIS has been updated to add a discussion addressing this comment. See Final FEIS, Chapter III, under the heading Vegetation.

Comment 36: Beaver, page 103, Vol. 1, DEIS, page 103, Affected Environment, paragraph 7, sentence 2 - “Many factors contribute to this problem, including lack of beaver”. Also note page 180 (beaver removal). Because of the low pelt prices for the past decade, trappers have not pursued beaver as much as they have historically. With that said, beaver populations have increased in recent times. Where riparian shrub communities have declined it is often an indicator of other problems such as environmental conditions (late frost or disease), shading by conifers and browsing pressure.

Response: Thank you for the comment. The reference at page 103 does not implicate beaver removal as the single causative agent of riparian shrub decline. It also acknowledges other factors such as “increased browsing pressure from moose and livestock, and shading due to fire suppression.” The reference at p180 cites historic beaver trapping as reducing populations that contributed to alterations in stream systems in their absence. Beaver restoration can help stabilize and restore stream systems.

Comment 37: Woody debris standards - The large woody debris standards are too low to provide adequate habitat for small mammals, amphibians and reptiles.

Response: The standard in the Draft Plan was based on the best available science. We believe this standard (which applies to areas being managed) in conjunction with the large amount of existing woody debris, more than adequately provides habitat for the above species.

AQUATICS

Comment 38: The Draft Plan does not relate well to the DAMS document or the Proposed Action document in that some of the issues identified in the prior two documents are not included in the Draft Plan. As an example, the draft “Proposed Action for Forest Plan Revision” included “Beneficial Uses” under its Aquatic Resources Table. While this category does not appear in the current Draft Plan, Table 3, the issue remains pertinent. We suggest that the Plan commit to a thorough review of private irrigation diversions, ditches, and headgates on the Forest to promote proper stream function, fish passage, and high quality aquatic habitat while maintaining traditional beneficial uses. Major revision topics should be cross referenced under different categories where potential management conflict exists, e.g., the role of down woody material.

Response: The Final EIS and Revised Forest Plan have been reviewed and changes made.

Comment 39: Shared responsibilities - In order to maintain clarity and separation of jurisdiction, any statements regarding fish stocking, transplants, reintroductions, or removals should emphasize Forest cooperation with FWP.

Response: This has been clarified in the Final EIS and Final Forest Plan.

Comment 40: Lack of data, reports - All of the documents fail to support conclusions or management directions with existing data files or reports. A commitment to include annual written reports analyzing and interpreting aquatic resources data should be part of the Plan.

Response: The monitoring section of the Revised Forest Plan and Final EIS has been reviewed and changes made.

Comment 41: Fishless waters - We suggest that Aquatic Resources should address and protect the status of fishless lakes and streams. Alpine lakes management should acknowledge the role of stocking, recreational value and the value of maintaining fishless lakes. Fishless stream management should acknowledge maintenance and protection of barriers, habitat integrity, and future potential use for native species introductions.

Response: A discussion on fishless lakes has been added to the Final EIS and Final Forest Plan.

Comment 42: Sensitive species - We suggest that sensitive species accommodate all S1 and S2 classified fish species (Natural Heritage Program, American Fisheries Society, and FWP List) found within the Forest Boundaries.

Response: The sensitive species list and the criteria for selection are determined by the Regional Forester and are defined in a process outside of the Forest Plan.

Comment 43: Roads & stream crossings - We strongly support Forest efforts to analyze the influence of roads on riparian areas and the commitment to better manage stream crossings under a 100 year flood basis.

Response: Thank you for your comment.

Comment 44: Mottled sculpin - We support an inventory and distribution of mottled sculpin as companion to the sensitive species management program on the forest.

Response: Thank you. It is our intention to document mottled sculpin distribution as we continue fisheries inventory on the Forest throughout the life of the plan. We are unable to place the same emphasis on mottled sculpin as we do managing sensitive species because we have legal and regulatory responsibilities that are tied to sensitive species.

Comment 45: Key Watersheds - We strongly support the use of Key Watersheds for management emphasis for water quality and habitats that support native westslope cutthroat trout populations. We do feel strongly that despite the value in the Key Watersheds Concepts, we must emphasize that all watersheds be treated with BMP's or better.

Response: All watersheds, under all alternatives, are treated with BMP's or better.

Comment 46: Aquatics Objectives and Standards, - We strongly support the Draft Objectives and Standards for Aquatics (Bohn and Brammer 2004) as an essential companion to the Plan.

Response: Thank you for your comment.

Comment 47: INFISH - We support application of the INFISH objectives as modified for the B-D National Forest. We suggest that an explanatory statement and appendix be included to explain the various references to the modified INFISH Objectives, e.g., IN 1, IN 2, etc., be included in the Plan. These references would be extremely confusing to the casual reviewer as currently expressed

Response: This has been explained in the Revised Forest Plan.

Comment 48: Stream channels, page 11, DFP - Under Stream channels (In 2), we suggest that the statement be modified to reflect “natural riparian and aquatic ecosystems” rather than those which might have developed in association with irrigation systems, for example. We are unsure of what is referred to as “the ability to route in-channel flows” (In 3). This should be explained and defined.

Response: We added the word natural to this objective, but left desired for those instances where stream modification is desirable, such as fish passage barriers. The “ability to route in-channel flows” was removed because efficient routing of stream flows is inherently part of the “effective stream function”, already stated.

Comment 49: Riparian Area Objectives, page 12, DFP – Under Riparian Area Objectives, we suggest that the statement addressing amount and distribution of woody debris be modified with “where appropriate” or “within appropriate habitat types” to cover streams in sagebrush, grassland habitat types. We further suggest that some description or definition accompany “watershed disturbance”.

Response: The woody debris statement only refers to forested environments.

Comment 50: Riparian Habitat, page 12, DFP - Under Riparian Habitat (In 8), no description or definition accompanies the term “desired non-native....species”. Native species are easily understood but “desired” non-native species is highly subjective and can change dependant upon situation, e.g., brook trout.

Response: This has been defined in the Revised Forest Plan and Final EIS.

Comment 51: Channel Integrity, page 13, DFP - Standard #1 under the Channel Integrity Objective refers to “forest overstory in a hydrologically recovered condition”. This should be defined.

Response: This terminology has been removed from the Revised Forest Plan because it was confusing.

Comment 52: Riparian Management, page 14, DFP -. Under Standards of Riparian Management Objectives East of the Divide, we suggest that bank stability criteria should be applied in forested systems as well as non-forested.

Response: Bank stability is used in non-forested environments. Criteria, like large woody debris is used in forested environments.

Comment 53: Riparian Areas, page 17, DFP - We strongly support the commitment to sizing stream crossings to pass a minimum 100 year flood event as a Standard. We also suggest the addition of annual culvert inspections followed by maintenance (if necessary) to ensure proper culvert function into the standards for RF-4. We currently require such annual inspection procedures on many of the Stream Protection Act (SPA) Permits issued to federal and state agencies for culvert crossings. We also request that culvert installation and removal adhere to BMP’s established by FWP which provide for a dry construction environment and maintain water quality control and these BMP’s should be incorporated into the Standards.

Response: requiring annual culvert inspections is not a decision made by a Forest Plan (see FEIS, Chapter 1, Decision to be Made).

Comment 54: Riparian Areas, page 18, DFP - Objective provides for fish passage. We request that standards RF-5 incorporate a recommended hierarchy of structure which emphasizes, in order of preference, the use of free span bridges, bottomless culverts (box or arch), or box culverts over corrugated metal squash or round culverts for fish passage. Multiple, side-by-side culverts should be discouraged in all cases.

Response: These are not Forest Plan decisions, but are site-specific project level decision. These site-specific decisions should also be coordinated with FWP.

Comment 55: Mining bond requirement, page 21, DFP, MM-3e - We applaud the BDNF for requiring bonding for long term monitoring of mine waste sites. It is appropriate that the mine operators/owners bear the costs associated with mines after they have been closed or abandoned. We strongly suggest that bond amounts be significant enough to be effective.

Response: Thank you for your comment.

Comment 56: Gravel mining in RHCA, page 21, DFP, MM-5- Sand and gravel mining within Riparian Habitat Conservation Areas should not be allowed. There are other alternatives that can be found.

Response: Alternative 6 of the Final EIS prohibits sand and gravel mining in RCA’s.

Comment 57: Riparian protection, page 26, WR-3 - We applaud the BDNF for using a “good sense” approach in preventing habitat degradation.

Response: Thank you for your comment.

Comment 58: Wildlife riparian impacts, page 27, DFP - On page 27 of the Draft Forest Plan, in the second row of the table under Objectives, it discusses the “elimination of wildlife impacts that prevent attainment of the Riparian Management Objectives (RMO), etc.” What is critical here is that the source and degree of impact be properly identified. This issue has caused considerable consternation and divisiveness between state and federal agencies, livestock lessees and the public. We suggest you change the narrative here to say something like: “...impacts from all sources (vehicular, human, livestock, wildlife, natural selection, etc.) that negatively impact the RMO need to be properly identified through adequate monitoring....” Proper monitoring and identification of the correct source of the problem can help answer questions about cause and effect, properly identify solutions and reduce any potential disputes over the issue.

Response: This objective has been reviewed and modified.

Comment 59: Beal Mtn Mine impacts, page 227, Vol 1, DEIS - Cumulative Effects on Conservation of TES Fish Species, paragraph 10. The water quality with the Beal Mountain Mine in the Upper Clark Fork is unacceptable for Westslope Cutthroat trout. Remediation of the mine and its pollution is critical to conservation of Westslope Cutthroat trout in the Silverbow drainage.

Response: As mentioned this is a site-specific decision and not a forest plan decision.

RECREATION AND TRAVEL MANAGEMENT

Comment 60: Objectives, page 29, DFP - Should the majority of “objectives” in the Recreation and Travel Management section relate to providing opportunities? Should some of the objectives address “management “objectives such as conservation of the forestwide resources that are the base of providing the opportunities? Balancing opportunities with objectives addressing historic management problems would seem an appropriate approach for this section. Forestwide objectives might include: managing motorized recreation to reduce off-road, unauthorized use; managing snowmobile use to minimize conflicts with wintering wildlife. We suggest that the Forest strive to provide a mix of both motorized and non-motorized opportunities where appropriate. For example, the Anaconda Pintler Wilderness management area (Clark Fork Flint Landscape) should not serve as a forestwide repository for non-motorized recreation opportunities.

Response: A range of recreation opportunities are displayed by Alternative 1 through 6.

Comment 61: Access needs - While we support the recommended closure of user created trails and elimination of the associated resource damage, we are concerned about concentration of motorized use. This may result from the recommended wilderness in the Pioneer and Italian Peaks and proposed motorized closures in the Tendoy, Beaverhead Mountains and Big Hole Divide. In addition, loss of access to the National Forest is a substantial contributing factor to crowding in remaining accessible areas. We believe we need to combine our resources to address this problem aggressively when an opportunity presents itself. Specifically a coordinated solution to the recently closed Lost Creek access in the East Pioneers needs to be found. Other accesses such as Squaw and Alder Creeks in the West Pioneers are being challenged. Other examples where reasonable public access is needed include: Squaw Creek in the West Face Niche, Alder Creek in the Bryant Creek

Niche and Modesty Creek in the Flint Uplands Niche. Where access alternatives through public land exist we believe we need to pursue new access avenues through public land. In order to tackle the access problem we encourage a frank and open discussion of all options in the Forest Plan.

Response: The Forest will continue to work with FWP and issues as they arise. The issues brought up in this comment have to do with site-specific travel planning which the Forest is currently in the process of completing. We will contact FWP as we move through this process.

Comment 62: Road closures - The Dillon Ranger District solicited comment on road closures in the Jeff Davis portion of the Beaverhead Mountains and Brays Canyon portion of the Big Hole Divide. The Jeff Davis road closures are warranted, as they are mostly user created, promote soil erosion and compromise security. There is some confusion surrounding the user-identified road between Jeff Davis and Maiden Peaks. There is no reference to the road or trail in this area on the current travel plan yet this road has been in use for around 30+ years based on some comment from a local mountain goat hunter. Further investigation into this road may be needed. The Brays Canyon closure appears to be warranted based on resource damage and poor trail location. If sufficient financial resources can be found to relocate the trail, or portions of the trail, we should investigate the merits of allowing some motorized access.

Response: This would be appropriately addressed during site-specific travel planning.

Comment 63: FWP and Forest Fisheries personnel have recommended that vehicles be eliminated from the Cherry Lake Trail (Pioneer Landscape) at a minimum from the juncture of the trail to Cherry and Granite Lakes. All terrain vehicles have eroded and wallowed the trail adjacent to Cherry Creek and in adjacent wetlands. Illegal vehicle use has also pioneered the trail across Cherry Creek to the south toward Green Lake. Cherry Creek supports pure westslope cutthroat trout, a habitat which should be protected from vehicle based sedimentation. Recently, Cherry Lake has been confirmed as supporting pure westslope cutthroat trout. Additional sampling of this population will be conducted and if genetic results remain consistent, the lake will be proposed for management under catch and release regulations. In this case, isolation from vehicular access would also seek to secure the long term viability and genetic purity of the Cherry Lake fish. We request that vehicles be banned from the Cherry Lake trail, at a minimum from the juncture of the trail to Granite Lake

Response: This would be appropriately addressed during site-specific travel planning.

Comment 64: 300 foot access allowance, page 29, DFP – Under Standard 1 regarding access within 300 feet of open roads and trails, please add the word “designated” in front of open roads and trails (at the end of the sentence in the first paragraph – “Motorizedwithin 300 feet of designated open roads and trails.”). This regulation may allow a gradual degradation of roadside habitat. We ask that you consider designating camping access corridors within the 300 foot area.

Response: The new OHV Roads policy limits travel to designated routes. This new Forest Service policy is already being implemented and therefore it is not necessary to state in the Forest Plan.

Comment 65: Continental Divide protection - In order to protect the unique value of the Continental Divide much of its length should be designated for non-motorized recreation using a special management designation. The divide offers unique opportunities for backcountry recreation, outstanding scenic vistas and crucial connectivity for wildlife populations. The Beaverhead-Deerlodge Forest manages the longest stretch of the Continental Divide in the U.S. and has an obligation to maintain these qualities. Completion of the Continental Divide trail should be a forest priority.

Response: Most of the Continental Divide Trail is designated as non-motorized in accordance with the Trails Act which created it.

Comment 66: Sapphire Wilderness Study Area - Forest trail #313 should be included in the non-motorized designation within the Sapphire Wilderness Study Area.

Response: Alternative 6 was developed in response to public comments on the Draft EIS and Draft Plan, which includes leaving a portion of Trail 313 open to motorized travel. This trail is managed in a coordinated manner with the Bitterroot National Forest.

Comment 67: Connectivity - We appreciate the attention to connectivity. How will USFS work to enhance and maintain linkages?

Response: Managing open motorized road & trail densities to identify secure areas (Figure 48) is the favored tool under the preferred alternative. We expect that secure habitat as per the Yellowstone grizzly Bear Conservation strategy will provide for connectivity and linkage.

Secure areas are defined as >10 acres and > 1/3 mile from an open motorized road or trail. This definition is based on the secure habitat definition for grizzly bears from the Final Conservation Strategy for the Grizzly Bear in the Yellowstone Ecosystem (2003). We consider secure habitat for grizzly bears as providing for wildlife security and connectivity. Figures 43 & 48 of the DEIS graphically display the location of secure areas for summer and fall respectively. Table 34 shows that 23 of the 29 hunting districts lands on the BDNF exceed 50% secure habitat. The remaining 6 range from 33% to 47% secure habitat. We believe that the synergy of low open road densities and secure habitat provide for a high degree of permeability for large wildlife movement across the BDNF.

Figures 43 & 48 display that there can be less resistance to movement along the western edge of the forest due to the absence of interstate highways, other road impediments, and private land developments. There is contiguous forest ownership (Targhee NF) bordering BLM lands along the Centennial Mountains and BDNF borders with the Targhee to the south; Salmon-Challis, Bitterroot, and Lolo to the west, and Targhee-BDNF (Lee Metcalf Wilderness)-Gallatin NF to the east. Permeability to wildlife along a Gravelly-Tobacco Roots-Boulder River axis to the Helena NF is much more problematic to the large areas in between that are in private ownership and transected by Interstate highways 90 & 15.

Comment 68: Road management and enforcement - We urge USFS to initiate and conclude travel planning on the Forest as soon as possible. Additionally we applaud the USFS decision to make roads and trails closed unless posted as open. We highly recommend the Forest Service commit adequate resources to the signing of open roads and enforcement of closures. All roads should be well marked on the ground and consistent with roads and trail numbers as assigned on travel plan maps.

Response: There is no alternative proposing to make roads and trails closed unless posted as open. The Forest is not sure where this information came from.

MONITORING

Comment 69: The DFP contains a section outline the Beaverhead-Deerlodge's commitment to monitoring. We strongly support you in this effort.

Response: Thank you for your comment.

INFRASTRUCTURE

Comment 70-: Transportation system, page 41, DFP - The first objective for Transportation System says "Identify the minimum necessary transportation system". Does this mean, for example, the Boulder River Landscape would require a distinct reduction in the road system since many motorized routes parallel each other or multiple routes come to the same place.

Response: This would mean that during site-specific travel management decision, roads not needed should be identified and removed from the Forest's system of roads. In areas like the Boulder River Landscape there is a high likelihood of motorized road and trail reductions.

ROADLESS AREAS

Comment 71: Roadless lands have enormous ecological value. Many resources, including vegetation, wildlife, aquatics, forest health, air quality, and water quality benefit from the maintenance of roadless lands. The Forest Plan should preserve roadless areas where possible and work to restore roadless qualities in some locales. Alternative 3's emphasis on roadless lands would benefit a wide variety of flora and fauna.

Response: The Forest recognizes Montana FWP's desire to preserve the roadless character of most roadless areas. There have been many comments recommending a variety of uses for roadless areas. The alternatives developed allocate roadless areas for a variety of uses. Alternative 6 was developed to address many of the issues you identified in this comment.

Comment 72: Stoney Mtn & Quigg Peak - The Stoney Mountain and Quigg Peak roadless areas should be maintained as non-motorized areas. These areas provide key year-round habitat for bighorn sheep, mule deer and elk.

Response: In most alternatives, including Alternative 6, most of Stoney Mountain and Quigg Peak roadless areas are allocated as non-motorized.

Comment 73: Electric Peak - The Electric Peak roadless area should be retained because of important fish and wildlife values.

Response: Electric Peak roadless area allocations in most alternative, including Alternative 6, would retain the roadless character of the area.

Comment 74: Grazing and the Pintlers, page 67, Vol. 2, DEIS, Area A1-001, #48 (Pintler Creek). Grazing should not occur inside the Anaconda-Pintler Wilderness. Pintler meadows, which lies two miles inside the AP boundary, is currently being grazed.

Response: Grazing is allowed in wildernesses according the Wilderness Act. Pintler Meadows is in an active grazing allotment.

SPECIAL DESIGNATIONS

Comment 75: Research Natural Areas supported - We support the continued designation of Goatflat, the Eastfork, Dexter Basin and Windy Ridge Research Natural Areas because of important fish and wildlife values.

Response: Thank you for your comment.

Comment 76: Wilderness Study Areas (WSA) - The Sapphire WSA should be maintained with motorized restrictions. The Storm Lake WSA should be added to the Pintler Wilderness and other proposed additions to the Pintler Wilderness should be completed. These actions will support the maintenance of fish and wildlife values in those areas.

Response: Alternative 6 recommends Strom Lake for wilderness designation, in addition to several other areas bordering the Anaconda-Pintler Wilderness (See FEIS, Chapter 2, Alterantives).

LANDS

Comment 77: Lockhart land acquisition, page 41, DPF - Note that at least four of the criteria for Land Acquisitions are met by Lockhart Meadows. Please consider this area for acquisition.

Response: The acquisition of this area would be considered a site-specific decision and not a forest plan decision. This comment has been forwarded to the Forest lands personnel.

FIRE MANAGEMENT

Comment 78: Wildland Fire Management - Wildland fire use has the potential to be an important tool in managing and reintroducing fire on the landscape. We encourage the Forest to coordinate all implementation plans across the various districts so wildland fire can be used in an integrated fashion throughout the life of the forest plan. The concern here is the amount and kind of fire that the public will tolerate in a given period. We believe there is a limit to the number of acres the Forest Service can allow to burn annually, even within prescription. Similarly, the amount of smoke the public will tolerate is limited. The plans should also specify how many acres of a given range should burn in wildland fire before subsequent fires are controlled.

Response: It is not possible to determine such a number given the different variable. The Revised Forest Plan does outline desired conditions and goals which should be used in determining the appropriate suppression response, including wildland fire use.

MAPS

Comment 79: Boulder River Landscape emphasis, pages 44-58, DFP - The forestwide maps reveal the impacted nature of the Boulder River Landscape. This Landscape has the highest road densities on the forest. The HFRA Wild land Urban Interface (page 45) in the center of the Landscape does not make sense given the low density of human occupation. No wild land fire is allotted for this area (page 46), thus affecting wildlife habitats. There is no Restoration Emphasis (page 49) for this Landscape with the highest level and most acres of poor watershed condition (page 50). The Boulder River Landscape constitutes the largest Municipal Watershed (page 51) yet it is in the poorest condition. The entire Landscape occurs within designations for 303D Listed Streams (page 52). Winter travel

Allocation (Over-snow Vehicle, page 57) does not fully reflect big game winter range (map attached). The Utilities/Communications Sites map (page 58) does not reflect all existing power lines.

Response: The HFRA Wildland Urban Interface was developed according to the HFRA Wildland Urban Interface criteria. The Alternative 6 has increased the area available for wildland fire use that includes this area. Restoration watersheds are not the only areas where restoration is emphasized. Municipal watersheds are emphasized through their standing as municipal watersheds and the Forest works with those who are affected by these watersheds. 303d stream also are emphasized as well, but are managed through the State TMDL process, which also identifies restoration needs. Winter range areas have been updated with information provided by Montana FWP. The Utilities/Communication Sites only represent the large communication corridors. It is correct; the map does not show all existing power lines.

Comment 80: Watershed Condition Map and livestock grazing, page 50, DFP - With approximately one-third of the forest watersheds in “poor condition” do the associated allotments have management plans in place? Will there be standards designed (as stated on page 32, Livestock Grazing, Standards 1.) to bring those allotments back to at least moderate condition? For example, we note that watershed quality in the Clarkfork, Upper Clark Fork and Rock Creek watersheds are in largely poor condition. How will the Forest Plan work to correct this condition?

Response: The Forest Plan established the strategic direction for the Forest in the form of desired conditions, goals, objectives, and standards. Grazing allotments are managed according to their allotment management plans and annual operating plans (Site-specific project planning). These plans need to meet the direction in the Forest Plan. If they are not, then the allotment management plan and/or the annual operating plan is adjusted until the allotment meets or moves towards the desired condition.

BOULDER RIVER LANDSCAPE

Comment 81: General - This landscape appears to be relegated to a sacrifice area. Traditional uses are described, but nowhere is the presence of wildlife and its importance in the Landscape even mentioned as a traditional use. Big game winter range is incomplete on the maps for the following “niches”: Basin-Cataract, Boulder River-Sheepshead, I-15 Corridor, Kit Carson, Mormon-Buffer. Please contact our field wildlife biologist (Gayle Joslin) in Helena to obtain accurate winter range locations.

Response: We have received an updated map from Montana FWP in Helena. That and other updated winter range maps from FWP will be used for the FEIS. Niche statements for Bull Mountain, Basin Cataract, Boulder River-Sheepshead I-15 Corridor, Little Boulder, Little Boulder-Galena Gulch, and Mormon Buffalo speak to emphasizing summer and winter non-motorized areas for quiet recreation and wildlife security. As FWP has noted we view attainment of elk management objectives to be problematic for those Hunting Districts (HDs) north of Butte. This includes HDs 215 and 318 with 33% secure habitat (See FEIS, Wildlife, Existing Condition, road density table). The area has been heavily impacted by historic mining and timber harvest activity. The respective fall motorized road and trail density objectives of 1.5/sq mile and 1.8 mi/sq mile established in the preferred alternative (Alternative 6) constitute an improvement over the current condition, not a sacrifice area.

Whitetail-pipestone is being analyzed separately for travel management. The FEIS preferred alternative establishes a summer motorized road density objective of 1.9 mi/sq mi at the Boulder River landscape scale. This is less than the existing condition. Approximately 34 miles of currently open motorized roads and trails would be closed under the preferred alternative. Elk are displaced across the forest onto lands that are not subject to hunting pressure.

BIG HOLE LANDSCAPE

Comment 82: Anaconda Pintler Wilderness Additions Niche - Lands recommended for addition to this Wilderness appear to include a small portion of an established snowmobile trail (#6 “Storm Lake” as listed in “Snowmobile Routes (map), Pinter/Jefferson/Butte RD’s, 2004 revision) and the destination (purpose) for this trail i.e: Storm Lake. While there may be good reasons for proposing to include these areas, FWP would like to discuss with you issues of wilderness trespass and alternate trail routes related to maintaining snowmobile opportunities.

Response: The preferred alternative, Alternative 6, does not close winter motorized access into Storm Lake. The winter non-motorized allocation closes the area from Storm Lake up to Storm Lake Pass.

BOULDER RIVER LANDSCAPE

Comment 83: Electric Peak Recommended Wilderness Additions Niche - [please add “additions” to Niche title]. Lands recommended for addition to this Wilderness appear to include an approximately 6 mile portion of an established snowmobile trail (#3 “Cottonwood Lake Loop as listed in “Snowmobile Routes (map), Pinter/Jefferson/Butte RD’s, 2004 revision) and [possibly] an approximately 3.5 mile portion of an established snowmobile trail (#2 “Leadville Loop” as listed in “Snowmobile Routes (map), Pinter/Jefferson/Butte RD’s, 2004 revision). This objective needs more public involvement and should include identified alternative routes. While there are good reasons for proposing to include these areas in the wilderness, FWP would like to discuss wilderness trespass issues and alternative routes for this snowmobile system.

Response: Alternative 6 does not recommend Electric Peak for wilderness, partly due to many comments received about this groomed and marked snowmobile trail. The trail will remain open. For clarification, we used the term “addition” to indicate the management area is adjacent to a designated wilderness. The adjacent Blackfoot Meadows area on the Helena is a recommended wilderness. It has not been designated by Congress so we did not call Electric Peak an “addition”.

UPPER ROCK CREEK LANDSCAPE

Comment 84: General - The various Niches in this Landscape are either listed as unsuitable for timber production or timber harvest is prohibited. We support this approach because of the outstanding fish, wildlife and recreational resources of this area. Will the Forest Service continue to honor the Rock Creek moratorium? Upper Rock Creeks' value for wildlife, fisheries and recreation should be paramount in its management. The low road densities and high proportion of old growth that characterize this area should be maintained. Recreation, wildlife, fisheries and watershed health are the appropriate areas of emphasis in the Rock Creek watershed.

Response: The Rock Creek moratorium will no longer provide direction for this area under a revised forest plan. The revised forest plan will set new strategic direction for this area.

In developing the revised plan, the Forest Service recognized the unique values of the Rock Creek watershed. Alternative 6 recommends three additional wilderness areas or add-ons, it maintains the Sapphire wilderness study area, allocates several blocks of non-motorized area and establishes a native fish emphasis (key fisheries watersheds) in all but one management area. In addition, Alternative 6 does not allocate suitable timber land in Rock Creek drainage. Refer to the Plan, Management Area direction for the Upper Rock Creek Landscape.

Comment 85: East Fork Niche - “Inclusions” listed under this niche include the Windy Ridge & Dexter Basin - Research Natural Areas. Are there management objectives for these areas that should be addressed in this section? For the established Winter Range Closure Area in this niche: management objectives area self-explanatory. But for these “Research Natural Areas – it is not. For example, there are groomed snowmobile trails near both areas, is it (or will it be) a management objective to limit snowmobile use in these areas?

Response: Research Natural Area (RNA) management objectives do not need to be restated in Management Area direction. See forestwide goals, objectives and standards for RNAs under “Special Designations” in the Plan. Alternative 6 includes both of these RNAs in recommended wilderness allocations; snowmobile use will not be allowed.

CLARK FORK/FLINT LANDSCAPE

Comment 86: Georgetown Lake Niche-

Connecting the south and north segments of the Anaconda Snowmobile Club’s groomed trail system (objective 6) is a good idea. This would provide for easier management and maintenance of these major, groomed trail systems. However, questions that we feel need to be addressed include:

Can new groomed trail sections be created/permitted within “no net gain” policy towards snowmobile trails?

We would also point out that any new, groomed trail segments would require that MFWP and/or the local snowmobile club comply with MEPA in order to the expend snowmobile program funds administered by MFWP.

We recommend adding an Objective that would include assigning management priority to reducing nutrient inputs into Georgetown Lake, as well as adopting an active role in lake water level management.

“Inclusions” listed under this niche include the Windy Ridge Research Natural Area. Are there management objectives for this area that should be addressed in this section? For the established Winter Range Closure Areas in this niche: management objectives are self-explanatory. But for this “Research Natural Area – it is not. For example, there are groomed snowmobile trails adjacent to this area, is it (or will it be) a management objective to limit snowmobile use in these areas?

Response 1 &2:

Meeting the objective to connect these groomed trail systems would require site-specific analysis and coordination with Montana Fish Wildlife and Parks. The questions and concerns brought up in this comment will be addressed when that takes place.

Response 3: The management direction for Georgetown Lake has been modified to address nutrient input into the lake. The Forest will continue to have an active role on the Flint Creek Dam advisory council, which includes discussion on the lakes level.

Response 4: Alternative 6 includes the Windy Ridge RNAs in a recommended wilderness allocation, snowmobile use will not be allowed. See forestwide goals, objectives and standards for RNAs under “Special Designations” in the Plan for specific requirements for RNAs.

Comment 87: Warm Springs Niche - We support the no timber harvest direction for this Niche.

Response: Thank you for your comment.

Comment 88: Flint Foothills Niche - The Flint Foothills Niche should be assigned to mixed uses not roaded. Additional road management is needed in the Flint Foothills and Flint Uplands.

Response: The wording for the Flint Foothills has been changed in the revised forest plan to emphasize a mix of uses. Forestwide wildlife objectives will guide road management as will site-specific travel planning.

Comment 89: Harvey Creek Niche - Objectives for the Harvey Creek Niche should be expanded to include winter range and weed management.

Response: The Forest Service shares your concern about noxious weeds in Harvey Creek. In 2006, the Rocky Mountain Elk Foundation funded an aerial spray project which treated 1200 acres of weeds in the big game winter range on BDNF lands in the mid-elevations of Harvey Creek. This was done under the auspices of the BDNF Noxious Weed EIS and ROD. We feel adding specific direction to the Harvey Creek management area is unnecessary to continue focus of noxious weed efforts in this area.

Comment 90: John Long Niche - The John Long Niche more winter non-motorized lands would benefit big game. The abundance of quality big game habitat here is in direct relationship to the lack of roads and trails. An emphasis on motorized recreation here would be detrimental to elk and deer.

Response: Alternative 6 perpetuates the existing lack of roads and trails by allocating the area to low density backcountry recreation with limited access. Alternative 3 allocates a large portion of the John Long Management Area to non-motorized uses.

ELKHORN MOUNTAINS,

Comment 91: Planning status, page 42, DFP – We fully support the decision to defer planning efforts in the Elkhorn Mountains to coincide with the revision of the Helena National Forest Plan.

Response: Thank you for your comment.

Montana Fish, Wildlife & Parks, Gayle Joslin

Comment 1: According to the objective for Noxious Weeds, prevention and treatment would be emphasized “on areas where those species have a high likelihood of establishment and spread.” Therefore, it appears that Natural Areas, Roadless Areas, and Wilderness Areas would not get attention, and treatment would be deferred to newly disturbed, logged, burned, roaded areas. Such an approach would not be in the best approach to ensuring maintenance of natural vegetation in natural settings, and thus the integrity of wildland wildlife habitat.

Response: The complete objective is to “Prevent new and reduce or eliminate existing infestations of non-native or noxious weed species with emphasis on areas where those species have a high likelihood of establishment and spread.” The Forest does not agree with your interpretation of this objective. Natural Areas, roadless areas, and/or wilderness area would be a high priority for preventing new infestation. It is true though, disturbances like logged areas or roads are also important areas to prevent and treat noxious weeds. If these areas can be controlled then we are preventing noxious weeds from moving on into more undisturbed areas, like wildernesses.

Comment 2: Sagebrush is not listed as a Unique Habitat but perhaps should be.

Response: We reviewed this request; however, the Forest still contends that sagebrush is no more unique than lodgepole or Douglas-fir habitat type.

Comment 3: "Old-Growth: Maintain at least 10% old-growth, well distributed across the forest by the following types: Douglas fir, Lodgepole pine, Limber pine, Whitebark pine, Englemann spruce, and Sub-alpine fir types." This objective is not clear. How many classified forest acres occur on the BDNF? How many acres occur in each of each of the above listed types? Does 10% refer to existing forested units? How can this objective be independently verified?

Response: The discussion on old-growth has been expanded in the Final EIS in Chapter 3, under the heading of Vegetation.

FORESTWIDE OBJECTIVES – WILDLIFE

Comment 4: An objective must be achievable. The first objective described for wildlife is broad in the extreme; there is no way to measure progress toward this objective: **Wildlife Habitat: Manage vegetation for a diversity of vegetation and habitat types to meet wildlife needs.** There are no standards provided for this objective or even guiding concepts such as those listed as bullet points under Linkages, or Sensitive Species, or Federally Listed Species. It is unclear as to whether there is any force of law attached to the bulleted point or whether they are merely suggestions that may or may not be followed.

Response: The bullet statements are for information and identification of other pertinent documents. This has been clarified in the Final Forest Plan. Because of the close tie between vegetation and wildlife habitat, many of the wildlife habitat objectives are integrated into the vegetation objectives. Standards necessary to insure that wildlife objectives are not compromised have been identified, Revised Forest Plan, Chapter 3, Wildlife Habitat Management and Vegetation sections.

Comment 5: The format changes between different Objectives from Standards (as are provided for Grizzly Bear Conflicts) to bulleted points listed for other Objectives. Many of the bullet points are not action items and it is not clear how these points will be applied.

Response: The Revised Forest Plan has attempted to improve the outline.

Comment 6: The Elk Security Objective states: “Provide elk security during the general rifle season, provide a variety of recreational opportunities, and provide support for Montana’s fair chase emphasis.” The objective goes on to define a road density level for hunting district 318 that is unacceptable at 2 miles of road per square mile of land, if Montana Fish, Wildlife & Parks Elk Plan objectives are to be met. And, in the case of hunting district 318, 2 miles/square mile is the minimum density that occurs on the ground. User created routes and other existing routes results in a road density well in excess of 2 miles/square mile in much of the Boulder River Landscape. In a Landscape where hunting seasons constitutes most of the “use,” managing elk habitat at 45% or less habitat effectiveness (to which 2 miles/square mile of land equates) is not in the best interest of the elk population resource. The 2005 Montana Elk Management Plan for Hunting District 318 states, “Off-road motorized travel has resulted in pioneering of travel routes and thus reduced habitat security and habitat effectiveness... 96% of elk habitat occurs within one mile of lands that are open to motorized travel.” The Elk Plan indicates that the elk population has declined in the Deerlodge Elk Management Unit (HDs 318, 215 and 335) by 10% since 1996. The Montana Elk Management Plan states: Management of elk habitat on public lands is under the authority of federal and state land management agencies... Wildlife, including elk, are a product of the land, a renewable resource that depends on healthy habitat, including the basics of soil, water and vegetation. Thus, although the primary responsibility of FWP regarding elk is managing populations through designing and enforcing hunting regulations, we cannot ignore issues dealing with the habitat that supports and perpetuates elk populations. As FWP Director Hagener stated in the May/June 2003 issue of Montana Outdoors: ... “we constantly seek to involve those who do have authority over land-both private property owners and land management agencies - to join with us in our shared task of ensuring the future abundance of Montana’s wildlife treasures.” ... This will include providing input to Forest Management Plans, Allotment Management Plans, or other habitat management activity by land managers. ... FWP will not support any habitat management that it perceives as detrimental to the long-term health of the soil, water and vegetation or that permanently reduces the amount of elk habitat. Nowhere in the draft plan does it mention working in conjunction with Montana Fish, Wildlife & Parks and the Elk Management plan.

Response: We agree HD 318 presents challenges regarding road densities. The preferred alternative for the FEIS sets an objective of 1.8 mi/sq mi for open motorized roads and trails. This density represents a ceiling during the most stressful part of the year for elk – general hunting season. This objective is an improvement over the current condition. The final State elk plan population objective for HD 318 is set at 500 + 20%. (400 – 600 animals). State post season population data (2006) shows 383+ animals with the current road/trail templates. State objectives are fundamentally being met and the open road/trail objective is expected to promote better conditions for elk.

Comment 7: As we have pointed out in previous correspondence (January 13, 1997), planning for responsible motorized use will be the cornerstone of any responsible land management. Unless designated route travel plan implementation is taken seriously, and actual motorized route densities are less than 1.5 miles per square mile, meeting wildlife Objectives will be unattainable. Although the draft Plan indicates that it is an adaptive management document, in fact, even though it is recognized that motorized road/trail densities exceed the very high proposed forest plan standard of 2 miles of motorized road/trail per square mile, the standard addressing this issue simply accepts this infraction by stating that no additional roads will be built. This is NOT adaptive management. Elk Security Standard 1: (page 10) Units that exceed the open motorized road/trail objective will have no net increase in open motorized roads and trails. (Scale: Hunting Unit District) Wildlife Secure Areas and Connectivity: Provide secure areas for ungulates, large carnivores, and connectivity, while recognizing the variety of recreational opportunities. Manage open motorized roads/trails density by landscape to achieve levels at or below the following: Standard 1: Landscapes that exceed the open motorized road/trail objective will have no net increase in open motorized roads and trails. Again, this is NOT adaptive management. Adaptive management infers that problems will be corrected through modified management direction.

Response: We agree responsible motorized use is important in achieving many of the desired conditions and goals. According to Forest Service policy, the Forest is currently in the process of doing site-specific travel management, which will result in a system of designated routes. This travel planning will be guided by the Forest Plan. The standard referred to is in place to halt any expansion of road densities until site-specific travel planning can be completed, and to not allow any increase in road densities if the maximum road density is reached.

Comment 8: Regarding the reference to “...provid[ing] support for Montana’s fair chase emphasis” the 1998 Hunter Behavior Advisory Council established by Montana Fish, Wildlife & Parks notes (page 7) that “Land- and wildlife-management agencies have a responsibility to provide hunting environments that encourage ethical behavior.” The Draft Plan should acknowledge that for the Boulder River Landscape, ethical hunting environments are diminished by intensive land use and high road densities that occur in this area.

Response: The preferred alternative for the FEIS sets an objective of 1.8 mi/sq mi of open motorized roads and trails. This density represents a ceiling during the most stressful part of the year for elk – general hunting season. This objective is an improvement over the current condition. If ethical hunting behavior is promoted by reduced road densities, the preferred alternative of 1.8 mi/sq mile during the general hunting season constitutes an improvement over the current condition.

Comment 9: Wolverine is identified as the ONLY wildlife Management Indicator Species. Wolverine will not be a good management indicator species because there is little to no baseline data for wolverine across the forest, so there will be no way to measure changes in response to forest management direction. We call your attention to a recent court ruling which states: MANAGEMENT INDICATOR SPECIES MUST USE ACTUAL DATA - The 9th Circuit has reversed a district court’s approval of a logging project in the Fishlake National Forest, Utah. The court found that the Forest Service did not properly monitor

and select Management Indicator Species (MIS), and did not consider a reasonable range of alternatives. The FS must use “actual, quantitative population data” for MIS monitoring. The FS chose sage grouse, other sage nesters and Southwestern willow flycatchers as MIS, with no evidence of their presence. It also did not properly monitor ESA-listed species such as the Mexican spotted owl. Utah Env’l Congress v. Bosworth, No.03-4251 (10th Cir., Aug. 19, 2005).

Response: In responds to comments, the FEIS has added elk and mountain goats (in addition to wolverine) as MIS. The implementing regulations for the 1982 planning rule do not specify a requirement for baseline data for MIS. The monitoring plan located in Chapter 4 of the Forest Plan will guide Forest Plan related monitoring

FORESTWIDE OBJECTIVES - RECREATION AND TRAVEL MANAGEMENT

Comment 10: The second objective, “Recreation Opportunities: Develop self-guided scenic auto tour loops with visitor information and promotional material” will only increase traffic in an area that is overused as is attested to by impaired streams and substandard elk populations. Why does the fourth objective even exist? “Marketing Plan: Develop a recreation and tourism marketing plan” What the Boulder River Landscape needs is a plan for ecological integrity, i.e. reclamation and revitalization, not additional impacts. “Off Road Use: Minimize resource damage, user conflicts, and related problems, including new user created roads/trails, associated with motorized wheeled cross-country travel.” This is simply rhetoric if there is no associated budget to actually implement a responsible travel plan with designated routes and enforcement. Currently, the Draft Plan does not incorporate Travel Management. We recommend that lessees and permittees not receive exemptions so they can travel cross-country and thus be acting in opposition to the standard. Standard 1: Year-round, wheeled motorized cross-country travel is prohibited.

Response: The objectives referred to have been removed from the Revised Forest Plan. Site-specific travel planning will be accomplished though project level analysis.

FORESTWIDE OBJECTIVES - LIVESTOCK GRAZING

Comment 11: The paragraph on Base Property should be rewritten for clarity. Please define “adaptive approach” as used in Allotment Management Plans. The footnote for Table 5 is poorly written.

Response: The Base Property objective and footnote for Table 5 have been rewritten in the Revised Forest Plan.

FORESTWIDE OBJECTIVES - MINERALS, OIL AND GAS

Comment 11: Where are the standards for the Deerlodge Unit? Only the Beaverhead Unit is mentioned.

Response: The Beaverhead Unit had a previous oil and gas decision where as the Deerlodge Unit has never made a oil and gas leasing decision. Early in the revision process it was decided to carry the existing Beaverhead oil and gas decision forward, however, the forest would not make a decision for the Deerlodge Unit. This decision was made largely because of the time and cost constraints.

FORESTWIDE OBJECTIVES - INFRASTRUCTURE

Comment 12: The first objective for Transportation system says “Identify the minimum necessary transportation system.” For the Boulder River Landscape this would suggest a distinct reduction in the road system since many motorized routes parallel each other or multiple routes come to the same place. “Recreation Facilities: Monitor use and reconstruct sites as needed, construct additional recreation facilities to meet demand, and convert existing sites to dispersed use areas if warranted. Reconstruct 30% of existing developed sites.” We do not agree that additional recreation facilities should be constructed. The landscape does not have an unlimited capacity to absorb more and more human usage as attested to by POOR watershed condition for the entire landscape (page 50).

Response: Site-specific travel planning is guided by the Forest Plan. As travel planning is completed it is expected that motorized travel will be reduced in the Boulder River Landscape. Recreation facilities would only be created where needed. There is no wording in the plan suggesting additional facilities are needed or being proposed for the Boulder River Landscape.

FORESTWIDE OBJECTIVES - LANDS

Comment 13: Note that at least four of the criteria for Land Acquisitions are met by Lockhart Meadows. Please consider this area for acquisition.

Response: Thank you for identifying your desire for the Forest to acquire Lockhart Meadows.

MAPS

Comment 14: The forestwide maps (pages 44-58) reveal the impacted nature of the Boulder River Landscape. This Landscape has the highest road densities on the forest. The HFRA Wildland Urban Interface (page 45) in the center of the Landscape does not make sense given the low density of human occupation. No wildland fire is allotted for this area (page 46), thus affecting wildlife habitats. There is no Restoration Emphasis (page 49) for this Landscape with the highest level and most acres of Poor watershed condition (page 50). The Boulder River Landscape constitutes the largest Municipal Watershed (page 51) yet it is in the poorest condition. The entire Landscape occurs within designations for 303D Listed Streams (page 52). Winter travel Allocation (Over-snow Vehicle, page 57) does not fully reflect big game winter range (map attached). The Utilities/Communications Sites map (page 58) does not reflect all existing power lines.

Response: The HFRA Wildland Urban Interface was developed according to the HFRA Wildland Urban Interface criteria. The Alternative 6 has increased the area available for Appropriate Management Response to fire that includes this area. Restoration watersheds are not the only areas where restoration is emphasized. Municipal watersheds are emphasized through their standing as municipal watersheds and the Forest works with those who are affected by these watersheds. 303d stream also are emphasized as well, but are managed through the State TMDL process, which also identifies restoration needs. Winter range areas have been updated with information provide by Montana FWP. The Utilities/Communication Sites only represent the large communication corridors. It is correct; the map does not show all existing power lines.

BOULDER RIVER LANDSCAPE

Comment 15: This landscape appears to be relegated to a sacrifice area. The level of proposed management could be described as “industrial.” Traditional uses are described,

but nowhere is the presence of wildlife and its importance in the Landscape even mentioned as a traditional use. Big game winter range is incomplete on the maps for the following “niches”: Basin-Cataract, Boulder River-Sheepshead, I-15 Corridor, Kit Carson, Mormon-Buffer. Please consider the consequences of intensive motorized recreation in the Whitetail-Pipestone area and the impact it is having on displacement of elk from this area into Elk Park and then the private land game damage complaints that occur as a result of the inability of public land to hold wildlife.

Response: We have received an updated map from Montana FWP. That and other updated winter range maps from FWP will be used for the FEIS. Niche statements for Bull Mountain, Basin Cataract, Boulder River-SheepsheadI-15 Corridor, Little Boulder, Little Boulder-Galena Gulch, and Mormon Buffalo speak to emphasizing summer and winter non-motorized areas for quiet recreation and wildlife security. As FWP has noted we view attainment of elk management objectives to be problematic for those HDs north of Butte This includes HDs 215 & 318 with 33% secure habitat (Table 34). The area has been heavily impacted by historic mining and timber harvest activity. The respective road density objectives of 1.5/sq mile & 1.8 mi/sq mi constitute an improvement over the current condition and not a sacrifice area. Whitetail-pipestone is being analyzed separately for travel management. The FEIS preferred alternative establishes a road density objective of 1.9 mi/sq mi at the Boulder River landscape scale. This is less than the existing condition. Approximately 34 miles of currently open motorized roads and trails would be closed under the preferred alternative. Elk are displaced across the forest onto lands that are not subject to hunting pressure.

Granite County, Board of Commissioners

Vegetation

Issues with Alternative 5

Comment 1: Utilizing historic range of variation (HRV) as a management guide is inherently flawed, and bases future resource management on irrelevant resource dynamics of the past.

Climatic shifts, long term changes in plant community composition and structure, influences of human resource use, and changes in wildlife numbers and behavior dictate that fundamental resource dynamics have changed over time. It is naïve to promote a management philosophy that promotes returning the broad spectrum of resources to conditions that existed prior to European occupation of the Rocky Mountain region. Much of this philosophy is based upon Clementsian ecology that is not applicable or appropriate in Granite County or the Western States. Laycock (JRM v. 44 (5) p. 427-433) developed the prevalent idea of “Stable States and Thresholds”, which recognizes ecological changes as stable until acted upon by disturbance. This philosophy correctly addresses the fact that, while resources are dynamic and ever-changing the likelihood of any resource base reverting to previous conditions is very slim. Examples in point are the fact that Kentucky bluegrass will never be eradicated from National Forest lands, nor will Timothy, smooth brome, orchard grass, spotted knapweed, leafy spurge, sulfur cinquefoil, or any number of introduced species.

Response: Historic Range of Variability (HRV) is neither a flawed concept nor is it “irrelevant resource dynamics of the past”. HRV is a valid concept which has its strengths and weaknesses. As an analysis tool, HRV is appropriate as long its strengths and weaknesses are taken into account. Laycock’s “Stable States and Thresholds” is also a valid concept, but it has its own strengths and weaknesses too.

The statement, “It is naïve to promote a management philosophy that promotes returning the broad spectrum of resources to conditions that existed prior to European occupation of the Rocky Mountain region”, misrepresents how the ID Team and the FEIS used HRV. HRV was not an objective to achieve as this statement infers. HRV was used as a measuring stick and to establish a baseline in the development of vegetative objectives. For example, HRV for aspen was modeled. The results indicated a larger departure from what we currently have when compared to current condition. This was compared to other studies on aspen, which supported the same conclusion; aspen has dramatically declined on the forest over time. The reason for this reduction varies from climate change, grazing, fire suppression, disease, and others. The Forest never intended to develop an objective that would return aspen to the modeled HRV, but rather developed an objective to eliminate the decline and restore some amount of aspen across the Forest over the next 10 to 15 years. This amount is well below the modeled HRV figures. The rationale for the objective is based on issues like budget, resources available to implement, other resource values, and factors outside the Forest’s control.

HRV was only used to establish a baseline which could be evaluated against the current condition. Just because there is a difference between HRV and current condition does not mean our desired condition is to return to HRV. The forest understands that returning to HRV may not be possible. However, HRV does help us decide whether there has been a change and whether or not the Forest needs to establish a desired condition to change or to continue an existing path. This formulates the basis for the strategic direction for the Forest Plan.

The Forest also understands that a model HRV is just that, modeled. It is our best estimate, which needs to be compared to other research, data, and studies. The strengths and weaknesses of the model also have to be understood so the information from the modeled HRV is not used beyond its capability.

This explanation of how HRV was used has been expanded in the FEIS for further clarification.

Comment 2: Possibly the greatest challenge to management of vegetation a resource is that of introduced noxious weed species. The aggregate of private land ownership in Granite County is less than that of Forest Service administered lands. Yet, private landowners maintain an active noxious weed management program that exceeds \$500,000 in expenditures annually. Tools employed on private lands include insects, sheep and goats, competitive seeding, and herbicides. The Bureau of Land Management, a comparative minor landholder in Granite County, has implemented an active noxious weed management program that has yielded very good results. The Forest Service has been woefully inadequate in addressing noxious introduced species, and Alternative 5 does little more than pay lip service to this potential environmental disaster. In virtually every other resource of concern, Alternative 1 (existing condition) is deemed unacceptable. Yet, for noxious weed management, every alternative is designated to remain under an EIS from 2002. The existing condition, this is unacceptable.

Response: The Forest recognizes the importance and adverse impact noxious weeds have. The strategy of the Forest Plan is to prevent new and reduce or eliminate existing infestations of noxious weeds.

The Noxious Weed FEIS of 2002 is a project level document (Not a Forest Plan Amendment) intended to implement the Forest strategy. None of the alternatives changed the strategy to reduce or eliminate noxious weeds, and the implementation document is still appropriate and valid.

The concern about implementation has been passed on to the Forest Supervisor.

Comment 3: Alternative 5 presents a convoluted approach to forested vegetation management. Inventory information provided in the draft identifies problems with forest stand density, demographics and structure. We agree with this conclusion, but do not comprehend the proposed methodology to achieve the “Desired Future Condition” (DFC). Again, the argument goes back to HRV, which we assert is irrelevant to achieving DFC. It is our strong opinion that DFC can be achieved through an appropriate application of timber harvest and a minimal use of prescribed fire or planned wildfire.

Response: We agree, HRV is not relevant to achieving DFC. As stated in the above comment, HRV was only used as a measure in assisting in the development of the DFC and management Objectives.

The Forest could find no reference in the FEIS or Final Forest Plan that would restrict evaluating timber harvest as a tool to achieve DFC, with the exception of wilderness areas, recommended wilderness areas, and wilderness study areas. The decision as to how to achieve a DFC is a site-specific project level decision.

Comment 4: Vegetation management should be guided by an identified DFC, which should be developed independent of HRV. While observations of the past can provide beneficial information regarding factors that aided in developing current conditions, observations of the past provide little useful information to guide management from current conditions to a DFC. Management to a DFC is dependent upon the expertise of resource managers in understanding resource response to management actions, and formulating an array of management actions that will aid in realization of a DFC.

We are extremely supportive of management actions that will maintain and enhance the health of vegetative resources on B-D administered lands in Granite County. We understand concerns associated with quaking aspen, and feel that past practices of fire suppression and an ill advised reduction in timber harvest have resulted in resource conditions that are not favorable to strong populations of quaking aspen. Rather than relying on fire as a primary management tool, it is in the best interest of the resource and economic interests of Granite County to apply managed timber harvest to reduce conifer competition and encourage aspen regeneration. As we observed this summer, fire is random in effect, and the Forest Service has little ability to direct “planned wildfire” to achieve desirable results. The Signal Rock Fire is a prime example of this “management” at work. We promote the use of appropriate timber harvest as the primary tool to reduce lodgepole pine – aspen competition. This strategy will achieve the DFC of more robust aspen populations, while generating an economic benefit to Granite County.

Response: The Forest agrees that vegetative management should be guided by DFC. The Forest Plan does this. The Forest does not agree that DFC's should be developed independent of HRV as well as the statement that, "...observations of the past provide little useful information to guide management from current conditions to a DFC. HRV provides very important information concerning life history, cause and effects, baseline, and other biological pertinent information. This is reflected in much of the literature cited in the FEIS. HRV is also important in helping to determine DFC by established a baseline from which to measure current condition. As stated above, HRV is not what the Forest Plan is attempting to achieve, but rather the DFC and Objectives are what guides the Forest Plan.

The Forest agrees with the statement, "Management to a DFC is dependent upon the expertise of resource managers in understanding resource response to management actions, and formulating an array of management actions that will aid in realization of a DFC." However, these are site-specific project decisions, not strategic Forest Plan decisions.

You indicate that there has been a conscious decision by the Forest to reduce timber harvest. This statement is not supported by any documentation and the Forest has found no information supporting this statement. Reduction of timber harvest on the Forest is a result of budget and public controversy.

The revised Forest Plan does not rely on fire as a primary management tool. The tools to best meet the Forest Plan's DFC or Objectives are decided at the site-specific project level. The Forest could find no reference in the FEIS or Final Forest Plan that would restrict evaluating timber harvest as a tool to achieve DFC, with the exception of wilderness areas, recommended wilderness areas, and wilderness study areas.

Signal Rock, mentioned above, was a wildfire, which started in a Wilderness Study Area. This fire used an indirect strategy for fire fighter safety, considering the resources involved and cost. Although this was a wildfire and the appropriate suppression response taken, this fire did achieve some resource benefits. Timber harvest is not allowed in a Wilderness Study Area because it can not meet the intent of the Wilderness Study Act. It is not possible for the forest to use timber harvest over 3.4 million acres and protect the many resource values a forest is charged with protecting.

Comment 5: We understand that the Forest Plan is not a budgetary document, but as stated in the draft, budgets should be kept in mind while developing the plan. We feel strongly that Forest Service resources should be directed to address the noxious weed problem. We would like to see an achievable noxious weed management plan developed for each District and appropriate resources dedicated to assure weed plan implementation.

Currently, noxious weed infestations located on Forest Service lands are infesting adjacent private lands. Not only does this not promote healthy resources on Forest Service lands it undermines extensive work done on private lands. It is imperative that the Forest Service accepts the responsibility of being a good steward of resources, and a good neighbor to fellow Granite County landowners.

Response: The importance of reducing or eliminating noxious weed on the forest is stated in the Final Forest Plan. This comment addresses implementation, which is largely dependant on budget. The Forest budget has been reduced by 39% from 1996 to 2007. This concern has been forwarded to the Forest Supervisor to consider.

This comment, illustrates the management conflicts that exist. The statement above asks to direct funds towards the reduction of noxious weed as the most important issue. However, other comments want us to direct our funds towards vegetative management (timber harvest) in a large scale and aggressive manner as the most important issue. There are other mandates also requiring the allocation of fund; including but not limited to TMDL determination for 303d listed streams, special use permits, and monitoring. The Forest funds are limit to accomplish the many demands.

Comment 6: Forest vegetation constitutes a majority of vegetative types on the B-D in Granite County and utilizing prescribed fire and planned wildfire as the primary management tools for forest vegetation is unacceptable. Forest vegetation types on the B-D are not in a healthy state. Insect and disease infestations are approaching epidemic levels, and in our opinion is in large part the result of overstocked underutilized forest vegetation. We strongly recommend the use of timber harvest as a primary tool in forest vegetation manipulation. Currently available harvest practices exist to enhance soil, water, riparian, and wildlife resources, while providing economic benefits. The advantage of planned timber harvest is increased predictability of resource response to management. Research on the Tenderfoot Experimental Forest near Martinsdale, by Scott Woods, University of Montana, has shown a predictable increase in water yield from a specific reduction in tree stand density. Reduction in stand density can be accomplished without negative impacts to soil resources, and benefits include improved stream flows to benefit fish populations, improved hydrologic dynamics to benefit riparian resources, associated benefits to wildlife populations from increased water resources, and increased herbage production from a more open forest canopy. We find that the draft EIS is deficient in analysis of the economic impact of utilizing fire as the primary forest vegetation type rather than implementing an active and progressive timber harvest program. The draft EIS also neglects to consider cost savings in fire suppression activities afforded by a healthy forest condition.

Response: The Forest is unable to find any direction in the Draft FEIS, Draft Forest Plan, Final EIS, or Final Forest Plan that directs the forest to rely on fire (prescribed or wildfire) as the primary management tool for vegetation. A Forest Plan sets strategic direction. The tools to best meet that DFC or Objectives of the Forest Plan are decided at the site-specific project level. The Forest could find no reference in the FEIS or Final Forest Plan that would restrict evaluating timber harvest as a tool to achieve DFC, with the exception of wilderness areas, recommended wilderness areas, and wilderness study areas.

The Forest agrees that under the right circumstance timber harvest is an effective and efficient tool to achieve a specific vegetative DFC's or management objective. There are also situations where timber harvest is not the best tool to achieve a particular DFC or objective. The decision to use timber harvest, prescribed fire, and/or pre-commercial thinning to achieve a DFC or management objective is made at the site-specific project level. It is not appropriate for the Forest Plan to identify timber harvest as the primary tool to achieve vegetative objectives since there is not enough site-specific information to make such a decision.

Wildlife

Issues with Alternative 5

Comment 7: The Wildlife subsection of Chapter 3, Volume 1 of the draft EIS is narrow in scope, emphasizes relatively minor influences as Effects Indicators (Open Road Density,

Aspen regeneration, and snag distribution), and overlooks the major influence of healthy forest and resource condition.

Response: This comment does not provide any documentation to support a claim that the major influence on wildlife is healthy forests and that open road density, aspen regeneration, and snag distribution have only minor influences. As outlined in the wildlife section of the FEIS, aspen regeneration is related to a viability concern for some species. Also numerous studies consistently indicate open motorized routes are one of the more important wildlife habitat concerns. Snag distribution is very important to the viability of several species of birds, including the blackback woodpecker.

Comment 8: Old growth figures shown in Table 17 show that estimates of old growth forest types on the B-D are at a minimum 41% in excess of that called for under Alternative 5. Since the figures utilized for Alternative 5 are supportive of a mythical HRV, it follows that lack of timber harvest, and lack of active resource management has resulted in unhealthy forest and resource conditions. This again points out the fallacy of utilizing HRV as a guiding resource management philosophy.

Response: The statement that, “Old growth figures shown in Table 17 show that estimates of old growth forest types on the B-D are at a minimum 41% in excess of that called for under Alternative 5” misrepresent the old-growth objective in the Forest Plan. This statement infers the Forest exceeds a desired condition the Forest is attempting to achieve. The old-growth objective of 10 % is a lower limit the Forest does not want to go below, it is not a desire to get to 10 % old-growth.

Comment 9: Open road density is promoted as a concern for wild ungulate security issues. Table 18 indicates that nearly every Elk Management Unit contains more individuals than are called for in the Montana Fish Wildlife and Parks Elk Management Plan. In fact across the B-D numbers of elk exceed the plan populations by 4,500 to 7,000 individuals. It appears that current road density and forest access are not hampering elk numbers. Other concerns related to habitat quality driven by healthy forests and resources, have a much greater impact on wild ungulate numbers than road and access issues.

Response: As Granite County has pointed out, the numbers of elk do exceed current Montana State objectives. This is a Montana State Fish Wildlife and Parks (MFWP) issue, which is addressed by MFWP not the Forest Plan. MFWP is responsible for wildlife populations, the Forest Plan addresses habitat. There are many reasons for the current number of elk. The Forest, MFWP, and other research are in agreement that open motorized road densities are a major factor in the management of elk herds as a hunted big game species.

The statement above which states, “Other concerns related to habitat quality driven by healthy forests and resources, have a much greater impact on wild ungulate numbers than road and access issues” was not supported by any research or science. The Forest agrees habitat is important, however, the Forest found no strong correlation between healthy forests and elk numbers, particularly in the absence of considering open motorized roads or trails.

The full discussion of the effects of the alternatives on elk habitat can be found in the Final EIS in Chapter III under the heading of wildlife.

Comment 10: Healthy forest and resource conditions must be the paramount management concern, and should provide the overall governing principle for all resource management

decisions on the B-D. According to inventory information provided in the draft EIS, current conditions are an overstocked, disease and insect infested forest type that lacks adequate demographic distribution, vegetative structure, and provides conifer encroachment on grasslands and shrub dominated plant communities.

Appropriate timber harvest is the best available tool to realize resource management goals. The number of acres classified as suitable for timber should be increased to approximately 824,000 acres forestwide (see timber section for rationale).

Response Acres of land available for timber harvest range from 1,900,000 to 1,260,000 (See FEIS Chapter 2, Alternative comparison)

Comment 11: Open road density obviously has a minor impact on wild ungulate populations as evidenced by inventory numbers shown in Table 18. Aspen regeneration will be enhanced by timber harvest, and associated wildlife species will benefit as well. Snags are important wildlife resources and a part of a healthy forest vegetation type. Utilizing existing timber harvest technology and application of uneven aged management strategies will promote appropriate levels of snags while achieving healthy forest conditions. Cut-to-length harvest equipment is capable of developing healthy forest resources in a predictable and desirable method that provides an economic benefit. Fire, as a management tool, will not provide predictable results, and has a relatively small impact on local economies. The draft EIS is deficient in analyzing the relative economic impacts of utilizing progressive timber harvest practices to application of fire as a management tool. It is imperative that the Forest Service provides this analysis to determine the best use of taxpayer funds in achieving desirable resource management goals.

Response: The statement, “Open road density obviously has a minor impact on wild ungulate populations as evidenced by inventory numbers shown in Table 18” is an oversimplification of the dynamics of elk populations and MFWP management objectives.

In some situations aspen regeneration and some wildlife species benefit from timber harvest as well as other vegetative treatments. Snags are important to some wildlife species. However, the number of snags needed for species like the black backed woodpecker, are greater than what some people consider to be appropriate under a healthy forest concept (see wildlife effects discussion for black back woodpecker in the Final FEIS).

We are aware there is equipment and technology today that have minimal impacts on forest resources and that the removal of forest products benefits local economies. Different alternatives were analyzed related to suitable timber lands and harvest levels. (See social and economic effects discussion in the Final EIS). The Forest did not analyze the value of utilizing different tools to achieve a desired condition or vegetative treatment. This would be a site-specific project level decision. The Forest agrees the removal of a forest product has more value to the local economy than a treatment which utilizes fire. However, economics is not the only criteria used to determine what the best tool is to achieve a desired condition or objectives.

Comment 12: Old growth timber stands are an important resource for a number of wildlife species. However, past management practices applied by the Forest Service have created an undesirable and unhealthy forest vegetation type. Values provided in Table 17 illustrate the effects of passive resource management and the inherent problems with this management philosophy. Again, uneven aged management of timber stands will provide an

appropriate level of old growth timber stands, while maintaining overall forest health. Fire is promoted as the primary tool to realize healthy forests and resources. This cannot be achieved with current stocking rates on timbered lands, and disease and insect infested stands. The draft EIS fails to analyze the likelihood of stand replacing fires from application of fire as a management tool. Stand replacing fires are not typical of many of the forest vegetation types on the B-D, and resource management goal realization will not be aided by application of fire as a primary resource management tool. The B-D needs to provide an analysis of likelihood of stand replacing fires based upon forest vegetation type inventories and fire prediction models.

Response: This comment implies the Forest Service has a passive management philosophy. Quite to the contrary, the current Forest Plan (Alternative 1) has over 600,000 acres of suitable timber land and an aggressive fire suppression policy. The current condition has evolved during the implementation of a Forest Plan built on a very aggressive maximizing timber management philosophy. The management that has taken place over the last 15 years is the result of the current Forest Plan, new laws and regulations, budget, and court rulings. There has not been a conscious decision by the Forest to implement a passive management philosophy.

Granite County bases many of these comments on a misrepresentation of Alternative 5. Alternative 5 does not emphasize fire over timber harvest as the primary vegetative management tool. Again the Forest is unable to find any documentation in the Draft or Final EIS which supports this conclusion. The Final EIS and Final Plan have been updated to better clarify this point.

Wildfire has been and is predicted to continue to be a major disturbance factor across the forest. This is not a management decision; it is recognition of what has happened and what is predicted to continue. There is no information indicating wildfires will not continue to happen as a result of timber harvest at a landscape or forest scale. See Final EIS, Chapter III, under the heading, “Timber”.

Aquatic Resource Management

Issues with Alternative 5

Comment 13: Montana Department of Environmental Quality Section 303(d) listed streams should not be utilized by the Forest Service for any planning or management purposes. Streams within Granite County on the 303(d) list were often arbitrarily placed on the list, and credible data does not exist to justify listing.

Response: The Forest has no choice but to recognize Montana Department of Environmental Quality’s 303(d) listed streams under the Clean Water Act. The Forest will proceed under the process to evaluate and make determinations using the Total maximum Daily Load (TMDL) process, which includes evaluation of the validity of the listing.

Comment 14: Attributing riparian condition to past resource is not documented, and no data is presented to justify identifying “improper livestock grazing”, silvicultural practices, road building, or fire suppression as primary influences. No mention is made of natural stream dynamics, wildlife impacts from an inflated population of wild ungulates, and recreational impacts are arbitrarily assigned an impact of a lesser degree.

Response: The Final EIS documents the information supporting that past management action, such as livestock grazing, timber harvest, and road construction, are primary influences to reductions in watershed and stream health.

Comment 15: The Forest Service will develop data independent of the Montana DEQ 303(d) list to assess the degree of stream quality. The 303(d) list is not substantiated by credible data and will not stand the test of a court case. Credible data must be collected to accurately assess stream quality, and until that data can be collected and analyzed no designation of stream quality can be justified.

Response: See response to Comments 13.

Comment 16: As stated in the Draft EIS most riparian habitat types across the Forest and in Granite County are functioning at or near potential. It is important to note that advances in grazing system design and timber harvest technology make those resource uses beneficial to riparian resources. Cut-to-length timber harvest equipment will benefit riparian habitats by providing additional water, and not contributing to streambank disturbance, or contributing sediment to the stream. The B-D needs to provide an analysis of available resource management tools including advanced timber harvest techniques and grazing systems to address riparian concerns.

Response: The Forest acknowledges there has been improvement in grazing and timber harvest systems.

Recreation and Travel Management

Issues with Alternative 5

Comment 17: The Draft EIS states that for all recreation settings supply exceeds demands, and particularly for non-motorized settings in both seasons. Additional acreage set aside for non-motorized recreation, and additional closures for both summer and winter are not warranted or justified.

Response: The Forest acknowledges Granite County opposes any additional restrictions to motorized recreation and prefers Alternative 4. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Forest Plan.

Comment 18: Forest access and travel management are critical factors for the citizens of Granite County in preserving County customs and culture. Alternative 5 provides additional restrictions for forest travel for both summer and winter seasons. In fact, while acreages presented in the Draft EIS appear to be relatively small, the increase in travel restrictions in summer amounts to nearly a 50% increase, and the increase in winter travel amounts to a 100% increase in travel restrictions.

Response: Alternative 6 was developed in response to public comments on the Draft EIS and Draft Forest Plan.

The numbers presented in this comment do not match those in the analysis. See Final EIS, Chapter III, under the heading “Recreation” for effects analysis and differences between alternatives.

Comment 19: Increasing population nationally and regionally will undoubtedly have an impact on B-D resource management, but for the foreseeable future an adequate supply of

non-motorized recreational settings is available. The Draft EIS does not provide data to support a justification of additional restrictions to motorized access to the Forest. The B-D does not provide any analysis regarding access issues to disabled recreationists to forest resources. An analysis needs to be completed to evaluate impacts of additional travel restrictions on disabled forest visitors.

Response: Recreation is not the only factor in considering whether or not motorized travel needs to be restricted. The analysis of impacts is documented in the Final EIS, Chapter III.

A discussion on the impacts to disabled forest visitors has been added to the Final EIS.

Comment 20: Granite County is a natural resource based county both economically and socially. The customs and culture of the County dictate that use of forest resources occurs on a regular basis. No road or trail closures are justified in the Draft EIS through existing resource conditions or projected resource use. The impact of road and access restrictions is to hamper Granite County customs and culture. Local access to forest resources is part of Granite County life. The B-D is systematically dismantling the customs and culture of Granite County, and an analysis needs to be included in the EIS to address local impacts of road and trail closures. The Granite County Natural Resources Land Use Plan provides a framework for Granite County Commissioners to protect County customs and culture. We are recommending that no additional road or trail closures be included in the Forest Plan.

Response: The Forest acknowledges that Granite County is not in favor of any additional road or trail closures. Alternative 3 does not restrict motorized travel on any roads or trails currently open to motorized travel.

Fire Management

Issues with Alternative 5

Comment 21: Healthy forests and resources are not even mentioned in addressing fire management in the Draft EIS. Healthy Forests and resources, which are currently uncommon on the B-D, allow fire to act in a beneficial manner in forest vegetation types. Again, the philosophy of HRV is applied to fire management. The idea that historical fire frequency and intensity should be a guiding principle is fundamentally flawed. Current forest vegetation does not reflect HRV, and there is no reason to expect that fire behavior will reflect historical fire activity.

Response: For some areas on the forest, vegetation is currently outside of HRV and the Forest does not expect fire to behave in a historic manner. See response to Comment 1 concerning HRV.

The Forest identified an objective to treat vegetation (with a variety of treatment options) that is outside the historic condition and bring it into a more historic condition. Mechanical treatment, use of fire, and other methods may be used to treat vegetation to return forest the closer to HRV.

Comment 22: Current forest vegetation conditions do not lend themselves to predictable positive impacts from application of prescribed fire or planed wildland fire. The Draft EIS states a deficiency in data regarding disease and insect impacts on the Douglas fir type. Without that knowledge application of fire is “flying blind”, and prediction of resulting forest vegetation quality is not possible.

Response: Although some vegetative types and fuels are outside of historic conditions, the type and intensity of fire, which may occur, is predictable using the best available science. What is also predictable is the more the Forest suppresses fire, the larger and more intense fires are over time. There is no data supporting that a total fire suppression policy is achievable. It is also predictable that given the laws, regulations, and public values, the Forest is not capable of treating enough vegetation mechanically to successfully eliminate unwanted fire from a fire dependant ecosystem. We do have experience with uncharacteristic fire effects in these fuel conditions.

The Final EIS includes a discussion of insect and disease impacts in Chapter 3, under the Vegetation heading.

Comment 23: Alternative 5 indicates that nearly all of B-D administered lands in Granite County are slated for planned wildland fire use. No analysis of economic impacts to recreation and tourism, cost of fire management (costs for the Signal Rock planned wildland fire exceeded 4 million dollars, nearly 10% of the budget for the B-D), or a contrasting economic analysis for appropriate timber harvest activities to achieve a healthy forest.

Response: It is a mis-characteristic of Alternative 5 to say that the land is slated for planned wildland fire use. This infers that there is a set plan to allow this area to burn. This is not accurate. Wildland fire use is only an option as part of the appropriate management response to a fire, which includes a variety of action including full suppression. Alternative 5 allows the use of wildland fire use as an option if conditions warrant such action. In fact, it is assumed that this option would be used rarely.

Signal Rock Fire is a good example of the financial benefits of a wildland fire use program. Because this area did not allow for wildland fire use as an option, the fire suppression costs exceeded 4 million dollar. Had the option of wildland fire use been available the suppression cost of Signal Rock Fire could have been less.

The effects of wildland fire use are either the same or less than current condition of having no wildland fire use options. Wildfire (as during the 2000 fire year) and their effects are going to happen, Alternative 1- No Action Alternative. The option of a wildland fire use action allows the Forest to allow certain fire to burn under conditions that are less impactive and therefore the effects are less impactive. See Final EIS, Chapter III, for each of the resource area for effects discussion. All resource indicates same or less affect of fires under a wildland fire use alternative.

The lack of resources and current fuel conditions restrict our ability to achieve full perimeter control on all fires.

Comment 24: Fire management proposed by Alternative 5 combined with proposed inventoried roadless designations does not adequately address Wildland-Urban Interface issues. Areas identified as roadless and slated for planned wildland fire coincide directly with areas identified as a concern from the wildland-urban interface perspective. (see attached maps)

Response: Wildland-Urban interface issues are part of the inputs that go into selecting the appropriate management response to a fire. This is determined at the time of the fire and will be

coordinated with the County (See revised Forest Plan, Chapter 3 under the heading Fire Management.

Comment 25: A number of areas designated for application of planned wildland fire use and receiving roadless designation have missed three or more fire cycles, and will not provide a predictable or desirable forest vegetation condition.

Response: Alternative 5 allows the use of wildland fire use as an option if conditions warrant such action. In fact, it is assumed that this option would be used rarely.

Although some vegetative types and fuels are outside of historic conditions, the type and intensity of fire, which may occur, is predictable using the best available science. What is also predictable is the more the Forest suppresses fire, the larger and more intense fire are over time. There is no data supporting that a total fire suppression policy is achievable. It is also predictable that given the laws, regulations, and public values, the Forest is not capable of treating enough vegetation mechanically to successfully eliminate unwanted fire from a fire dependant ecosystem. We do have experience with uncharacteristic fire effects in these fuel conditions.

Wildland fire, as a change agent, in the ecosystem will help move vegetation closer to HRV.

Alternative 6 includes the new fire policy of Appropriate Management Response to wild fires. See FEIS, Chapter 3, Fire Management.

Comment 26: Healthy forests and resources should be the guiding principle for all resource management decisions on the B-D. Given current conditions, HRV and historic fire frequency are irrelevant concepts. Timber harvest should be the primary tool to assure healthy forest conditions. Application of uneven aged management principles will provide a healthy forest vegetation type that will allow for beneficial use of fire in the future. The B-D needs to complete an economic analysis for the relative costs and benefits of timber harvest vs. application of fire as a primary management tool.

Response: The Forest is not proposing fire as a primary management tool. This analysis is not necessary nor could it be completed because there are too many variables.

Comment 27: Current inventory data does not exist for all forest vegetation types to predict potential benefits or harm from the application of fire as a management tool. The Draft EIS states that inventory data for the Douglas fir type has not been completed relative to disease and insect infestations. The B-D needs to develop that information prior to any recommendation for the use of fire. Lacking that information, there is no credible method to predict future forest and resource health.

Response: The FIES had been updated to reflect information the most recent disease and insect infestation information.

Comment 28: Costs associated with application of prescribed or wildland fire as management tools are not restricted to that of fire management. Recreation and tourism are adversely affected, as well as, additional health care costs for those with respiratory health issues. Anecdotal evidence provided by tourist business interests in Granite and Deer Lodge Counties indicate that while the Signal Rock fire was burning business dropped off dramatically. Visitors made specific note that they had no interest in remaining in the area as smoke choked the valleys and prohibited viewing any scenery. Summer is the primary season for most tourist related businesses to acquire revenue, and

fires will have a strong negative impact on those businesses. The B-D needs to include an analysis in the EIS to address collateral economic impacts from the application of fire as a management tool.

Response: The FEIS does display the impacts of forest management on recreation visits to the forest in terms of employment and labor income, by alternative, in the section “Community Economics and Social Impacts”. This analysis does not attempt to quantify the effects smoke from wildfires may have on recreation visits to the forest because of the difficulty of predicting the location, size and scale of unplanned ignitions, and the smoke and weather patterns at the time. The analysis also cannot estimate the effects on tourism other than forest visitation. External factors besides forest management influence tourism: price of gas, special events schedules, weather, fires in other regions of the west, and even terrorism.

The FEIS predicts that effects related to unplanned ignitions like Signal rock will not vary widely among alternatives. For all alternatives, including No Action, the appropriate management response will be taken where life or values are at risk and are cost effective. See the FEIS, Fire Management, Effects Common to all Alternatives.

Comment 29: Wildland-Urban interface maps (see attached) indicate that many of the areas of concern for fire near the urban interface coincide with areas designated as roadless and destined for planned wildland fire application. As County Commissioners for Granite County, we view this as intentionally placing the lives and property of Granite County citizens at risk. This is unacceptable. Timber harvest plans should be immediately implemented to provide for a healthy forest that will reduce the likelihood of catastrophic fire. Again, application of proven uneven aged management principles will provide a forest vegetation type that promotes all resources, while reducing the risk of catastrophic fire in the wildland-urban interface.

Response: It is a mis-characteristic of Alternative 5 to say that the land is slated for planned wildland fire use. This infers that there is a set plan to allow this area to burn. This is not accurate. Wildland fire use is only an option as part of the appropriate management response to a fire, which include a variety of action including full suppression. Alternative 5 allows the use of wildland fire use as an option if conditions warrant such action. In fact, it is assumed that this option would be used rarely.

We would agree that within and around the urban interface areas need to be treated to provide protection from wildland fire. These would be accomplished through site-specific fuels projects designed to implement the Revised Forest Plan.

Comment 30: Past fire suppression activities have aided in the development of unacceptable forest vegetation types. Many areas (see attached map) have missed three or more historic fire cycles, and it is not realistic to expect those sites to respond in a favorable manner to the application of fire. Timber harvest should be considered as the primary tool to provide for healthy forest vegetation on these sites. The EIS should include a specific cost/benefit analysis for the application of fire vs. timber harvest on these sites.

Response: The FEIS examines the costs and benefits of six alternatives which include timber harvest and fire as tools to achieve desired vegetation types. The economic opportunity costs of allowing natural processes to operate versus using timber harvest are described in the FEIS, Community Economics and Social Impacts, Effects on Economic Efficiency in the paragraph

comparing the present net value (cost/benefit ratio) of Alternative 3 to the Maximum Present Net Value for timber.

Timber Production

Issues with Alternative 5

Comment 31: Designation of “Suitable Timberland” is fundamentally flawed in the Draft EIS, and is based upon a non-scientific faulty management philosophy. The guiding principle for Timber Production is litigation avoidance. This does not serve the public interest nor does it constitute good resource management. It is stated in the Draft EIS that the entire Rock Creek drainage has been removed from consideration. This designation is unsupportable from a healthy forest perspective.

Response: Suitable Timberlands was developed according to 36 CFR 219.14. Although Rock Creek drainage was removed from the Suitable Timber base in Alternative 5, timber harvest may occur to achieve a healthy forest objective. This was not clear in the DEIS and Draft Forest Plan. This has been clarified in the FEIS and Revised Forest Plan.

Comment 32: Inconsistency is rampant through the Draft EIS and Draft Forest Plan. The Timber Suitability Determination Protocol states that for Riparian Habitat Conservation a 300-foot buffer from perennial streams and 150-foot buffer from intermittent streams has been utilized. In the riparian discussion in the Draft EIS conifer encroachment is identified as a primary contributor to reductions in the riparian shrub plant community.

Response: Suitable Timberlands was developed according to 36 CFR 219.14. Although Riparian Habitat Conservation Areas were removed from the Suitable Timber base in Alternative 5, timber harvest may occur in these areas to achieve riparian management objectives. This was not clear in the DEIS and Draft Forest Plan. This has been clarified in the FEIS and Revised Forest Plan.

Comment 33: The Draft EIS fails to recognize or even acknowledge the benefits of uneven aged management of forest vegetation.

Response: Uneven age management is a tool to achieve a desired condition or objective. It is determined at the site-specific project level planning. The Forest acknowledges the benefits of uneven age management, as well as other silvicultural strategies to accomplish Forest desired conditions or objectives.

Comment 34: Economic impacts to the largest private employer in Granite County and associated supporting businesses is not considered or addressed.

Response: While the narrative on page 416 of the DEIS did misstate the nature of logging industry in Granite County where it says “Granite County has no mills but several small logging related business”, the economic impact analysis DID account for these businesses. The sentences before and after the erroneous statement affirm your description of the timber industry as a substantial part of the Granite County economy. The Final EIS presents a clearer picture of the importance of the wood products industry in Granite County.

The data used to run the IMPLAN analysis model and project the changes in employment and labor income by alternative comes from the US Census data for the logging, sawmill, and wood products sectors for Granite County and includes 173 jobs (IMPLAN, 2000, Standard Industrial

Classification). So while the narrative left out a description of the mill, the calculation of effects on employment and labor income for the mill WERE accounted for.

Comment 35: Funding sources from utilizing stewardship contracts is not addressed or considered.

Response: The Forest Plan is a strategic document. The use of Stewardship contracts is an implementation process and not a Forest Plan decision. The Forest Plan does not prohibit their use and does not need to list all of the ways to implement the Forest Plan. The use of stewardship contracts is a very useful tool.

Comment 36: Again, promotion of healthy forests and resources is not utilized as a guiding principle for timber management. In attempting to anticipate possible litigation the B-D is promoting a flawed plan.

Response: The Forest thanks Granite County for their comment.

Comment 37: Through consultation with Ecosystem Research Group, which has completed a thorough review of the Draft EIS and Draft Forest Plan, we feel quite strongly that the Suitable Timberland figure for the B-D should be approximately 824,000 acres. Not the 216,000 acres designated by alternative 5. (see attachment titled Calculating ERG Suitable Timber Base) The figure of 824,000 acres is a more accurate reflection of lands requiring treatment to achieve a healthy forest. Additionally, the Granite County Natural Resources Land Use Plan establishes a value of approximately 30 million board feet as the annual production of forest vegetation types in Granite County. Alternative 5 shows an annual harvest of timber approaching 9 million board feet forestwide. Harvesting 9 million board feet simply adds to overstocked forest vegetation types that are conducive to disease and insect infestations. This does not reflect resource management in the public interest or in the interests of Granite County's economy and customs and culture. In a public meeting with Granite County Commissioners former B-D Forest Supervisor Tom Reilly acknowledged forest production in Granite County was a minimum of 20 million board feet. When asked what the fate of forest vegetation types would be with minimal harvest and continued growth, Supervisor Reilly simply stated, "It's going to burn." This does not constitute responsible resource management, and is economically devastating to Granite County. The Suitable Timberland value needs to be increased to 824,000 acres and active uneven aged management principles need to be applied immediately.

Response: Alternative 1 and 4 have large areas of land suitable for timber production. The Forest also evaluated ERG's alternative and the results of that review can be found in the Final EIS, Chapter II, under the heading "Alternatives considered but not analyzed in Detail". Alternative 6 identifies 1,913,000 acres of forested land where timber harvest may occur meet resource objectives including providing for healthy forests..

Comment 38: A visit in 2001 from the National Riparian Team to the B-D specifically identified conifer encroachment and moose utilization as primary contributors to riparian shrub plant community decline. Yet, Alternative 5 removes these areas from timber harvest. Currently available harvest equipment can remove timber from these areas, and enhance other resource in the process. It is convoluted logic to recognize a problem, and promptly eliminate the best tool to address the situation. The B-D needs to provide an

analysis in the EIS to address the viability of timber harvest to achieve desired and healthy riparian resources.

Response: Alternative 5 does not restrict timber harvest in riparian areas. The timber objectives state that timber may be removed from other areas for resource benefits. The only areas restricted from timber harvest are those areas specifically mentioned by management areas.

This has been clarified in the Final EIS and Final Forest Plan.

Comment 39: Uneven aged management of forest vegetation types should be the guiding principle on B-D administered lands. It is not even mentioned in the Draft EIS or Draft Forest Plan. Rather than simply stating timber harvest, it is incumbent upon the B-D to analyze the variety of harvest techniques available to assess relative benefits to the resource and economic impacts on Granite County.

Response: It is not appropriate for the Forest Plan to determine the specific vegetative treatment for an area. The Forest Plan provides the broad strategic direction for the Forest. The treatment to be used is determined at the site-specific project level where specific purpose and need have been established. The Forest agrees uneven aged management is a valid and appropriate system to use to achieve many resource objectives.

Comment 40: Granite County has two wood products facilities and Eagle Stud in Hall is the largest private sector employer in the County. Additionally, there are 12 logging contractors and 6 post and pole contractors. These businesses are directly impacted by forest vegetation management decisions implemented by the B-D. Approximately 80% of forested lands in Granite County are administered by the Forest Service, it follows that 80% of wood supply needs to support local businesses should be made available by the Forest Service through uneven aged thinning.

Response: The social and economic impacts discussion in the DEIS recognizes the importance of wood products to Granite County (page 416, 437). Your descriptions of the businesses listed above are added to the narrative discussion in the FEIS.

The most recent information we have from “Montana’s Forest Products Industry (Charles E. Keegan III, et al, 2001), which was cited in the DEIS on page 416, show that 18% of timber products from the group of Granite, Lake, and Missoula counties came from National Forest lands. We disagree with your contention that since 80% of forested lands in Granite County are National Forest, 80% of the wood supply needs to support local businesses should be made available by the Forest Service. The mission of the National Forest system is to provide a number of multiple uses, which may or may not be compatible with supplying forest products to local businesses. The Forest has analyzed the effects of increasing timber supply to local businesses from current levels in Alternative 4.

Comment 41: A recurrent theme through talks with Forest Service personnel is a lack of funding to complete needed projects. We feel the Forest Service is not exploring all possibilities to achieve desired healthy forests and resources. Stewardship contracts provide a mechanism for the Forest Service to realize resource benefits in an economically feasible manner. If insufficient commercial value trees exist on a site to meet expenses, stewardship contracts could be utilized to achieve resource management goals in a more economic fashion. Stewardship contracts should be included in the Forest Plan as a

management tool, and an analysis should be included in the Draft EIS to assess the applicability of stewardship contracts and their economic benefit to Granite County.

Response: Stewardship contracts are a tool to achieve or accomplish a particular project. The decision to use a stewardship contract is not a Forest Plan decision and is it not necessary to identify stewardship contracts in the Forest Plan. There are many other means to accomplish a project or objective, including but not limited to, MOU's, volunteers, Grants and Agreements, Service Contracts, Timber Sale Contracts, Force Account Crews, Fire Crews, and others. A Forest Plan does not identify the tools to accomplish DFC and Objectives.

Comment 42: Again, a progressive program of uneven aged management of timber resources on 824,000 acres across the forest will provide overall resource benefits. Wildlife populations will benefit from healthy forests and resources, as well as, water quality, air quality from limited application of burning, riparian resources, travel management, and recreational opportunities. Active resource management is the answer, not locking the public away from additional resources and abdicating resource management responsibilities through application of passive management.

Response: Alternative 4 emphasizes mechanical treatment. Alternative 6 was developed to respond to public comments and allows timber harvest to occur on 1,913,000 acres, in addition to providing a variety of other opportunities for people to utilize National Forest lands.

Inventoried Roadless and Recommended Wilderness

Issues with Alternative 5

Comment 43: Increasing roadless areas is counter to responsible resource management and is not justified by documentation included in the Draft EIS.

Response: Roadless areas are an inventory required of the Forest. The Forest does not have a choice as to whether or not to include an area as roadless. If an area meets the criteria for roadless then it is inventoried as such. Appendix C has been update to clarify this.

Comment 44: Increasing inventoried roadless designations discriminates against disabled forest resource users.

Response: Inventorying roadless areas or adding to roadless areas does not discriminate against any forest users. See response to Comment 43.

Comment 45: Increasing inventoried roadless designations will concentrate more vehicle use on open areas and increase impacts on those sites.

Response: The inventory of roadless areas has no impact on motorized travel and in itself does not concentrate use on other areas. It is the land allocations which prescribe different uses that create beneficial or adverse impacts. These allocations are described for each alternative.

Comment 46: Inventoried roadless designation limits the ability to manage fire, and is a major limitation for applying active resource management to areas that are in critical need.

Response: An area inventoried as roadless has additional considerations required when proposing management activities. Roadless area designation may restrict some fire suppression activities.

Comment 47: Designating wilderness areas is in the purvey of Congress, and no additional wilderness areas should be considered at this time.

Response: The Forest acknowledges that Granite County does not support any additional wilderness areas. Alternative 4 does not include any additional recommended wilderness areas. After examining all of the alternatives and public comments, Alternative 6 was developed.

Comment 48: As stated in the Draft EIS under the recreational heading supply of recreational opportunities exceeds demands for all areas, and will for the foreseeable future. There is no justification provided for adding inventoried roadless areas. The net effect of any addition is to limit resource management tools and continue the downward spiral of forest health. The current condition for roads and trails has resulted in a good supply of non-motorized recreational opportunities, wild ungulate populations in excess of planned numbers, and provides access for critical management needs. We oppose any addition to inventoried roadless designations.

Response: Roadless areas are an inventory required of the Forest. The Forest does not have a choice as to whether or not to include an area as roadless. If an area meeting the criteria for roadless then it is inventoried as such.

Comment 49: Many visitors to the B-D have physical limitations due to a disability. Increasing roadless designations unfairly discriminates against disabled forest users, and limits the quality of their recreational experience. No more roadless designations are warranted for good resource management, or providing a quality outdoor experience for all forest users.

Response: Inventorying roadless areas do not discriminate against any forest users.

Comment 50: Adding to inventoried roadless areas does not reduce overall impacts of motorized recreation; it simply concentrates an increasing amount of use to a smaller area. As stated above, documentation indicates an excess of non-motorized recreational opportunities. It is counter to good logic to concentrate more motorized use on a reduced area, and expect resource benefits. Again, no additional roadless areas are needed. The Draft EIS also neglects to address resource impacts of concentrated motorized recreation. This analysis needs to be included in the final EIS.

Response: The concentration of motorized use has been addressed in the Final EIS, Chapter III, under the heading of “Recreation and Travel Management”.

Comment 51: Promoting fire as a primary resource management tool, and concurrently adding to roadless area designations is convoluted logic. Fires require management, particularly if they are planned wildland fires. We have addressed the relative benefits of appropriate timber harvest over prescribed fire and planned wildland fire, and some roads will be required to meet the desired objective of healthy forests and resources.

Response: This comment has been addressed previously. The Draft EIS, Draft Forest Plan, Final EIS, and Final Forest Plan do not promote fire as a primary resource tool. The Forest Plan does not promote one tool over another. Those areas allocated to recommended wilderness or designated as a wilderness area or wilderness study area do restrict mechanical treatment of vegetation. There is little difference between the current condition (current forest plan) and

Alternative 5 or 6, as far as, acres of forested lands available for vegetation treatment (see Chapter III, under the heading of vegetation and suitable timber).

Comment 52: Additional wilderness designation is not a benefit to Granite County. Continued locking away of critical resources is detrimental to the customs and culture of Granite County. If the proposals for Alternative 5 go forward with wilderness designations and added roadless areas, the Forest Service will have placed itself in a position to be unable to effectively manage resources. Note the key word in the previous sentence is ‘manage’. The current direction of management on Forest Service administered lands appears to be to lock out the public, let disease and insects kill the timber, then stand back and watch it burn, because after all it is a planned wildland fire. As elected representatives of Granite County we cannot allow this to stand.

Response: This statement also indicates confusion related to inventoried roadless areas and recommended wilderness. Very little of Granite County is recommended for wilderness in Alternative 5 (3,485 acres, 1 % of NF lands in Granite County). Roadless areas are an inventory, not a Forest Plan decision. The acres of roadless area currently in Granite County are 217,011 acres or 46% of NF lands in Granite County. The acres of roadless areas in Granite County after forest plan revision updated the inventory are 215,073 acres. This resulted in a reduction of 1,938 acres.

The Forest could not find any documentation in the Draft or Final FEIS or Plan that supports the conclusions made by this comment.

Social and Economic Impacts

Issues with Alternative 5

Comment 53: Economic analysis in the Draft EIS is erroneous on a number of issues, and draws distorted conclusions from adopting Alternative 5 as the preferred alternative.

Response: This issue is described and responded to in detail below.

Comment 54: The Draft EIS utilizes information from inappropriate sources to justify faulty conclusions regarding economic trends and impacts.

Response: This issue is described and responded to in detail below.

Comment 55: The Draft EIS does not address impacts to the customs and culture of Granite County as affected by adoption of Alternative 5.

Response: This issue is described and responded to in detail below.

Comment 56: The Draft EIS states “Granite County has no mills.” In fact, the largest private sector employer in the County is Eagle Stud Mill located in Hall. An omission of this nature calls to question the validity of the entire economic analysis. The economic diversity measures provide a skewed view of Granite County economics. Revenue generated from natural resource based industries of wood products, logging, and ranching constitute the largest contributor by a large degree. Granite County has been and remains a natural resource based County, and management decisions implemented by the Forest Service have a strong impact on all of Granite County. Given the economic structure of Missoula, Butte-Silver Bow, and Jefferson Counties it is not surprising that only 2.1% of industry output within the impact area is attributed to the timber industry. In Granite

County that is not the case. The timber industry is extremely important to Granite County, and this analysis is deficient in addressing specific impacts to Granite County. Simply citing figures related to economic diversity is not adequate. Circular reasoning also raises its head in this section. In the past there were a minimum of three mills in Granite County, and as noted in the Draft EIS, timber production from federal lands has dramatically declined over the past 20 to 25 years. Now, that only one mill remains, which was overlooked in the analysis, the economic impact must be minor. If all mills had been forced to close, would the conclusion be that there is no economic impact associated with alternative 5?

Response: While the narrative on page 416 of the DEIS did misstate the nature of logging industry in Granite County where it says “Granite County has no mills but several small logging related business”, the economic impact analysis DID account for these businesses. The sentences before and after the erroneous statement affirm Granite County’s description of the timber industry as a substantial part of the Granite County economy. The Forest has corrected that statement in the Final EIS. The data the Forest used to run the IMPLAN analysis model comes from the logging, sawmill, and wood products sectors for Granite County and includes 173 jobs (IMPLAN, 2000, Standard Industrial Classification) UPDATE THIS DATA TO IMPLAN 2002, NAICS AFTER WE RUN THE MODEL. So while the DEIS narrative left out a description of the mill, the employment and labor income for the mill ARE accounted for.

Granite County states “the economic diversity measures provide a skewed view of Granite County economics”. While diversity indices are useful in looking at trends, the Forest recognizes the limits of these indices in the DEIS and FEIS, using Granite County as the example and stating, “(W)hile data in the table suggests modestly diverse economies, in the smallest counties a sector may be composed of relatively few businesses. For example, adding or subtracting 10 or 15 businesses could have an impact on the index in Granite County, which according to 1999 REIS data had only 89 business establishments.” The effects analysis describes the concern of concentrating employment loss in Powell, Granite and Broadwater counties from reducing timber harvests (FEIS, Chapter 3, under the Economics and Social Values heading).

Granite County expresses the concern that it is lumped in with other counties to derive the 2.1% of industry output generated by timber harvest. The FEIS does recognize that Granite, Powell and Broadwater Counties differ from the remaining counties in their reliance on the timber industry described in the FEIS, Chapter 3, under the Economics and Social Values heading. Missoula was not included in the economic analysis for the very reason Granite County points out.

Granite County asserts that distorted conclusions were made by using the existing timber industry to calculate economic impacts rather than using the level of timber industry which existed in the past. While we can and have narratively described the cumulative impacts of reduced timber flows from public lands and mills closing over the past decade, the economic impact analysis model is only designed to use current economic data to compare alternative outputs. The model requires very specific data on industry output, employment, income, tax, etc and the relationships between those industries for every industry sector in a County. Even if the Forest were able to build historic data for one or two sectors, the information for every other sector (recreation, transportation, construction) has changed too and would be incompatible as would all the economic multipliers. So while the impact analysis is confined to comparisons with

the County industries as they are now, we have improved our narrative discussion of effects of reduced timber harvest over time in the FEIS.

Comment 57: It is inappropriate for the Forest Service to cite The Sonoran Institute to justify economic findings. The Sonoran Institute is a politically active organization with an agenda for the Rocky Mountain region. The fact that the Forest Service is utilizing information from this group calls to question if a violation of the Federal Advisory Committee Act was committed to assure desired outcomes for the economic analysis. We expect the Forest Service to conduct independent economic analysis of proposals without influence from politically active organizations that do not have standing to have input on federal resource management.

Response: The DEIS and FEIS cite the Sonoran Institute research as well as Colorado State University and University of Montana research in a description of alternative methods available for looking at economic values of wilderness and protected lands. We evaluated this methodology, as we were asked to in public comment, and describe why we were unable to use it. Note that the paragraph which follows states that “This (economic impact) analysis does NOT quantify the more theoretical effects to passive-use values or ecosystem services described above” and “does not use the approach described” in the research. The research was presented as information only and was not used to “justify economic findings” as implied. Citing accepted and published research is not a violation of FACA.

Comment 58: The customs and culture of Granite County as described in the Granite County Natural Resources Land Use Plan are founded on natural resources and their integral role in the lives of granite County citizens. The Draft EIS does not provide adequate analysis of additional wilderness designation, additional summer and winter travel restrictions, and advocating the use of fire over timber harvest. Each of these proposals runs counter to the customs and culture of Granite County, and we object strongly to incorporating them into the Forest Plan.

Response: While the DEIS describes direct and indirect effects to the social environment for traditional rights and traditional users as outlined on page 442, we have more clearly tied those effects to the customs and culture of Granite County in the Final EIS. However, you are not clear about why the analysis is not “adequate” so it is difficult to respond.

Effects to the social and economic environment from wilderness recommendations are presented in the Economics and Social Values section as well as under the Recommended Wilderness and Recreation and Travel Management sections. Summer and winter travel restrictions are analyzed in detail by Landscape in the Recreation section. Effects to the Clark Fork Flint and Upper Rock Creek Landscape begin on page 481. Alternative 5 does not advocate the use of fire over timber harvest and the Forest was unable to find any documentation supporting that conclusion.

Alternative 3 advocates the use of natural processes over mechanical means to manage vegetation; however, Alternative 3 still does not restrict the consideration of timber harvest at the site-specific project level. A Forest Plan sets strategic direction. The tools to best meet that DFC or Objectives of the Forest Plan are decided at the site-specific project level. There is no reference in the FEIS or Final Forest Plan which would restrict evaluating timber harvest as a tool to achieve DFC, with the exception of wilderness areas, recommended wilderness areas, and wilderness study areas.

Comment 59: The Revised Forest Plan and FEIS needs to have accurate definitions of terms and information on regulation and policy. Without full knowledge of definitions and impacts of pertinent federal regulations it is difficult to make meaningful input.

Response: The Revised Forest Plan and FEIS have been updated to provide better definition, clarify term, and provide information on pertinent regulations and policies.

House of Representatives, State of Idaho

Comment 1: Closing the Mt. Jefferson area to snowmobiling, or any reduction in snowmobiling, would kill Island Park's winter economy and have a detrimental effect on other businesses in the region that depend directly and indirectly on snowmobiling. The federal government should not be a party to wrecking local economy or disturbing the area's culture. Winter economy is doubly important in Idaho because winters are long and summers are short.

Response: Mt Jefferson is allocated as winter non-motorized in Alternatives 2, 3, and 5. Alternatives 1 and 4 allow for motorized winter use. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Forest Plan, and allows for snowmobiling in the southern half of the area (see Revised Forest Plan, Mt Jefferson Management Area). After examining all alternatives and public comments, the deciding official proposes to select Alternative 6.

The economic effect of the alternative can be found in the Final EIS, Chapter III, under the heading of Economics.

Comment 2: Common sense Idahoans are multiple use advocates. Skiers, backpackers, hunters, photographers, birdwatchers, et. Al, have no more right to access this area than snowmobilers. If you deny one, deny all. Snowmobile organizations have co-operated with clean-up activity, which found minimal trash-at least half of which was generated by hunting and backpacking camps.

Response: See response to Comment 1.

Comment 3: Protecting wildlife and wilderness values is always carried to the extreme by green groups. These groups use the courts to promote their no-access agenda and intimidate federal land managers. Wildlife are adaptable. They will accommodate or avoid no-threatening presence. That is their nature. Wildlife, a state resource, will suffer greater loss from wolf predations than motorized recreation.

Response: See response to comment 1.

Comment 4: Wilderness values belong to everyone, not just green groups. There can be no wilderness experience without access. If you can get there, by whatever means, you have a constitutional right to be there as long as you behave responsibly.

Response: After researching the Constitution of the United States we were unable to find any discussion which supports a constitutional right to access wilderness by whatever means. Article IV, Section 3 of the Constitution gives Congress the power to "make all needful Rules and Regulations respecting the Territories or other Properties belonging to the United States." Under

this authority, Congress enacted the Wilderness Act of 1964, which does limit how the public may access wilderness areas.

Comment 5: As a member of state government, I understand the pressures brought to bear by extremist environmental groups; i.e., The greater Yellowstone Coalition, Montana Wilderness Association, and Predator Conservation Alliance. These radical represent their own narrow self-interest, not the interests of the tax-paying public-at-large.

Response: In reviewing comments submitted by these groups (i.e., Greater Yellowstone Coalition, Montana Wilderness Association, and Predator Conservation Alliance) we found none of the alleged pressure. We also find that groups on opposite sides of issues rarely see the position of their opponents as reasonable. It falls to the Forest Service to discern both what may be in the interest of the public as a whole and in keeping with law and policy.

Comment 6: Mt. Jefferson snowmobiling tradition is important to the State of Idaho and to the economy of Island Park and adjacent areas.

Response: Alternative 6 was developed in response to this comment, as well as many other comments expressing concerns for this area.

Jefferson County Commission

Comment 1: The County Commissioners of Jefferson County are writing this letter to support the Forest Products Industry comments to the BDNF Draft Plan and DEIS. The industry comments are based on the best available science and reflect how we would like to see the BDNF managed over the next 15 years.

Response: Thank you for your comment. The Forest Products Industry comments you referred to have been identified as the “Coalitions” comments. The Forest has responded to their comments, which are part of the Final EIS.

Comment 2: Jefferson County has 361,066 acres of the BDNF within its boundaries with 92,704 of these acres designated as Roadless or Recommended Wilderness, which are off limits or very restive to management. We believe, and as reflected in the industries comments, that there is additional suitable timber within our county that can be managed to improve forest health, reduce fire hazard, reduce forest insect outbreaks, while at the same time support our local economy. The comments express similar concerns we have with potential impacts to our local communities and important natural resources. The following are key issues which are addressed in the forest products industry comments which we support:

- Support the need for healthy forest working within a disturbance dependent ecosystem.
- Relies on timber harvest as a management tool to achieve healthy forest instead of fire as proposed in the preferred Alternative 5 by the BDNF.
- Reduces the amount of uncharacteristic wildfire occurrences.
- Reduces insect mortality
- Optimizes wildlife habitat and ensures viability of those species native to the BDNF.

Response: The initial statement is correct concerning roadless and recommended wilderness acres in Jefferson County. There are 92,969 acres of roadless area and 11,190 acres of recommended wilderness (Alternative 5).

The Forest agrees there are additional lands outside of the suitable timberlands (those lands managed for timber production) available to improve forest health, reduce hazards, and reduce insect outbreaks. This was recognized on Page 321 of the Draft EIS which states, “Timber harvest may also occur from other forest lands than suitable timberlands to meet other resource objectives such as reduction of fire risk through fuels reduction, or improvement of vegetative health, or wildlife habitat.” It is also supported by page 16 of the Draft EIS which states, “It (suitable timberland) does not include areas where timber harvest may be used as a tool to achieve other resource objectives.” The acres suitable for timber harvest are similar between Alternative 1 (No-Action) and Alternative 5 for Jefferson County at approximately 204,191 acres for Alternative 1 and 196,698 acres for Alternative 5. The difference between the two alternatives is 7,493 acres of recommended wilderness.

Because there were several comments that did not recognize there is additional forested acreage available for timber harvest to achieve other resource objectives, the Final EIS and Final Forest Plan have been updated to more clearly state this.

The Forest also supports the need for healthy forest working within a disturbance dependant ecosystem. Page 68 of the Draft EIS recognizes that the BDNF is a disturbance dependant ecosystem with fire being the major disturbance factor. The Healthy Forest Initiative and Healthy Forest Act is direction the Forest works to achieve. The Final EIS has been updated to more clearly state this.

Alternative 5 of the Draft EIS does not rely upon one management action over another. Alternative 5 allows for timber harvest, thinning, prescribed fire, wildland fire use, or other management activities as tools to achieve overall objectives. It is the site-specific project analysis that will determine the best tool to achieve a particular objective. The Forest could not find any statement in the Draft EIS or the Draft Plan that indicated that the Forest was only relying on fire to achieve forest health objectives. The Final EIS and Revised Forest Plan do not include any wording that would direct one management activity over another to achieve forest objectives including forest health.

The Forest also supports a reduction of the amount of uncharacteristic wildfire occurrence. As you stated and supported above, the BDNF is a fire dependent ecosystem. The Draft EIS on pages 68 thru 86 speak at length on the historic range of variability (HRV) for different vegetation types. Objectives were then identified to move the forest vegetation types towards this historic range. These treatments are partly intended to reduce the amount of uncharacteristic wildfire occurrence.

It is also recognized that with over 3.3 million acres of lands, the forest is not able to change 100 years of vegetative and fuel modifications significantly enough in the next decade to significantly reduce the amount of wildfire that will likely occur.

The Final EIS has been updated to better disclose the effects of treatments and their effects or lack of effects on wildfire.

The forest also supports the reduction of insect mortality.

The Forest supports optimizing wildlife habitat and ensuring viability of those species native to the BDNF. This is a requirement of a Forest Plan. The Final EIS, Chapter III, under the heading of Wildlife discusses the effects of each alternative on species viability.

Madison County, Board of Commissioners

Comment 1: The Snowcrest Mountain Recommend Wilderness allocation appeared in the preferred alternative after public interest and comment showed overwhelming support for removing the West Big Hole Recommended Wilderness allocation presented in The Proposed Action. When asked by the Commissioners of Beaverhead and Madison Counties why it first appeared in the Draft EIS in Alternatives 3 and 5, the incumbent Forest Supervisor, Tom Reilly gave as rationale, “We have to give the other guys something after removing the West Big Hole allocation.” There is no direction within any statute, regulation, or legal framework presented in the Draft EIS that directs the Forest Service to “give the other guys something” or follow a policy of *quid pro quo*. This appears to be a situation where the Forest Service decision makers have manufactured findings that are not supported by facts or have manufactured facts to support their findings. In addition, the Commissioners can find no reference of their opposition to the Snowcrest Mountain Recommended Wilderness allocation in the Draft EIS. This omission further taints the process and creates the perception that the Snowcrest Mountain Recommended Wilderness allocation is a result of personal agenda, sympathies, or favoritism on the part of the decision maker. The Commissioners ask that the Snowcrest Mountain area be removed from the allocation to Recommended Wilderness.

Response: The Forest acknowledges that Madison County does not support the Snowcrest recommended wilderness areas identified in Alternative 5. As you stated, “There is no direction within any statute, regulation, or legal framework presented in the Draft EIS that directs the Forest Service to “give the other guys something””. However, in addressing public issues and attempting to provide for varying recreation opportunities, alternatives were developed, all of which make trade-offs to evaluate different mixes of use. The Snowcrests appears in Alternatives 3, 5, and 6 as recommended wilderness because it rates highest of all the inventoried roadless areas for having wilderness character.

The Forest has reviewed the wilderness evaluation and updated the FEIS, including Appendix C as needed. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Plan.

Comment 2: The Commissioners ask that the Mount Jefferson area be dropped from Recommended Wilderness allocation. This popular winter recreation area serves a wide range of users. If these users are displaced, it may cause a burden on the County.

Response: Based on comments like this and other, Mount Jefferson recommended wilderness was modified for Alternative 6.

Montana Department of Environmental Quality

Comment 1: The following revisions are needed in item 34 under the Aquatic Section:

Only two cities rely on surface water sources originating on the BDNF (i.e. Butte and Philipsburg). According to the DEQ Safe Drinking Water Information System (SDWIS) data base the cities of Dillon, Sheridan, Anaconda, and Deer Lodge all rely on ground water as their source of drinking water. Surface water intakes used in the past for the Town of Basin are also designated as inactive

Response: This comment is in reference to the following section:

Municipal Watersheds

Six cities adjacent to the Forest rely on surface water that originates on the BDNF. The following watersheds have been identified by the State of Montana as being suitable for drinking water and have been identified by the Environmental Protection Agency as serving community water systems.

Table 185. Watersheds Identified by the State of Montana as Suitable for Drinking Water and by the EPA as Serving Community Water Systems.

• Watershed	• State Surface Water Classification	• Water Systems that Serve the Same People Year-Round
• Big Hole River	• A-1	• Butte
• Rattlesnake Creek	• A-1	• Dillon
• Indian Creek	• A-1	• Sheridan
• Warm Springs – Flint Creeks	• A-1	• Anaconda and Butte
• South Boulder Creek	• A-1	• Philipsburg
• Yankee Doodle Creek	• A-Closed	• Butte
• Tincup Joe Creek	• A-Closed	• Deer Lodge
• Fred Burr Lakes	• A-Closed	• Phillipsburg
• Hearst Lake – Fifer Gulch	• A-Closed	• Anaconda
• Basin Creek	• A-Closed	• Butte

The most up to date information regarding water quality management in the State of Montana can be found on the internet at <http://deq.state.mt.us/wqinfo/Index.asp>.

It is correct that the only cities currently using surface water for community water supplies are Butte and Philipsburg, however the streams in Table 41 historically provided water for these communities. The list of streams given in Table 41 and their water use classification is derived from the Administrative Rules of Montana (ARM) sections 17.30.610 and 17.30.607. The ARM specifies that water quality in these basins be managed to retain the highest water quality in the State commensurate with its use for domestic water supplies. The Forest Service is obligated to manage lands in these basins to meet or exceed this standard whether or not the water is actually used for drinking purposes.

The text in the document should read:

Six cities adjacent to the Forest have historically relied on surface water that originates on the BDNF. However, only two (Butte and Philipsburg) currently do so. The watersheds in Table 41

have been identified by the State of Montana as being suitable for drinking water and have been assigned a water use classification of A-closed or A-1 that supports their use as community water sources even if they no longer do so.

The Administrative Rules of Montana (ARM) specifies that water quality in these basins be managed to retain the highest water quality in the State commensurate with its use for domestic water supplies. The Forest Service is obligated to manage lands in these basins to meet or exceed this standard whether or not the water is actually used for drinking purposes.

Department of Natural Resources and Conservation State of Montana

Comment 1: Our organization maintains an inventory of Montana dams. I noticed that Alternative 5 shows Anchor Lake to be in the proposed Torrey Mountain wilderness area. Our inventory shows that Anchor Lake contains two dams, owned and operated by the Beaverhead Water Company. Please investigate what the impact would be on the water user's ability to maintain Anchor Lake dam, should it be included in the wilderness area. It is very difficult to properly maintain a dam where motorized access and equipment are restricted. Consider "cherry stemming" Anchor Lake out of the proposed wilderness area, and closing the access to the dams for administrative use only.

Response: We have evaluated the effects on the Anchor Lake dam and determined there to be no effect by making the area recommended wilderness. The Revised Forest Plan allows for permitted and administrative uses, which would allow motorized equipment. Beaverhead Water Company will be able to continue with maintenance and other administrative needs as they have in the past. This would include motorized access and equipment.

Natural Resources Conservation Service

Comment 1: The Natural Resources Conservation Service (NRCS) would like to acknowledge and thank the Forest Service (FS) for referencing the NRCS SNOTEL and snow course measurement sites in both documents. By referencing our sites, the FS is demonstrating a cooperative/collaborative approach to finding solution to land management issues that potentially impact Forest projects or NRCS buffer zones around snow measurement sites.

Response: The Forest thanks you for your positive comment. The Final EIS and Revised Forest Plan continue to reference NRCS SNOTEL and snow course measurement sites.

Comment 2: Page 12 – Snow Courses, Telemetry Sites: Protect established snow courses, snow pack telemetry sites, and precipitation gauges.

NRCS Response: We appreciate the wording and approach as it demonstrates the FS's understanding of the importance of the NRCE snow measurement sites and how that data is important to users and stakeholders.

Response: The Forest thanks you for your positive comment. There has been no change to this wording in the Revised Forest Plan.

Comment 3: Appendix C, Page 110, East Pioneer (Torrey Mountain) (1-008) Discussion-Land Use Authorization, A snow survey course authorized to the Soil Conservation Service at Lake Abundance Lake is located in Area 1-008.

NRCS Response: As part of the Department of Agriculture Reorganization Act of 1994, the name of the Soil Conservation Service (SCS) was changed to the Natural Resources Conservation Service (NRCS) to reflect its broader mission of concern for all natural resources, not just soil. Please change all references of SCS to NRCS.

Response: Thank you for identifying this incorrect reference in our document. The Final EIS and Final Forest Plan have been revised to change any reference from SCS to NRCS.

Comment 4: Appendix C, Page 397, Storm Lake (01-427) Discussion – Natural Integrity, Snow courses equipment is located in T4, R13W, Section 30. It could be moved outside the unit.

NRCS Response: NRCS maintains the Storm Lake manual snow course (established 1936) at the following physical location in: T4, R13W, Section 19, Latitude 46 deg 5.3 min North, Longitude 113 deg 16.09 min West, Elevation 7780 ft. This location places the site at the North end of Section 19, farthest from Section 30 (See Figure 1). Since this site is out of the proposed roadless area – actually it is located across the main access road (FS Road 675) to Storm Lake - there is no reason to propose moving the site. Additionally, the NRCS does not want to move any established snow course or SNOTEL sites, as moving results in a disjoint with historical data since a move site would be in a different physical location. The goal of now measurements (automated or manual) is to collect valid, site-specific data, which provide a long-term historic trend of importance for each watershed of interest. The NRCS encourage the FS planning staff to recognize the importance of long-term data collection as they develop various management and land use modifications on the forest. This will ensure that NRCS data collection efforts are minimally impacted by FS management plans and land use designations.

Response: The Final Appendix C has been updated to reflect this correction to the SNOTEL site by Storm Lake. The Forest wants to ensure NRCS that it recognizes the importance of these SNOTEL sites and the long term trend data they provide. We have no intention to request any of these sites be moved and will continue to protect these sites from management activities.

Comment: Appendix C, Page 452, Electric Peak (01-609) Discussion – Natural Integrity, There is a man-made lake on the southern portion of this area as well as fences, a snow course, and an abandoned water ditch, which once supplied water for Leadville.

NRCS Response: This is referencing the Black Mountain Snow Course which was established in 1975. Once again, we appreciate this wording as it demonstrates the FS understands of the importance of the NRCS snow measurement sites.

Response: Thank you for the positive comment. This snow course is recognized in the Final Appendix C.

Partnership Strategy for the Beaverhead-Deerlodge National Forest

This comment was received from the timber companies which submitted the “Coalition’s” comment (Large Letter -1), as well as, Montana Wilderness Association (MWA) Trout Unlimited (TU), and Montana Wildlife Federation (MWF). These groups worked together to create what they referred to as the “Partnership”. This comment was submitted April 14, 2006.

“Partnership” comments contradict certain other comments previously submitted by the timber companies as the “Coalition” and those comments submitted by MWA, TU, and MWF. When asked which comment these groups wanted the Forest to consider, the response was they wanted the Forest to consider both.

The Partnership comment, like the Coalitions comment, consists of two large documents; one in response to the DEIS (referred to as Document 1) and the other in response to the Draft Forest Plan (referred to as Document 2). To respond to these comments through a standard content analysis process would not be practical nor would it provide a quality response that tracks well with the thought process of the comments and points being made by the Forest to the “Partnership Strategy for the Beaverhead-Deerlodge National Forest” (referred to as the Partnership Strategy).

Therefore, the Forest decided to respond to this document similar to the response to the Coalition’s document and other large documents the Forest received. The Forest responded to Document 1 in two ways. First, the Forest responded to the Executive Summary as an outline for the Partnership Strategy, which was submitted as an alternative. Second, the Forest responded to each item identified in the text of the Partnership’s main document.

Document 2 is largely suggested wording changes to the Draft Forest Plan. These word changes will be summarized and responses developed. Wording changes that are grammatical in nature will not be responded to, although appreciated.

DOCUMENT 1 COMMENTS

Comment 1: Executive Summary - The Partnership Strategy as an alternative: The principles of the Partnership Strategy include:

a. Large landscape projects involving vegetation management and associated restoration will occur under Stewardship Contracts.

Response: A standard in the Forest Plan requiring all vegetation projects to be under a stewardship contract is not an appropriate forest plan decision. Congress established the stewardship contracting authority, which the Forest currently implements. The use of stewardship contracting has to be reauthorized by Congress periodically. If Congress chooses not to reauthorize stewardship contracting the forest plan cannot require it. However, to restate, the Forest currently embraces stewardship contracting and plans to continue using stewardship contracting as appropriate as long as Congress allows.

b. Priority project areas will be landscapes dominated by existing road systems, at-risk streams, [and] unnaturally fragmented vegetation patterns (from past cutting). One of the primary restoration goals will be to modify age class distribution to provide a more natural mix of wildlife habitat, reduce fires severity, and lessen the

severity of insect outbreaks. Stewardship projects will favor large cutting units over many small, patch units.

Response: The Forest generally agrees with the concept of restoring watersheds where roads are having adverse effects on wildlife or water quality. Determining where logging should take place, if at all, to restore watersheds can only be made at the site-specific level. It would be presumptuous for the forest to think that large scale timber harvest is the answer to restoring all watersheds. The Partnership Strategy is proposing to harvest over 7000 acres a year in one or two watersheds (15,000 to 40,000 acres) or approximately 17 to 47 percent of a watershed with large cutting units. This wholesale strategy would violate 36 CFR 219.27 (d) (2), which identifies a 40 acre harvest opening limit for all vegetation types on the BDNF. It is only after site-specific analysis, identifying specific rationale, that the Forest may exceed these size openings. We agree there are times where this strategy is desirable, but there is not enough site-specific information to support a forestwide strategy to harvest large acreages within watersheds. After consideration, the ID Team determined there are too many unknowns, and little if any science, which indicates the Partnership Strategy could be implemented successfully, while protecting the other resource values. In fact, the ID Team felt there is more science indicating that given the current condition of the BDNF, existing laws, and regulations, treating large acres in individual watersheds across the forest could not be accomplished without adversely effecting resources to the degree that legal requirements like the Clean Water Act, Endangered Species Act, National Historic Preservation Act, and National Forest Management Act would be violated. The Partnership has presented no information, specific to the BDNF, indicating how their strategy would protect the resources and meet the legal framework identified in the EIS.

c. The Partnership supports approximately 713,000 acres of “suitable” for timber production under Stewardship Contracts.

Response: This is not an appropriate standard for a forest plan; see response to (a) above. Alternative 6 has identified approximately 1,400,000 acres of land where timber harvest is allowed and could utilize stewardship contracting. See FEIS, Chapter 3, under the heading “Timber Production”.

d. Project scale will generally occur at the 6th hydrologic unit code (HUC) scale, though this could be modified for smaller scales.

Response: See response to (b) above. In addition, project scale is determined through site-specific analysis.

e. Stewardship restoration activities will occur on the ground within project landscapes. Such activities can include road obliteration, installation of road drainage, weed control, trail maintenance, fisheries habitat enhancement, wildlife habitat enhancement burns, mitigation of grazing impacts, and improvement of trailhead facilities.

Response: See response to (a) above.

f. The intent of the B-D’s preferred Alternative 5 – or prioritizing 72 “key watershed” for protection and restoration - will be maintained.

Response: The Forest appreciates the positive support for the key water concept.

g. Compliance with Inland Native Fish Strategy (INFISH) standards (Riparian Habitat Conservation Areas (RHCAs) and Riparian Management Objectives (ROMs), as recommended in Alternative 5, will be required for stewardship projects.

Response: The Forest appreciates the positive support for the aquatic strategy.

h. A Stakeholder Advisory Council that includes representatives from multiple interests will assist the USFS in the design, implementation, and monitoring of stewardship projects.

Response: A standard in the Forest Plan requiring a Stakeholder Advisory Council which will assist the USFS in the design, implementation, and monitoring of stewardship projects is not an appropriate forest plan decision. This would require the establishment of an Advisory Committee under the Federal Advisory Committees Act (FACA). This council may not be able to be established and maintained under FACA. It would also violate National Environmental Policy Act to have an advisory council assist in the development of design of a project. It would therefore be inappropriate for the Forest Plan to develop such a standard

i. The Partnership recommends that the USFS endorse establishment of approximately 573,000 acres as wilderness in 16 areas. The Partnership pledges to actively urge Congress to pass a bill formalizing these recommendations. The bill will include language to ensure implementation of the entirety of the Partnership Strategy.

Response: The Forest has reviewed all roadless areas and has made a variety of recommendations for inclusion into the wilderness preservation system (see Alternatives 1 through 6). The areas recommended here are all represented in the 6 alternatives.

j. The Partnership will ask Congress to fund landscape-scale National Environmental Policy Act (NEPA) analysis for stewardship projects as well as extend Stewardship Contracting authority.

Response: This is not a substantive comment as it does not ask the forest plan to do anything.

k. The Partnership Strategy will result in a net decrease in permanent roads on the Forest at the end of the planning period.

Response: The Forest agrees the Partnership Strategy would reduce road density by eliminating approximately 1,500 miles of roads and trails. The alternatives presented in the FEIS also display a range of road reductions, including similar reduction (Alternative 3) as the Partnership.

l. The Forest standard for road densities will be no more than 1.5 linear miles per square mile. Progress toward the standard will be made incrementally and measured at the project scale.

Response: Alternative 3 of the FEIS evaluates a road density of 1.5 miles per square mile.

m. New road construction during stewardship projects will be temporary roads. Temporary roads will be obliterated no more than five years after construction. New permanent roads will be constructed only if there is a demonstrated need for relocating an existing road that has been deemed harmful. In these instances, the

roads generally will be limited to accessing destinations previously available by roads.

Response: The forest agrees the use of temporary roads is a good strategy; however, this decision is best made at the site-specific project level. The revised forest plan supports temporary roads over new road construction by establishing road density objectives, restricting permanent road construction in some areas, and identifying restoration objectives.

n. The access goal objective for stewardship projects occurring in portions of Inventory Roadless Areas (IRAs) will involve the minimal economically feasible access tool necessary; roads will be limited to temporary roads. The post –project landscape in any portion of an IRA included in management under a stewardship project must maintain roadless values for ecosystem health, wildlife, fish, and recreation.

Response: This is a decision more appropriately made at the project level.

o. Post-harvest treatments generally will include burning that mimics natural fire and is allowed to burn beyond harvest units.

Response: The Forest agrees with the Partnership; however, this decision is more appropriately made at the project level. Such a decision would meet the goals and objectives in the preferred alternative.

p. Proposed timber salvage projects on burned landscapes will occur only under the same principles of stewardship that are, required for suitable unburned landscapes. Fire will not be a reason to enter landscaped deemed unsuitable except in wildland urban interface (WUI).

Response: Alternatives 1, 4, 5 and 6 have the same strategy concerning suitable and unsuitable lands.

q. The Forestwide off-highway vehicles (OHV) trail and road standard will be the Madison Range District standard – OHV use will be limited to routes designated in travel planning; motorized corridors off designated trails and roads will not be authorized, though dispersed camping or parking sites off the routes can be allowed if officially designated. A Forest standard will preclude motorized use within mountain goat winter habitat.

Response: The Forest agrees with the Partnership and the preferred alternative also supports such a strategy. The Preferred alternative has allocated most of the winter Mtn Goat habitat as non-motorized.

r. The Partnership will be actively involved to assure that the USFS successfully implements all elements of the strategy.

Response: This item infers that the Partnership will have some special oversight on forest plan implementation. This is not appropriate for a Forest Plan and would violate FACA.

Response: This comment summarized the Partnership strategy as an alternative for the revised forest plan. There are items within this strategy which are illegal or inappropriate for a forest plan (identified above), and the strategy lacks sufficient information to be considered an

alternative similar to the other alternatives which have been developed. The Partnership Strategy does not address all of the issues identified in the DEIS.

These items have been pointed out to the Partnership and a request for changes and additional information to make the alternative viable. After a year of discussions with the Partnership, we have neither received information changing those items which are inappropriate, nor have we received information to make it a complete alternative, which could be analyzed similar to the other alternatives. The Partnership has stated they would provide us with information, but none has been received. Therefore the Partnership Strategy has been dropped from consideration as an alternative in the planning process; however elements of the proposal will be considered as individual comments, which are addressed below.

The following addresses each of the Partnership's detailed comments which were identified after their executive summary.

Comment 2: (2.)Theme – Create a Forest Plan that provides predictability and certainty, diffuses conflict, and focuses first and foremost on implementation.

The Partnership's vision is simple: Adopt a plan that allocates 713,000 acres of the B_D for potential landscape-scale management, delineated as suitable for timber production. This allocation is designed to produce forest diversity and wood fiber to accomplish measurable habitat restoration using Stewardship Contracting. The overarching goal of this approach is to produce a diverse forest with far fewer roads while also generating a more predictable flow of wood products for local communities. Use of Stewardship Contracting for this management will help ensure that funding is available for restoration activities such as eliminating unneeded roads, correcting erosion sources, improving fish and wildlife populations, and better protecting key habitats from undue damage caused by other activities that occur on the Forest. Stewardship Contracting will help ensure that local communities benefit economically from restored landscapes and dependable timber supply. This portion of the Forest designated as unsuitable for timber activities, however, would be managed by relying principally on natural disturbance, mainly fire to create diversity conditions that are less susceptible to carrying wildfire to adjoining private lands.

Response: The Forest agrees with much of this theme, particularly attempting to provide predictability and certainty, diffuses conflict, and focusing on implementation. The alternatives presented in the EIS attempt to address these topics. We have identified these in the Analysis of Management Situation (AMS).

As addressed in comment (a) (above), stewardship contracting is a tool that is currently available and is one which we use as much as practicable.

Comment 3: (2.1) Stewardship Contracting – Stewardship implies that land management should be sustainable. In some cases, however, sustainability is threatened by well-intended past activities that have left behind unhealthy landscapes. Examples of conditions on the Forest that harm sustainability are road systems that bleed sediment into streams, damaged riparian areas that no longer provide shade or pool-forming woody material beneficial to fish, transportation systems so dense they provide little security for big game, and thick understory of young trees that can increase wildfire intensity in important forest stands. Left alone, many of these conditions would not self-correct for generations.

The USFS's traditional strategy of depending on appropriated funding to accomplish large-scale restoration of damaged forest conditions has largely fallen short. Similarly, depending on appropriations for maintaining extensive road systems also has been a poor strategy. The federal General Accounting Office estimates the National Forest System is currently saddled with a maintenance backlog that could cost \$8 billion. Faced with rapidly increasing national debt, Congress is unlikely to appropriate increased road maintenance or restoration funding in the foreseeable future. Therefore roads will continue to deteriorate and the identified restoration needs will not be accomplished.

The USFS has experience in using Stewardship Contracting to successfully exchange forest products for services that improve Forest ecosystem health and the public's enjoyment of national forest. The addition, Stewardship Contracting can provide local communities with economic benefits. The value of the commodities produced from Stewardship Contracts is exchanged for services that achieve the USFS's priorities for non-commodity objectives on the same landscape. This allows the value of raw materials removed and sent to local mills to be reinvested locally by using local contracts. This program benefits the ecosystem and infrastructure of a national forest, while also multiplying benefits to local communities (Castillo, 2006).

When instituted as a standard way of doing business, Stewardship Contracting can generate local jobs and result in a trained restoration workforce for future contracting opportunities.

Stewardship contracted activities benefit local communities socially and economically through active restoration of forest and by producing commodities. This allows local communities to better re-connect with the B-D. Congressional authority for Stewardship Contracting expires in 2014. If authority isn't renewed, the B-D should retain to the extent feasible the application of stewardship principles in managing the Forest.

Response: The Forest embraces stewardship contracting and currently uses stewardship contracting where appropriate. However, the restrictions on stewardship contracting do not make it an option in all cases. The Forest recognizes the value of stewardship contracting to both the forest and local communities. The Forest agrees with the dilemma of maintaining roads and implementing restoration projects within our appropriated funds. If the Congress does not renew the authority to use stewardship contracting the forest will continue to use whatever resources are available to achieve restoration objectives and provide products and value to local economies.

Comment 4: (2.2) Disturbance Ecology – For the most part, the B-D DEIS accurately portrayed the Forest's disturbance ecology. The Forest has excellent research information on fire severities and fire return intervals across the Forest (Barrett, 1997; Losensky, 2002). For the forested portion of the B-D, we can describe historic conditions by the Forest's two major cover types.

- 1. Mid-elevation, droughty Douglas-fir**
- 2. Mid-to-high elevation lodgepole pine/subalpine fir/spruce**

The B-D DEIS describes current conditions adequately based on a mix of Forest Inventory and analysis (FIA), satellite imagery, and timber inventory data. Again these findings were

generally consistent with analysis provided by consultants for the Partnership's timber interests. In summary, the Partnership consultant's findings indicate:

1. Mid-elevation, Douglas-fir stands are substantially denser and more structurally complex than historic conditions due to long-term fire suppression. These conditions will result in the loss of the scattered large Douglas-fir trees currently present on the landscape. Aspen stands have largely disappeared and occur at a single-digit percentage of past coverage.
2. Mid-to-high elevation lodgepole pine/subalpine fir/spruce stands are substantially older and denser than they have ever been within the last millennia, based on published fire scar or climatic data. Those outcomes have not been measurably affected by timber harvest at the a scale at which timber harvest has occurred on the B-D (i.e. while timber harvest reduced the class distribution within a few scattered locales, it did not occur at a scale that measurably altered the effects of fire suppression). Fire severity predictions based on increased fuel loadings, combined with the effects of drought, insect outbreaks, and global warming, anecdotally suggest that fires will be substantially larger and more severe than anything we have witnessed I the past century.

Wildlife and fish species are generally fire-adapted and in many cases fire-dependent. Thus, having larger-than-normal and higher-severity-than-normal fires does not necessarily mean that wildlife species are at risk. Many species, however will suffer losses in habitat due to anticipated changes in fire size and severity. For instance, Canada lynx are dependent on dense, seedling-sapling stands that occur after wildfires (Ruediger et al., 2000). Frequent, moderate-severity fires provide a continuum of habitat across eh landscape. Large, severe fires in the near future will recruit a lot of lynx foraging habitat, but those "boom" conditions will be followed by a long period of "bust" conditions, because once larger-than-normal fires burn, they likely won't burn again for another century. Black-back woodpeckers are another fire-dependent species that typically increase substantially after wildfires. Again, having larger and higher-severity fires will create a short term pulse of good habitat followed by a long period of very poor habitat. Retaining a mix of natural disturbances at normal intervals provides better wildlife habitat than shutting down those disturbances by fire suppression.

Clearly, the B-D needs to develop a strategy for allowing more fires to burn. Unfortunately, because of private land development and increased fuel loadings on public lands, most fires will not be allowed to burn at a severity that will have much effect, especially within moist habitats such as riparian areas. Natural disturbances can be mimicked using combinations of prescribed burning, slashing, or logging. Logging designed to mimic natural disturbances has little resemblance to logging done in the 1970's. To make logging comparable to natural disturbances, the following factors must be incorporated into the design: (1) the Scale at which logging is done must be substantially larger than it was in the 1970's to create natural fire patterns; (2) project design should favor large harvest units instead of multiple smaller, fragmented patches; (3) more material (standing dead trees, standing green trees, downed logs) must be left behind to provide the habitat niches typical of post -burn conditions; and (4) landscapes need to be accessed largely without the

construction of permanent roads to provide the security needed by some animals, particularly large ungulates and carnivores, and to minimize risks to aquatic species.

Response: The Forest agrees with much of what is stated above. The degree of impacts may be overstated in that the severity of fire are more likely to be similar to what has taken place over the last few years rather than a large change which we have never seen. We are currently seeing larger more intense fire in some stand. However, many of the fire are with natural range of variability.

Comment 5: (2.3) Restoration, (2.3.1) Restoration Emphasis – Commercial logging on National Forest lands has occurred since the creation of the USFS in 1905. Large-scale logging, however, did not start until after World War II. This management extended into the late 1980's, maximized timber yield, and employed a high density of permanent roads. This strategy eventually accommodated the Wilderness Act of 1964, National Environmental Policy Act of 1969, Endangered Species Act of 1973, and the National Forest Management Act of 1976. By about 1989, the USFS began abandoning the strategy for various reasons, including the following:

- 1. The strategy didn't provide for viability of many wildlife and fish species;**
- 2. The road network couldn't be maintained with available funds; and**
- 3. Perhaps most importantly, a large portion of the public rejected a timber-first approach and expected the agency to place a higher priority on clean water, wildlife, fish, and recreation.**

By the early 1990s, the USFS developed a new timber harvest strategy given various labels including "sustainable ecosystems" and, most recently, "ecosystem management". The key components of this strategy include the following:

- 1. Natural processes like fire and insects are an essential and inevitable part of the system;**
- 2. Vegetative objectives should consider historic conditions and natural processes as reference points;**
- 3. Treatment should mimic natural patterns, processes, and structural condition;**
- 4. Timber harvested should be more of a "by-product" of maintaining healthy forest rather than an end itself;**
- 5. Timber harvest should be considered a funding vehicle to restore landscape damaged by past management.**

Response: The forest agrees with this historical scenario, and has considered these in the development of the AMS, Draft EIS, Final EIS, and Forest Plan. Restoration has been identified as an important part of the revision process. As presented, it appears the Partnership Strategy agrees with many of these elements, including key watershed, INFISH strategy, road density objectives, and harvesting timber in areas to meet restoration objectives.

Comment 6: (2.4) Wilderness – Few national forests in the West have as many high-quality potential wilderness areas as the B-D. The B-D Plan must recommend areas it proposes for future wilderness legislation. The Partnership strategy identifies 16 recommended areas in Section 3.2

Response: The FEIS identified a range of wilderness recommendation from 0 acres to 707,000 acres. The Partnership Strategies recommendation of 573,619 acres is included within this range of alternatives. All areas recommended by the Partnership Strategy are included. Stoney Mountain, which was not recommended in the DEIS, has been added to the analysis. The West Pioneers is already a congressionally designated Wilderness Study Area and the Forests evaluation and recommendation have been completed and submitted to Congress according to the Act.

Comment 7: (2.5) Motorized Use in Roadless Areas – The Partnership recommends that travel planning that engages the public be the instrument for allowing or restricting recreational motorized use to designated routes consistent with the intent of Alternative 5, except where areas are recommended for Wilderness or in mountain goat winter habitat. The Partnership recommends that areas proposed in Alternative 5 as non-motorized primitive or Semiprimitive remain free of motorized recreation use. Some Semiprimitive areas, depending on completion of travel management plans, could be open for winter motorized use. Use of motorized machinery necessary for stewardship activities or for pre-existing commercial uses could be authorized through contract stipulations and special use permits.

Response: Site-specific travel planning is a necessary step in implementing any Forest Plan. The Forest Plan does make area allocations which include non-motorized areas, which would restrict motorized travel, including recommended wilderness and other semi-primitive non-motorized areas. Alternatives 5 and 6 allow motorized uses in these areas through contracts or special use permits.

Comment 8: (3.) Modification To Preferred Alternative, (3.1) Restoration Strategy – Restoration needs on the B-D fall within the following priorities: (1) Remove excess permanent roads, particularly those that compromise fisheries values or ungulate and grizzly bear security; (2) restore more natural patterns to landscape fragmented by past logging; (3) modify fuels along the Forest periphery so wildfires can be allowed to play a more natural role; (4) modify age class distribution to provide a more natural mix of wildlife habitat, reduce fire severity, and lessen the severity of insect outbreaks; (5) improve aquatic habitat using tools that help achieve measurable Riparian Management Objectives (RMO's) and water quality, especially in Key Watersheds; (6) enhance recreational resources currently inadequately funded, such as trail and trailhead maintenance; (7) reduce the impacts of invasive species; and (8) keep commercial timber management as an economically viable tool for land management use and as a economic base for small, western communities.

1. Remove permanent roads. A high percentage of the B-D is unroaded. Unfortunately, portions of the most important watersheds have 3 to 6 miles of roads per square mile. These road networks reduce security for large game, fragment important populations of native fish, restrict stream and floodplain function, and provide multiple delivery points of sediment to streams. While the B-D recognizes a need to remove many of these roads, the funds available for road reclamation have been only a tiny fraction of the amount needed. At the current rates, relying on capital investment dollars to remove roads will take many decades. Conversely, timber harvest occurring under Stewardship

Contracting provides a funding vehicle that can result in those roads being permanently removed much more rapidly.

Response: The Forest agrees with most of the above statement. The Forest has and is continuing to use stewardship contracting. Stewardship contracting is currently available to the Forest. Implementation of stewardship contracting does not require Forest Plan direction.

Our analysis indicates the highest mile per square mile for any watershed is 3.6 miles per square mile. Of the over 360 watersheds on the Forest, only 5 are over 3.0 miles per square mile and 220 of the watersheds are less 1.9 miles per square miles. If you look at small specific areas, the road density may be that high or higher, but this may not be an appropriate way to identify road density concerns.

As the Partnership mentioned earlier, site-specific travel planning needs to be completed to identify those roads which need to be removed. This planning needs to take place before stewardship contracting can be used to implement this goal. Vegetation project level planning is not the appropriate place to do travel planning.

2. Restore more natural patterns. Previously logged areas on the B-D are typically a patchwork of small clearcuts and uncut stands. While such areas will eventually burn restoring a more natural pattern, the pattern can be immediately restored to historic patterns using timber harvest and prescribed burning. When combined with permanent road eradication, such areas can quickly recover to provide less habitat fragmentation and improved ungulate security or interior forest conditions for species such as pine martens.

Response: The Forest agrees with the concept of restoring natural patterns. This can be accomplished using timber harvest under any of the 6 alternatives identified in the FEIS. However, there are many cases where current condition, regulation, or laws restrict our ability to implement such a strategy. These types of decisions are better left to site-specific project planning.

3. Modify fuels along the Forest periphery. The B-D intends to allow wildfire to play a more natural role. The agency strategy, termed “Wildland Fire Use”, unfortunately cannot succeed because too much of the B-D has dense, multi-storied stands of lodgepole pine or Douglas-fir adjoining private land. This virtually assures that the USFS will attempt to suppress most wildfires. The primary management tool of Alternative 5 is prescribed burning. Prescribed burning of existing stands will likely fail in most situations because agency caution will dictate burning occur only when conditions are fairly wet. Further, the agencies will not manage for fire escape outside well-defined, rigid boundaries. Instead, the Partnership proposed more aggressive timber harvest, which reduces fuels along the Forest periphery to better allow firefighters or prescribed burning crews to “take a stand” with reasonable risk along private land boundaries.

Response: The Partnership summary of Alternative 5 is incorrect and miss-leading; Alternative 5 does not utilize prescribe burning as the primary management tool. Alternative 5 does continue the “Wildland Fire Use” (WSU) program for much of the Forest just as the Partnership Strategy proposes. A “Fire Management Plan” is the implementation document for fire on the Forest. This plan, not the Forest Plan, outlines how the Forest will implement the “Wildland Fire Use” program. It is, and always has been the intent of the Forest to implement projects similar to what the Partnership is proposing to help facilitate WFU. The Forest is well aware of what needs to

happen to have a successful WFU program and the Partnership is correct in that timber harvest along boundaries will help. However, it is a matter of funding and priorities that have kept the Forest from accomplishing its goals. The Partnership states that they will accelerate and more aggressively harvest along Forest boundaries to better allow firefighters to take a stand. The Partnership is also proposing to do landscape planning for restoration inside the Forest as well. A forest plan does not accelerate timber harvest. This is done through Congressional budgeting. Alternative 5 and Alternative 6 have the same goals as the Partnership as it relates to restoration. What the Partnership is discussing here is implementation. And we agree with the Partnership, we are anxious to accelerate our programs to achieve goals but appropriated dollars are all we have to work with. Stewardship Contracting does not provide a funding source to do the planning or implementation of a timber sale.

4. Modify age class diversity to reduce fire and insect severity. Given the inevitability of severe fires, insufficient time exists to substantially reduce the risk on a Forestwide basis. Carefully designed timber harvest, however, can reduce the severity of fires in key areas. For instance, Douglas-fir stands that contain large, older trees can be logged to remove the understory so that those older trees are more likely to survive severe fires. Landscape with good potential for lynx habitat can be managed to recruit foraging habitat in a more predictable and sustainable manner than by merely waiting for the ext fire. Municipal watersheds with a high level of bark beetles outbreak can be logged to reduce the severity of subsequent wildfires on water quality. Mapping of recent insect infestations of unprecedented scale on the B-D provide evidence that landscape vegetative treatments are appropriate to restore age class diversity of forested lands.

Response: The Forest is currently and continuing to do exactly what is stated, which is to carefully design timber harvest in key areas. The Basin Timber Sale is a recent example of harvesting timber to protect a municipal watershed, roadside salvage to provide for safety, and urban interface project to protect communities. Alternatives 5 and 6 would provide the overall direction to continue these type of projects.

5. Improve aquatic habitat to achieve RMO's and water quality, especially in Key Watersheds. Fisheries health, especially native species, is generally a good indicator of the condition of may aquatic habitats. On the B-D, key native trout species include bull trout, a federally listed threatened species, west of the Divide; westslope cutthroat trout, a candidate for listing, on both sides of the Divide; and fluvial arctic grayling. Likely to be listed in 2007, in the Big Hole watershed (just off Forest) and in the upper Ruby River watershed (a restoration population on Forest). Populations of all three species are but a fraction of historical numbers (Shepard, 2002; FWP, 1999; Montana Bull Trout Restoration Team, 2000; USFWS, 1998: Fluvial Arctic Grayling Recovery Workgroup, 2001). Habitat degradation-including fragmentation and sediment impacts caused by road systems-has harmed all three species. Moreover, grayling in the Big Hole River depend on cold, sustainable water from the B_D. In addition, hybridization and competition from introduced species has been harmful to cutthroat trout. Riparian habitat and stream restoration funded through stewardship projects can help the USFS meet the measurable RMOs, especially in Key Watersheds, will benefit native species, thereby stabilizing or increasing populations. Among other benefits, this could obviate the need for ESA requirement that constrain Forest activities in the future.

Response: The Forest supports and embraces the stewardship contracting concept and currently implements the program where appropriate. It must also be noted that temporary roads as well as timber harvest itself have adverse impacts on native fish. To achieve the results stated above through stewardship contracts would require a tremendous amount of timber harvest. There is no science or other information presented by the Partnership on how resource values would or could be protected from such a large unprecedented harvest program. There is nothing in Alternative 5 or 6 that would prevent site-specific projects from attempting to achieve the results described above.

6. Enhance recreation resources currently inadequately funded. Stewardship contracting at eh landscape level enables the USFS to inventory and fund needed improvement to recreational assets, including trail, trailhead facilities, interpretive features, and other items he public uses on national forest.

Response: The Forest supports and embraces the stewardship contracting concept and currently implements the program where appropriate. However, as stated above, in addition to funding the aquatic restoration to achieve the results the Partnership is proposing and then also supporting funding the recreation needs being promised by the partnership would require a tremendous amount of timber harvest. There is no science or other information presented by the Partnership on how resource values would or could be protected from such a large unprecedented harvest program. However, there is nothing in Alternative 5 or 6 that would prevent site-specific project for attempting to achieve the results described above.

7. Reduce the impact of invasive species. Stewardship projects can generate revenue needed to help curbs the spread of invasive weeds. In addition, the reduction of the Forest's expansive road network will help reduce vectors for weed spread. Increased attention to curbing invasive weeds complements county, state, and private efforts to do the same on adjacent lands.

Response: See responses above. Our past experiences with stewardship contracting prove it is not an unending source of funding.

8. Retain timber management as a viable management tool. Recognize its economic importance to small, western communities. For sawmills and the logging industry to remain viable, a sustainable level of wood needs to be available annually. Currently, insect infestations have reached epidemic proportion, and the trend is likely to continue, as will large, more severe wildfires. Most citizens would rather see this wood harvested, as long as it is done in a cost-effective and environmentally responsible fashion. The Partnership has identified those lands where timber production can be used a management tool, using cost-efficient means to accomplish work and meet goals consistent with the preceding restoration principle (1 through 7). The Partnership estimates that 1% of the Partnership-recommended suitable timber base can be treated annually with silvicultural prescriptions that accomplish proposed restoration principles.

Response: The Forest agrees that it is important to maintain timber management as a viable tool and its importance to local communities. The Forest Plan identified this as a desired condition as well as established goals to achieve this continuity. The Partnership identified over 700,000 acres of lands suitable for timber harvest. The FEIS has identified a range of 0 to over 600,000 acres of lands suitable for timber productions, as well as another 700,000 to 1,197,000 acres of land

where timber harvest may occur to achieve other resource needs, including restoration. The Partnership Strategy is well represented within this range of alternative.

9. Use of Stewardship Contracting. Within Congressional authority, new projects on the B-D can be designed for implementation under Stewardship Contracts to ensure that funding is available for restoration activities. This approach provides much more certainty that funding will be available to achieve a spectrum of management objectives in landscape-level projects. In the event that stewardship Contracting authority does not continue through the expected life of the Forest Plan, the Partnership recommends that the B-D craft the document so it includes commitment ensuring that project design and financing enable restoration accomplishment is commensurate with vegetation management.

Response: The Forest supports and embraces the stewardship contracting concept and currently implements the program where appropriate. However, as stated above, to generate enough funds through stewardship contracting to achieve the results described by the Partnership would require a tremendous amount of timber harvest. There is no science or other information presented by the Partnership on how resource values would or could be protected from such a large unprecedented harvest program. There is nothing in Alternative 5 or 6 that would prevent site-specific project from utilizing stewardship contracting to achieve the results described above.

It is not appropriate for a Forest Plan to craft wording indicating the Forest is trying to excerpt Congressional authority.

Response: In summary to 3.1 Restoration, The Forest agrees with the partnership that restoration is an important part of the forest plan strategy. Restoration has been included as part of all alternatives. However, much of what the Partnership describes is implementation, which would be achieved by site-specific project planning. Much of the Partnerships effects are based on an assumption that Congress will fund the Forest at an unprecedented level. We find no bases for this assumption. If this were to happen, we also find nothing that would keep the Forest from implementing project similar to what the Partnership proposes under Alternatives 5 and 6.

Comment 9: Wilderness Strategy (3.2) – This plan proposed 18 areas of recommended Wilderness that would add approximately 573,000 acres to the 225,000 acres of existing Wilderness. The areas recommended in this strategy have high wilderness attribute scores, and almost all of them have been included in previous Congressional wilderness proposals. Seventeen specific wildland areas of the B-D have been included as Wilderness in statewide legislation passed by the U.S. House and/or Senate since the 1987 forest plan were completed. Passage of Wilderness legislation would ensure protection of these areas and resolve long-standing debate about their future.

Few forests have so many high-attribute, potential wilderness areas as the B-D. Across the Forest, these premier wildlands provide vital wildlife habitat, ensure water quality and offer world-class backcountry hunting, fishing, and hiking opportunities. Formal wilderness designation reflects national commitment and an enduring legacy for Montanas. The B-D Plan must identify suitable areas it recommends for future wilderness legislation.

The Partnership Strategy proposes specific changes that would strengthen Wilderness recommendations to conserve backcountry areas with high wilderness attributes, wildlife,

fisheries, upper watersheds, unique cultural and geological features, high natural integrity, and outstanding opportunities for outdoor recreation.

Response: The Forest has evaluated each roadless area for its wilderness potential. Ratings are included in Chapter 3 of the FEIS. Although some areas do rate high, the ratings do not reflect high wilderness scores for all of the areas.

All of the areas, except for Stoney Mountain, are in one or more of the six alternatives evaluated. The Forest evaluated a range of wilderness recommendation ranging from 0 acres in Alternative 4 to over 700,000 acres in Alternative 3. Stoney Mountain had been mistakenly left out of Alternative 3 as it met all of the criteria used in the development of Alternative 3. The Forest appreciates the Partnership pointing out this mistake. Stoney Mountain has been recommended for wilderness in Alternative 6.

Comment 10: Partnership's Wilderness Recommendation Descriptions (3.2.1 through 3.2.6).

Response: The Partnership described each area they recommended for wilderness. The descriptions were not responded to because they do not provide any substantive comment; only a description.

Comment 11: Wildlife Strategy (3.3), Management Indicator Species (3.3.1) – The recommended DEIS Management Indicator Species (MIS), wolverine (natal den habitat) and mayfly, are reasonably representative indicators for species requiring alpine habitat with an absence of disturbance during late winter/spring or species that need cold, clean water with healthy riparian vegetation. Unfortunately, neither MIS are necessarily representative enough as indicators for the changes in forest age classes and stand structures documented in the DEIS. Forests on the B-D are substantially older and denser than normal and thus more prone to large fire disturbance. Furthermore, neither species is indicative of declines in security for ungulates or wide-ranging carnivores, while may flies are not indicators of one of the biggest impacts to aquatic communities: roads culverts that impede fish and amphibian movement and thus fragment populations. We recommend the B-D acknowledge in the Plan the limitations of using mayflies as an MIS species. While they can be used to monitor water quality, they are not suitable indicators for road culverts that impede fish and amphibian movements and fragment populations.

Response: The Forest recognizes the limitation of most species as an MIS. The discussion on MIS has been expanded within the FEIS, Chapter 3. It is already well documented that road culverts impede fish movement affecting viability; therefore, there would be no value in identifying an MIS for road culverts. Forest management no longer includes construction of roads with culverts that impede fish passage. The Forest is in the process of removing culverts that impede fish movement, except in those areas where the barrier is a benefit to maintaining viable populations of native fish.

Comment 12: Wildlife Strategy (3.3), Management Indicator Species (3.3.1) Continued – When logging and/or prescribed burning are used to modify forest stand age classes, the most contentious aspect of such treatments is how they affect species dependent on large trees or mature forests. The B-D has been successfully challenged on that very issue (e.g. Grasshopper Creek). However, based on multiple analyses, the B-D has more mature forests than historically occurred. Furthermore, broad-scale analyses and population

occupancy and production research (Kirkley, 2000; Hillis et. Al. 2003; Hillis and Lockman, 2002) Suggest that mature forest-dependent species like northern goshawks and American marten are doing very well at the Forest and Regional scales. Therefore, it is possible to increase the harvest of mature forest stands and still maintain populations of species dependent [on] large trees or mature forest at historical levels.

The Partnership suggests adding the northern goshawk as an MIS. Normally, using the goshawk as an MIS would not be appropriate because high monitoring costs (i.e. new nests are difficult and expensive to locate). The B-D, however, is in a unique situation because of the emphasis Dr. Jack Kirkley at Western Montana College/University of Montana has placed on researching and monitoring goshawks. Essentially, the B-D has received a tremendous amount of goshawk monitoring data without cost. The B-D currently has a wealth of inventoried nest territories, making monitoring of nest activity and fledgling success relatively inexpensive.

The goshawk could be monitored using the following hierarchy, which is fully compatible with the Regions One Species Viability Protocol (Sampson et. al., 2004):

1. Potential Nesting habitat defined as stands greater than 9 inches diameter at breast height (dbh) would be inventoried via FIA data and compared against the HRV at the large HUC 5 scale 9roughly homologous to the 11 landscapes on the B-D.
2. Distribution of nest habitat within mid-scale (HUC 6) would be found via satellite imagery; the limitations and errors inherent in those data would be recognized and compared against the HRV at the mid-scale. (Project level data would not be monitored, since representative levels of mature forest would not be effectively detected at this scale.)
3. Goshawks nest locations would be compiled based on Western Montana College data to ensure that next selection for given timber stands was consistent with the research, that total nest density within the sampled area was consistent with published nest densities based on territoriality, and that fledgling success was consistent with the research. In the event Western Montana College staff no longer monitored nest territories, B-D staff would monitor ten known nesting territories for nest activities and fledgling success at five-year intervals.

Response: The discussion concerning goshawks as a MIS has been expanded in Chapter 3 of the FEIS; they were found not to be an appropriate MIS. As mentioned above, current research and monitoring have concluded management activities as proposed do not have adverse viability effects on goshawks. The proposed monitoring strategy is not a decision made in a Forest Plan. It will be passed on to the monitoring team leader for consideration. By the way, the Forest has supported Dr. Kirtley's work by providing financing for the project.

Comment 13: Mountain Goats (3.3.2) Mountain Goats – The B-D landscape include a very small percentage of land considered to be mountain goat habitat. This may be less than 1% of the public land within there landscapes. Typically, these habitats are the most rugged terrain, consisting of rocky peaks, crags, cirque headwalls, and bedrock outcrops. During portions of the year, goats may graze adjacent cirque basins and grassy meadows. They rarely venture more than a few hundred yards from the more rugged habitats that offer security.

During winter, suitable habitat shrinks to those very small habitat niches that are sufficiently windswept to expose forage or are within the lee of prevailing winds or under overhanging cliffs where goats can escape wind chill and minimize energy expenditure. Energy conservation is essential to surviving long winters.

Very limited amount of suitable and potential connected habitat is available for goats. The inability of goats to casually move from one locale to another, unlike all other ungulates, greatly limits their potential habitat.

Goats are strongly habituated to their home ranges. This behavior is reinforced by the discontinuity of suitable habitat separated by large expanses of unsuitable habitat avoided by goats. Therefore, extirpation of an isolated population, an event often associated in the past with over-hunting, may take decades or more to be re-colonized by goats.

Controlling human use in mountain goat habitat is essential to allow goats to utilize favorable habitats and to avoid potentially fatal excessive energy expenditures. Some evidence exists that summer goat populations choose habitats away from mountain lakes, where human use is most frequent. Winter use, however, has much more potential to have adverse impacts, as suitable winter habitat is much more restrictive and because the inability of goats to use the most desirable habitat occurs during the most stressful period of the year. In addition, energy expenditure to escape human disturbance during winter can be expected to result in reduced winter survival, especially for young-of-the-year kids.

Therefore, we would propose a Plan standard as follows:

Winter recreation uses, both motorized and non-motorized, will be prohibited within ½ mile of known existing or historic mountain goat winter habitat. New summer use facilities or permitted uses, such as trails or outfitter camps would be located to avoid key summer goat habitats.

Response: The Forest considered and evaluated this standard. After overlaying recommended winter non-motorized areas over known goat winter range areas we found most of the goat habitat to be covered by non-motorized restrictions. Because of this it was felt unnecessary to have such a standard. Mountain Goats have been added to our MIS list.

Comment 13: Sage Grouse (3.3.3) The B-D manages the most important intermountain shrub-steppe habitats in USFS Region 1, importance reflected by the high level of plant and animal diversity found there. Great Basin species such as the sage sparrow, pygmy rabbit, and great basin pocket mouse are found almost nowhere else in Montana. Species such as the greater sage-grouse (*Centrocercus urophasianus*) sage thrasher are found there in high abundance. Many of the region's big game populations, particularly antelope and mule deer, winter in shrub-steppe habitats, exploiting high-protein big sagebrush (I.) browse exposed above-snow during even extreme winters.

Sage grouse are obligates of sagebrush for winter forage and springtime nesting cover at the landscape level. They also depend upon a rich understory of native grasses and forbs to sustain reproductive success throughout the summer months. They also are documented to require vast landscapes for population sustainability. As such, the species serves as an excellent indicator of landscape health in terms of broader sagebrush community extent and successional stage, as well as locally regarding herbaceous community composition, health, and structure. These vegetation community conditions are germane to such BDNF

management issues as wildland fire, fuels management, non-native plant invasion, evergreen tree encroachment, livestock grazing, riparian health, energy development and infrastructure, and even travel management-all factors discussed at length in the draft plan.

The partnership recommends that the B-D designate the sage grouse as an MIS, representing sagebrush-dependent species. Furthermore, the Partnership recommends the B-D incorporate the nine sage grouse guidelines developed by the Western Association of Fish and Wildlife Agencies. Lastly, the Partnership recommends that the B-D adopt the following standard: Prescribe burning and grazing activities will not be initiated within extensive sagebrush/grassland habitats when in conflict with the sage grouse guidelines. Specific recommended sage grouse standards and guidelines are located in the standards and guideline comments (Section 4.2).

Response: Sage grouse was considered as an MIS species. The rationale for selecting or not selecting an MIS species has been expanded within the wildlife section in the FEIS.

The Revised Forest Plan does include recognition of conservation strategies and other documents concerning sensitive species including the sage grouse. These documents are utilized in the evaluation and decision on site-specific projects.

Comment 14: Watershed/Fisheries Strategy (3.4), Scientific Findings (3.4.1)

1. Native fish are adapted to survive infrequent, large burns (i.e. “pulse” events) when drainages are healthy and well-connected.
2. Sediment from roads and logging adversely affects fish when it occurs as a continual, point-source-impact (i.e. “press” event); sediment chokes spawning gravels and reduces depth of pools, which are crucial as overwinter habitat and summer refugia.
3. Most existing road networks are not “fish friendly”. Problems include the following:
 - a. Roads density are excessive, resulting in large erosion-prone areas of bare mineral soils;
 - b. Culverts are undersized, too steep, or may not provide fish passage, thereby isolating populations of native fish;
 - c. Roads are often within Riparian Habitat Conservation Areas (RHCA’s), thereby reducing floodplain function, channel migration, and recruitment of woody materials;
 - d. Steams crossings are not “beaver friendly” (i.e. designed to pass debris);
 - e. Maintenance has been largely inadequate;
 - f. Road surfacing and road drainage has been minimal;
 - g. Special treatment of roads on sensitive soils has been inadequate ; and
 - h. Road cuts can intercept surface and near-surface ground water and direct these waters more rapidly towards and active channel, thus increasing peak flows and diminishing non-peak flows.

4. **While sediment from logging (felling, skidding, fuels treatment) can be significant at the source, the sediment generated from roads, culverts, and stream crossing is more likely to have negative impacts.**
5. **Large, severe fires within drainages that have been previously impacted by high-density, poorly designed roads and that, as a result, have low abundances of native fish can complicate recovery of fragmented native fish populations.**
6. **Restoring damaged watershed via road removal, relocation, or road improvement generates some short-term sediment. Such impacts, however, can be acceptable if they result in benefit to long-term watershed function.**
7. **Watersheds without recent natural or man-caused disturbances leave older and denser forest more vulnerable to insect epidemic and/or stand-replacing fires than would be expected to occur naturally.**

Responses: The Forest agrees with most of these general statements; however some are overstated and their relevance to the B-D is not known. These generalized statements are not necessarily a reflection of conditions on the B-D.

Comment 15: Assumptions (3.4.2)

1. **Restoring watershed health by relying on appropriated investment dollars will take a very long time or may not occur due to reduced federal budget. Before federal appropriations are available to fix watersheds, some drainage could experience large and intense burns due to the aging of forest and accumulation of fuels from fire exclusion.**
2. **Carefully designed timber harvest within impacted watersheds using Stewardship Contracting can provide a funding vehicle to restore watersheds.**
3. **Populations of native fluvial arctic grayling in the main stem of the Big Hole River and its tributaries have been limited by available water and high stream temperatures. Dependable cold flows from the B-D will continue to be key to the recovery of Big Hole grayling as well as blue-ribbon trout fisheries in other rivers such as Madison and Beaverhead, as well as Rock Creek. Stewardship projects in LaMarche, Fishtrap, Deep Creek, and other Big Hole drainages must be specifically designed to ensure maintenance or improvement of desirable water temperatures and streamflow regimes for grayling.**

Response: The Forest agrees conceptually with these assumptions; however the partnership provides no specific information on specifically what type of projects, and the intensity of the treatments needed to achieve the results they allude to. The ID Team was unable to identify any Forest Plan related actions which would address this comment.

Comment 16: “Fisheries and Stream Friendly” Timber Harvest Direction (3.4.3)

1. **Net permanent road density will decline (measured at the HUC6).**
2. **New roads will generally be temporary (prism is re-contoured and reforested). Some flexibility for new permanent roads might be necessary as long as net road density decreases.**

3. **Permanent roads (prism remains in place) will be reconstructed and drained to standards that will minimally impact the watershed.**
4. **Yearlong closed permanent roads generally will be restored to a “zero maintenance required” status, which means revegetating the surface, providing adequate drainage, and removing stream crossing structures.**
5. **New or replaced crossings will be designed to provide unimpeded fish passage after fishery genetic considerations have been evaluated. Culverts will be designed to pass 100-year flow events and, within beaver habitat, will be “beaver friendly” (i.e. beaver dams pose no threat to the road or crossing structure and hence require no maintenance). Where impossible to provide for unimpeded fish passage or beaver dams, the drainage structure and approach fill will be removed after harvest entry.**
6. **Logging will be designed to minimize sediment delivery to adjacent streams (and may include dry season logging, winter logging on frozen ground, use of cut –to-length harvest, forwarder, etc.). No timber harvest will occur in RHCAs unless stipulated, as required by INFISH standards, after site-specific analysis by USFS hydrologist and fisheries biologist.**
7. **All new or replaced stream crossings will be designed to accommodate 100-year events and desired fish passage for all life stages of native species.**
8. **New road closures will favor entrance re-contouring and stream crossing removal as alternates to gates.**
9. **Roads constructed or used in timber harvest and to be retained for administrative or public use as permanent roads shall in corporate drainage and surfacing recommended by USFS and State of Montana BMP’s for soil type, grade and expected uses.**
10. **Timber harvest aimed as watershed restoration shall be packaged using Stewardship contracting to assure that funding is available for accomplishing restoration objectives at the time of the project.**
11. **Stewardship projects shall incorporate project design and legal closures to assure that timber harvest areas, or closed skid trails and roads are not used by off-road vehicles.**
12. **Timber harvest stewardship projects shall be designed so that they include restoration elements that help achieve INFISH Riparian Management Objectives within a time period identified in project planning. Project level locations will be emphasized restoration opportunities of previously harvested landscape with inclusion of adjacent undeveloped areas as appropriate to accomplish landscape-scale treatment and to achieve an objective that both eliminates the need to re-enter the area for at least 80 years and minimizes the need for permanent roads.**
13. **While lands may be deemed timber “suitable”, the emphasis behind standards and guidelines are for roaded and roadless stewardship.**
14. **Projects will be designed with a goal of no-net loss of conservation populations of cutthroat trout. A conservation population is defined as being less than 10% genetically introgressed. Project will pose minimal anticipated risk to populations of cutthroat trout that are 100% pure and to identify core and nodal habitat of bull trout. Project**

goals will include measures that seek to increase abundance and distribution of native fish. This can occur by reducing population fragmentation and improving habitat and water quality measures under RMO's.

- 15. New timber harvest projects need OHV restricted to designated routes to assure that restoration objectives can be achieved.**
- 16. Stewardship logging can occur after unplanned events such as wildfire, insect epidemics, or large blowdown, but it would occur only on lands designated as suitable for timber stewardship management or where public safety, property, or facilities were at foreseeable risk (i.e. campgrounds, trailheads, etc.).**

Response: The Forest has reviewed these "Timber Harvest Direction" and agree they are all good comments. These can all be implemented to date and many are through site-specific projects. Most of these are already stated in the forest plan, policy, or other direction, just worded differently.

The Forest embraces stewardship contracting and currently uses where appropriate. However, there are situations where stewardship contracting is not appropriate or does not provide enough funding to complete other projects. The partnership strategy does not provide information as to how to implement such an aggressive timber harvest program to meet restoration needs.

Comment 17: Road Policy (3.5), Road Density Targets (3.5.1) Old paradigm for permanent road density – Timber harvest entries in the late 1960's and 1970's were based on the assumption that permanent roads would be constructed and maintained at approximately 1000-foot intervals to provide access to every forest stand. This resulted in road densities of 4 – 6 miles of road per square mile. Road densities from lands historically designed as suitable timber lands were calculated for the B-D (table 3.5.1). These calculations do not include wilderness, IRAs, or private inholdings. Note that 38% of these lands (sum of columns 3-7) have road densities greater than 2 miles of road per square mile.

Response: The 4-6 miles per square mile is not an accurate statement for the BDNF. The Partnership's road densities calculations, based on individual square miles, are not consistent with other literature discussing road density and therefore it is difficult to draw comparative conclusions.

Currently, open road density on the BDNF averages approximately 1.1 miles per square mile. When considering all roads the density is only 1.2 miles per square mile of total roads on the Forest. There are 44 HUC6 watersheds (out of 352 HUC6) with road densities over 2.0 miles per square mile. This accounts for less than 9% of the total acres on the BDNF.

Of the watersheds exceeding 2.0 miles per square mile, most are intermingled with private land, mining claims, County roads, and other access needs, which make it difficult to achieve a lower road density. Many of these roads already have year long closures or have season closures which reduce or eliminate their effects. When the effects of current road closures are included, the Forest averages less than 1.0 mile per square mile of open road during the big game hunting season.

Many of the watersheds with high road densities have been identified as Restoration Key Watersheds in Alternatives 5 and 6. Alternatives 5 and 6 also have identified objectives to reduce

road densities in those landscapes and hunting units which exceed the desired condition or goal for those areas. A standard has also been developed restricting any new road construction in those areas exceeding desired road densities. The objectives and standards in Alternatives 5 and 6 are more sensitive to resource needs in that they include both motorized roads as well as motorized trails.

Comment 18: Why high permanent road densities are not compatible with fisheries, animal security, or maintenance needs. High-density permanent roads are often sources of sediment and the cause of harmful population fragmentation in native fisheries in the northern Rockies. Security for elk, a condition which is critical to maintaining long, relatively unregulated hunting seasons, is severely compromised when road densities exceed 2 miles of road per square section. Lastly, funding for maintaining roads has fallen well short of the actual needs, and the availability of those funds is expected to decline further.

Response: The premise described above for the BDNF as having high road densities (over 2 miles per square mile as described by the Partnership) is not accurate. See also response to Comment 17.

Comment 19: New paradigm-USFS timber harvest strategy changed with the adoption of ecosystem management in the 1990s. The new strategy recognizes that forests can be managed with less social conflict and more cheaply with temporary roads than with permanent roads. The Partnership's definition of a temporary road applies for the duration of a vegetation management project; after the project is complete the prism is removed and the surface is recontoured and seeded. In general, all new roads will be temporary. The density of permanent roads, including those open, closed, or revegetated (with prism retained), will be reduced to no greater than 1.5 miles/square mile. For details, please see Aquatic Standards 1-4 in Appendix A.

Response: This comment is more appropriate on a site-specific project basis. For information, the BDNF has only utilized temporary roads in projects for at least the last 10 years. These are nearly always obliterated when the project is completed.

Comment 20: How this standard fits on the B-D – On lands historically allocated as suitable timber lands, the permanent road network is generally in place. Within every HUC6 with permanent roads, roads are currently available for accessing important destinations such as campgrounds, trailheads, fishing streams, lakes, hunting areas, and firewood harvesting sites. Also available are roads that provide simple “driving for pleasure”. Many of the permanent roads, however, are parallel systems that degrade the scenery, compromise wildlife and fishery habitat, and provide little if any additional access. Under the Partnership standard, approximately 733 square miles of national forest would retain approximately 1,500 miles of permanent road. Determination of which roads would be removed or retained would be based on detailed, project –level analysis.

Response: The Forest does not agree with the above statement that many of the permanent roads are parallel systems and provide little if any additional access. There are a few areas where this situation occurs but the Forest would not quantify this as many. Less than 1% might be included in this category. The term permanent road is confusing as to what roads are being referred to hear. The Forest has system roads and non-system roads, and not able to interpret what is meant by a system road.

The number provided here (733 square miles and 1500 miles of permanent road) equate to just over 2.0 miles per square miles of road. This is contrary to what the Partnership strategy stated their intent is. The 733 square miles is approximately 264,000 acres. This number is considerably smaller than the 700,000 of suitable timber land referenced previously or the acres of national forest lands. Because of these discrepancies we are able to make sense of the strategy or to analyze the information.

Comment 21: Road Restoration and Maintenance (3.5.2) Road mileage on the B-D will be lessened to reduce adverse affects to wildlife, fish, recreation, range, and forest road maintenance budgets. Destination roads would be favored for retention while single-purpose roads generally would be removed as vegetation treatments of a project area is completed. Restoration generally will favor removing timber management roads through recontouring, removing of drainage structures, and revegetation. A very limited amount of roads decommissioning would involve partial recontouring, scarification, and removal of drainage structures-but only where a foreseeable use of a road segment is anticipated to treat an adjacent area. Road maintenance will include appropriate structures for fish passage and road drainage.

Response: The Forest agrees that restoration of roads not needed to manage the Forest is an important item. The Draft EIS, Draft Forest Plan, and Final EIS recognize this. The Forest currently looks to reduce unnecessary roads and restore them. The Forest is currently going through travel planning according to the Forest Service travel policy. Although some of the Partnerships information above is incorrect and inconsistent, the Forest agrees with the general philosophy and is currently implementing such a strategy, and will continue to do so.

Comment 21: Inventoried Roadless Areas (3.6) – All IRAs will be managed to retain their roadless values. The Partnership recognizes that portions of some IRAs currently include primitive roads and user-created motorized routes. Some of these IRAs have been allocated in the B-D’s Preferred Alternative as Semiprimitive non-motorized. The Partnership supports implementation of this Recreation Opportunity Spectrum (ROS) classification on the selected IRAs. However, management guidance must accommodate temporary roads access for mechanized harvest to harvest and remove timber in portions of roadless areas included in stewardship projects. Construction of temporary roads may be authorized if non-road options for harvest and removal are not feasible. Implementation of stewardship projects that include managing vegetation in portions of some roadless areas designated as suitable for timber management will occur only if long-term roadless values are retained by removing all timber access routes upon project completion.

IRAs not recommended for wilderness or managed with an ROS of Semiprimitive or primitive non-motorized can be considered for snowmobile use and/or OHV route designation upon completion of travel plans.

Response: Inventoried roadless areas are managed in compliance with the 2001 Roadless Area Conservation Rule

Comment 22: Potential Wilderness (3.6.1) - The Partnership has identified 18 areas totaling 573,000 acres with high wilderness attributes that we recommend be conveyed as recommended Wilderness in the Revised Forest Plan.

Response: The Partnership identified the same areas identified in Alternatives 1 thru 5, with one exception. The Partnership identified Stoney Mountain IRA as a potential area for wilderness recommendation, which was not considered in the Draft EIS. After reviewing our information, there appears to have been an oversight as the Stoney Mountain IRA met the criteria to be included in Alternative 3. After review, the Stoney Mountain IRA has been added to Alternative 6. The alternatives in the FEIS range from over 700,000 acres of recommended wilderness to no recommendation. All of the Partnership's wilderness recommendation have been evaluated and considered.

Comment 23: Timber Suitable (3.6.2) – The Partnership has identified approximately 713,000 acres as appropriate for timber production under stewardship principles. Most of these areas have had some level of previous timber harvest and accompanying roads. Priority for treatment would be (1) reentries of disturbed landscapes to reduce road densities, (2) management for vegetative diversity by creating of mosaics of naturally occurring vegetation patterns and patch sizes, and (3) landscapes with high potential for future insect epidemics and/or stand-replacing fire. To accomplish these objectives, an average of 1% of the suitable timber land will be treated annually, measured on a decadal basis.

Response: Alternatives analyzed in depth considered timber harvest as appropriate on 1,259,000 to 1,913,000 acres (FEIS, Chapter 3). The 713,000 acres reference in this comment fall with that range. Priority for treatment will be evaluated based on National goals, target assignment, public desire, and funding.

Powell County, Board of Commissioners

Comment 1: The County Commissioners of Powell County are writing this letter to support the Forest Products Industry comments to the BDNF Draft Plan and DEIS. The industry comments are based on the best available science and reflect how we would like to see the BDNF managed over the next 15 years.

Response: Thank you for your comment. The Forest Products Industry comments you referred to have been identified as the "Coalitions" comments. The Forest has responded to their comments, which are part of the Final EIS.

Comment 2: Powell County has 84,469 acres of the BDNF within its boundaries with 39,303 of these acres designated as Roadless or Recommended Wilderness, which are off limits or very restive to management. We believe, and as reflected in the industries comments, that there is additional suitable timber within our county that can be managed to improve forest health, reduce fire hazard, reduce forest insect outbreaks, while at the same time support our local economy. The comments express similar concerns we have with potential impacts to our local communities and important natural resources. The following are key issues which are addressed in the forest products industry comments which we support:

- Support the need for healthy forest working within a disturbance dependent ecosystem.
- Relies on timber harvest as a management tool to achieve healthy forest instead of fire as proposed in the preferred Alternative 5 by the BDNF.

- Reduces the amount of uncharacteristic wildfire occurrences.
- Reduces insect mortality
- Optimizes wildlife habitat and ensures viability of those species native to the BDNF.

Response: There is no recommended wilderness (Alternative 5) in Powell County. The Electric Peak Recommended Wilderness Area on the BDNF is in Jefferson County.

There are additional lands outside of the suitable timberlands (those lands managed for timber production) available for harvest to improve forest health, reduce hazards, and reduce insect outbreaks. This was recognized on Page 321 of the Draft EIS which states, “Timber harvest may also occur on other forest lands outside of the suitable timberlands to meet other resource objectives such as reduction of fire risk through fuels reduction, or improvement of vegetative health, or wildlife habitat.” It is also supported by page 16 of the Draft EIS which states, “It (suitable timberland) does not include areas where timber harvest may be used as a tool to achieve other resource objectives.” The acres of land suitable for timber harvest in Powell County is actually higher for Alternative 5 (44,900 acres), where as Alternative 1 (No-Action) only has 36,200 acres.

Because there were several comments that did not recognize the additional forested acreage available for timber harvest to achieve other resource objectives, the Final EIS and Final Forest Plan have been updated to more clearly state this.

The Forest also supports the need for healthy forest working within a disturbance dependant ecosystem. Page 68 of the Draft EIS recognizes the BDNF is a disturbance dependant ecosystem with fire being the major disturbance factor. The Healthy Forest Initiative and Healthy Forest Act is direction the Forest works to achieve. The Final EIS has been updated to more clearly state this.

Alternative 5 of the Draft EIS does not rely upon one management action over another. Alternative 5 allows for timber harvest, thinning, prescribed fire, wildland fire use, or other management activities as tools to achieve overall objectives. It is the site-specific project analysis that will determine the best tool to achieve a particular objective. The Forest could not find any statement in the Draft EIS or the Draft Plan that indicated that the Forest was only relying on fire to achieve forest health objectives. The Final EIS and Forest Plan does not include any wording that would direct one management activity over another to achieve forest objectives including forest health.

The Forest also supports a reduction of the amount of uncharacteristic wildfire occurrence. As you stated and supported above, the BDNF is a fire dependent ecosystem. The Draft EIS on pages 68 thru 86 speaks at length on the historic range of variability (HRV) for different vegetation types. Objectives were then identified to move the forest vegetation types towards this historic range. These treatments are partly intended to reduce the amount of uncharacteristic wildfire occurrence.

It is also recognizes that with over 3.3 million areas of lands, the forest is not able to change 100 years of vegetative and fuel modifications significantly enough in the next decade to significantly reduce the amount of wildfire that will likely occur.

The Final EIS has been updated to better disclose the effects of treatments and their effects or lack of effects on wildfire.

The forest also supports the reduction of insect mortality.

The Forest supports optimizing wildlife habitat and ensuring viability of those species native to the BDNF. This is a requirement of a Forest Plan. The Final EIS, Chapter III, under the heading of wildlife discusses the effects of each alternative on species viability.

Comment 3: We would like to emphasize several issues that are important to Powell County: We are very concerned with the increasing incidence and severity of wildland fire. Our county has just completed a County Fire Plan which delineates the Wildland/Urban Interface (WUI) boundaries. Some of these WUI's include National Forest Lands. In order to protect the property of our citizens and county infrastructure, we urge the BDNF to put a high priority on the management of the lands with moderate to high fire potential ratings within the WUI's.

Response: The protection of private property and improvements is a priority for the Forest. The Forest Plan identifies several objectives that put emphasis on urban interface areas, (see Revised Forest Plan, Forestwide Direction, under the heading of Fire Management).

Comment 4: There are some acres of Inventoried Roadless Areas (IRA's) within the WUI's that contain moderate to high fire potential ratings. It is imperative that the BDNF Forest Plan either exclude these areas from IRA designation in order to allow timber harvest and other management activities that reduce the fire potentials or specifically allow these activities to take place within the IRA's.

Response: As part of Forest Plan revision, the Forest is required to inventory areas to be evaluated for wilderness recommendations. The protocol for this inventory is outlined in FSH 2309. These areas are referred to as inventoried roadless areas. The Forest can not change the protocol used to determine a roadless area. If an area meets the protocol, then it is included in the roadless inventory.

Management activities, including timber harvest are allowed in roadless areas. It is at the site-specific project level where this determination is made though. This is no different than the current condition (Alternative 1). Alternative 5 made no change to the Forest's ability to treat these areas

Comment 5: We strongly object to the proposed wilderness designation in the Electric Peak area. This is an important snowmobile recreation area and trail 227, 147, and 65 have had long use by snowmobilers. Snowmobiling is important to our local economy and the above-mentioned trails connect several extensive trail systems. This connection is central to the overall trail system in the area.

Response: There were alternatives developed and analyzed that did not recommend this area as wilderness. After examining all alternatives and public comments, the deciding official is proposing to select Alternative 6. Alternative 6 was developed in response to public comments on the Draft EIS. See the Record of Decision for specific rational for alternative selection. Alternative 6 does not propose recommended wilderness for the Electric Peaks Area.

Comment 6: We are also concerned about the forest health issues in the Electric Peaks area. There is currently an active beetle infestation that is killing the lodgepole pine. We believe, for fire protection and for our local sawmill, this timber should be harvested.

Response: The harvesting or salvaging of timber from the Electric Peaks area is a site-specific decision not a forest plan decision. Obviously if the area is recommended for wilderness, then this would not be a viable project.

The Shoshone-Bannock Tribes

Comment 1: The 1868 Fort Bridger Treaty reserves the right to continue traditional activities on all unoccupied lands. Understanding that the Forest Service is under a Multi-use Mandate, the Tribes remind and emphasize that the Forest Service first has a federal trust responsibility to the Tribes to manage lands under their jurisdiction in a manner to preserve and protect those trust resources, on behalf of the Tribes. The tribes request the Forest Service include a statement acknowledging that federal trust responsibility to manage and protect Indian Trust Asset/Treaty Resources, and that the Forest Service will work to ensure all proposed projects will be developed and analyzed with the responsibility paramount.

Response: The following statement will be incorporated in the Forest Plan Revision:

Tribal treaties are negotiated contracts made pursuant to the Constitution of the United States and are considered the “supreme law of the land.” They take precedence over any conflicting state laws because of the supremacy clause of the Constitution (Article 6, Clause 2). Treaty rights are not gifts or grants from the United States, but are bargained-for concessions. These rights are grants-of-rights from the tribes, rather than to the tribes. The reciprocal obligations assumed by the Federal government and Indian tribes constitute the chief source of present-day Federal Indian law.

The United States and represented agencies, including the Forest Service, have a special trust relationship with Indian tribes because of these treaties. As a Federal land managing agency, the Forest Service has the responsibility to identify and consider potential impacts of Forest Service plans, projects, programs, or activities on Indian trust resources (e.g., fish, game, and plant resources—see Glossary). When planning any proposed project or action, the Forest Service must ensure that all anticipated effects on Indian trust resources are addressed in the planning, decision, and operational documents prepared for each project. The Forest Service also has the responsibility to ensure that meaningful consultation and coordination concerning tribal treaty rights and trust resources are conducted on a government-to-government basis with Federally recognized tribes.

Native American Indians inhabited southwestern Montana, including the lands now managed by the Beaverhead-Deerlodge National Forest, for thousands of years prior to European contact. The lands managed by the Beaverhead-Deerlodge National Forest are within the historical/traditional culture use area of the Shoshone-Bannock Tribes of the Fort Hall Reservation and the Confederated Salish-Kootenai Tribes of the Flathead Reservation. Both tribes continue to express interest in and concern over, public lands within the planning area.

During the 1850's and 1860's, treaties were negotiated with the tribes in the northwestern United States in order to acquire Indian lands for homesteading. The settlement of the northwestern United States by non-Indians led to the collapse of the Tribal Nations as they were previously known, including their economic, social, cultural, religious, and governmental systems.

On July 16, 1855, the confederated tribes of the Flathead, Kootenay (sic), and Upper Pend d' Oreilles Indians and the United States signed the Treaty with the Flatheads, etc., 1855, referred to as the Hell Gate Treaty (12 Stat. 975). Isaac I. Stevens, who was Governor and Superintendent of Indian Affairs, facilitated this treaty, as well as others in the Pacific Northwest. In the Hell Gate Treaty, the tribes relinquished ownership of millions of acres of land to the United States. The treaty also guaranteed a permanent homeland for the confederated tribes, which has become known as the Flathead Reservation in northwestern Montana. Article 3 of the treaty also retains the Tribes' "...privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land."

On July 3, 1868, the Eastern Band Shoshone and Bannock Tribes and the United States signed the Treaty with the Eastern Band Shoshoni and Bannock, 1868, commonly known as the Fort Bridger Treaty (15 Stat. 673). In the Fort Bridger Treaty, the Tribes relinquished ownership of approximately 20 million acres to the United States, and were guaranteed a permanent homeland, which has become known as the Fort Hall Indian Reservation in southeastern Idaho. Article 4 of the treaty also retains the Tribes' rights to hunt, fish, and gather natural resources, and provides other associative rights necessary to effectuate these rights on the unoccupied lands of the United States.

Since the Forest Service manages portions of the "unoccupied lands" that are within the traditional use areas of these tribes, the Forest Service has a trust responsibility to provide the conditions necessary for Indian tribal members to satisfy their treaty rights. Treaty rights in the planning area are extended not only to the Shoshone-Bannock Tribes and Confederated Salish and Kootenai Tribes, but also to other Federally recognized tribes, which may have treaty language that extends their rights to lands in this area.

Members of the Shoshone-Bannock Tribes, the Confederated Salish and Kootenai Tribes, and other Federally recognized tribes exercise their hunting, fishing, and gathering rights on at least state and Federal lands outside the boundaries of their reservations. Currently, Native American tribes are not dependent on commodity resources from lands managed by the Beaverhead-Deerlodge National Forest for their economic livelihood. However, they do rely on forest land resources for subsistence and cultural purposes. Tribal treaty rights pursued on lands within the Beaverhead-Deerlodge National Forest include fishing for resident game fish species, hunting both large and small game, and gathering various natural resources for both subsistence and medicinal purposes. Currently, there is little specific information available on the exact species sought or locations used by Native Americans exercising their treaty rights within the boundaries of the planning area.

Comment 2: Please include in your list of required laws and statutes the federal agencies must follow the 1868 Fort Bridger Treaty (15 Stat. 673), as well as the official government to government consultation requirement to the Shoshone-Bannock Tribes.

Response: This issue is clarified above. We will also add the tribal treaties to the list of applicable laws and include a copy of the Fort Bridger and Hellgate Treaties as an Appendix.

Comment 3: The Shone-Bannock Tribes are not members of the general public; the tribes are a sovereign nation, with its own governing system and cannot be equated with local state, municipalities or county governments. Do not include the Tribes as a general stakeholder. Use the formal name for the Shoshone-Bannock Tribes; conduct a global check for this.

Response: We will insure that all references to the tribes are listed as ‘the Shoshone-Bannock Tribes’ where appropriate. The Forest understands that Indian tribes are “sovereign nations” and therefore have a special legal status which accord them rights and privileges that other state and local government entities do not share.

Comment 4: Shoshone-Bannock members continue to exercise their treaty rights off-Reservation by hunting, fishing, and gathering and other traditional uses of the treaty resources. In accordance with the Shone-Bannock Tribes Natural River Policy, the Tribes would like to encourage the Forest Service to conserve, protect, and enhance natural and cultural resources. Attached is a copy of the Tribal Policy.

Please analyze the impacts that this proposed project would have upon the Tribes reserved treaty rights. Specific treaty resources include the following resources, cultural resources, wildlife, plants and vegetation, water resources and the traditional cultural activities.

Response: The heritage and natural resources you mention are analyzed in the document. The B-D is committed to protecting and enhancing all the resources we manage.

Comment 5: Please include a general history of the Tribal uses of these areas. The location of the proposed project area is important to the Tribes, as it has important historical usage and continues to retain cultural values, as stories and legends, Tribal family histories, and other Tribal histories have included that area. The Tribes request that any adverse potential impacts that this project might have upon Tribal traditional values needs to be prevented.

Response: A cultural context which includes tribal history and use of the Forest is included in the Heritage Resources section. If there are more specific tribal oral histories or traditions that should be presented in the document we would be happy to include any additional information you could provide.. In accordance with the Forest Plan and relevant heritage resource laws and regulations the B-D will work to protect tribal traditional values in so far as we are aware of them.

Comment 6: The federal agencies are requesting specific site information to help identify constraints in specific locations of resources important to the tribes, etc., however, it the Tribes position that the entire area contains cultural significance to the Tribes. Site-specific recommendations are difficult to make without extensive visits to the areas by Tribal members and Tribal resource staff. If the Forest Service can offer financial assistance, via Assistance Agreements, to provide the funding to the Tribes, then more detailed participation may be possible from the Tribes side. The Tribes expect the agencies to manage to protect, and when possible enhance all of these resources.

Not only is this area known for hunting and gathering, but also numerous stories and legends revolve around the mountains of this region. Tribal people value the mountain peaks and high points and this proposed project would certainly have an adverse impact on those values. The Shoshone and Bannocks both have separate and distinct languages, and accordingly may have different tribal names for these mountains and areas, and the tribes urge the Forest Service to undertake an ethnographic study, to help place these Shoshone and Bannock traditional names to the Forest Service lands. This would help the Forest Service better manage lands within their jurisdiction, to benefit the Tribes.

Response: As a part of the analysis for Forest Plan revision the B-D has conducted in-house ethnographic research to identify specific locations and place names important to several Indian tribes. We would welcome any additional ethnographic information the Shoshone-Bannock Tribes may have concerning stories, names, uses or other cultural information related to specific geographic locations on the Forest. Shoshone and Bannock place names are important pieces of information that the Forest would like to obtain.

Comment 7: What provisions have been made to address cultural resource concerns? For the future projects that the Forest Service will be undertaken, please ensure that a stop work order is in place, if any cultural artifact is encountered or discovered, and that the Forest Service and Shone-Bannock Tribes are notified. Prior to any further work proceeding, clearance must be obtained from both the Forest Service and the Tribal cultural resource staff.

Response: Heritage resources have been analyzed in the document. Forest Service permits and contracts incorporate standard language which requires permittees/contractors to stop work, avoid further impacts to heritage resources and notify Forest officials of the discovery of such resources as necessary. Accidental discoveries of heritage resources during project work will be managed in compliance with heritage resource laws and regulations.

Comment 8: This includes gathering of plant resources, paints, minerals, medicinal plants, as well as providing for camping.

Response: These are treaty rights which have been discussed above.

Comment 9: The Shoshone-Bannock Tribes will not support any federal land being removed from public domain, and considers such actions as diminishment of Treaty rights. All trespass issues, unauthorized use of federal lands, intended or unintended, should be prosecuted to fullest extent. Often, it is the small home sites, agricultural trespass or other unintended trespass that cumulatively, results in reduction and outright diminishment of guaranteed Treaty rights.

Response: In general, land exchanges are only entered into to acquire lands which contain higher resource values. Any proposed land exchanges will be discussed as part of project specific coordination with the Shoshone-Bannock Tribes at the staff level in the initial planning stages, and in formal government to government consultation.

Comment 10: Please include the following Goals or Desired Future Conditions for Native American Rights and Interests Section: The Tribal staff requests that a specific goal/objective that the Forest Service needs to include would be to ensure that Tribal interests and rights are protected, enhanced and managed to the benefit of the Tribes while noting the public responsibility in a separate objective. Suggest text includes:

Goal: Understand and Incorporate American Indian Rights and Interests by:

- a) Identifying and protecting traditional cultural properties.
- b) Recognizing and supporting treaty rights and tribal values when planning and implementing forest management activities.

- c) **Memoranda-of-understanding would address the procedures and protocols to be followed with each particular tribe for assuring protection of traditional cultural properties and other sensitive sites.**
- d) **Forest Service-Tribal memoranda-of-understanding would address issues of tribal member access to National Forest lands for purposes of exercising treaty right or practicing activities consistent with religious or other ceremonial activities.**
- e) **All line officers and other employees directly involved in forest management decision making including seasonal employees would understand American Indian rights and interests in our forest management decisions and implementation actions, and the importance of American Indian treaty rights and accompanying federal government trustee responsibilities.**

Response: Specific goals and objectives governing the relationship between the Shoshone-Bannock Tribes and the BDNF will be addressed outside of the Forest Plan Revision process in government to government consultation between the two parties.”

Comment 11: Page 2, Purpose of the Forest Plan Revision: The Tribes agree with the purpose and need for this plan revision to improve, or restore resource conditions for the next 15 years. In addition to the identified topics that need a change is to include protection of Treaty rights and resources. The need for change suggest that specific management directions is required to ensure Off Reservation Treaty Rights are considered, protected , enhanced and manage to benefit the Tribes. Currently there is no direction given by management for specific project and how they would impact treaty resources.

Response: The BDNF understands the federal responsibility to protect American Indian treaty rights. This is addressed in section xxxx, page xxx of the Forest Plan. Site or project specific direction concerning the management of resources that are of interest to the Shoshone-Bannock Tribes are better discussed and developed in a government to government consultation protocol rather than within the framework of the Forest Plan revision process which is open to public review and comment.

Comment 12: Page 3, Applicable Environmental Laws and Regulations/legal Requirement: Please include the 1868 Fort Bridger Treaty (15 Stat. 673) an all applicable statues, laws and executive orders the Forest Service must abide by in regards to the Shoshone-Bannock Tribes. This includes the following: Native American Graves Protection and Repatriation Act, Archeological Resources Protection Act; National Historic Preservation Act; National Environmental Policy Act; Government to government consultation , Executive Order 13175 (November 2000), Executive Order 13007, Indian Sacred Sites, and the Environmental Justice Executive Order 12898. See also comment on page 17, and include the Treaty and other legal requirements after each resource presented and analyzed.

Response: The laws and regulations that direct management of significant heritage resources are listed in the section on Heritage Resource Management. Tribal treaty rights are also discussed in the Social Effects/Tribal Treaty Rights Section.

Comment 13: Page 8, Relationships with Other entities, Tribes. Expand on the government to government relationship and how the FS conducted meeting with the appropriate tribes, with respect to each tribes consultation process.

Response: A summary of Tribal Consultation Efforts with respect to the Forest Plan Revision is provided.

Comment 14: Page 12, Development of Alternatives. In this section, it first briefly introduces the various alternatives, it does not address in Alternative 1, “No Action Alternative”, any current management practices that deals with treaty rights, traditional cultural properties and other cultural resource concerns that any of the tribes might have. Please list this as a comparison item in the table in future chapters. Carry this analysis out with the remaining Alternatives.

Response: Current management practices regarding traditional cultural properties and other significant heritage resources are directed by the laws and regulations cited in the Heritage Resources section. Attention to American Indian treaty rights is cited in the Draft and Final EIS, and revised Forest Plan. The current management practices meet legal requirements and are actions common to the NO ACTION and all developed alternatives.

Comment 15: Page 12, Development of Alternatives. The DEIS states the Forest Plan will be developed with budget in mind, based on anticipated budgets. However, the trust responsibility is NOT contingent on future budgets, as the federal agencies must make a meaningful, good faith effort to uphold trust responsibilities duties and management of those resources important to the Tribe.

Response: The B-D must work within budgets determined by Congress. Within those budget constraints we will do our best to protect resources important to the Shoshone-Bannock Tribes.

Comment 16: several times the following sentence was used in the DEIS, “Significant cultural resources are known to exist.” Please revise the statement to something similar to “At this time, based on the documented information, no significant cultural resources would be impacted.”

Response: The B-D can not assume that significant (i.e. National Register eligible) heritage properties will never be adversely affected by future resource management activities. The Forest is committed to managing heritage resources guided by heritage resource laws and regulations, the Forest Plan, and other relevant planning documents.

Comment 17: Page 17, American Indian Rights and Interest. Please include a statement regarding the Traditional Cultural Properties, reserved rights set forth in treaties, executive orders and the government-to-government consultation requirements, which the Forest Service must comply with.

Response: This issue has been previously addressed as indicated above.

Comment 18: Page 19, Elements Common to All Action Alternatives. Include in the Heritage section, the reserved rights retained under treaties, specifically the Shoshone-Bannock Tribes, under the Fort Bridger Treaty of 1868, for hunting, fishing, and gathering of traditional resources.

Response: This issue has been previously addressed as indicated above.

Comment 19: Page 67, Vegetation, Native Plant Communities. In accordance with the Snake River Policy, the Tribes urge the Forest Service to actively restore the native plant communities, and to control and eventually eradicate exotic, invasive and non-native plant

communities. Often the traditional, subsistence and medicinal plants and resources the Shoshone-Bannock Tribal members and of other tribes, rely on have often unduly compromised due to the introduction and invasions of non-native plants. No analysis or discussion is included for ethno botanical uses of plants; this needs to be included. For specific information, the Forest Service needs to work directly with the Shoshone-Bannock Tribes to assist in their management to continue to provide or enhance these resources. This can be done under the government -to-government consultation process with the Shoshone-Bannock Tribes.

While all native plants contribute to the traditional viewpoint of importance, the Rocky Mountain Juniper, AKA “cedars” retain its traditional importance, as it is used in ceremonial and traditional practices in the Shoshone-Bannock culture.

Response: The B-D recognizes the importance of certain native plants in the cultural traditions of the Shoshone-Bannock Tribes. We would be happy to discuss strategies on how to better identify and manage these plants to address specific tribal concerns.

Comment 20: Page 102, Wildlife. The Forest Service needs to ensure that NO impacts or minimal impacts well be made to wildlife, such as mule deer and elk, including wither ranges. Habitats for birds or other species of special status needs to be protected from impacts from any future projects that is proposed. This includes undue impacts form recreational use, off road vehicles, timber projects and any other anthropological use of the forests.

Response: It is important to note that the Montana Department of Fish, Wildlife and Parks has the primary responsibility of managing both game and non-game wildlife species. The Forest Service is responsible for managing wildlife habitat. It is one of the goals of forest management to enhance and not degrade wildlife habitats.

Comment 21: HUNTING: According to the Articfle 4 of the Fort Bridger Treaty, it states: “ARTICLE 4. The Indians herein named agree, when the agency-house and other buildings shall be constructed on their reservations named, they will make said reservations their permanent home, and they will make no permanent settlement elsewhere; but they shall have the right to hunt on the unoccupied land of the United States so long as have may be found thereon, and so long as peace subsists among the whites and Indians on the borders of the hunting districts.”

In accordance with that, the Tribes have self-regulation and enforcement of all off reservation hunting and fishing, and enforced by our own Tribal Fish &Game Department for Tribal member hunting and fishing off-reservation, under a Tribal permit system for big game.

Response: The B-D Forest will insure that all LEO (Law Enforcement Officer) staff members are aware of the proper procedures when encountering individual Tribal Members exercising their treaty rights on the forest. Such procedures will include obtaining the Tribal ID number, Hunting license/tag information, and notification of the Tribal Fish and Game Department.

Comment 22: Page 181, Aquatic Resources Management. The Shoshone-Bannock Tribes support the Forest Service continued efforts to restore and improve the aquatic ecosystems to prevent further loss of native fish populations. Those resident and anadromous fish species hat are harvested via treaty right by Shoshone-Bannock Tribal members are

directly impacted by the conditions of the riparian habitat. As a co-manager of the fish and wildlife resources, the Shoshone-Bannock Tribes are seeking every opportunity to protect the resources.

Response: Due to the presences of several fish and other aquatic species of special concern, the forest service expends considerable effort to protect and enhance sensitive riparian and aquatic habitats.

Comment 23: Archeologically, it is common to have numerous and intensive past, prehistoric and historic uses in, and around water resources. Please ensure appropriate protective management actions are used to protect and enhance those resources. No specific analysis is provided in the DEIS; this need to be addressed in the Final EIS.

Response: The Forest Plan is not intended to provide site-specific project analysis. The B-D is aware of the frequent occurrence of heritage resources near springs, streams, lakes, etc. These areas are managed with compliance with relevant heritage resource laws and regulations. Site-specific project development will ensure appropriate protective management actions are used

Comment 24: Please review and revise the NEPA document to address the concerns raised in these comments. Again, the Tribes need to be involved to review and ensure that the NEPA document adequately addresses the Tribal comments.

Response: The Forest looks forward to continued dialog with the Shoshone-Bannock Tribes as we move forward in the Forest Plan revision process.

Again , the Tribes expect the our Trustees at the Beaverhead and Deerlodge National Forest to uphold their trust responsibility, and utilize a higher standard in determining what are acceptable levels of that would result from activities. The Tribes look forward to continuing to work with your staff regarding this and other projects.

Ecology Center, Inc., Response to Literature Cited

This is a complete list of references corresponding to the cites in our comments sent to you yesterday on the Draft Environmental Impact Statement for the Draft Revised Land and Resource Management Plan and the draft Revised Land and Resource Management Plan for the Beaverhead-Deerlodge National Forest. As that letter stated toward the end, it is our intention that you include in the planning record all of the literature and other incorporated documents we've cited, and explicitly respond to the scientific information as it applies to the RFP process. We want them to be available for full public review, and for use by all BDNF personnel in the course of project-specific analyses.

Adams, P.W and H.A. Froehlich. 1981. Compaction of forest soils. Extension Publication PNW 217. 13 pp.

The example described in this article is too precise to apply at the Forest Plan level. These situations will be dealt with at the project level when we apply the Regional Soil Quality Standards. Although individual trees may suffer impacts as described in your letter productivity will be unaffected in 85% or more of activity area.

Allendorf, F.W., R.B. Harris, & L.H. Metzgar, 1991. Estimation of effective population size of grizzly bears by computer simulation. Proceedings, Fourth International Congress of Systematic and Evolutionary Biology.

Not provided after 4/13/06 request

Ament, R. 1997. Fire policy for the Northern Rocky Mountains (U.S.A.). American Wildlands Report #12. Bozeman, MT.

Applicable but the issues raised by Ament, fire as a natural process and suppression costs, are addressed as part of the Appropriate Mgmt Response which takes into consideration, public & firefighter safety, resource needs and cost of suppression.

Arno, S.F., J.H. Scott and M.G. Hartwell. 1995. Age-class structure of old growth ponderosa pine/Douglas fir stands and its relationship to fire history. U.S. Forest Service Research Paper INT-RP-481.

Incorporated in Affected Environment section of Vegetation, although Lolo Post Burn Decision seems to negate recommendations for management of old growth ponderosa pine. The BDNF has very little ponderosa pine forest to begin with. So recommendations in this article do not have a great bearing on management of old growth on the forest.

Arno, S.F., H.Y. Smith and M.A. Krebs 1997. Old growth Ponderosa Pine and Western Larch Stand Structures: Influences of pre-1900 Fires and Fire Exclusion. USDA Forest Service, Intermountain Research Station, INT-RP-495.

Not incorporated, there are no western larch stands and very little ponderosa pine on the BDNF.

Baker, William & Donna Ehle. 2001. Uncertainty in surface-fire history: the case of Ponderosa pine forests in the western United States. Canadian Journal of Forestry Research 31: 1205-1226.

Incorporated in discussion of fire history data in FEIS under Affected Environment in Vegetation.

Barrett, S.W., Arno, S.F. and C.H. Key. 1991. Fire regimes of western larch-lodgepole pine forests in Glacier National Park, Montana. Canadian Journal of Forestry Research 21-1711-1720.

Not provided after 4/14/06 request. In addition there are no western larch-lodgepole pine forests on the BDNF.

Beschta, Robert L., Jonathan J. Rhodes, J. Boone Kauffman, Robert E. Gresswell, G. Wayne Minshall, James R. Karr, David A. Perry, F. Richard Hauer and Christopher A. Frissell. 2004. Postfire Management on Forested Public Lands of the Western United States. Conservation Biology, Vol. 18, No. 4, August 2004, Pages 957-967.

This citation applies to road construction for salvage logging after a fire. The revised forest plan is not proposing a project with salvage logging, road building, yarding or other soil disturbing activity. It does however identify key restoration watersheds where restoration of stream function and aquatic habitat will be a priority.

Brais, S. and C. Camire. 1997. Soil compaction induced by careful logging in the claybelt region of northwestern Quebec (Canada). Can. J. Soil Sci. 78:197-206.

This study involves fine textured soils. The information would be useful should any projects be developed in the small areas on this forest that have fine textured soils. However the Forest Plan doesn't identify specific areas and this type of research doesn't apply.

Buchert, George P., Om P. Rajora, James V. Hood and Bruce P. Dancik. 1997. Effects of Harvesting on Genetic Diversity in Old-Growth Eastern White Pine in Ontario, Canada. Conservation Biology, Vol. 11, No. 3, pp. 747-758.

Although the point related to this citations was well made we cannot extrapolate information based on Eastern White Pine to species on the BDNF. This citation may be appropriate for specific stands but difficult to extrapolate across the forest. The plan allocates less than 12% of forested lands to be managed on a regulated basis. That leaves 88% of forested lands in an unmanaged condition to maintain genetic diversity.

Bull, Evelyn L. and Arlene K. Blumton, 1999. Effect of Fuels Reduction on American Martens and Their Prey. USDA Forest Service Department of Agriculture, Pacific Northwest Research Station, Research Note PNW-RN-539, March 1999.

Applies but is consistent with FEIS references.

Bull, Evelyn L., Catherine G. Parks, and Torolf R. Torgersen, 1997. Trees and Logs Important to Wildlife in the Interior Columbia River Basin. Gen. Tech. Rep. PNW-GTR-391. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 55p.

Applies but is consistent with DEIS references. All landscapes, except for the Upper Clarkfork exceed Bull et. al. 1997, in large snags alone. The citation listed does not specify snag diameters. The DEIS demonstrated the large snag component on page 107.

Center for Biological Diversity, 2004. Petition To The Northern And Intermountain Regions Of The U.S. Forest Service To Amend National Forest Plans To Protect The Northern Goshawk. Center for Biological Diversity, Alliance for the Wild Rockies, Biodiversity Conservation Alliance, Friends of the Clearwater, Idaho Conservation League, Wyoming Wilderness Association.

Not applicable at the forest level because the petition asks for a regional scope. The Regional Conservation Assessment for Northern Goshawk (Samson 2006) addresses goshawk distribution, habitat use and viability at the regional scale. Additional guidance is provided by Northern Goshawk Northern Region Overview Key Findings and Project Considerations (May 2007)

Monitoring data indicates the goshawk no longer qualifies as a R1 Sensitive Species. Where it's an MIS monitoring will continue. The revised forest plan does not include the goshawk in the list.

Cherry, M.B. 1997. The Black-Backed And Threetoed Woodpeckers: Life History, Habitat Use, And Monitoring Plan. Unpublished Report. On File With: U.S. Department Of Agriculture, Lewis And Clark National Forest, P.O. Box 869, Great Falls, Mt 59403. 19 P.

Consistent with Hutto 1995 and wildlife habitat relationships as described in the Avian Sciences Center website for Region 1 Landbird Monitoring.

http://avianscience.dbs.umt.edu/syntheses_habitat.htm or in RMS GTR 32.

Clayton, James L.; Gary Kellogg; Neal Forrester 1987. Soil Disturbance-Tree Growth Relations in Central Idaho Clearcuts United States Department of Agriculture Forest Service Intermountain Research Station, Research Note INT- 372; 1987.

Unable to find the reference in your letter. The reference relates to soils with a thick surface layer of volcanic ash derived soil. We have very small areas where this research would apply.

Clough, Lorraine T. 2000. Nesting Habitat Selection and Productivity of Northern Goshawks In West-Central Montana. M.S. Thesis, University of Montana, 87 pp.

Incorporated in DEIS references

Cohen, Jack 1999. Reducing the Wildland Fire Threat to Homes: where and how much? Jack D. Cohen, RMRS. Paper presented at the Fire Economics Symposium, San Diego, CA April 12, 1999.

Applicable but presents only part of the picture. We used Finny & Cohen 2003 which expands the considerations for the probability of fire occurrence and is more appropriate at the forest plan level.

Crocker-Bedford, D.C. 1990. Goshawk reproduction and forest management. Wildlife Society Bulletin; v. 18, no. 3, pp. 262-269.

Not incorporated, arid Ponderosa pine habitat does not exist on the BDNF.

Cullen, S.J., C. Montagne, and H Ferguson, 1991. Timber Harvest Trafficking and Soil Compaction in Western Montana. Soil Sci. Soc. Am. J., Vol. 55 (1416-1421), September-October 1991.

The reference relates to soils on the Flathead and Kootenai forests with a thick surface layer of volcanic ash derived soil. We have very few areas where this research would apply. Once again the Plan does not propose any site-specific projects.

DellaSala, Dominick A., D. M. Olson, S. E. Barth, S. L. Crane, and S. A. Primm, 1995. Forest health: moving beyond rhetoric to restore healthy landscapes in the inland Northwest. Wildlife Society Bulletin 1995, 23(3): 346-356.

Not applicable at the forest plan scale because it is more appropriate to apply this reference at the project scale for fires salvage. We agree that burned landscapes are important to a variety of wildlife.

Core areas of late seral/undisturbed habitat are widely distributed across the forest in 1.8 millions acres of roadless areas and 220 thousand Congressionally designated wilderness acres inside the BDNF.

DellaSala, Dominick A., Anne Martin, Randi Spivak, Todd Schulke, Bryan Bird, Marnie Criley, Chris van Daalen, Jake Kreilick, Rick Brown, and Greg Aplet, 2003. A Citizen's Call for Ecological Forest Restoration: Forest Restoration Principles and Criteria. Ecological Restoration, Vol. 21, No. 1, 2003 ISSN 1522-4740

Applicable, consistent with DEIS literature.

Dolan, P., 1998a, b. Email discussion with USFS Region One wildlife biologists regarding black-backed woodpecker and attached "Salvage of Burned Stands: Wildlife Considerations." On file at Lolo National Forest.

Applicable, consistent with BE references. We agree that burned forests are the most desirable nesting habitat for black-backed woodpeckers. This information applies more appropriately at the project level scale involving salvage.

Dudley, Nigel & Daniel Vallauri, 2004. Deadwood – Living Forests. WWF Report, October 2004. World Wildlife Fund for Nature, Gland, Switzerland.
<http://www.panda.org/downloads/forests/deadwoodwithnotes.pdf>

Applicable, consistent with other references.

Espinosa, F. A., Jr., J. Rhodes, and D. McCullough. 1997. The Failure of Existing Plans to Protect Salmon Habitat in the Clearwater National Forest in Idaho. Journal of Environmental Management 49, 205-230p.

Applicable, however the paper points out the failure resides in the fact that resolution of resource conflicts is usually decided in favor of commodity interests and insufficient attention was given to BMP effectiveness. The primary basis of failure resided in modeling effort. Our evaluation for the revised plan, attention to monitoring is substantially greater than efforts in the past and the commitment to watershed and aquatic health is emphasized thru establishment of Key Watersheds and RMOs established are specific to fully functioning streams and watershed health.

Frissell, C.A. and D. Bayles, 1996. Ecosystem Management and the Conservation of Aquatic Biodiversity and Ecological Integrity. Water Resources Bulletin, Vol. 32, No. 2, pp. 229-240. April, 1996

This is applicable and has been incorporated. In the context of your letter this reference recommends a rational adaptive practice in ecosystem management and reduction of the risk of unintended consequences. Manager must identify catchments and aquatics where ecological integrity has been least damaged . . . and develop a means to ensure their protection... We believe we have done this in the Forest Plan thru establishment of key watersheds.

Frost, E. 1999. The scientific basis for managing fire and fuels in national forest roadless areas. Wildwood Environmental Consulting, Ashland, OR. Prepared for World Wildlife Fund as supplementary comments on the Notice of Intent regarding National Forest System Roadless Areas (CFR: 64 No 201, 10/19/99).

Document not provided after request on 11/2/05

Unable to find reference in letter 558

Garrity, M., 1994. Economist, Univ. of Utah, Salt Lake City. Personal communication.

Documentation not provided after request on 11/2/05

Graham, Russell T.; Rodriguez, Ronald L.; Paulin, Kathleen M.; Player, Rodney L.; Heap, Arlene P.; Williams, Richard. 1999. The northern goshawk in Utah: habitat assessment and management recommendations. Gen. Tech. Rep. RMRS-GTR-22. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 48 p.

Not incorporated but consistent with Samson (2006) A Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region, USDA Forest Service which is more applicable to the BDNF.

Green, P., J. Joy, D. Sirucek, W. Hann, A. Zack, and B. Naumann, 1992. Old-growth forest types of the northern region. Northern Region, R-1 SES 4/92. Missoula, MT.

Incorporated in Glossary, Draft and Final EISs.

Grier, C. C., K. M. Lee, N. M. Nadkarni, G. O. Klock, & P. J. Edgerton, 1989 Productivity of Forests of the United States and Its Relation to Soil and Site Factors and Management Practices: A Literature Review. USDA Forest Service General Technical Report PNW-GTR-222, March 1989.

The sentence in the referenced article after your citation states: “This measure is far from perfect for management purposes.” Subsequent to the citation are several pages of different methods to measure productivity. Defining productivity is not appropriate in a forest plan. Presently FS research is studying long term soil productivity. We are using the results of that research as it becomes available.

Habeck, J.R. 1990. Old-growth ponderosa pine-western larch forests in western Montana: ecology and management. Northwest Environmental Journal. 6: 271-292. 1990. University of Washington, Seattle, WA.

Not incorporated, because it is not applicable to BDNF as we don't have western larch forests.

Habeck, James R. 1988. Old-growth Forests in the Northern Rocky Mountains. Natural Areas Journal. Vol. 8(3): 202-211. 1988.

Applies, consistent with DEIS literature.

Hammer, K.J. 2000. Ponderosa poster child: U. S. Forest Service misrepresenting the historic condition of Western forests and the effects of fire suppression and logging. prepared for Friends of the Wild Swan and Swan View Coalition. Kalispell, MT.

Applies, consistent with DEIS literature.

Harris, Larry D. 1984. The Fragmented Forest: Island Biogeography Theory and the Preservation of Biotic Diversity. Chicago Press, Chicago, Ill. 211 pp.

Reference appears to advocate creation and management of long rotation habitat to protect old growth islands on a forestwide scale by timber harvest. The preferred alternative does not specify enough commercial harvest on suitable timberland or acres available for harvest to achieve other resource benefits. The FEIS Vegetation section shows old growth is not in short supply.

Additionally no one has reached the same kind of conclusions in western forests as has been done in some of the eastern forests. We also do not have old growth mapped in order to plan this type of management.

Harris, Richard B. 1999. Abundance and characteristics of snags in western Montana forests. Gen. Tech. Rep.. RMRS-GTR-31. Ogden, UT: USDA Forest Service, Rocky Mountain Research Station. 19 pp.

Compatible with our FIA approach as noted in Figure 36 on page 108, volume I - DEIS. Reference uses the same data we do.

Harrison S and Voller J. 1998. Connectivity. Voller J and Harrison S, eds. Conservation Biology Principles for Forested Landscapes. Ch 3:76-97. Vancouver: UBC Press.

Not incorporated. The FEIS demonstrates large areas of secure habitat as a function of road densities that help preserve options to address site-specific concerns in the future. As discussed in the Vegetation section of the FEIS discloses data that shows forests cover on the BDNF is basically unchanged except that late seral stages have changed. Shrubland component has been reduced 74,000 acres due to conifer encroachment. The forest is more connected now than the modeled historic range of variability. We are short early seral stages as discussed in the Vegetation section of the FEIS.

Connectivity issues are more involved in private and other land ownerships which we have no control over.

Harvey, A.E., J.M. Geist, G.I. McDonald, M.F. Jurgensen, P.H. Cochran, D. Zabowski, and R.T. Meurisse, 1994. Biotic and Abiotic Processes in Eastside Ecosystems: The Effects of Management on Soil Properties, Processes, and Productivity. GTR-323 93-204 (1994)

Incorporated in project file. The Forest plan is limited to broad direction and states we will meet Soil Quality Standards. We will use best techniques available to monitor soil productivity including biological methods as they become available and prove to be effective. See the old growth section of Vegetation for a discussion of the microbial component of old growth.

Hayward, G. D., and R. E. Escano. 1989. Goshawk nest-site characteristics in western Montana and northern Idaho. Condor: v. 91, no. 2, pp. 476-479.

Not incorporated, we used more recent assessments and studies (Sampson 2006, and Clough 2000.)

Hayward, Gregory D., and Jon I Verner, 1994. Flammulated, Boreal, and Great Gray Owls in the United States: A Technical Conservation Assessment. USDA Forest Service General Technical Report RM-253.

Incorporated in the BE.

Hessburg, Paul F. and John F. Lehmkuhl, 1999. Results of a blind scientific peer review of the Wenatchee National Forest's Dry Forest Strategy and a case study of its implementation in the Sand Creek Ecosystem Restoration Project. USDA Forest Service, Pacific Northwest Research Station.

Not incorporated because the Wenatchee National Forest area is not similar to the BDNF and findings do not apply adequately.

Hillis, Mike; Amy Jacobs, and Vita Wright, 2002. Black-Backed Woodpecker Assessment. U.S. Forest Service Region One.

http://www.fs.fed.us/r1/cohesive_strategy/integration/wildlife/R1_bbwo_assessment.htm

Not incorporated. More appropriate to site-specific projects involving salvage logging. Habitat relationships are consistent with Samson (2006) A Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region and, Hutto and Young 1999 Avian Science Wildlife Habitat Relationships at http://avianscience.dbs.umt.edu/syntheses_habitat.htm or in RMS GTR 32

Hudson, E.E. 1991. Landscape Linkages and Biodiversity. Island Press, Covelo, Cal., 195pp.

Documentation not provided after request on 4/13/06.

Huff, Mark H., Roger D. Ottmar, Ernesto Alvarado, Robert E. Vihnanek, John F. Lehmkuhl, Paul F. Hessburg, and Richard L. Everett, 1995. Historical and Current Forest Landscapes in Eastern Oregon and Washington. Part II: Linking Vegetation Characteristics to Potential Fire Behavior and Related Smoke Production. General Technical Report (PNW-GTR-355).

Not applicable because it is about site-specific analysis and doesn't apply at the forest plan scale.

Hutto, R.L. 1995. The composition of bird communities following stand-replacement fires in northern Rocky Mountain (U.S.A.) conifer forests. Conservation Biology 9:1041-1058.

Incorporated in BE.

ICBEMP DSEIS Appx 12. Requirements For Snag And Downed Wood. Interior Columbia Basin Supplemental Draft Environmental Impact Statement, Vol. 2, Appendix 12. Interior Columbia Basin Ecosystem Management Project, United States Department of Agriculture Forest Service, United States Department of the Interior Bureau of Land Management. March 2000.

Not incorporated because only a small portion of the BDNF is included in the UCRB and we apply the FIA data specific to the Forest.

Ingalsbee, Timothy; 2004. Collateral Damage: The Environmental Effects of Firefighting. The 2002 Biscuit Fire Suppression Actions and Impacts. Western Fire Ecology Center and American Lands Alliance, May 2004. http://www.fire-ecology.org/research/biscuit_suppression.html

Reference considered but not incorporated because the issues are addressed by new agency minimum impact standards, adherence to Appropriate Management Response policy and use of resource advisors on-site at every type 2 and above fire to monitor and mitigate impacts.

We also use Barrett, Agee, Arno, Pline and other research because we are moving away from suppression toward incorporating fire as a natural process in forest management goals and objectives. Especially in consideration of the cumulative effects of fire suppression.

Iverson, George C., G.D. Hayward, K. Titus, E. DeGayner, R.E. Lowell, D.C. Crocker-Bedford, P.F. Schempf, and J. Lindell, 1996. Conservation Assessment for the Northern Goshawk in Southeast Alaska. USDA Forest Service, Pacific Northwest Research Station. General Technical Report PNW-GTR-387.

Not incorporated because the BDNF contains no temperate rainforest habitat.

Johnsen, S, 1996. Identification of Potential Fisher Habitat on the Kootenai National Forest. July 11, 1996.

Documentation not provided after request on 4/130/06

Johnson, C.G., Jr., Clausnitzer, R.R. Mehringer, P.J. and C.D. Oliver. 1994. Biotic and abiotic processes of eastside ecosystems: the effects of management on plant and community ecology, and on stand and landscape vegetation dynamics. PNW-GTR-322. USDA, Forest Service, Portland OR.

Documentation not provided after request on 4/13/06

Jones, A.J., and Gordon E. Grant; Peak flow responses to clear-cutting and roads in small and large basins, western Cascades, Oregon . Water Resources Research, Vol. 32, No. 4, pages 95-974, April 1996.

Not applicable. This research covers a separate hydrologic region called the Continental/Maritime Province and does not extend to the snow dominated runoff regime in southwestern Montana.

Jones, Jeff, (undated) A Fisher Management Strategy for the Northern Rocky Mountains (draft). USFS Northern Region.

Not incorporated as source is a draft. Forestwide guidance for the fisher is not appropriate because the BDNF is at the periphery of the fisher's range (Samson 2006). Habitat Estimates for Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher provides guidance. Samson cites Heinemeyer and Jones 1994 the research is considered at a regional scale.

Juday, Glenn Patrick, 1978. Old Growth Forests: A Necessary Element of Multiple Use And Sustained Yield National Forest Management. Environmental Law, Vol. 8, pp 497-522.

Not applicable because the BDNF has no Coastal Douglas-fir old growth.

Juel, Jeff, 2003. Old Growth at a Crossroads: U.S. Forest Service Northern Region National Forests noncompliance with diversity provisions of their Forests Plans and the National Forest Management Act Regulations. The Ecology Center, Inc. 27p. August 2003.

Applicable but is consistent with DEIS references.

Kuennen, L., G. Edson & T. Tolle, 1979. Soil Compaction Due To Timber Harvest Activities. Northern Region, May 1979

Not applicable. Research applies to soils with volcanic ash layers 8 to 20 inches thick on the Kootenai National Forest and they do not occur on the BDNF.

La Sorte, F., R. Mannan, R. Reynolds, and T. Grubb. 2004. Habitat associations of sympatric red-tailed hawks and northern goshawks on the Kaibab Plateau. Journal of Wildlife Management 68:298-308.

Not incorporated, there is no arid Ponderosa-habitat on the BDNF.

Lacy, Peter M., 2001. Our Sedimentation Boxes Runneth Over: Public Lands Soil Law As The Missing Link In Holistic Natural Resource Protection. Environmental Law; 31 Envtl. L. 433 (2001).

While we might agree with the sentiment we can't make federal laws in the forest planning process.

Lesica, Peter, 1996. Using Fire History Models to Estimate Proportions of Old Growth Forest In Northwest Montana, USA. Biological Conservation 77, p. 33-39.

Applicable and consistent with DEIS references.

Lofroth, E.C., 1997. Northern wolverine project: wolverine ecology in logged and unlogged plateau and foothill landscapes. Wildlife Branch, Victoria, British Columbia, May 7, 1997.

Not incorporated but DEIS recommendations for winter secure areas, landscape security in all seasons as a function of road density are compatible with Heinemeyer (2001) which is more applicable to the BDNF.

Lolo BMP Memo. August 6, 1999 Memo from Lolo National Forest Supervisor Deborah Austin, Subject: Best Management Practices.

The BMP discussion referred to in your letter is project specific. We incorporate the use of BMPs in Forest Plan direction as one way to minimize the effect of activities on NFS land. The actual design, implementation, and monitoring of BMPs will happen at the project level.

MacDonald, L.H., and J.A. Hoffman, 1995. Causes of Peak Flows in Northwestern Montana and Northeastern Idaho. Water Resources Bulletin. 31(1): 79-95.

Not applicable. This research covers a separate hydrologic region called the Continental/Maritime Province and does not extend to southwestern Montana as described in Figure III. 9a in “An Approach to Water Resources Evaluation of Non-point Silvicultural Sources.” (A Procedural Handbook) USDA FS, Washington D.C. 1979.

Mannan, R. W. 1977. Use of snags by birds, Douglas-fir region, western Oregon. M.S. Thesis. Oregon State University, Corvallis, OR. 114 pp.

Not provided.

Guidance for snags is provided by information from the Avian Sciences Center for the R1 Landbird program which is specifically germane to Montana forests. We also use R1 conservation assessment (Sampson, amended 2006) and snag standards in the plan exceed the habitat relationships model for flammulated owls and pileated woodpeckers. The pileated woodpecker is a primary excavator which provides cavities for secondary cavity nesters such as the flammulated owl which is a sensitive species. Snag recommendations are also consistent with Samson 2006 recommendations for marten and fisher.

Maxell, Bryce A. 2000 Management of Montana’s Amphibians. Wildlife Biology Program, Univ. of Montana & USDA Forest Service, Northern Region. Report (Order Number 43-0343-0-0224).

Applicable but we used the Maxell 2004 report as it includes data specific to the BDNF and also mentions the value of upland habitat for toads.

Maxell, Bryce; Steve Corn; Paul Hendricks; Ted Koch; Charles Peterson; and Kirwin Werner; 1998. Unpublished letter to USFS Region 1 Species at Risk Task Group: Subject – Inclusion of the Boreal toad (*Bufo boreas boreas*) on the Sensitive Species List for all Region 1 Forests. 8pp.

We recognized the cause for concern as stated in this reference. However, we have taken steps necessary to ensure viability by 1) contracting Maxell to do surveys across the forest to help us understand distribution and status. This is documented in his 2004 report as listed in the EIS. 2) Boreal Toads are identified as a sensitive species; and 3) every site-specific project has a biological evaluation to determine effects on viability. 4) The analysis for this plan evaluates distribution and viability.

Individuals may be killed, but at low rates that won’t influence populations. When toads disperse from riparian areas they are not typically found in concentrations. We evaluate projects through

NEPA to address site-specific concerns. Viability is addressed in the Biological Evaluation, Appendix D.

McClelland BR and McClelland PT. 1999. Pileated woodpecker nest and roost trees in Montana: links with old-growth and forest “health.” Wildlife Society Bulletin 1999, 27(3): 846-857.

Not incorporated but DEIS, figure 36, page 108 is compatible with retaining large snags per this reference. . We also use R1 conservation assessment (Sampson, amended 2006) and snag standards in the plan exceed the habitat relationships model for flammulated owls and pileated woodpeckers. The pileated woodpecker is a primary excavator which provides cavities for secondary cavity nesters such as the flammulated owl which is a sensitive species. Snag recommendations are also consistent with Samson 2006 recommendations for marten and fisher.

McClelland, B. Riley (undated). Influences of Harvesting and Residue Management on Cavity-Nesting Birds.

Not incorporated because the study site is significantly different than BDNF forest types. BDNF has approximately 48% lodgepole. The Coram Experimental Forest (CEF) has less than 1% lodgepole. BDNF has approx 23% Douglas-fir vs. 52% at the CEF. Western larch is the predominant nest tree at the CEF and is not found on the BDNF.

Mealey, Stephen P., 1983. Wildlife Resource Planning Assistance to the Payette and Boise National Forests. Land Management Planning Systems/WO, 3825 E. Mulberry, Ft. Collins, Colorado 80524. Memo 1920/2620 dated April 1, 1983. 10 pages.

Not incorporated. We no longer use FORPLAN.

Mills, L. Scott, 1994. Declaration in Support of Plaintiff’s Motion for Summary Judgment and Permanent Injunction. Civil No. CV 94-108-M-CCL.

Not incorporated, declaration applies to a site-specific project. In the context of the comment letter we agree that population viability assessment needs to occur at a larger scale than site-specific projects.

Montana Fish, Wildlife & Parks, 2005. Animal Field Guide: Boreal Toad.
<http://nhp.nris.state.mt.us/animalguide/speciesDetail.aspx?elcode=AAABB01030>

Incorporated in DEIS literature. Just lists habitats where boreal toads are typically found.

Northern Rockies Lynx Amendment comments by the Ecology Center, dated October 24, 2001 and April 15, 2004.

Not incorporated. It would be inappropriate to respond to comments on a separate EIS which is not a decision made under the revision process. The Northern Rockies Lynx Amendment (NRLA), Record of Decision made in 2007 identifies the BDNF as unoccupied. The latest Fish and Wildlife Service species list, (USFWS 2007) confirms no lynx on the BDNF. Your comments regarding that process were considered and responded to in the NRLA FEIS. Leaf would like Marty to review this one.

Noss, R.F. 1983. A Regional Landscape Approach to Maintain Diversity. Bioscience 33(11): 700-706;

Not incorporated. Concepts are more appropriate at a regional scale. General concepts are incorporated in Samson (2006) A Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region, USDA Forest Service

Noss, Reed F., 1990. Indicators for Monitoring Biodiversity: A Hierarchical Approach. Conservation Biology 4(4): pp. 355-364.

Not directly incorporated in the DEIS but concepts are consistent with approach described in Samson (2006) A Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region, USDA Forest Service

Noss, Reed F., 1993. The Wildlands Project Land Conservation Strategy. Wild Earth Journal, Special Issue: 10-26

We believe the current identification of secure areas, inventoried roadless, wilderness, and low road densities proposed in the DEIS positively addresses retention of core areas for wildlife and provides interconnected habitat to maintain linkages, buffer zones and dispersal areas.

Nowicki, Brian, 2002. The Community Protection Zone: Defending Houses and Communities from the Threat of Forest Fire. Center for Biological Diversity, August 2002.

Applicable but presents only part of the picture. We reference Finny & Cohen 2003 which expands the considerations for the probability of fire occurrence and is more appropriate at the forest plan level.

Pacific Biodiversity Institute. 2000. Assessment of summer 2000 wildfires: landscape history, current condition and ownership. Winthrop, WA

Documentation not provided after request on 4/13/06

Pacific Northwest Research Station, 2004. Western Forests, Fire Risk, and Climate Change, Pacific Northwest Research Station, Issue 6 January 2004.
<http://www.fs.fed.us/pnw>.

This paper was referenced in the context of your comment that "...the FS asserts that fire suppression is the root cause of changes in vegetative conditions in recent times."

In neither the vegetation nor fire sections of the Draft EIS did we say that fire suppression was the root cause of changes in vegetation. We said, rather, that fire was "arguably the most important forest and rangeland disturbance process for millennia." (Hessburg & Agee 2002). We also said changes in vegetation "are largely the result of available habitats as influenced by climate" (DEIS p.68) And the article you cite reflects the current understanding that fire as a process and climate are closely related. We don't contradict the article you cite, but it's just one of many that support what we said in the DEIS.

Page-Dumroese, D.; Jurgensen, M.; Elliot, W.; Rice, T.; Nesser, J.; Collins, T.; Meurisse, R., 2000. Soil quality standards and guidelines for forest sustainability in northwestern North America. Forest Ecology and Management 138 (2000) 445-462.

Not Applicable. The forest plan states we will meet R1 Soil Quality Standards. FS research is validating existing SQS as is the Forest on a project by project basis. The results of these studies will be incorporated to update soils quality standards as appropriate.

Page-Dumroese, Deborah, 1993. Susceptibility of Volcanic Ash-Influenced Soil in Northern Idaho to Mechanical Compaction. USDA Forest Service Intermountain Research Station, Research Note INT-409. February, 1993.

Doesn't apply because the research applies to soils with a 12" or thicker layer of volcanic ash at the surface. The BDNF has none of this type of soil.

Patla, S. 1997. Nesting Ecology and Habitat of the Northern Goshawk in Undisturbed and Timber Harvest Areas on the Targhee National Forest, Greater Yellowstone Ecosystem.

Not incorporated but nest habitat in Post Fledging Area, habitat descriptions are compatible with Samson (2006) and Clough (2000).

Pfister, R.D., W.L. Baker, C.E. Fiedler, and J.W. Thomas. 2000. Contract Review of Old-Growth Management on School Trust Lands: Supplemental Biodiversity Guidance 8/02/00.

Applicable and consistent with DEIS literature.

Reynolds, R. T., R. T. Graham, M. H. Reiser, R. L. Bassett, P. L. Kennedy, D. A. Boyce, Jr., G. Goodwin, R. Smith, and E. L. Fischer. 1992. Management recommendations for the Northern goshawk in the southwestern United States. Rocky Mountain Forest and range Experiment Station and Southwest Region Forest Service. US Dept. of Agriculture, Gen. Tech. Rpt. RM-217.

The Regional Conservation Assessment for Northern Goshawk (Samson 2006) addresses goshawk distribution, habitat use and viability at the regional scale. Additional guidance is provided by Northern Goshawk Northern Region Overview Key Findings and Project Considerations (May 2007)

Monitoring data indicates the goshawk no longer qualifies as a R1 Sensitive Species. Where it's an MIS monitoring will continue. The revised forest plan does not include the goshawk in the list.

Rhodes, Jon, 2002. Bitterroot National Forest Burned Area Recovery Project Post-fire salvage logging field review: 8/20-22/2002. Jon Rhodes, Hydrologist, Center for Biological Diversity.

The paper talks about the basic cause of erosion from road surfaces. It reveals nothing new.

Rieman, B. and J. Clayton. 1997. Wildfire and native fish: Issues of forest health and conservation of sensitive species, Journal of Fisheries, Vol. 22, No. 11

Incorporated in analysis literature.

Riggers, Brian; Rob Brassfield; Jim Brammer; John Carlson; Jo Christensen; Steve Phillips; Len Walch; Kate Walker; 2001. Reducing Fire Risks to Save Fish – A Question of Identifying Risk. A Position Paper by the Western Montana Level I Bull Trout Team, 2001.

The very paper you cite states, "There are undoubtedly exceptions to this position. ...areas where native fish populations are nearly extinct and isolated to an extremely small watershed and reconnection to other populations is not an option." The point of the objective in question, in the context of your letter, (Aquatic Resources, Vegetation Objective) is to protect isolated populations.

Roads Scholar Project. In press. Roaded Lands, Eroded Habitat: Findings and Implications of the Roads Scholar Project, 1994-1997. Available from Predator Conservation Alliance, Bozeman, MT.

Not incorporated, however road densities are a major criterion in the FEIS evaluation of effects.

Ruggiero LF, Hayward, G.D. and Squires, J.R., 1994. Viability Analysis in Biological Evaluations: Concepts of Population Viability Analysis, Biological Population, and Ecological Scale. Conservation Biology, Vol. 8, No. 2, June 1994, pp. 364-372

Applies, evaluations steps outlined in this document are part and parcel of biological evaluations. The issue of scale is addressed in specific biological evaluations as well as Sampson (2006) Conservation Assessment and Threshold documents.

Ruggiero, Leonard F., Dean E. Pearson, and Stephen E. Henry, 1998. Characteristics of American Marten Den Sites in Wyoming. Journal of Wildlife Management 62(2): 663-673, 1998.

Applies but we use Samson 2005 as amended and Samson 2006 which is more prescriptive and are specific to Region 1. Snag standards in the plan exceed the habitat relationships model for flammulated owls and pileated woodpeckers. The pileated woodpecker is a primary excavator which provides cavities for secondary cavity nesters such as the flammulated owl which is a sensitive species. Snag recommendations are also consistent with Samson 2006 recommendations for marten and fisher.

Shinneman, D.J. and W.L. Baker. 1997. Nonequilibrium dynamics between catastrophic disturbances and old-growth forests in ponderosa pine landscapes of the Black Hills. Conservation Biology 11: 1276-1288.

Documentation not provided after request on 4/13/06

Sierra Club, 1997. Report based on Forest Service's own figures. Please contact Daniel Silverman at 415-977-5508 for a copy of the report.

Documentation not provided after request on 4/13/06

Smith, J.K. and W.C. Fischer. 1997. Fire ecology of the forest habitat types of Northern Idaho. INT-GTR-363. USDA, Forest Service, Ogden, UT

Documentation not provided after request on 4/13/06

Spiering, David J. and Richard L. Knight. 2005. Snag density and use by cavity-nesting birds in managed stands of the Black Hills National Forest. Forest Ecology and Management 214 (2005) 40-52.

Not incorporated because the study was focused on managed Ponderosa pine stands and is not applicable here.

Suring L, Crocker-Bedford D, Flynn R, Hale C, Iverson G, Kirchhoff M, Schenck T, Shea L, and Titus K. 1993. A proposed strategy for maintaining well-distributed, viable populations of wildlife associated with old-growth forests in southeast Alaska. Report of an interagency committee. USDA Forest Service, Juneau, AK.

Not incorporated because the BDNF contains no temperate rainforest.

Thomas, Jack Ward, Leonard F. Ruggiero, R. William Mannan, John W. Schoen, and Richard A. Lancia, 1988. Management and Conservation of Old-Growth Forests in the United States. Wildlife Society Bulletin, vol. 16, pp. 252-262.

Unable to determine context of this citation. Regardless the DEIS proposes retention of old growth at a minimum of 10% which is more than 50% of the standing inventory.

Turner, M. and B. Romme. 1994. Landscape dynamics in crown fire ecosystems. Landscape Ecology 9(1): 59-77.

Documentation not provided after request on 4/13/06

USDA Forest Service, 1987. Forest Plan for the Idaho Panhandle National Forests, and Forest Plan EIS Appendix 27.

Vegetation types, stand structure on the IPNF are vastly different than those on the BDNF and cannot be compared.

USDA Forest Service, 1990. Old-Growth Habitat and Associated Wildlife Species in the Northern Rocky Mountains. Warren, Nancy M. (ed.) USDA Northern Region.

Not incorporated. Samson (2006) provides current information on species described in this paper.

USDA Forest Service, 1993. Wolverine habitat guidelines for the Malheur National Forest. Prepared by Richard Haines, Malheur National Forest; Reviewed by Robert Naney, USFS Region 6, June 1993.

Not incorporated. We use Heinemeyer (2001) instead.

USDA Forest Service, 1998-1999. Northern Region Overview Detailed Report and Northern Region Overview Summary. USDA Forest Service Northern Region, Missoula, Montana.

Incorporated in DEIS, Chapter One. In the context for this citation is your concern that "... the development of mature forests to old growth is also being retarded by logging and fire suppression." The Revised Plan FEIS proposes retention of old growth at a minimum of 10% which is more than 50% of the standing inventory.

USDA Forest Service, 2000b. Expert interview summary for the Black Hills National Forest Land and Resource Management Plan Amendment. USDA Forest Service, Black Hills National Forest, Hwy 385 North – R.R. 2, Box 200 Custer, South Dakota 57730 (605-673-9200). October, 2000.

Not incorporated because the FEIS uses the recent Samson (2006) A Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region, USDA Forest Service which is more applicable to the BDNF.

USDA Forest Service, 2000c. Forest Plan Monitoring and Evaluation Report for 1998. Idaho Panhandle National Forests. (ICBEMP)

Not incorporated. Snags in the 15 inch dbh and larger category are being created in vast numbers by the current beetle epidemic. Although the Rock Creek landscape is the only piece in the

Colombia River drainage. Our dominant species is lodgepole which cannot produce the large snags called for in this reference.

USDA Forest Service, 2001a. Silverbird Post-Fire Harvest Environmental Analysis. Salmon-Cobalt Ranger District, Salmon-Challis National Forest, May 2001.

Applicable, we agree with the effects of log hauling. The FP proposes no timber projects and subsequent road building, so this reference would only apply to a site-specific project.

USDA Forest Service, 2002. Pipestone Timber Sale and Restoration Project Draft Environmental Impact Statement, Libby Ranger District, Kootenai National Forest, May 2002.

Applicable but not incorporated because road density objectives address reduction of uncontrolled road access.

USDA Forest Service, 2002a. Black Ant Final Environmental Impact Statement. Lewis & Clark National Forest.

Not incorporated because the long term soil productivity studies are still ongoing. We'll use the information as it becomes available.

USDA Forest Service, 2003a. Bristow Area Restoration Project Environmental Assessment, Kootenai National Forest.

Appropriate and incorporated.

USDA Forest Service, 2004a. Logan Creek Ecosystem Restoration Project Final Environmental Impact Statement. Flathead National Forest.

Not incorporated. The BDNF does not have large areas of fragmented habitat from timber harvest.

USDA Forest Service, 2005a. Sheep Creek Fire Salvage Project Final Environmental Impact Statement. Beaverhead-Deerlodge National Forest.

Not applicable. The statements in the citation deal with a forest fire salvage operation with bare soil exposed and machinery in operation. It's not applicable at the Forest Plan proposes no salvage projects,

The scientific information on goshawks found in Center for Biological Diversity, 2004, should be considered in the EIS.

Not incorporated because we use Samson (2006) Conservation Assessment and Samson (2006) Population Thresholds for guidance.

USDA Forest Service. Biological Evaluation/Biological Assessment for the Keystone Quartz EIS, Beaverhead-Deerlodge National Forest.

Not incorporated. We use more recent guidance in Samson (2006) A Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region, USDA Forest Service, Samson (2006) Habitat Estimates For Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher and Clough (2000) Nesting Habitat Selection and Productivity of Northern Goshawks in West-central Montana..

Additional guidance is provided by Northern Goshawk Northern Region Overview Key Findings and Project Considerations (May 2007)

USDA Forest Service. Dry Fork Environmental Assessment. Kings Hill Ranger District, Lewis and Clark National Forest.

In the context of your letter, we agree that population viability assessments are more appropriate at larger scales. Samson (2006) Conservation Assessment and Samson (2006) Population Thresholds provide guidance for the BDNF.

USDA Forest Service. Spotted Beetle Environmental Assessment, Flathead National Forest.

Forestwide guidance for the fisher from this document is not appropriate because the BDNF is at the periphery of its range, known only from the Pintler Ranger District. Samson (2006) Habitat Estimates for Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher provides guidance for site-specific biological evaluations for that district.

Veblen, T.T., T. Kitzberger and J. Donnegan. 2000. Climatic and human influences on fire regimes in ponderosa pine forests in the Colorado front range. Ecological Applications 10(4):1178-1195.

Context not provided in letter.

Veblen, Thomas T. 2003. Key Issues in Fire Regime Research for Fuels Management and Ecological Restoration. USDA Forest Service Proceedings RMRS-P-29.

We acknowledge the research and conclusions in this document. Future projects will rely on best available science concerning fire regimes specific to the BDNF.

Walder, B. 1995. Silviculture vs. nature: an ecological assessment of forest health alternatives. MS Thesis. Univ. of MT. Missoula, MT

Documentation not provided after request on 4/13/06

Warren, Nancy M. (ed.) Old-Growth Habitat and Associated Wildlife Species in the Northern Rocky Mountains. 1990. USDA Northern Region.

Not incorporated. Samson (2006) provides current information on species described in this paper.

Webb, T., III and P.J. Baartlein. 1992. Global changes during the last 3 million years: climatic controls and biotic responses. Annual Review of Ecology and Systematics 23:141-173

Documentation not provided after request on 4/13/06

Weir, J.M.H., Chapman, J.K., and E.A. Johnson. 1995. Wildland fire management and fire regime in the Southern Canadian Rockies. In. Proceedings: symposium on fire in wilderness and park management. Brown, J.K., Mutch, R.W., Spoon, C.W. and R.H. Wakimoto, tech. coords. 1993 March 3--April 1, Missoula, MT. INT-GTR-320. Ogden, UT: USDA, Forest Service, Intermountain Research Station.

Unable to find the citation in your letter to determine the context, however the restoration of fire as a natural process is addressed by Appropriate Management Response based on more current research by Finny & Cohen (2003)

Wilcove, David S., Charles H. McLellan, Andrew P. Dobson. 1986. Habitat fragmentation in the Temperate zone in Conservation Biology, The Science of Scarcity and Diversity, Michael Soule, ed. Sinauer Associates, Inc., Sunderland, Massachusetts.

Not incorporated, the study was based largely on heathland in Dorsett, England. Furthermore the BDNF does not have large areas of fragmented habitat from timber harvest or other management activities.

Williamson, J.R. and W.A. Neilsen. 2000. The influence of forest site and rate and extent of soil compaction and profile disturbance of skid trails during ground-based harvesting. Can. J. For. Res. 30:119

Doesn't apply to the BDNF. The soil in the research cited had an initial bulk density of about .87 grams per cubic centimeter which after one pass had an increased bulk density of 1.1 grams per cubic centimeter which equates to a 62% increase in bulk density. There are no soils on the BDNF that have initial bulk densities that low.

Witmer, Gary W.; Martin, Sandra K.; Sayler, Rodney D. 1998. Forest Carnivore Conservation and Management in the Interior Columbia Basin: Issues and Environmental Correlates. Gen. Tech. Rep. PNW-GTR-420. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 51 p. (Quigley, Thomas M., ed.; Interior Columbia Basin Ecosystem Management Project: scientific assessment).

Forestwide guidance for the fisher is not appropriate because the BDNF is at the periphery of its range, known only from the Pintler Ranger District. Samson (2006) Habitat Estimates for Maintaining Viable Populations of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, Pileated Woodpecker, American Marten, and Fisher provides guidance for site-specific biological evaluations.

We use Samson 2005 as amended and Samson 2006 which is more prescriptive and are specific to Region 1. Snag standards in the plan exceed the habitat relationships model for flammulated owls and pileated woodpeckers. The pileated woodpecker is a primary excavator which provides cavities for secondary cavity nesters such as the flammulated owl which is a sensitive species. Snag recommendations are also consistent with Samson 2006 recommendations for marten and fisher.

FORM LETTER RESPONSES

Form Letter 1

This form letter generally opposes closure of the hell roaring canyon portion of the BDNF. People who signed this letter feel it creates defacto wilderness, would drain the local economy (some include a larger impact area) and unjustly restricts recreation opportunities.

They also challenge whether the basin meets requirements for recommended wilderness, whether there are any lynx or wolverine in the area and whether snowmachines have any actual impact.

They feel the boundary is not clear on the ground and that the closure would be unenforceable. They ask that management be consistent with the Targhee side.

They say the economy is dependent on Mt. Jefferson access but generalize the Hellroaring Basin to the rest of the Mt. Jefferson area.

Variations of the form letter say Alternative 5 is unacceptable and support a revised Alternative 4 with no recommended wilderness (which it does) and no additional motorized closures.

Included with these form letters are the letters that indicate a general sentiment opposed to restricting snowmobile access to "Mt. Jefferson" without additional support or reference to the issues or the Plan.

Responses to specific comments in Form Letter 1 follow:

Comment 1: I have a deep appreciation of our national forest and their availability for my use. I am committed to resource conservation, and understand that responsible use of off road vehicles do not adversely impact these resources. I especially enjoy snowmobiling in the Mount Jefferson area. Its scenic beauty is unique, and central to my snowmobiling experience. I oppose the proposed closure of the Mt. Jefferson area to snowmobiling

Response: We received many comments regarding the management of the Mt. Jefferson area. The DEIS displayed a range of management strategies for Mt. Jefferson from recommended wilderness to allowing the area to be partially open to snowmobiling in Alternatives 1 and 4. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Plan by leaving the area adjacent to Island Park Ranger District open to snowmobile use and recommending the northern half for wilderness.

Comment 2: Only Congress can designate Wilderness. The area should not be closed to snowmobiles and managed as Wilderness until Congress decides. Snowmobiles do not permanently impact Wilderness resources. Wilderness values as defined in the Wilderness Act should not apply before Congress acts. Until that time, my wilderness values on my snowmobile are as valid as anyone else's.

Response: The Forest is required to evaluate areas for wilderness recommendations during the forest plan revision process, 36 CFR 219.17(a). There is no requirement to make a recommendation, only to evaluate areas for wilderness recommendations and to make recommendation as appropriate. Only Congress has the authority to designate an area as wilderness (Wilderness Act of 1964). None of the alternatives in either the Draft or Final EIS designates an area as wilderness.

The Forest is required to preserve the wilderness potential of areas recommended for wilderness until Congress chooses to designate or not to designate an area as Wilderness (FSM 1923.03.2). FSM1923.03.2 states, "Any potential wilderness area recommended for wilderness or wilderness study is not available for any use or activity that may reduce the area's wilderness potential. Activities currently permitted may continue, pending designation, if the activities do not compromise wilderness values of the potential wilderness area". The FEIS addresses the reasons for restricting snowmobiles in recommended wilderness in Chapter 2, Key Issue, Wilderness Recommendations, and in Chapter 3, IRAs and NWPS Additions, "Travel restrictions in Recommended Wilderness.

The Forest Plan makes land allocations (management areas) and develops management prescriptions for those areas (36 CFR 219.11). 36 CFR 219.11 states, “The Forest Plan shall contain the following: (c) Multiple-use prescriptions and associated standards and guidelines for each management area ...” Multiple-use prescriptions or management prescriptions are management practices and intensities selected and scheduled for application on a specific area to attain multiple-use and other goals (desired conditions) and services.

The desired condition and goal of areas recommended for wilderness, including the Mt Jefferson area, is to become wilderness in the future and also to be a semi-primitive non-motorized setting. The management prescription designed to meet this desired condition was developed to: 1) Protect wilderness characteristics of the area, so that Congress can consider it for designation, and 2) to achieve an ROS setting of semi-primitive non-motorized. Although the option to continue with current allowed uses, if the activities do not compromise wilderness values exists, the management prescription restricting snowmobiles in recommended wilderness was developed for the following reasons:

Areas recommended for wilderness are also areas that the management prescription is for a semi-primitive non-motorized setting even if the area is not made wilderness.

Consistency with other recommended wilderness areas in Region 1, which are non-motorized with few exceptions.

To respond to public comments asking that user conflicts be minimized. In areas with a desired condition of either wilderness or a semi-primitive non-motorized, visitors will not expect motorized recreation so encountering motorized recreations, could result in conflicts.

To develop a long term strategy for the Forest that is consistent and reasonable for the varied recreational uses. It did not seem reasonable to recommend to Congress that an area be designated while allowing or encouraging motorized recreation, which is a use that would be eliminated if the area is designated. All indications are that snowmobile use will continue to grow on the Forest and recommended wilderness is not a reasonable place to allow growth of an activity that will need to be eliminated if the area is designated. The Forest felt it would be a better Forest Plan strategy to develop snowmobile use in areas that have long term potential.

There is potential that snowmobile use may increase to levels that may impact winter wildlife species, and therefore, affect the wilderness values.

If the better long term strategy for an area is snowmobiling, then the Forest felt the area should not be recommended wilderness. The appropriate question was not whether or not the prescription for an area recommended for wilderness should allow snowmobiling, but rather, whether or not the best use of the area should be recommended wilderness. If not, then do not recommend the area as wilderness, and allow snowmobiling.

The management prescription developed for recommended wildernesses is similar to those areas allocated as semi-primitive non-motorized; they both restrict motorized travel. The management prescriptions for areas designated as wilderness are much different than those areas recommended for wilderness. This can be seen by comparing the direction in the Wilderness Act and management prescription for the Anaconda-Pintler and Lee Metcalf Wildernesses (see Anaconda-Pintler and Lee Metcalf Wilderness Plans) to the management prescription developed for recommended wilderness. The restriction of motorized travel is one similarity; however, there are many more differences. As stated earlier, the management prescription for areas

allocated as recommended wilderness is similar to areas allocated as semi-primitive non-motorized, not wildernesses.

A number of people opposed snowmobile restrictions in areas recommended for wilderness. Alternative 1 allows motorized use in some recommended wildernesses. Alternatives 2, 3, 4, 5 and 6 do not allow motorized use in recommended wildernesses for the reasons stated above. Alternatives 1, 4, and 6 allow for snowmobile use in the Mt Jefferson area. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Plan.

To better clarify the intent of the areas recommended for wilderness, the desired condition for recommended wildernesses have been expanded in the Final EIS and revised Forest Plan to include the desired condition if, at some point in time, congress decides not to designate these areas as wilderness.

Comment 3: Island Park is world famous for high mountain snowmobiling. The Mt. Jefferson area is the crown jewel of this experience. Island Park and West Yellowstone's winter economy are dependent on Mount Jefferson access. Its closure would be devastating to these economies, and would adversely affect business all the way to Pocatello, Idaho

Response: The economic analysis was updated to include a discussion of the economic impacts to this area. See Chapter III of the Final EIS under the heading, Economics and Social Values.

Comment 4: The Snowmobile community has worked cooperatively for years with Beaverhead-Deerlodge managers. Clean-ups have been organized. Temporary closures have been agreed-to so that supposed impacts to wolverines could be studied, and as a good faith effort to share the area. The draft revised forest plan ignored these efforts.

Response: The Forest is aware of and appreciates the snowmobiler's cooperation in this area. In order to address a wide variety of desires for the management of the Mt. Jefferson area, the DEIS examined a range of alternatives. Based on comments like this, the FEIS included Alternative 6 with a compromise strategy for the Mt Jefferson area. The carnivore study identified above is not complete and is still ongoing. There have been partial reports released; however, the final report and findings have not been released since the study has not drawn any final conclusions. This area would remain closed in Alternative 6 while the rest of the 2,200 acres used by snowmobiles would be open.

Comment 5: Management for the Mt. Jefferson area should be consistent with management of Targhee National Forest lands, immediately adjacent, there snowmobiling is allowed. The only winter access to the MT Jefferson area is through these lands. People cross back and forth, unaware of boundaries. A closure would be unenforceable.

Response: The Mt Jefferson area lies between and adjacent to two other ownerships; the Targhee National Forest and the BLM. The BDNF has been working with both entities to develop the best management strategy for the area. The Targhee National Forest does allow snowmobile use; however, the BLM is managed for non-motorized and is recommended for wilderness. If a non-motorized alternative is selected, we will work with users of the area to develop an enforceable closure.

Comment 6: Alternative 5 is not acceptable to me. I support a revised Alternative 4 that contains no additional Recommended Wilderness and contains zero acres of and zero miles of trails closed to snowmobiles.

Response: The Forest acknowledges a number of people supported Alternative 4 with some modifications such as zero acres of and zero miles of trails closed to snowmobiles. An alternative similar to Alternative 4, with the addition of having no areas or trails on the forest closed to snowmobiles, was considered between the release of the Draft EIS and the completion of the Final EIS. This alternative was not fully developed though because it was not reasonable and did not meet legal requirement of a forest plan; largely because it did not provide for multiple recreational uses and did not protect species viability. The rationale for not fully developing this alternative can be found in Chapter II of the Final EIS under the heading Alternatives Considered but not Analyzed in Detail.

Comment 7: Only 1.5% of current Beaverhead-Deerlodge visitors use existing wilderness. There is not a need for more land managed as designated Wilderness.

Response: Wilderness is designated for a variety of reasons; only one of which is to provide recreation. Wilderness is designated to preserve watersheds from development, to preserve wildlife habitat, and to provide a benchmark from which change can be measured. Wilderness is preserved in perpetuity. Even though recreation use is low now on the Beaverhead-Deerlodge, as the population grows in Montana and adjacent States, Wilderness will become more important for those people seeking a quiet recreation experience. In some States that have seen a tremendous amount of population growth and development, wilderness has become the final remaining areas where people can go to experience non-motorized, non-mechanized recreation.

The Forest acknowledges a number of people oppose additional wilderness areas. This view was reflected in Alternative 4. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Plan and it recommends a portion of Mt. Jefferson as wilderness and leaves a portion open to snowmobiling.

Comment 8: Snowmobile leaders agreed to a partial closure to study impacts on wildlife, especially the wolverine. In the four years it's been in force, no impacts have been reported. The Partial closure should be eliminated and the entire area should be open.

Response: The carnivore study identified above is not complete and is still ongoing. There have been partial reports released; however, the final report and findings have not been released since the study has not drawn any final conclusions.

Form Letter 2

This form letter supports recommended wilderness and asks for increased area recommendations and includes roadless management for recommended wilderness especially Middle Mt. and Hollow Top Peak in the Tobacco Roots. They want protection of wildlife habitat through forest plan direction and specify prohibition of off-trail motorized use, and vehicle restrictions to existing road and trails.

Variation in this form letter mostly comes in terms of a desire to leave wild lands for wildlife and future generations. Many writers include personal experiences to illustrate their connection to wildlands in SW Montana and a strong desire to protect remaining wilderness values. While these concerns are repeated in Form Letter 3, this form letter came in a distinct format as well as volume and can be responded to separately.

Responses to specific comments in Form Letter 2 follow:

Comment 1: I strongly support the wilderness recommendations included in your draft forest plan revision, notably proposed protections in the Mt. Jefferson and Snowcrest Mountains areas and additions to the Lee Metcalf Wilderness areas.

Response: A number of people supported wilderness recommendations for those areas mentioned above, as well as other areas. The alternatives recommended a range of areas recommended for wilderness, from no acres recommended (Alternative 4) to 707,000 acres of recommended wilderness (Alternative 3). Alternative 6 was developed in response to public comments, on the draft EIS and includes the areas mentioned above.

Comment 2: I believe that you have stopped well short of the protections the forest deserves. Please adopt a forest plan that recommends for wilderness the Sapphire, and West Pioneer Wilderness Study Areas, the West Big Hole, Stony Mountain and the additions to the Anaconda-Pintler Wilderness Area.

Response: A number of people supported other wilderness recommendations including the West Big Hole, Stony Mountain, and additions to the Anaconda-Pintler Wilderness. These areas are identified, in part or totally, in Alternative 1, 2, 3, 5, or 6. Based on comments, the wilderness suitability rating for Stony Mountain was reviewed. Alternative 6 was developed in response to public comments, on the draft EIS and includes Stony Mountain and Additions to the A-P.

The Wilderness Study Areas (West Pioneers and Sapphires) were created by an act of Congress, which directed the Forest Service to complete a study and make recommendations to Congress. The wilderness studies have been completed and submitted to Congress for their decision. Congress has yet to act upon these recommendations. These wilderness study areas are separate from forest plan revision since they were established through a separate act of Congress. Therefore, all alternatives maintained the current status of the Wilderness Study Areas.

Comment 3: I strongly urge a plan that manages all roadless lands of the Beaverhead-Deerlodge forest as recommended wilderness, especially the Middle Mountain and Hollow Top Peak in the Tobacco Roots.

Response: All inventoried roadless areas were not recommended for wilderness in any of the action alternatives. The reason for this is explained in Chapter two of the Final EIS, under the heading "Alternatives Considered but not Analyzed in Detail". After reviewing this comment and the rationale for not considering all roadless areas as recommended wilderness, it was decided that it was still not a reasonable alternative.

Middle Mountain and Hollow Top Peak were evaluated as recommended wilderness in Alternative 3.

Comment 4: Please ensure the protection of wildlife habitat through the adoption of scientific standards that recommend less than one mile of road per square mile of forest.

Response: The recommendation of managing the entire Beaverhead-Deerlodge National Forest at 1 mile per square mile of open road was analyzed in Alternative 3.

The scientific standard referred to in this comment was not identified and therefore unable to respond to.

Comment 5: Please prohibit all off-trail motorized use, restricting motorized vehicles such as dirt bikes, all-terrain vehicles and snowmobiles to existing roads and trails.

Response: The current Forest Plan was amended by a multi-agency amendment in 2001, which restricted all wheeled motorized travel to roads and trails. This restriction is common to all alternatives.

The restriction of snowmobiles to existing roads and trails is unrealistic as the roads and trails are covered by snow and are difficult to identify during the winter season.

Form Letter 3

This form letter contains parts or all of several similar action alerts and is very similar to Form Letter 2. In general, respondents support wilderness recommendations for Alternatives 3 or 5 and suggest specific additions. They request a "closed unless posted open" policy for motorized roads and trails, consideration and expansion of wildlife corridors, watershed and habitat protection. We combined these responses because they comprise the same issues and desires. A variation specifically mentions Rock Creek and the Sapphires. The broad theme is protection of roadless and wilderness values, motorized restrictions and scattered personal testimony about the importance of wildlands and natural environments.

Responses to specific comments in Form Letter 3 follow and in many cases are similar or the same responses as those given in Form Letter 2:

Comment 1: Designate Mt. Jefferson, Snowcrest Mountains and Lee Metcalf Wilderness additions as recommended wilderness to protect the wilderness character, natural integrity, wildlife habitat, and back country opportunities found in these areas.

Response: A number of people supported wilderness recommendations for those areas mentioned above, as well as other areas. The alternatives recommended a range of areas recommended for wilderness, from no acres recommended to 707,000 acres of recommended wilderness. Alternative 6 was developed in response to public comments, on the draft EIS and includes the above areas in lands recommended for wilderness..

Comment 2: Manage the remaining roadless lands in the Tobacco Roots, specifically Middle Mountain and Hollow Top Peak, as recommended Wilderness.

Response: Middle Mountain and Hollow Top Peak were evaluated as recommended wilderness in Alternative 3. See the FEIS for the specific analysis.

Comment 3: Protect the forest's highest quality of waters and restore impaired waters.

Response: The alternatives portray a range of water quality protection and watershed restoration strategies. Key watersheds were identified in Alternatives 3, 4, 5, and 6. These Key Watersheds were identified for both fish conservation and restoration concerns. The range for restoration Key Watersheds varied by alternative.

Comment 4: Safeguard elk habitat by maintaining no greater than one mile of motorized route per square mile of forest.

Response: The alternatives portray a range of road densities to protect elk habitat, particularly during the big game rifle season. Alternative 3 was developed with a one mile per square mile objective. The other alternatives produce a range of road densities to provide for habitat protection. The effects to elk habitat by the different alternatives is disclosed in the Final EIS under the heading "Wildlife".

Comment 5: Designate motorized vehicles use to existing forest roads and trails.

Response: The current Forest Plan was amended by a multi-agency amendment in 2001, which restricted all wheeled motorized travel to roads and trails. This restriction is common to all alternatives. See Elements Common to All Alternatives, Chapter 2 of the FEIS.

Comment 6: Please protect habitat for grizzly bear, elk, lynx, and wolverine by decreasing road densities in the forest.

Response: The alternatives portray a range of road densities to protect wildlife habitat, which would including those mentioned. Alternative 3, the lowest road density alternative was developed with a one mile per square mile objective. The effect of the different road densities can be found in the Final EIS, Chapter III, under the heading “Wildlife”.

Also, all alternatives will continue to implement the recovery plans or other approved conservation plans for endangered, threatened, or sensitive species, such as grizzly bear, and lynx.

Comment 7: Please implement a “closed unless marked open” policy to manage motorized use of the forest.

Response: The 2005 Forest Service Policy on motorized travel will establish a motorized road and trail system limiting motorized travel to only those routes designated for that use. The forest will follow national policy.

Form Letter 4

This form letter opposed further additions to wilderness or roadless and further increases of non-motorized roads or trails. They supported multiple-use and stated motorized and non-motorized users can exist within the same area. This form letter identified a list of questions concerning acres and miles of different activities and uses. This form letter also listed responses to some of the same questions the author of the form letter had calculated specific to the areas around the Big Hole Valley. This letter also stated weed can be controlled without motorized restrictions.

Responses to specific comments in Form Letter 4 follow:

Comment 1: I remain in opposition to further additions to roadless areas.

Response: The identification of roadless areas is an inventory process the Forest Service is directed to accomplish as part of revising a forest plan. This requirement is a result of the Wilderness Act directing the Forest Service to evaluate lands for wilderness recommendation. This process is first initiated by identifying roadless areas according to Forest Service Handbook (FSH) 1909.12 Chapter 7. The addition of roadless areas comes only through this inventory process and is not a decision process. If an areas meets the criteria for roadless, then the area is included in the inventory. The inventory of roadless areas for wilderness evaluation is the same for all alternatives and can be found in Appendix C.

Comment 2: I remain in opposition to further additions to wilderness.

Response: A number of people supported no further additions to wilderness. Alternative 4 was developed to reflect this public held view.

Comment 3: I remain in opposition to further reductions of motorized roads and trails.

Response: A number of people supported no further reduction of motorized roads or trails. Alternatives 1 and 4 were developed to reflect this public held view.

Comment 4: Has anyone actually calculated (for the Beaverhead-Deerlodge N.F) the relative percentages of:

- 1. Acres of truly roadless areas?**
- 2. Miles of roads and trails currently restricted to motorized travel?**
- 3. Miles of roads AND trails that are currently open to motorized use?**
- 4. Total acres of lands where motorized use is currently restricted?**
- 5. Total acres of existing wilderness?**
- 6. How many acres have been closed to motorized use with the OHV rules (no motorized travel off an open road or trail)?**
- 7. How many miles of roads and trails will be closed to motorized use IF/WHEN new road “rules take effect stating that an “unauthorized road (currently termed “unclassified road”) is closed to motorized use UNLESS it is signed an “OPEN”?”**
- 8. How much of the area encompassed by the B-D N.F. is actually PRIVATE? STATE? BLM?**

Response: These questions are answered in the Final EIS, in Chapter II under the heading “Comparison of Alternatives”, with the exception of questions 6 and 7. The following answers each of the questions above, including questions 6 and 7.

Acres of truly roadless areas?

The Forest has inventoried approximately 1,845,168 acres of roadless area on the forest according to Forest Service protocol. To calculate the acres of “truly roadless” would require another set of criteria not given by the author.

Miles of roads and trails currently restricted to motorized travel (Summer)?

Of the approximately 6,802 miles of roads on the forest, there are approximately 1,065 miles restricted to motorized travel yearlong. Of the approximately 2,619 miles of trails on the forest, there are approximately 1,382 miles restricted to motorized travel yearlong. For the differences between alternatives see Chapter II of the Final EIS.

Miles of roads AND trails that are currently open to motorized use?

Of the approximately 6,802 miles of roads on the forest, there are approximately 5,737 miles open to motorized travel for at least some portion during the summer season. Of the approximately 2,619 miles of trails on the forest, there are approximately 1,237 miles open to motorized travel for at least some portion of the summer season. For the differences between alternatives see Chapter II of the Final EIS.

Total acres of lands where motorized use is currently restricted?

Summer motorized travel is limited to roads and trails on the forest. This is best described above as miles of roads and trail open or restricted to motorized travel. Currently there are

approximately 994,485 acres in areas allocated and managed for semi-primitive non-motorized use. For the differences between alternatives see Chapter II of the Final EIS.

Winter motorized use is currently restricted on approximately 526,521 acres on the forest. For the differences between alternatives see Chapter II of the Final EIS.

Total acres of existing wilderness?

There are approximately 219,128 acres of existing wilderness on the forest

How many acres have been closed to motorized use with the OHV rules (no motorized travel off an open road or trail)?

This question is difficult to answer because there is no information on how much of the forest was being used by motorized vehicles off of road and trails prior to the OHV amendment. Although this restriction applies to the entire forest, not all of the forest was being used or could be used by motorized vehicles.

How many miles of roads and trails will be closed to motorized use IF/WHEN new road “rules” take effect stating that an “unauthorized” road (currently termed “unclassified road”) is closed to motorized use UNLESS it is signed an “OPEN”?

This information is not known as the analysis under the new OHV policy (National Policy) has not been started. The new roads policy establishes a process separate from forest plan revision. The analysis to determine designated routes will be a site-specific decision. The terms unauthorized and unclassified also can not be used interchangeably, and therefore it is incorrect to conclude that because a road is currently identified as an “unclassified” that that road would be closed to motorized travel under the new policy.

How much of the area encompassed by the B-D N.F. is actually PRIVATE? STATE? BLM?

Inside the external boundary of the B-D N.F. there are approximately 163,670 acres of private, 72 acres of BLM, 1,012 acres of US Fish and Wildlife Service, and 9,974 acres of State lands.

This information, as well as other valuable comparisons, can be found in the tables towards the end of Chapter II of the final EIS.

Comment 5: Invasive plants (weeds) CAN be effectively reduced, prevented and sometimes even eliminated WITHOUT motorized restrictions. It takes cooperation and good old hard work from everyone concerned, especially the weed crew, not just token efforts as have been seen in many areas of the Forest.

Response: The Forest recognizes the reduction or elimination of invasive plants or noxious weeds as a high priority. The reduction of noxious weeds is important to all forest resources. The Forest also recognizes working cooperatively with State, Counties, private landowners, and other agencies is the best strategy to combat noxious weeds. The reduction of noxious weeds, in some cases, can be accomplished without motorized restrictions; although there is research which indicates motorized travel as a significant vector for weeds. Therefore, the management of motorized travel is an important part of any noxious weed strategy. The ability of the Forest to accomplish work is directly related to budgets. Budget allocation is a separate process and is not part of forest plan revision.

Comment 6: Let's let the elderly, handicapped, and less privileged have some use of their land too.

Response: The forest plan provides a variety of opportunities, by a variety of means. This diversity of uses allows for opportunities for elderly, handicapped, and less privileged. The Forest Plan does not discriminate against any segment of the population in accordance with current laws.

Form Letter 5

This form letter lists information and facts concerning forest plan revision and then identifies what the respondent believes to be the best alternative.

Responses to specific comments in Form Letter 5 follow:

Comment: I believe that Alternative 4 best describes the needs of the public interest, of the Beaverhead-Deerlodge National Forest.

Response: A number of people supported Alternative 4. All Alternatives have supporters. Alternative 6 was developed in response to public comments, on the draft EIS.

Form Letter 6

This form letter lists five topics the respondent wants addressed. These include wanting the plan to require selective logging, allow for snowmobiling, allow for grazing, allow continued fires fighting, and to remove campsites and prohibit camping next to East Fork of Rock Creek below the East Fork Reservoir.

Responses to specific comments in Form Letter 6 follow:

Comment 1: I am for and want the plan to require selective logging to thin the forests and clean up downed timber. This will make the forest healthier. This will help with fire prevention and containment and infestation by pests. It will provide much needed jobs for this area and trickle down to stimulate the economy in general. It will provide timber for our nation. We must not let a very small minority of protesters intimidate our decisions about forest management. We need to do what is right for our country.

Response: All alternatives allow for selective logging, on much of the forest, as a tool to thin forests to meet objectives like fuels reduction, to provide for healthier stands of trees, or other site-specific determined objectives. It is not appropriate for a forest plan to require selective logging as means to accomplish such objectives. This would be done at the project level through a site-specific analysis.

The analysis in Chapter III describes effects to job and local economies.

Comment 2: I am for and want the plan to continue to allow for snowmobilers. The environmental impact is minimal. The primary users here are local residents. It is not like Yellowstone, which is a destination resort for thousands of people. It is one of the few family activities to do here in the winter. It is good for the quality of life for many in this area. It is one way for three generations of a family to recreate together. We should be allowed to use our public lands for things that have a positive social impact.

Response: All alternatives recognized snowmobiling as a valid use on National Forest Lands. All alternatives continue to allow for snowmobile use on over 50 percent of the forest.

Comment 3: I am for and want the plan to continue to allow ranchers to use Forest Service lands for grazing.

Response: All alternatives continue to use the National Forest lands for grazing. No alternative eliminated any allotments currently being grazed.

Comment 4: I am for and want the plan to require that forest fires be fought.

Response: All alternatives continue to require that wildfire be suppressed, while providing for fire fighter and public safety, and while providing for fiscal responsibility. The appropriate management response will be applied to any fire starts in the BDNF.

Comment 5: I am for and want the plan to include removing all campsites next to the East Fork of Rock Creek just below East Fork Reservoir and prohibit any camping here.

Response: The forest plan is a strategic document and it identifies desired conditions objectives and standards for resource protection. The closure or modification of these recreation sites would be determined through project identification and site-specific analysis rather than a forest plan decision.

Form Letter 7

This form letter is a newspaper article published in three parts in the Philipsburg Mail discussing the author's views concerning the Draft Forest Plan. The article is addressed to the citizens of Granite County, but the author of the article felt the comments were applicable to all of the Beaverhead-Deerlodge National Forest. While the article addressed a number of specific concerns and recommendations, the primary concerns identified were the lack of attention to the concept of achieving healthy forests as mandated by the Healthy Forest Restoration Act and the adverse economic impacts on the local economies of tourism, ranching and forestry.

Individual used this article as their response to the DEIS and Draft Forest Plan.

Responses to specific comments in Form Letter 1 follow:

Comment 1: The proposed plan only recognizes the current flow of timber from the National Forest with no regard for maintaining healthy forest and therefore, shows little impact on the County's economy. Alternative 5 of the proposed plan significantly reduces lands designated as "suitable for timber production" and most of this designated acreage is not in Granite County. While the Forest Service verbally commits to timber removal on additional lands, there is no definite designation in the 15-year plan that will protect these additional lands from fire and bugs.

While much of the timber resources used by the local wood products mills currently come from private lands, they cannot support the industry forever and cannot support significant expansion that create jobs.

Response: The Final EIS attempts to clarify information provided in the DEIS and Alternative 6 responds to your concern regarding allowing timber removal and increasing the lands suitable for

timber production based on public comments. See the FEIS, comparison of alternatives in Chapter 2 and the revised timber section in Chapter 3.

“Healthy forest” is a concept that has many meanings to many people with no single definition and, therefore, is difficult to make reference in a forest plan. Although the Final Revised Forest Plan (Forest Plan) did not use the terms Healthy Forest or Forest Health, the Forest Plan would follow any national direction or laws concerning this topic. This would include the Healthy Forest Initiative and Healthy Forest Restoration Act.

Alternative 5 does reduce the acres of lands suitable for timber production forestwide with very little acreage identified in Granite County. Alternatives 1 and 4 retain high levels of lands suitable for timber production forestwide, including lands in Granite County. Alternative 6 did increase the lands suitable for timber production based on public comments.

The FEIS identifies different timber outputs based on acreage of suitable lands and budget constraint (historic and predicted funding). The analysis demonstrated increases in timber funding would increase timber outputs; Alternative 4. The analysis also demonstrated a constant funding level provided similar outputs regardless of acres allocated as “suitable” for timber production; Alternatives 1,2, 3, 5, and 6.

Comment 2: Alternative 5 increases roadless acres. While “roadless” is a designation that refers to car traffic, it is a stepping stone to reducing human access to the National Forest. Alternative 5 reduces motorized travel by four-wheelers traffic by 50% and snowmobile traffic by 100 %. Non-motorized traffic such as hiking, cross country skiing, and snow shoeing are being encouraged. Motorized recreationists bring in more tourist income than non-motorized ones.

Response: Roadless areas are identified through an inventory process. This inventory is a requirement of forest plan revision. The acres of inventoried roadless areas (1,845,168 acres) are constant for all alternatives. Alternative 5 does not increase or decrease roadless acres. The designation of an area as roadless does not reduce human access to National Forest lands.

It is not known where the 50 percent or 100 percent the author quotes came from. The FEIS displays a 193 mile reduction of summer motorized trails in Alternative 5. This is a 16 percent reduction of motorized trails currently open to motorized travel. The FEIS did not make an estimate of snowmobile traffic reduced. The FEIS did display the acres currently restricted to snowmobile use; many of these areas are currently not being used by snowmobiles or are only lightly used. The FEIS displays that currently 16 percent of the forest is restricted from snowmobiling. Alternative 5 increases this restriction to 37 percent of the forest, however, overall snowmobile use on the forest is expected to stay the same or increase over the next 10 to 15 years. This is documented in the FEIS in Chapter III under the heading of Recreation. Alternative 6 was created based on public comments on the DEIS and results in the following.....

The Draft Forest Plan (Alternative 5) does not encourage one use over another. The Forest Plan identifies a desired condition emphasizing a variety of recreational settings and uses, both motorized and non-motorized. The alternatives developed display and analyze a mix of uses, both motorized and non-motorized. Alternative 5 does reduce motorized trails and areas, both summer and winter, when compared to the no-action alternative.

The economic analysis of alternatives considers the higher expenditures of visitors who come to the forest to recreate on motor vehicles along with their participation rate. See the Community Economics and Social Values section in Chapter 3 of the FEIS for details.

Comment 3: In Alternative 5, the entire of Granite County's National Forest will be designated as wildfire burnable. This means that if Forest Service lands are burning with a wildfire it will not be suppressed if it does not create an eminent danger to private property and does not violate air quality standards. This means that if a fire in the Granite ghost town area is not threatening Philipsburg and our air is reasonably free of particulates then they can let it burn without regard to the loss of esthetics associated with a burned forest or the health concerns of people breathing the smoke not to mention the loss of the economic values of the trees. There is no value put on tourists who avoid the County because it is not attractive with smoke filled valleys and burned hillsides. And, of course, the fire season coincides with the tourist season. The currently burning Signal Rock fire is a demonstration of what happens when a fire is not suppressed. It will be allowed to burn until natural barriers put it out, which probably will not occur until the end of the September. Again, the Forest Service gives verbal agreements to not letting these things happen, but the personnel making these commitments will be long gone or have extenuating circumstances when the problem arises. In addition, fires are completely unpredictable because weather is uncontrollable. Good or bad, only this written 15-year plan will be the rule.

Response: Neither the FEIS nor the Forest Plan refer to any area as wildfire burnable. All wildfires, in all alternatives, will be suppressed according the Appropriate Management Response (AMR), which is Forest Service policy. The statement "This means that if Forest Service lands are burning with a wildfire it will not be suppressed if it does not create an eminent danger to private property and does not violate air quality standards" is not correct. There is no Forest Service policy or direction in the Draft Plan supporting this statement.

The Forest Plan does identify areas on the forest that may be suitable for a type of Appropriate Management Responses (AMR) referred to as "wildland fire use for resource benefits". These are fires which start by natural causes (most likely lightening) and after meeting the criteria of a predetermined plan may burn according to a prescription which has been developed for that fire. The plan takes into account many factors including private lands, visuals, air quality, water quality, protecting fish and wildlife, impact on communities, etc. The Forest Plan identifies areas where this type response may be considered.

The Signal Rock Fire was a wildfire and was suppressed according to Forest Service policy. That policy is to aggressively suppress all wildfires using the appropriate action considering fire fighter and public safety first. Signal Rock Fire was burning in a remote area, which did not allow for direct suppression because of the lack of safety zones for fire fighters. A suppression plan (Wildland Fire Situation Analysis) was developed to suppress the fire over time as it reached areas where suppression actions could be taken. Recent fatalities on fires have emphasized the need to provide for fire fighter safety. Losing a human life to suppress a wildfire burning in remote areas is not acceptable.

The Forest is not aware of any agreement made stating we would successfully suppress all fires with direct suppression actions. Wildfires are unpredictable and we could never make an agreement that fires will not burn on the forest. The analysis predicts, and history has shown, that

wildfires will continue to burn large acres on the forest regardless of our best efforts to suppress all fires (see FEIS, Chapter III, under heading of fire and fuels).

Comment 4: Ranchers will be affected by the increased restrictions over the perceived stream damage by cows and the lack of forage caused by less timber thinning activity. Ranchers depend on summer forage to support their herds. The proposed plan discusses grazing issues as being problems rather than opportunities. Tourism is identified in the 15-year plan as the future of the County. From our County survey of three years ago, residents and probably visiting tourists find the ranching appearance to be one the of the important attractants. If grazing on National Forest is restricted, ranchers will probably be forced into ranchettes rather than ranching.

Response: The FEIS discusses the effects the Forest Plan may have on grazing (see FEIS, Chapter III, under the heading of Livestock Grazing). The effects to those who graze livestock on the forest will not be on perceived steam damage. The impact will come through site-specific inspection of grazing allotments where grazing standards are not being met, and if the failure to comply with standards exists for two years or more.

We believe the Forest Plan does support livestock grazing as opportunities. Page x of the Forest Plan states it is the desired condition of the forest that “People and communities benefit from programs and infrastructure that support livestock grazing ...” Page xx of the Forest Plan identifies an Objective to “Provide sustainable grazing opportunities for domestic livestock from lands suitable for forage production.”

The Forest Plan also recognizes livestock grazing can have detrimental effects and has developed objectives and standards to minimize the adverse effects of livestock grazing on other resource values.

The Forest Plan recognized the public interest in maintaining ranches rather than ranchettes. The revised Forest Plan states, as a Desired Condition, “National Forest lands ownership patterns contribute to the open rural landscape and scenery of southwest Montana. The Forest acts as a partner with adjacent landowners to capitalize on the contribution all lands make to this unique quality”. The revised Forest Plan also states, as an Objective, “Maintain the base-property requirement for livestock. Required ownership of facilities and land capable of producing feed for livestock 50% of the time permitted livestock is not grazing on National Forest before issuing grazing permits.”

Comment 5: First and foremost, forest health should be the Forest Service’s primary concern for this plan because it impacts all other benefits from the National Forest. In general, a healthy growing forest does not have wildfire and bug problems. A healthy forest provides grazing for horse, cows, elks, and deer. A healthy forest supports a diverse array of non-game animals because it displays a diversity of conditions and habitats. A healthy forest looks appealing to tourist and residents alike. A healthy forest allows snow to recharge the water table providing streams for trout and irrigation water for hay production. A healthy forest frees up water to keep streams and irrigation ditches full with less trees that pump water into the atmosphere. A healthy forest cleans the air of carbon dioxide and recharges the air with oxygen. A healthy forest cleans the environment as a filtering system. The Federal government has seen fit to pass a law that embraces the concept of healthy forests. Unfortunately, the Healthy Forest Initiative has not been embraced by implementing agencies including the Forest Service. It must be made more

specific to make the impacts that it deserves. Healthy forests are as important as clean water, clean air, and endangered species. In fact, healthy forest contributes more positively to air and endangered species than probably any other single factor.

Response: The Healthy Forest Restoration Act and the Healthy Forest Initiative are both identified in the FEIS, Chapter III, under the Vegetative heading, in the Legal and Administrative Framework section. This legal and administrative framework provides the overall direction for a forest plan. The Final Plan and implementation of the plan is bound by this direction. It is not necessary to restate all applicable laws in the Forest Plan, it is understood that the plan is intended to implement or to comply with applicable laws.

The Forest does embrace the Healthy Forest Restoration Act and the Healthy Forest Initiative. The revised Forest Plan allow for implementation of the Healthy Forest Restoration Act and the Healthy Forest Initiative. We agree with many of the points made about forest health, but we would disagree with others. There are species that require many dead and dying trees for their survival and viability. The alternatives present a variety of management scenarios, which are evaluated for their effects on resources (FEIS, Chapter 3).

Comment 6: Then what does the healthy forest concept mean to Granite County Montana? Healthy forests have trees that are free to grow. The bug and fire problems stem from over-crowded forest conditions. With only 13 inches of moisture per year, our forest soils cannot support over stocked forest. Just look at the differences in north and south facing slopes. North facing slopes have more moisture and therefore, support more dense stands than south slopes. When stands become too dense, trees die, fall down, and provide fuel for catastrophic wildfires. When stands become too dense, trees grow slowly and are unable to “spit out” bugs burrowing into the growing part of the tree - the cambium – and cause the tree to die adding more fuel for fire.

Response: The Healthy Forest Restoration Act and the Healthy Forest Initiative are both identified in the FEIS, Chapter III, under the Vegetative heading, in the Legal and Administrative Framework section. This legal and administrative framework provides the overall direction for a forest plan. The Final Plan and implementation of the plan is bound by this direction. It is not necessary to restate all applicable laws in the Forest Plan, it is understood that the plan is intended to implement or to comply with these laws.

The alternatives represent a mix of Desired Conditions, Objectives, and Standards to meet the needs of numerous laws, including but not limited to the Healthy Forest Restoration Act.

Comment 7: How do we keep our forests healthy? By removing competing trees we reduce stocking and keep trees growing. If we remove the poorest formed and dying trees, then the forest is continually being upgraded in health. The next question is where we start: there are a lot of National Forest lands. The areas to be managed should be those that have some form of road system within a mile.

Response: The Forest Plan does not restrict these activities. The specific treatment for an area and the specific locations are usually dealt with at the implementation level (Site-specific projects) and not the Forest Plan level.

Comment 8: How should they be managed? The Forest Service agrees with academic and industrial professional foresters that uneven aged management is preferred. Unfortunately, there is little evidence that uneven age forestry is being practiced on the National Forest.

Uneven aged forestry is governed by the species of trees that will grow in a region. In Granite County, uneven aged approaches are very acceptable and there are good reasons that it should be preferred. Uneven aged management involves periodic removal of trees from all age classes in a forest, leaving a residual stand that looks very similar in stand structure and appearance to the original stand. Graphically, a uneven aged stand has a few very large trees, more medium sized trees, and a higher number of very small trees. As the stand becomes crowded the larger trees are removed along with a few of the medium sized trees and some of the young trees. Every acre will not have the exact structure because of past practice but across the forest the desired structure will emerge. While size does not exactly correlate with age, it is a good indicator and even small older Douglas-fir trees can respond when given more sunlight and water. When asked how uneven aged management would be applied, the Forest Service responded with a desired uneven aged cutting cycle of 40 years so that a given acre will be thinned every 40 years and one-fortieth of the managed forest will be thinned each year. Personally, observations and interviews with practicing woods people suggest that a shorter time interval might keep the forest even more healthy. True to my 40 years of professional experience, the Forest Service has been consistently ultra-conservative in its management practices so a 20 year thinning cycle might be more realistic. Of course, any prescription should be site-specific, e.g. southern slopes should be revisited less frequently than northern slopes. Considering that these types of prescriptions and details are not the proposed 15 year plan, 40 year cycles are very acceptable. Since very little operations have been executed during the last 10 to 20 years and trees are very resilient, acting on a fortieth of the managed National Forest per year would be a massive step toward getting the forest back to a healthy condition.

Response: The Forest Plan does prescribe either even aged or uneven aged management activities, but encourages either depending on the objectives to be achieved. However, it is at the implementation level (Site-specific projects) these decisions are made and not the Forest Plan level.

Comment 9: How many trees should be removed per year? Your tax dollars have invested in Forest Service computer growth models that can examine exactly how much should be removed from each size class to achieve a healthy forest for the uneven aged thinning cycles chosen. My professional guess with the over-stocked conditions of today's forest, two thirds to three quarters of the trees should be removed. In forestry terms, most stands appear to be carrying 150 to 200 square feet of basal area per acre. (You don't indicate any of these numbers in the proposed 15 year plan.) A reduction to 40 to 50 square feet per acre of the healthiest trees should allow the forest to grow efficiently until the next thinning. (This is about 20-foot spacing between trees of merchantable size) At the second periodic removal, the stands will not be as crowded as now which will give a basal area of about 100 square feet. A cut back to 50 square feet will be a continual, sustainable process that can continue for ever or until some catastrophic event causes the need to a modification.

Response: The Forest Plan does not restrict the use of stocking control to achieve a certain desired condition. However, it is at the implement level (Site-specific projects) that these decisions are made and not the Forest Plan level.

Comment 10: How do these improvements cuts actually get done and what disturbance will be experienced? Modern, state-of-the-art timber harvesting equipment can selectively remove individual trees efficiently in a cost-effective way without any more soil disturbance than an elk walking through the forest. Young trees of any size can be protected to provide the forest for tomorrow. This is not experimental; we have equipment working in Granite County doing these uneven cuts on private lands. This equipment does not need large areas to harvest; 20 acres is a good minimum. The fortieth portion of the forest should be the sum of small harvest areas with natural boundaries such as drainages and ridges. The cut areas should blend into the landscape to enhance all National Forest uses. Existing roads and trails move the wood away from the forest. Due to the large capacity of machines which carry the wood from the stump to the truck, the wood can be transported to existing roads without new road building. Processing of trees with this equipment along with walking over the slash, takes all merchantable values from the trees, leaving only limbs that do not require piling and burning. The Department of Natural Resources and Conservation (DNRC) has given its stamp of approval that remaining slash from this type of operation does not create a fire hazard because the slash is left close to the ground. On the contrary, by leaving the slash on the ground, valuable nutrients are left to improve the fertility of the soil. Grass will come through the slash when scattered across a forest providing food for grazing. The slash also stops any potential erosion during spring rains and runoff. Bottom-line, a small portion of the forest should be selectively thinned each year providing wood to support our county's largest industry leaving the forest healthier and enhancing the other uses of recreation, grazing, wildlife, water, and air.

Response: The Forest acknowledges the concept of using state-of-the-art equipment to implement and achieve certain objectives and to protect resources.

Comment 11: What trees species should be favored? Due to the use of natural regeneration, all species native to a given acre will probably be represented in each forest stand. The three major species in Granite County are lodgepole pine, Douglas-fir, and ponderosa pine. Of the three, Douglas-fir has the most commercial value and should be favored for a healthy forest. Lodgepole pine is a pioneer species that should be managed in an even aged condition which means clearcuts about every 100 years with virtually no return except posts until the end but requiring pre-commercial thinning (hand removal of small trees) to keep the forest healthy. The Rock Mountain Douglas-fir of Granite County is a shade tolerant species that actually needs the protection of an over-story to regenerate. Artificial regeneration in open areas of Douglas-fir is only marginally successful, i.e. low survival after planting. This need for shade is evident in lodgepole pine stands that are dying; you will see Douglas-fir coming up under the lodgepole. Uneven age management provides the overstory protection the Douglas-fir needs for establishment. Once young firs are established; the periodic thinning opens the young trees to sunlight and increased growth. Healthy Douglas-fir trees should display a conical crown reaching almost to the ground.

Response: We have found no supporting documentation (research or science) that favoring the most economical tree species of today has any bearing on whether or not a forest is healthy. However, it is at the implementation level (Site-specific projects) that these decisions are made and not at the Forest Plan level.

Comment 12: The Forest Service is currently promoting a return to ponderosa pine as if all the forests were covered with a monoculture of this species. They view Douglas-fir as an encroachment species much the same as juniper. Juniper has little value short of high-cost energy wood. Douglas-fir is Granite County's cash tree. Not having the Forest Service's historical reasons for favoring ponderosa pine, it can be postulated that species composition has dynamically evolved as catastrophic and man-made events occurred. There are site conditions that favor ponderosa pine over Douglas-fir, but the concept of healthy forest should prevail-grow the tree species that grows the best on the given site and when given an option, favors the more valuable Douglas-fir.

Response: We have found no documentation that the Forest Service is promoting a return to ponderosa pine as a monoculture across the forest or landscape. The Forest Plan, page xx, states as an objective to "Restore or retain a mosaic of species and age classes of native trees...."

The Forest has found no documentation that the Forest only view Douglas-fir as an encroachment species, much the same as juniper. The Forest Plan, on page xx, describes Douglas-fir as a forested type with specific management objectives. It does go on to clarify that "Douglas-fir, which has established itself in former grasslands/ shrublands (colonization), is not considered part of the Douglas-fir base."

Comment 13: Using the proactive forest management philosophy of maintaining healthy forests allows all uses of the National Forest to compliment each other. A do-nothing philosophy only allows nature to create catastrophic changes which are academically interesting but do little to benefit human use. Wilderness and national parks set-asides allow the observation of un-managed occurrences but benefit but few users of the national public lands. These few are quite vocal and have dominated policy decisions in the past. Hopefully, with information from this article you will have some thoughts to better state the interests of a public who want a growing, beneficial National Forest.

Response: The Revised Forest Plan does not advocate a do-nothing philosophy. As disclosed in the Chapter 2 of the FEIS, a range of alternatives was developed to guide management of the Forest over the next planning period.

The Forest found no documentation that supports the statement "Wilderness and national parks set-asides allow the observation of unmanaged occurrences, but benefit but a few users of national forest lands". To the contrary, the documentation supports just the opposite; Wildernesses and national parks have millions of visitors every year and are treasured by the American public.

Comment 14: The concept of maintaining healthy forest should be the overall governing principle of the National Forest policy

Response: Effects on resources from the alternatives are disclosed in detail in Chapter 3 of the FEIS.

Comment 15: Uneven aged management should be applied to all National Forest land in Granite County currently accessed by roads and trails with preference given to Douglas-fir.

Response: Various types of management will be analyzed through site-specific project proposals.

Comment 16: Uneven aged forest stands should be systematically identified, planned, and thinned to get the forest back to a healthy condition.

Response: This will be analyzed through site-specific project proposals.

Comment 17: All existing roads and trails should be left open so that forest stands can be reduced in stocking to get the forest healthy and suppress fires on stands that have not been reduced in stocking.

Response: Alternative 1 (No Action) represents current management. The effects of Alternative 1 are disclosed in Chapter 3 of the FEIS.

Comment 18: Wildfires should not be allowed to burn but should be suppressed.

Response: Forest Service policy is to suppress all wildfires according to the Appropriate Management Response (AMP). The Forest Plan does not change this policy.

Comment 19: The healthy forest concept should be embraced as the way to achieve clean air, clean water, and enhancement of threatened and endangered species.

Response: The Forest Plan is guided by the Healthy Forest Restoration Act and Healthy Forest Initiative, as well as, other legal requirements. The Forest Plan does not restate the direction in each act.

Comment 20: Stewardship contracts should be used to create fund to pay for timber stands improvements in forest stands that cost more to thin than the revenue received from commercial tree removal.

Response: This is not a Forest Plan decision. Whether or not to use a stewardship contract is a site-specific implementation decision for each individual project. There is nothing in the Forest Plan that would prevent the use of stewardship contracts.

Comment 21: Funds from stewardship income should be used to enhance tourism activities such as stream restoration, trail maintenance, and campground maintenance, etc.

Response: This is not a Forest Plan decision. Whether or not to use income from a stewardship contract is a site-specific implementation decision for each individual project. There is nothing in the Forest Plan that would prevent the use of stewardship contracts.

Comment 22: Funds from stewardship income should be used to pay for fire suppression

Response: This is not a Forest Plan decision. The use of funds generated by individual projects is governed by congressional authorities. The use of funds generated from stewardship contracts cannot be used to pay for fire suppression, as a matter of law.

Comment 23: Prescribed fire should be used in limited application due to the danger to healthy trees and the uncertainty of application from the variability of winds in Granite County.

Response: This is not a Forest Plan decision. Whether or not to use prescribed fire as a means to achieve a Forest Plan objective is a site-specific, project by project decision.

Comment 24: Currently, Granite County has only two wood production facilities. Because 80% of the forested area in Granite County is controlled by the Forest Service, 80% of

their wood supply needs should be put on the market by the Forest Service through uneven aged thinning.

Response: This is not a Forest Plan decision.

The FEIS developed several alternatives to look at range of timber outputs. These are described in the FEIS Chapter II. These alternatives were analyzed and evaluated (Chapter III of the FEIS). Actual outputs will be the result of site-specific projects.

Comment 25: Granite County has 12 logging contractors who harvest about 2.5 million board feet each year. The Forest Service should put 80% of their wood needs on the market each year through uneven aged thinning.

Response: This is not a Forest Plan decision.

The FEIS developed several alternatives to look at a range of timber outputs. These are described in the FEIS Chapter II. These alternatives were analyzed and evaluated (Chapter III of the FEIS). Actual outputs will be the result of site-specific projects.

Comment 26: Six post contractors live in the County and produce about 450 tons per year. The Forest Service should put 80% of their wood needs on the market each year through uneven aged thinning and even aged thinning of lodgepole stands

Response: This is not a Forest Plan decision.

The FEIS developed several alternatives to look at range of timber outputs. These are described in the FEIS Chapter II. These alternatives were analyzed and evaluated (Chapter III of the FEIS). Actual outputs will be the result of site-specific projects.

Comment 27: With an active uneven aged management of the National Forest in Granite County, the tourist industry will be enhanced by the increased recreational opportunities afforded from a healthy forest with clean running trout streams, access trail for winter and summer motorized and non-motorized travel, clean air purified by trees filters and free of smoke, green vistas of growing trees with many diverse stockings, and an abundance of wildlife for viewing and hunting.

Response: This comment is not specific to any alternative or Forest Plan decision.

Comment 28: With an active uneven aged management of the National Forest in Granite County, the wood needs of all contractors and wood products facilities will be supplied and thus maintain the economic viability of this industrial sector of the County

Response: This comment is not specific to any alternative or Forest Plan decision.

Comment 29: With an active uneven aged management of the National Forest in Granite County, the ranching industry will have an abundance of forage and irrigation water.

Response: This comment is not specific to any alternative or Forest Plan decision.

Comment 30: If the Beaverhead-Deerlodge National Forest is going to manage the forest with fire, they will be breaking the CLEAN AIR ACT, and contributing to Global warming with the carbon dioxide and carbon monoxide, which also contribute to respiratory problems for a lot of Granite County residents, which could involve the Forest Service in a lawsuit!

Response: The revised Forest Plan and FEIS do not propose managing the Forest solely for fire. The Forest is required to meet the Clean Air Act as well as other appropriate legislation governing the management of National Forest lands. The effects of using fire as one of many tools to manage the Forest are described in Chapter III of the FEIS, by looking under the resource heading of concern. For example, the effect of fire on air quality will be found under the heading of air quality.

Comment 31: As for the lack of motorized use in the National Forest is DISCRIMINATION AGAINST the handicapped people. There are paraplegics that ride A.T.V.s and it is the only way they are able to get out and see the beautiful forest, because they cannot walk. There are already thousand of acres of wilderness that the able-bodied people can go to get away from the noise of motorized recreation.

Response: This comment is not specific to any alternative or Forest Plan decision. All Alternatives present many opportunities for motorized use.

Comment 32: The way I see the Beaverhead-Deerlodge forest plan looks like your plan is managing the worst with NO management. Which is not a plan at all STOP BEING AFRAID of the environmentalist, and manage the forest for ALL OF THE PEOPLE, not just the hiker and environmentalists.

Response: Alternatives for forest management were developed and analyzed in detail. Many other ideas/alternatives were considered, but not fully developed (FEIS – Alternatives Considered but not Fully Developed).

Form Letter 8

This form letter is specific to recommended wilderness areas and their closure to winter motorized travel.

Responses to specific comments in Form Letter 8 follow:

Comment 1: In regards to the closure of Mt. Jefferson/Hellroaring Creek, I find this unacceptable. Please do not close these prized snowmobile areas.

Response: After examining all alternatives and public comments, which support both motorized and non-motorized allocations for this area, the deciding official proposes to select Alternative 6. Alternative 6 was developed in response to public comments on the draft EIS and allocates the Mt. Jefferson area to recommended wilderness.

Comment 2: The Recommended Wilderness Areas in the proposed action are unsuitable and unmanageable as Wilderness. The 79% increase is unwarranted considering current conditions and the level of recreational use.

Response: The suitability analysis of the areas recommended for wilderness can be found in Appendix C of the FEIS. This analysis evaluated the capability, availability and need for each area to be wilderness. Capability includes evaluating the areas natural integrity, opportunities for solitude, primitive recreation opportunities, manageability and boundaries, and other features.

Alternative 5 increases the amount of recommended wilderness when compared to the current condition by 43% (174,000 acres currently recommended and 249,000 acres recommended in Alternative 5).

After examining all alternatives and public comments, which support different amounts of recommended wilderness, including no areas recommended as wilderness, Alternative 6 was developed. Alternative 6, the preferred Alternative in the FEIS, increases the amount of recommended wilderness when compared to the current condition by 90 % to 331,000 acres.

Comment 3: The closure of Recommended Wilderness Area's, especially the Mt. Jefferson and Hellroaring Creek area, to winter snowmobile use is arbitrary and capricious. Snowmobile use will not cause impacts that warrant closure.

Response: Motorized and non-motorized allocations were developed to provide a mix of recreation opportunities as well as to provide for resource protection such as wildlife winter range or denning areas. A non-motorized allocation to protect winter range habitat for big game species would be a wildlife example. Some areas allocated as non-motorized were also identified and recommended for wilderness. This mix of allocations varies by alternative, based on public comment.

There have been several comments concerned about motorized restrictions in recommended wilderness. Recommended wildernesses are areas allocated as non-motorized for that alternative. That is to say, if the recommendation to Congress is rejected and the area is released from wilderness consideration, the area would still be managed as a non-motorized area. This has been clarified in the revised forest plan in the Management Area direction.

In some alternatives, an area may be allocated to a summer or winter motorized allocation. In another alternative, the same area may be in a non-motorized allocation. And in yet another alternative, the same area may be in a non-motorized allocation and recommended for wilderness. In this case, if the area is released from wilderness consideration by Congress, the area would still be managed as a non-motorized allocation.

There are several reasons why an area is allocated as non- motorized. These include, but are not limited to:

1. Providing a semi-primitive non-motorized setting as part of a mix of recreational opportunities,
2. Providing for wildlife habitat protection such as winter range or security for a variety of species including wolverine and mountain goats.
3. Protection of a municipal watershed.
4. To protect wilderness potential. FSM1923.03.2 states, "Any potential wilderness area recommended for wilderness or wilderness study is not available for any use or activity that may reduce the area's wilderness potential". If an activity is determined to reduce the areas wilderness potential, then the activity is restricted.

The specific reason an area is being allocated as non-motorized could be for one or all of these reasons.

Form Letter 9

This form letter is in favor of continued motorized travel during all season, timber harvest, access for the elderly and disabled via motorized vehicles, aggressive fire suppression, and continued grazing. It strongly rejects any roadless initiatives, any wilderness recommendations

and implementation, wildland fire use, the redefining of the definition of road, any restrictions placed on road density and any closure of areas currently open to motorized vehicles during winter and/or summer months. This form letter identified 20 trail they would like to see remain open.

Responses to specific comments in Form Letter 9 follow:

Comment 1: We assert our voice in favor of continued use by motorized vehicles during hunting season and the winter and summer months, and access to the elderly and disabled individuals via motorized vehicles. We desire to see the use of snowmobiles in all areas of the Big Hole Landscape and Pioneer Mountains without any imposed restrictions. We especially desire to see the area around Comet and Coolidge Mine, in the Pioneers Mountain Range, to remain open to snowmobiles use. We do not want any roadless or wilderness initiatives or any other action that would restrict snowmobile use in the BDNF.

Response: Alternative 6 was developed in response to public comments, on the draft EIS. Please review this alternative for specific information in relation to your comment. Alternative 4 leaves these areas open to snowmobiling.

Comment 2: We assert our voice in favor of timber harvest. We wish to see the maximum amount of acres, including all acres currently open to timber harvest, to remain open and we strongly oppose the closure of any acres to timber harvest on the BDNF.

Response: There are two types of areas where timber harvest may occur on the forest; those areas suitable for timber production and those areas suitable for timber harvest. A range of alternative were developed that identified different acreage for areas suitable for timber production and timber harvest. Alternative 6 was developed in response to public comments, on the draft EIS. Alternative allows timber harvest on approximately 1,900,000 acres.

Comment 3: We assert our voice in favor of aggressive fire suppression, with the exception of the Anaconda-Pintler and Lee Metcalf Wildernesses.

Response: The Forest Service policy continues to require aggressive suppression of wildfires, providing for public and fire fighter safety first. No alternative in the FEIS changes this policy.

Comment 4: We assert our voice in favor of continued grazing. We desire to see the maximum amount of acres used for livestock grazing and we strongly oppose the closure of any currently grazed acres.

Response: All alternatives continue grazing on the BDNF. Alternatives 5 and 6 do propose closing a portion of one allotment, currently not be grazed.

Comment 5: We strongly reject any Roadless initiatives or additions.

Response: The process for identifying roadless areas is outlined in Forest Service Manual and Handbook (FSM 1923 and FSH 1909.12). The forest plan revision regulations (36 CFR 219) require the Forest Service to identify and evaluate roadless areas for wilderness recommendations. The Forest Service in currently (2007) operating under the 2001 Roadless Area Conservation Rule.

Comment 6: We strongly reject any wilderness recommendations, formation, expansion and/or implementation. We desire to see the entire expanse of Beaverhead and Madison Counties including, but not limited to, the Pioneers Mountains Range, the Big Hole

Landscape, Lima-Tendoy Landscape, the Blacktail Mountains, the Tobacco Root Mountain Range, Snowcrest Mountains, and the Madison Landscape completely free of Recommended Wilderness and Roadless status.

Response: Alternative 4 was developed based on public comments asking for no recommended wilderness areas. This alternative was evaluated along with the other alternatives in Chapter 3 of the FEIS. Also see Appendix C for roadless area inventory and evaluation information.

Comment 7: We strongly reject any wildland fire use.

Response: Forest Service policy is to suppress wildfires. We did consider, but not fully develop, an alternative that would not allow for any wildland fire use. The rationale for not fully considering that alternative is described in the FEIS, Chapter 2, under the heading of “Alternatives Considered, but Not Analyzed in Detail”.

Comment 8: We strongly reject the redefining of the definition of a road (or trail) as a passage way maintained for passenger cars; instead we wish to rely on the visual interpretation to determine the existence of a road or trail. We desire to see all visible roads and trails continue to be open to summer and winter motorized travel.

Response: Neither the FEIS nor the Forest Plan redefined the definition of roads or trails. The statement made above defining roads as a passage way maintained for passenger cars is the definition of a road used to determine whether or not an area meets the criteria for a roadless area. This definition is the same as it was when the original forest plan was developed in 1980's (see Forest Service Handbook 1909.12).

The reference above to a visible interpretation is from the Off-Highway Vehicle decision made January 2001. This was a joint decision with the State of Montana, BLM and Forest Service to restrict OHV's to roads and trails. This document defines a road or trail as visible track. This definition of visible track was an area identified for change in the Forest Plan because of the continued creation of user built trails. The new National Forest Service OHV policy requires the Forest to designate routes (roads and trails).

Comment 9: We strongly reject any restrictions placed on road density for summer or winter use.

Response: The FEIS examines a range of road density objectives for both summer and winter. See Chapter 3 of the FEIS for a disclosure of effects

Comment 10: We strongly reject any restriction on any closure of areas, visible road or trail, currently open to motorized vehicles during winter and/or summer months, regardless of proximity to other open roads. We do not want any roadless or wilderness initiatives or any other action that would restrict snowmobile use in the BDNF. We strongly oppose any action that would that would close any road or trail to motorized use, including, but not limited to, the following trails:

- Trail #55 Ester Lake Area
- Trail #76 Minneopa and Tent Lakes
- Trail #122
- Trail #120 Rainbow Lake Area

- Trail #104 Tendoy Lake
- Trail #123 and 123A Cherry Lake
- Trail #754 Ridge
- Trail # 92 near Grace Lake/Canyon Creek
- Trail #28 near Lion Creek
- Trail #216 Sheep Creek
- Trail #753 Clifford Creek
- Trail#140 Fourth of July
- Trail #754 Boulder Creek
- Trail #117
- Trail #140 Gold Creek
- Trail #Little Joe Meadow Trail
- Trail #2 Mono Creek Trail
- Trail #752 Schulz Lakes
- Trail #56 Torrey Lakes
- Trail # 757

Response: See the proposed Forest Plan for specific recommendations (derived from Alternative 6) in the areas you cite.

Comment 11: We believe further limiting motorized vehicles during the summer and winter months and during hunting seasons would deny the handicapped, disabled, the very young, and the elderly the right to continue to use and enjoy the BDNF. Without the aid of motorized vehicles many of the forenamed individuals would not be able to experience many aspects of the BDNF.

Response: Six alternatives for forest management were developed and analyzed in detail. Many other ideas/alternatives were considered, but not fully developed (FEIS – Alternative Considered but not Fully Analyzed). All alternatives provide motorized use across most of the Forest. Alternative 6 attempts to balance public comments, environmental effects, laws, regulations, and policy.

Comment 12: We strongly oppose any action that reduces or eliminates hunting areas and/or restrict the use of motorized units for game retrieval.

Response: Six alternatives for forest management were developed and analyzed in detail. Many other ideas/alternatives were considered, but not fully developed (FEIS – Alternative Considered but not Fully Analyzed). All alternatives provide motorized use across most of the Forest.

Comment 13: We would like to see the current method of not measuring aspen restoration and Douglas-fir encroachment to continue.

Response: This comment is unclear as to its intent and can't be responded to.

Comment 14: We do not wish to see aggressive action taken towards fish conservation or restorative action taken in key watersheds, if it means the closure of any area, road, or trail currently open to winter or summer use by motorized vehicles or grazing.

Response: There are several laws requiring the Forest Service protect fish species and/or water quality. In order to meet these laws, restrictions on current winter or summer motorized roads or trails may be required. The alternatives identify a mix of uses while meeting our legal responsibilities. Given the current conditions and location of some motorized roads or trails, it is not possible to develop an alternative that would allow all existing uses to continue.

Comment 15: We reject the recommendation and implementation of the CDNST as non-motorized yearlong.

Response: The Continental Divide Trail is a National Scenic Trail, created by law, with the primary emphasis of being managed as non-motorized. The Forest Plan can not change the direction provided by the law that created this trail.

Comment 16: We support the aggressive prevention and removal of noxious weeds, only if all areas, roads, and trails currently open to summer and winter-motorized use continues to remain open.

Response: The protection of federal lands from noxious weeds is a major concern the Forest Service, Counties, State, and private landowners. Roads and trails are a major source for the spread of noxious weeds. To ignore the impacts that this major vector of noxious weeds introduces would not be reasonable. No alternatives were developed giving immunity to motorized travel as it relates to the spread and control of noxious weeds. This would not be a reasonable alternative given the laws and policies the Forest Service is guided by.

Management and treatment of noxious weed is governed by the 2002 noxious weed EIS, which implements the Forest's noxious weed program.

Form Letter 10

This form letter is generated from an action alert which list topics to discuss in their letters. The original alert was then used by another organization to also discuss with their members and interested supporters. The main points to this form letter are the opposition to any recommended wilderness area and no restriction on winter or summer motorized travel.

Responses to specific comments in Form Letter 10 follow:

Comment 1: Alternative 5 as currently written is not acceptable.

Response: Alternative 6 was developed in response to the over 10,000 comments received on the DEIS.

Comment 2: Support a revised Alternative 4 that contains no Recommended Wilderness Areas and contains zero acres and zero miles of trails closed snowmobile use.

Response: Alternative 4 does not have any Recommended Wilderness, but does have some closures to snowmobile use. Alternative 1 analyzes the existing condition relating to snowmobile use, which amounts to no additional closures. An alternative was considered that looked at no snowmobile closures, but was not carried forward. The rationale for not fully considering this

alternative can be found in the FEIS, Chapter 2, under the heading of “Alternatives considered but Not Analyzed in Detail”.

Comment 3: Do not support the closing of any Recommended Wilderness Area, especially Mt. Jefferson and Hellroaring Creek, to winter snowmobile use. Snowmobiles cause little to no impact to the environment.

Response: Alternative 1 does not close recommended wilderness to snowmobiles, except for the Italian Peaks area. The effects of this alternative compared to others are documented in Chapter 3 of the FEIS.

Comment 4: Mt Jefferson and Hell Roaring Basin areas are extremely popular areas for snowmobilers who come from across the western United States to enjoy this area. These areas see heavy snowmobile use each winter, which provide a tremendous positive economic boost to the surrounding communities throughout the slow winter months. The fact that these areas would even qualify as wilderness with the current level of snowmobile use proves that snowmobile use cause little to no lasting effect on the environment.

Response: Motorized and non-motorized allocations were developed to provide a mix of recreation opportunities as well as to provide for resource protection such as wildlife winter range or denning areas. A non-motorized allocation to protect winter range habitat for big game species would be a wildlife example. Some areas allocated as non-motorized were also identified and recommended for wilderness. This mix of allocations varies by alternative, based on public comment.

There have been several comments concerned about motorized restrictions in recommended wilderness. Recommended wildernesses are areas allocated as non-motorized specific to an alternative. That is to say, if the recommendation is rejected by Congress and the area is released from wilderness consideration, the area would still be managed as a non-motorized area. This has been clarified in the revised forest plan in the Management Area direction.

In some alternatives, an area may be allocated to a summer or winter motorized allocation. In another alternative, the same area may be in a non-motorized allocation. And in yet another alternative, the same area may be in a non-motorized allocation and recommended for wilderness. In this case, if the area is released from wilderness consideration by Congress, the area would still be managed as a non-motorized allocation.

There are several reasons why an area is allocated as non- motorized. These include, but are not limited to:

1. Providing a semi-primitive non-motorized setting as part of a mix of recreational opportunities,
2. Providing for wildlife habitat protection such as winter range or security for a variety of species including wolverine and mountain goats.
3. Protection of a municipal watershed.
4. To protect wilderness potential. FSM1923.03.2 states, “Any potential wilderness area recommended for wilderness or wilderness study is not available for any use or activity that may reduce the area’s wilderness potential”. If an activity is determined to reduce the areas wilderness potential, then the activity is restricted.

The specific reason an area is being allocated as non-motorized could be for one or all of these reasons.

Comment 5: Alternative 4 is the only alternative in this plan that shows any substantial positive economic impact.

Response: The FEIS displays the effects of a range of alternatives, some of which emphasize products which contribute jobs (Alternative 4), some of which don't. The decision maker (Regional Forester) is charged with evaluating those effects for every resource, not just economics, to determine which alternative will form the basis of the Revised Forest Plan through the Record of Decision. The Record of Decision will display the rationale for the selected alternative.

Comment 6: In the Forest Plan Introduction, the forest service claims that they must make a "Recommendation to Congress of areas eligible for wilderness designation as required (36 CFR 219.17 (a)). SAWS does not agree with the forest services interpretation of the CFR requirements. The actual CFR that pertains to wilderness area review is 36 CFR 219.27 (b), not 36 CFR 219.17 (a) as the forest service states. 36 CFR 219.27 actually states "The Forest Service may recommend special designations to higher authorities..." and it "must be evaluated for recommended wilderness designation during the plan revision process". The CFR clearly does not require that the forest service recommend any new wilderness areas.

Response: The reference to 36 CFR 219.27 above is the regulation published after 2000. These planning regulations were rescinded by the Bush administration. The Forest is revising its Forest Plan using the 1982 CFR. Under the 1982 CFR's, 36 CFR 219.17 (a) states, "Unless otherwise provided by law, roadless areas within the National Forest Systems shall be evaluated and considered for recommendation as potential wilderness areas during the forest planning process..."

Page 1 of the Draft Forest Plan identifies six decision made in a Forest Plan (1982 code of Federal Regulations). Number 6 states, "Recommendations to Congress of areas eligible for wilderness designation as required (36 CFR 219.17 (a)).

In response to public comment, a range of alternatives was developed ranging from no acres recommended for wilderness to 707,000 acres. See Chapter 3 in the FEIS for the analysis of effects.

Comment 7: FSH 1909.12 requires the forest service to "meet the tests of capability, availability, and need" when determining new areas for wilderness recommendation. Clearly there is no need for additional wilderness in this forest for the 1.5% of forest visitors that currently recreate in this forest.

Response: Forest Service Handbook (FSH) 1909.12, 7.21 does states, "An area recommended as suitable for wilderness must meet the test of capability, availability, and need." The definitions of these three elements are further defined in FSM 1909.12, 7.21 thru 7.23. Appendix C of the FEIS documents the capability, availability, and need for each roadless area for the forest. A wilderness needs assessment was completed at the Regional level. This needs assessment is also documented in Appendix C.

Comment 8: 1.5% of current BDNF visitors use the existing wilderness areas in this forest (per NVUM results). There is no need to recommend more wilderness areas with such a small use of existing wilderness areas in this forest.

Response: The FEIS documents the values of recommended wilderness beyond the direct benefits to wilderness visitors under SOCIAL AND ECONOMIC IMPACTS, “Effects to the Economic Environment from Wilderness Recommendations” and “Effects to the Social Environment from Recommended Wilderness”. Benefits to specific resources from recommended wilderness are described under that same heading for WILDLIFE, AQUATIC, and HERITAGE RESOURCES.

Comment 9: The Mt. Jefferson/Hellroaring Basin area is comprised of only 4,447 acres, below the minimum threshold of 5,000 acres. In addition, it is adjacent to a wilderness study area managed by the BLM. If there is a re-evaluation of the WSA status of this adjacent land by the BLM, then the Mt. Jefferson/Hellroaring Basin area does not meet the requirements to be included in the recommended wilderness category

Response: Even though Mt. Jefferson is below the 5,000 acre threshold, its position is such that it adjoins a BLM wilderness study area. See appendix C for a complete assessment of the area.

Comment 10: The Mt. Jefferson /Hellroaring Basin areas do not have an enforceable boundary. The area is geographically enclosed by the Continental Divide on the south and the west. Other than Mt. Jefferson and the ridges immediately adjacent to this; and Reas Peak, there is little indication of your presence in the area until you are well with the basin.

Response: The manageability of the Mt Jefferson Roadless Area is evaluated in Appendix C of the FEIS.

Comment 11: The Mt. Jefferson/Hellroaring Basin area is an incredible family riding location due to the varying types of terrain and the ease required to take in magnificent views that encompass close to 200 miles in all directions. The area also enables disabled snowmobilers to take advantage of the same benefits.

Response: The Forest agrees that Mt Jefferson provides varying types of snowmobile opportunities.

Comment 12: Do not consider closing an area to a large number of people that provide support to the entire community, for the benefit of one individual with a back county skiing outfitter’s license that could go 10 miles north into the Lee Metcalf Wilderness and not have to worry about coming across any snowmobiles.

Response: Based on public comments a range of alternatives were developed ranging from no acres recommended for wilderness to 707,000 acres. Alternative 6 was developed in response to public comment on the DEIS. See the FEIS for the analysis relating to recommended wilderness.

Comment 13: Alternative 3 emphasizes primitive recreation and closed the most acres to snowmobile use. This alternative recommends 707,000 acres of Recommended Wilderness Areas. It is our belief that many of the extreme green organizations will support this alternative since it would close the most land to motorized recreation. This alternative is so far out of line with how this forest should be managed that it’s not worthy of any more space in our position statement.

Response: Thank you for your comment. Based on over 10,000 comments on the DEIS, Alternative 6 was developed.

Comment 14: SAWS also does not support any Recommended Wilderness Areas in any national forest region to be closed to snowmobile use and treated as de-facto wilderness. There is no forest service requirement to close RWAs to snowmobile use It appears that the decision on how to manage RWAs is being left up to each regional forester. BDNF falls under Region 1 control and management. Region 1 covers all national forest in Montana and northern Idaho. The region 1 forester, Abigail Kimbell, has been allowing the closure of RWAs to snowmobile use throughout Montana – for no apparent reason – and this practice needs to stop now. This practice is creating de-facto wilderness areas where only Congress has the authority to do so.

Response: See response to Comment 4 above.

Comment 15: The forest service fails to mention the requirement found in Forest Service Handbook 1909.12, Chapter 70 – Wilderness Evaluation. FSM 1909.12, section 7.2 states “Carefully evaluate the potential addition of roadless areas to the National Wilderness Preservation System to determine the mix of land and resource uses that best meet public needs. An area recommended as suitable for wilderness must met the test of capability, availability, and need”. Section 7.23 further states “Determine the need of an area to be designated as wilderness through an analysis of the degree to which it contributes to the local and national distribution of wilderness. There should be clear evidence of current or future public need for additional designated wilderness in the general area and consideration.”

SAWS clearly does not see a need for additional wilderness areas in this forest when less than 1.5% of current forest visitors wish to visit the existing wilderness areas. The only acceptable alternative to this plan is Alternative 4, modified to remove the noted snowmobile closures. Please revisit the wilderness issue in more detail and consider our comments above prior to releasing the final plan.

Response: Based on public comments a range of alternatives were developed ranging from no acres recommended for wilderness to 707,000 acres. Alternative 6 was developed in response to public comments on the draft EIS. Appendix C of the FEIS disclosed the roadless area inventory and evaluation of wilderness recommendations.

Form Letter 11

This form letter is a petition which listed 20 concerns. In summary, the specific comments suggest the Forest Plan needs more emphasis on: Maintenance and upgrade of existing forest service roads and trails, opening administratively closed roads and trails to historic use, and leaving wilderness designations to the U.S. Congress.

Responses to specific comments in Form Letter 11 follow:

Comment 1: The Morrison Lake Road from the scenic byway to the lake is in need of maintenance and upgrading. Failure to maintain this road across BLM and Forest Service lands has resulted in alternate routes and 2-tracks being forged, and required through the area to reach the lake.

Response: We agree that lack of maintenance of this road as well as natural conditions (snow drifts blocking the road in the Spring) have resulted in illegal routes being create by those trying to reach the lake. However, road maintenance is an implementation issue not a Forest Plan issue.

Comment 2: Several area roads in the Eunice/Park/Goldstone area have been closed and posted administratively, citing wildlife security reasons. This is a good practice during elk calving, but should be re-opened from mid summer through November. The roads are very good logging roads and there is no reason to deny access.

Response: These roads are in a Forest Plan allocation that allows for motorized travel. The travel plan does currently restrict motorized travel in this area as stated. Through a site-specific decision, these roads may be opened. The revised Forest Plan did not revisit existing motorized travel restrictions.

Comment 3: The historical motorcycle and horse trail from Lemi Scenic Byway into Eunice Creek has been administratively closed and is opened only to snowmobile, horse and foot traffic. This trail should be opened as part of the Eunice creek proposal to include motorcycles and ATV's. Improvement work on the trail should be pursed to make this a safe, negotiable trail for motorcycles and ATV, as well as horse and foot traffic.

Response: This trail is part of the Continental Divide National Scenic Trail (CDNST). The CDNST is intended to be managed for non-motorized travel.

Comment 4: The access Road from Skinner Meadows to the Cowbone and Darkhorse lakes is in need of maintenance and upgrading. Failure to maintain this road across Forest Service lands has resulted in alternate routes and 2-tracks being forged and extremely rough travel for ATV and 4WD to reach the lakes.

Response: We agree lack of maintenance of this road, as well as natural conditions, have resulted in illegal routes being create by those trying to reach the lake. However, road maintenance is an implementation issue not a Forest Plan issue.

Comment 5: The Brays Canyon cross ridge trail has historically been an open jeep trail, but was closed administratively. This trail provides the only cross-ridge access from east to west. This trail should be opened and maintained.

Response: The Brays Canyon Trail is in a non-motorized allocation in Alternatives 3, 5 and 6. It is in an allocation which allows motorized use in Alternatives 1, 2, and 4. The current restriction is a site-specific decision and not a Forest Plan decision

Comment 6: Closure of the Upper Coyote Basin logging roads during hunting season has made this area a horse only and private landowner only area. This is because the distances are too great for game retrieval on foot. A designated loop trail should be opened to 4WD and ATV use during hunting season for game retrieval only, between the hours of 8:00 am to 4:00 pm. This would allow public access to the public lands. Additional recommendation is that a connecting road through the top end of the basin be designated and improved.

Response: The motorized closure of these roads was a site-specific decision. The revised Forest Plan identifies this area as available for motorized travel. The revision of the Forest Plan did not revisit existing site-specific motorized travel restrictions.

Comment 7: The Tendoy Creek/Harkness Ridge access is administratively closed to motorized wheeled vehicles. This historical access should be reopened to 4WD and ATV use during hunting season for game retrieval only, between the hours of 8:00 am to 4:00 pm. This would allow public access to the public lands. Also stack lease holders access this area.

Response: The motorized closure of these roads/trails was a site-specific decision. The revised Forest Plan identifies this area as available for motorized travel. The revision of the Forest Plan did not revisit existing site-specific motorized travel restrictions.

Comment 8: Improve road from Keystone Spring through Ayers Canyon and to Dads Lake, then also improve road over Pass Creek and Hilderth Creek access area.

Response: Improvement of existing roads or trails are part of Forest Plan implementation and are not Forest Plan decisions.

Comment 9: Shenon Creek/Chinatown/Jeff Davis Ridge historical access should be opened to seasonal motorized use

Response: The roads and trails in this area are in non-motorized allocation in Alternative 2, 3, 5, and 6. They are in allocations that allow for motorized travel in Alternatives 1 and 3. See the ROD for rationale for final decision.

Comment 10: The road from Upper Miner Creek Trailhead to Monument Grazing boundary should be opened to motorized traffic and improved. Relocate trailhead at the grazing boundary.

Response: This road is currently (Alternative 1) in an allocation which allows motorized travel. Alternative 3 also allocates this area to motorized travel. This road is in a non-motorized allocation in Alternatives 2, 3, 5, and 6. The effects of the alternative are disclosed in Chapter 3 of the FEIS.

Comment 11: Forest Service administrately propose recommended wilderness areas in the Forest Plan. This is acceptable to recommend areas for wilderness. However, the Forest Service should not then restrict access to the recommended areas administrately. In effect, the Forest Service administratively treats recommended wilderness as wilderness. The decisions to designate public lands as wilderness are clearly the responsibility and authority of the U.S. Congress, and not within the administrative authority of the U.S. Forest Service. Recommended Wilderness areas should be open to historical public use.

Response: It is correct that the Forest Service is required to evaluate areas for wilderness recommendations during the forest plan revision process. It is also correct that only Congress can designate wilderness. The Forest Service is also required to protect areas recommended for wilderness to preserve their wilderness characters until Congress chooses to designate an area as Wilderness or not to designate the area. None of the alternatives in the EIS designates an area as wilderness.

The Forest Service is to make lands allocations (management areas) and develop management prescriptions for those areas. The management prescription developed for recommended wilderness is similar to those management areas allocated as semi-primitive non-motorized; they both restrict motorized use. The management prescriptions for areas designated as wilderness are much different than those areas recommended for wilderness. This can be seen by comparing the

direction in the Wilderness Act and management prescription for the Anaconda-Pintler and Lee Metcalf Wildernesses (see Anaconda-Pintler and Lee Metcalf Wilderness Plans) to the management prescription developed for areas recommended for wilderness. The restriction of motorized travel is one similarity; however, there are many more differences. As stated earlier, the management prescription for areas allocated as recommended wilderness are very similar to areas allocated as semi-primitive non-motorized.

To better clarify the intent of the areas recommended for wilderness, the desired condition for recommended wilderness have been expanded to include the desired condition if, at some point in time, congress decides not to designate these areas as wilderness.

Comment 12: Challenge the East Pioneer, Snow Crest, and Italian Peaks (Tendoy) recommended wilderness designations. The decision to designate public lands as wilderness is clearly the responsibility and authority of the U.S. Congress, and not within the administrative authority of the U.S. Forest Service. Recommended Wilderness areas should be open to historic public uses

Response: Alternative 4 did not recommend these areas for wilderness (FEIS, Chapter 2, Alternatives). Alternative 6 was developed in response to public comments concerning areas recommended for wilderness.

Alternative 1 allows motorized travel in recommended wilderness and was considered and evaluated (FEIS, Chapter 3, Inventoried Roadless Areas and Recommended Wilderness)

The statement is correct that the authority to designate wilderness is with the U.S. Congress. No alternative designates wilderness, but makes wilderness recommendations as outlined in 36 CFR 219.

Refer to the comment 2 above for discussion on recommended wilderness areas and the management prescription associated with those areas.

Comment 13: Similar to other Forest Service cabins, the South Indian cabin should be upgraded and opened for public use.

Response: Opening a Forest Service cabin for public use is a site-specific decision and not an appropriate Forest Plan decision.

Comment 14: A motorized trail from Bannock Pass to Morrison Lake follows the continental Divide across BLM and Forest Service lands. This historical trail is not being maintained. This trail should be maintained and upgraded to improve public access to public lands

Response: Improvement of existing roads or trails is part of Forest Plan implementation and is not a Forest Plan decision.

Comment 15: The Forest Service administratively closed the Lacey Creek Trail, previously used by motorcycle and 4WD trails, to ATV use. The cited reason was because of the increased usage by ATV was not “historical”. This administrative rule should be rescinded. The Lacey Creek area was a very popular area for motorized recreation. This challenge seeks to restore that area for motorized recreation, and designated as an ATV use areas, similar to the Delmoe Lake ATV area.

The Forest Service also administratively closed the Odell Lake/Lake-of-Woods Trail, previously used by motorcycle and 4WD trails, to ATV use. The cited reason was because of the increased usage by ATV was not “historical”. This administrative rule should be rescinded. Access by motorized travel to these lakes should be open. The Forest Service also should make efforts to upgrade the lacey Creek trail and trails into this area, due to the high public usage.

Response: The referenced trails were restricted to motorized travel to comply with the Wilderness Study Act. The Forest Plan can not alter the direction provided by this act of Congress.

Comment 16: The Forest Plan proposes to close the Mono/Wise River/Jacobsen area to ATV and motorcycle traffic. This area and open dates should be maintained for public access.

Response: This area is a non-motorized allocation in Alternatives 2, 3, 5, and 6. It is in an allocation that allow for motorized travel in Alternatives 1 and 3.

Comment 17: The Forest Plan should have vision of the future. To this end the FS and BLM should provide reasonable access along the Continental Divide Trail. In many places there are historical 4 WD motorized roads that have been administrately closed. These roads should be re-opened, and also maintained for public access. Eventually, a parkway along the Continental Divide should be accomplished.

Response: The Continental Divide Trail is a National Scenic Trail, established by law, with the primary emphasis of being managed as non-motorized. The Forest Plan cannot change the direction provided by the law that created this trail.

Form Letter 12

This form letter is a petition with seven points identified. The petition generally opposes recommending the Snowcrest Mountains as wilderness.

Responses to specific comments in Form Letter 12 follow:

Comment 1: Strongly oppose recommending the Snowcrest Mountains as recommended wilderness for the following reasons:

- **Public access for many present uses would be curtailed.**
- **Present structures such as roads, fences, water developments, cabins, and nearby views outside the boundaries do not fit well in the 1964 Wilderness Act.**
- **Management of the wilderness would be difficult and costly**
- **Several large wilderness areas are within a few hours driving time and two smaller ones, Lee Metcalf and Anaconda-Pintler Wilderness, are close drives.**
- **Some people want to make all the local mountain ranges into wilderness with little public use and with less management of lands, vegetation, and wildlife.**

- **We have a constant problem of maintaining access to our public lands and waters. Recent restrictive grizzly bear/food storage orders in the Snowcrest Mountains have added to the access problems.**

Response: After examining all alternatives and public comments, which supported different alternatives and different combinations of areas recommended for wilderness, Alternative 6 was developed.

Form Letter 13

This form letter is in support of what is referred to as the Forest for the Future Coalition's Comments, also referred to as the Coalition. These comments are generally in support of more suitable lands for timber production and higher timber outputs.

Responses to specific comments in Form Letter 13 follow:

Comment 1: Suggested that there is additional suitable timber within the BDNF that can be managed to improve forest health, reduce fire hazards, and soften the effects forest insect outbreaks, while at the same time supporting local economies.

Response: This comment is an example of the confusion that existed within the Draft EIS and Draft Plan related to lands suitable for timber production and lands suitable for timber harvest. Hopefully this response will clarify this topic.

Land suitable for timber production is a land allocation that carries with it a desired condition to manage the trees on those acres to for growth and yield, see definition in the glossary. These acres can also be managed to improve forest health, reduce fire hazards, remove salvageable material, and to soften the effects of insect outbreaks. These lands would contribute to local economies. The alternatives represent of full range of suitable timber acres, ranging from 0 acres to over 600,000 acres.

There are other lands on the forest which are suitable for timber harvest, see definition in the glossary. These lands are in addition to lands suitable for timber production. Although these lands do not have the desired condition to manage the trees for growth and yield; trees on these lands may be harvested to improve forest health, reduce fire hazards, or to soften the effects on insect outbreaks, as well as, to achieve wildlife, fisheries, scenic, recreation, safety, economic (salvage) or other site-specific identified objectives. The site-specific objectives would have to be compatible with the desired condition or objectives of the specific management area. Acres suitable for timber harvest range from 768,000 in Alternative 1 to 1,614,000 in Alternative 6.

The alternatives identified a range of acres suitable for timber harvest. Most of the forested lands are within one these two categories. The major exceptions are existing Wildernesses, Wilderness Study Areas, and Recommended Wildernesses.

Wording in the EIS and revised Forest Plan has been changed to help address the confusion that exists for areas allocated as "suitable for timber production" and areas that are "suitable for timber harvest" (FEIS, Chapter 3, Suitable Timber).

Form Letter 14

This form letter is a petition and supports Alternative 4 and no recommended wilderness areas.

Responses to specific comments in Form Letter 14 follow:

Comment: Supported Alternative 4, which does not identify any additional acreage be set aside for Wilderness Areas. We [do] not support Alternatives 3 or 5. There is no need for additional wilderness in Montana.

Response: After examining all alternatives and public comments, which supported different alternatives, the deciding official proposes to select Alternative 6. Alternative 6 was developed in response to public comments on the draft EIS.

Mountain Bike Form

Comment 1: Please preserve bicycle access in Beaverhead-Deerlodge National Forest. The forest plan revision could put at least 275 miles of single-track in nine roadless areas off-limits to bicycles. Many of these destination-worthy trails have been ridden for nearly 20 years.

Response: Mtn biking is a popular recreational activity that takes place on the Forest. The Revised Forest Plan may have impacts on this activity. Alternatives have been developed and evaluated, which displays a range of recreational opportunities. See FEIS, Chapter 2 Alternatives, and Chapter 3 Effects. An analysis of the effects to mountain biking opportunities was added between draft and final, to both the Recreation and Travel section and the Economic and Social Values section.

Comment 2: The proposed decision to ban bicycles from "Recommended Wilderness" areas is inconsistent with forest policies around the country. Forests in Regions 2, 4, 5, 8, 9, and 10 allow bikes in Recommended Wilderness. In neighboring Idaho and Wyoming, this includes at least the Bighorn, Boise, Caribou, Medicine Bow, Payette, Sawtooth and Targhee National Forests.

Response: Forest Service policy, FSM 1923.03, (2) states that any area being recommended for wilderness is not available for any use or activity that may reduce the area's wilderness potential. This is discussed in the FEIS, IRAs and National Wilderness Preservation System Additions, "Travel Restrictions in Recommended Wilderness" This national policy allows each forest to determine, through the land management planning process, the uses best suited to protect an area's wilderness potential. We believe we have done that in the revised forest plan, by providing opportunities for recommended wilderness, mountain bicycling, and motorized recreation. This is consistent with national policy.

Comment 3: The areas at risk are home to connector trails and entire trail systems. The Snowcrest area alone contains 127 miles of trails that are currently open to bikes. In the Electric Peak Area, cyclists will be banned from a 40-mile single track loop and multiple side trails.

Response: Electric Peaks and Snowcrest are not recommended for wilderness in several alternatives. Alternative 6 was developed in response to public comments on the Draft EIS and Draft Plan. Alternative 6 restricts Mtn Bike use for the Snowcrest, because it is recommended wilderness, but does not restrict mtn. bikes in Electric Peaks (See FEIS Chapter 2, Alternative 6).

Comment 4: Mountain bikers value roadless areas with narrow, single track trails just as much as hikers and equestrians. We believe that mountain biking, as a quiet, human-

powered, low-impact form of recreation, is compatible with roadless areas and Recommended Wilderness.

Response: The FEIS discloses the effects of a range of alternatives providing various recreational allocations and opportunities (See Chapter 3 of the FEIS). A discussion of effects to mountain bikes was added between Draft and Final.

Comment 5: Bikes should not be banned from Recommended Wilderness because they do not degrade Wilderness characteristics. Science shows that the impacts of mountain biking and hiking are similar and far less than horses and OHVs. The Beaverhead-Deerlodge has not provided any factual reasons why bicycles harm the land's potential to become designated Wilderness.

Response: The Beaverhead-Deerlodge plan provides a variety of recreation opportunities within inventoried roadless areas to accommodate all types of recreationists. The Forest believes the desired condition for recommended wilderness in the Plan best protects the area's wilderness potential. The rationale is documented in the FEIS, Chapter 3, IRAs and NWPS Additions, "Travel restrictions in Recommended Wilderness".

Comment 6: Many of the areas where bicycles will be banned are extremely important to local cyclists and have the potential to draw visitors from around the region and country. Towns such as Moab, Durango and Jackson Hole benefit from the economic impact of mountain bikers. From my experience in the area, Dillon is a wonderful small town that could certainly use the potential economic benefits that notoriety as a mountain biking area can bring.

Response: Alternative 6 attempts to provide a range of recreational opportunities located across the Forest. Because of public comment, an additional allocation providing for semi-primitive motorized experience was added. In addition, additional analysis of effects to mtn. bikers was included in Chapter 3 of the FEIS, under the heading of Recreation and Travel Management. Social and economic impacts of the alternatives are also disclosed in the FEIS Chapter 3.

Comment 7: Thank you for accepting my comments. Bicycles are quiet, human-powered, low-impact uses that deserve continued access to areas that may become recommended Wilderness in Beaverhead-Deerlodge National Forest.

Response: After considering many comments and further looking at resource effect, Alternative 6 proposes approximately 329,000 acres of recommended wilderness, which will not allow for mountain biking. We have disclosed that tradeoff in the analysis in Chapter 3 of the FEIS.

CHAPTER SIX

ADDITIONAL ANALYSIS

This chapter was prepared in response to public comment on the final Environmental Impact Statement (FEIS). It describes modifications made to Alternative 6 and describes the potential environmental consequences of those changes.

Several areas were further evaluated based on public comment and other factors.

1. Disturbance processes. A number of people expressed concern that the Forest Plan did not explicitly identify the extent or importance of current insect and disease infestations on the Beaverhead-Deerlodge National Forest (BDNF) or how climate change could expand the spread of insects and disease, and the incidence of large wildland fires.
2. The Biological Evaluation was revised based on the additional information of disturbance processes.

Disturbance Processes

The FEIS recognized how insect and disease has changed the conditions on the forest and considered future infestations. Based on public comment we completed a harder look at the potential extent of future insect and disease outbreaks and how climate change may play a role in those outbreaks. The following summarizes the findings from the analysis (Bollenbacher et al. 2008a).

Climate Change

Despite the uncertainty of future climate conditions at local scales, the published science suggests that climate changes may strongly influence the frequency, intensity and size of disturbances, such as fire and extensive insect outbreaks, in coming decades on areas of the BDNF. These disturbances have important consequences for community protection, timber water yield, carbon storage, timber production, invasive species, and public perception of forest management (Ryan et al. 2008). Changes in disturbance prompted by climate change are likely as important as incremental changes in temperature and precipitation for affecting ecosystem productivity and species composition (Ryan et al. 2008).

Uncertainty does not imply a complete lack of understanding of how climate change may affect forests and grasslands. Sufficient science exists regarding the potential and likely effects of climate change to suggest possible adaptation strategies to reduce the likelihood or magnitude of undesirable impacts. A recent report by the U.S. Climate Change Science Program (Joyce et al. 2008) summarizes adaptation options for national forests. These options are organized in three broad categories: (1) no active adaptation; (2) planned responses after a major disturbance; and (3) proactive steps taken in advance of a changing climate.

As noted in the FEIS there is more subalpine fir, whitebark pine, and lodgepole pine in the late seral stages and more lodgepole pine in the mid-seral stages than that which occurred historically. These forests are at risk because there is an increase in insect and disease activity

which could affect the large acres of mid-seral and late seral conditions. In addition, aspen is under represented in all seral stages because it has been out competed by conifers that regenerated at the same time as aspen in the past. Douglas-fir appears to be within the range for the mid to late seral stages, but is under represented in the early seral stages. In addition, Douglas-fir has become much denser than historic conditions and often contains ladder fuels that extend from the ground level into the crowns. Therefore, mid-to late seral Douglas-fir stands may be at more risk to stand replacing fires and insect and disease.

Mountain Pine Beetle in Lodgepole Pine

Mountain pine beetle (MPB) and lodgepole pine have coexisted for hundreds of thousands of years. Table 1 indicates the amount of susceptible forest and the amount expected to change from MPB activity over a 15 year period. Estimates of amount of mortality in each susceptibility class are 80% in high hazard stands, 50% in moderate hazard stands, and 25% in low hazard stands. These estimates are derived from analyses done by Cole and McGregor (1983). Some of this change has already occurred, primarily in the Boulder River, Upper Clark Fork, and Jefferson River landscapes. Indications are that mortality is increasing on the western side of the Forest in the Upper Rock Creek, Big Hole, and Clark Fork River drainages, and in stands throughout much of the Flint Creek and Anaconda Mountain Ranges. With the large amount of high and moderately susceptible lodgepole pine in the Upper Rock Creek and Big Hole landscapes, without a population changing weather event, it is expected that these areas will succumb to MPB similar to the east side of the Forest. MPB activity is already on the increase in these areas with upwards of 60 infested trees per acre being infested in some areas in 2008. Other areas on the Forest have lower quantities of lodgepole pine, but what is present has been significantly affected. This is true for Lima-Tendoy and Gravelly landscapes.

Table 1. Estimated MPB hazard in Lodgepole Pine and estimated loss between 2005-2020. ¹

Area	Mountain Pine Beetle Hazard in Lodgepole Pine				Estimated Loss of Lodgepole Pine 2005-2020 (% of lodgepole pine)			
	High Mean	Moderate Mean	Low Mean	None Mean	High	Moderate	Low	Total
Beaverhead-Deerlodge Forest	6.6%	30.0%	16.8%	46.6%	5.3%	15.0%	4.2%	24.5%
Big Hole	7.8%	33.8%	22.4%	35.9%	6.2%	16.9%	5.6%	28.7%
Boulder River	16.1%	43.3%	12.2%	28.3%	12.9%	21.7%	3.1%	37.6%
Clark Fork - Flints	6.0%	22.6%	17.0%	54.5%	4.8%	11.3%	4.3%	20.4%
Gravelly	0.9%	12.6%	7.0%	79.6%	0.7%	6.3%	1.8%	8.8%
Jefferson River	12.9%	29.3%	8.6%	49.3%	10.3%	14.7%	2.2%	27.1%
Lima Tendoy	1.3%	19.4%	23.8%	55.6%	1.0%	9.7%	6.0%	16.7%
Madison	0.0%	20.0%	6.7%	73.3%	0.0%	10.0%	1.7%	11.7%
Pioneer	3.3%	40.7%	20.2%	35.8%	2.6%	20.4%	5.1%	28.0%
Tobacco Roots	2.9%	18.1%	17.1%	61.9%	2.3%	9.1%	4.3%	15.6%
Upper Clark Fork	17.8%	37.8%	4.4%	40.0%	14.2%	18.9%	1.1%	34.2%
Upper Rock Creek	11.5%	34.0%	20.0%	34.5%	9.2%	17.0%	5.0%	31.2%

¹ This information was derived by using FIA data and the MPB hazard rating model imbedded in the Forest Vegetation Simulator model.

Mountain Pine Beetle in Whitebark Pine

Mountain pine beetle activity has been increasing in high elevation whitebark pine during most of this century across much of western US and Canada (Gibson et al. 2008). The epicenter of this activity is in Wyoming and Montana where the bulk of whitebark pine occurs. Aerial detection surveys on the BDNF indicate that 40,000 to 50,000 acres have been affected each of the past 3 years. Currently, it appears this level of mortality is declining because of the loss of whitebark pine. Projecting the future status of mature whitebark pine is difficult because of the limited information on hazard characteristics. In general, bark beetles tend to prefer older, larger, senescent trees that have reduced growth and vigor. Environmental conditions are also a factor, especially limited moisture, which causes a reduction in vigor. Temperature is also a factor, particularly for whitebark pine. It has been suggested that a warming climate will alter the reproductive biology of MPB causing a more rapid rate of reproduction at higher elevations. If projected warming climate occurs, it is possible levels of mortality in whitebark pine from MPB will increase in the future.

Douglas-fir Beetle in Douglas-fir

Douglas-fir beetle (DFB) is a less aggressive bark beetle than MPB. However, when populations build it can be a significant mortality-causing agent. Populations increase in damaged, weakened, and downed Douglas-fir following drought, fire, defoliation and windthrow events. Generally, populations subside after 3 to 4 years, but western Montana had a more extended outbreak from about 2000 to 2007 (likely associated with expansive wildfires during that period). Even now, localized areas still have elevated populations and associated tree mortality. DFB-caused mortality tends to be patchier in distribution than MPB and is therefore more difficult to estimate its total impact.

Douglas-fir beetle has a strong preference for certain tree characteristics. These characteristics include larger diameters, low vigor or growth rate, dense stands, and purity of Douglas-fir in the stand (Negron 1998; Shore et al. 1999). Using these factors, susceptibility models have been developed for DFB and were used to estimate DFB hazard (Bollenbacher 2008a). DFB generally affects a smaller proportion of a stand than does MPB. Using data from Negron (1998), we used different estimates of percent basal area killed for high (60%), moderate (45%), and low (35%) susceptibility. Table 2 displays the estimated Douglas-fir beetle hazard and estimated loss of Douglas-fir in the future.

Table 2. Estimated Douglas-fir Beetle Hazard and estimated loss of Douglas-fir between 2005-2020.¹

Area	Douglas-fir Beetle Hazard in Douglas-fir				Estimated Loss of Douglas-fir 2005-2020 (% of Douglas-fir)			
	High	Moderate	Low	None	High	Moderate	Low	Total
	Mean	Mean	Mean	Mean				
Beaverhead-Deerlodge Forest	5.4%	14.5%	11.8%	68.3%	3.5%	6.5%	4.1%	14.2%
Big Hole	1.9%	3.5%	8.4%	86.2%	1.2%	1.6%	2.9%	5.8%
Boulder River	3.9%	18.9%	15.6%	61.7%	2.5%	8.5%	5.5%	16.5%

	Douglas-fir Beetle Hazard in Douglas-fir				Estimated Loss of Douglas-fir 2005-2020 (% of Douglas-fir)			
	High	Moderate	Low	None				
Clark Fork - Flints	5.1%	18.3%	15.3%	61.3%	3.3%	8.2%	5.4%	16.9%
Gravelly	15.7%	22.6%	7.0%	54.8%	10.2%	10.2%	2.5%	22.8%
Jefferson River	2.9%	25.0%	19.3%	52.9%	1.9%	11.3%	6.8%	19.9%
Lima Tendoy	9.4%	16.3%	11.9%	62.5%	6.1%	7.3%	4.2%	17.6%
Madison	15.0%	33.3%	6.7%	45.0%	9.8%	15.0%	2.3%	27.1%
Pioneer	2.6%	7.8%	9.5%	80.2%	1.7%	3.5%	3.3%	8.5%
Tobacco Roots	7.6%	14.3%	19.0%	59.0%	4.9%	6.4%	6.7%	18.0%
Upper Clark Fork	4.4%	26.7%	26.7%	42.2%	2.9%	12.0%	9.3%	24.2%
Upper Rock Creek	3.0%	14.5%	10.0%	72.5%	2.0%	6.5%	3.5%	12.0%

¹ This information was derived by using FIA data and the MPB hazard rating model imbedded in the Forest Vegetation Simulator model.

These estimated losses are likely worst-case scenarios. To achieve these levels, a triggering event (wildfire, defoliation, windthrow) will be necessary for the population to increase sufficiently to cause this level of mortality. Such a trigger is reasonable, however, if warmer and drier conditions continue to occur, causing reduced tree vigor due to limited moisture availability through the growing season.

Looking at the infestation from the perspective of the dominance type of lodgepole pine and Douglas-fir and not as in above where all lodgepole pine or Douglas-fir was considered, we find even a higher percentage of mortality predicted for the future in these dominance types.

Summary

In addition to disturbance caused by fire, the bark beetle infestation will likely continue. Table 3 shows how these changes look within the context of the “diversity matrix”. We are likely to see that 47.5% lodgepole pine dominance type will be set back to early seral stage of succession due to current and expected mortality. This will come largely from the 9”+ size class with some coming from the 5-9” size class. The current lodgepole pine dominance type covers approximately 1.14 million acres, thus up to 545,000 acres could have stand replacing mortality; with the majority expected to occur within the next five years. In addition 45.5% of the Douglas-fir dominance type could be set back to early seral stage of succession over the next 5 to 15 years. This translates into approximately 240,500 acres. In addition losses are expected to be very high in the whitebark pine dominance type as these infestations run their course (table 3). This will have a significant effect on the large size class forest by reducing the large tree component in much of these types.

Table 3. Comparison of modeled historic range by dominance type and the existing size class compared to the current inventory (in percent of the forest and total acres) and predicted change due to beetles.³

Strata ¹		1-5” Early seral	5-9” Mid seral	9” plus Late seral
SAF/ES/WPB/MH/AL/Mix				
HRV	% of forest	1.6-4.9	1.5-3.8	5.0-9.2
Current inventory	% of forest	0.8	3.8	13.2
HRV	Acres	55,694-173,135	51,848-135,219	179,205-327,739
Current inventory	Acres	27,042	127,836	442,509
Future expectations				Much of the WBP will be lost due to mountain pine beetle
LP ²				
HRV	% of forest	1.3-4.5	1.1-4.4	1.7-5.3
Current inventory	% of forest	3.8	22.9	7.5
HRV	Acres	45,705-160,272	40,497-156,680	59,792-188,167
Current inventory	Acres	127,836	767,015	253,213
Future expectations			During the next 5-15 years most of the large size class will be reduced and some of the medium size class. About 545,000 acres are predicted to change to early seral stages due to beetles and fire.	
Upland mix hardwoods (aspen, paper birch) ²				
HRV	% of forest	6.0-21.3	1.2-18.1	3.3-14.8
Current inventory	% of forest	0.0	0.0	0.3
HRV	Acres	212,433-757,727	149,252-643,349	116,771-528,073
Current inventory	Acres	0	0	9,834
Douglas-fir				
HRV	% of forest	1.4-4.2	0.8-2.7	11.6-20.2
Current inventory	% of forest	0.1	2.2	13.4
HRV	Acres	48,432-151,108	26,840-95,663	412,395-718,379
Current inventory	Acres	4,917	73,751	449,884

Strata ¹		1-5" Early seral	5-9" Mid seral	9" plus Late seral
				About 240,500 acres are predicted to change to early seral due to beetles. Prediction is less certain than prediction for LP and WBP

¹ Only those dominance types with sufficient FIA plot information are shown.

² The acres in lodgepole pine are likely underestimated and the acres on upland hardwoods overestimated because much of the aspen is in a mixed conifer or is mixed with lodgepole pine.

³ This information was derived by using FIA data and the MPB and DF Beetle hazard rating models imbedded in the Forest Vegetation Simulator model for those specific dominance types.

Over the last 8 years between 2000 and 2007 approximately 150,800 acres have burned within the BDNF. During this same time period approximately 871,161 acres of bark beetle infestation has occurred with a significant addition to that occurring during 2008 that has not yet been summarized.

Table 4 shows the bark beetle hazard, by landscape. This hazard occurs as diameters and age increase. There is a significant existing outbreak of Douglas-fir bark beetle in medium and high hazard Douglas-fir in each landscape and a very large outbreak in medium and high hazard lodgepole pine in the landscapes. In addition, probably due to warmer weather in higher elevations, whitebark pine is being killed in unprecedented levels.

In view of the bark beetle infestation and continuing hazard, large size classes, including old growth, of lodgepole pine, Douglas-fir and whitebark pine is at risk for increased mortality over the next 5 to 15 years. Table 4 summarizes the current condition of some of the key ecosystem components, and some possible threats, by landscape.

Table 4. Estimates of some key ecosystem components that could change dramatically due to disturbance.
Data from FIA, MPB and DF hazard rating model imbedded in the Forest Vegetation Simulator model

Landscape Area	Percent* Landscape Composition of Dominance Types At Risk to Bark Beetles LP, DF, WBP	Percent *of Landscape with Bark Beetle MED to HIGH Hazard MPB and DFB	Bark Beetle Occurrence 2000-2007 Acres Infested	Percent Old-Growth	Prior to Bark Beetle Infestation Snags 10"-19.9 & 20"+
Big Hole	48%, 7%, 10%	42% 5%	49,000 acres	16.1%	7.8 and 0.6
Boulder River	62%, 27%, 1%	59% 23%	132,816 acres	25.6%	4.1 and 0.3
Clark Fork - Flints	36%, 39%, 6%	29% 23%	50,883 acres	20.9%	4.3 and 0.0
Gravelly	16%, 37%, 8%	14% 38%	240,158 acres	27.4%	8.0 and 0.7
Jefferson River	41%, 32%, 10%	42% 28%	147,253 Acres	15.2%	3.6 and 0.2
Lima Tendoy	17%, 36%, 6%	21% 26%	6,980 acres	20.6%	4.6 and 0.3
Madison	17%, 39%, 14%	20% 48%	8,749 acres	40.0%	9.8 and 0.8
Pioneer	51%, 11%, 12%	44% 10%	52,099 acres	23.0%	6.5 and 0.3
Tobacco Roots	26% 32%, 15%	21% 22%	92,792 acres	27.6%	8.7 and 0.2
Upper Clark Fork	44%, 33%, 0%	56% 31%	64,430 acres	11.1%	2.2 and 0.0
Upper Rock Cr.	47%, 15%, 8%	46% 18%	26,001 acres	33.5%	11.2 and 0.6

*Values were rounded to the nearest whole % for ease of comparison

Modified Management Direction

Based on the information above, some of the forest-wide management direction of the proposed Forest Plan was modified. The modifications are reflected in Alternative 6, and the changes are summarized in Part 2 and are incorporated into the forest plan. The modifications reflect the need to improve resiliency of some ecosystem components, provide additional focus to where activities should occur, and provide additional assurances that habitat is available for dependent species.

This addition to the FEIS describes the impacts of Modified Alternative 6 – see sections Fire Management, Soils, Timber Production, and Vegetation.

Revised Biological Evaluation

Based on the information above, the Biological Evaluation was revised to address the public comments that were concerned that the potential of the insect and disease outbreaks were not considered in the analysis. In addition, to aid in the presentation the format of the Biological Evaluation was changed to identify the potential threats to a species and how the plan components address those threats.

MODIFIED ALTERNATIVE 6

(Addition to FEIS pages 30-31)

Alternative 6 was modified after considering comments on the FEIS. The changes fine-tune the management direction in Alternative 6 and provide additional protections for species. Changes were made to the Forest Plan, Forest-wide direction in the Vegetation and Wildlife sections. The other sections remain the same. The following summarizes the modifications to Alternative 6.

Vegetation

Goals and Objectives. The biodiversity goal was modified and an objective added to address the need to improve the resiliency of existing forests. This responds to the increasing threat of insect and disease.

Forested vegetation objectives. The objective for Douglas-fir and lodgepole pine types were clarified to say that increase in the number of acres in the 0 to 5 inch DBH class will primarily occur where existing stands are dead or dying or where needed to reduce the risk from wildland fire for public and firefighter safety, and to protect structures, infrastructure and municipal watersheds. The purpose of this change is to focus the areas where harvest is needed so that the dead and dying stands can in the future obtain appropriate tree cover.

An additional Objective was added to maintain or improve resilient forest conditions of the large size classes of dry forest communities and some lodgepole pine communities by reducing forest density. This Objective was added because the large size class, particularly in the dry forest communities is at risk because forests have become much denser than historic conditions and often have ladder fuels that extend from ground level into the crowns of large trees. This condition combined with the increase in Douglas-fir beetle place these forests at risk (Noss et al.

2006). Thinning stands of lodgepole pines will prevent or minimize beetle-caused mortality (Amman 1989, Bollenbacher, Gibson 1986, Cole 1983).

Standard 1. The old growth standard was changed from preserving 10% old growth by dominance type to retain all old growth. Mechanical vegetation treatments and prescribed fire could occur in old growth as long as they retain the minimum requirements for the age and number of large trees and basal area required for Eastern Montana old growth, as described in Green et al. 2007, table 3. The change to retain old growth is in response to the potential decline in old growth from insect and disease and possibly wildland fire. The standard permits vegetation management tools to assist in restoring or maintaining resilient forests which can result in stands more able to withstand bark beetle mortality and stand-replacing fire (Bollenbacher et al. 2008).

Wildlife

Goals. The sensitive species and Federally listed species goal was changed to an objective to more accurately portray the intent of this management direction. The objective says to consider information from a variety of sources when designing projects that affect threatened, endangered, or sensitive species.

Snags

The management direction for snags was modified to ensure an adequate amount of snags are retained for snag dependent species over time, including the addition of a goal to provide snags well-distributed by vegetation category and size class over time. In order to attain this goal the standard (4) was modified as described below.

Standard 4. The snag standard was modified to: (1) require retention of all snags greater than 20 inches (except for hazard trees); (2) change the minimum average snags per acre requirement; and (3) add a minimum number of live trees per acre to be retained, which can be used as recruitment for snags in the future.

Lynx

Standard 3. This standard was dropped because it was the same as Standard 8. Standard 8 was modified to clarify that the management direction found in the Northern Rockies Lynx Amendment Record of Decision would apply.

Sage grouse

Additional management direction for sage grouse brood-rearing habitat was added, including the addition of a goal to provide suitable brood-rearing habitat and an objective to maintain or improve sagebrush height and canopy and grass-forb canopy within 18 kilometers of documented active or inactive leks. The Plan also contains an objective to consider the management plan and conservation strategies for sage grouse, and a standard to retain sagebrush within 300 meters of riparian zones, meadows, lakebeds, or farmland. The additions aid in supporting sage grouse reproduction and brood-rearing populations that are located primarily off of NFS lands.

Raptors

A standard was added to reduce the potential effects to known active raptor nests from disturbance through avoidance or minimization based on applicable science regarding species needs. This addition helps minimize adverse effects to raptors.

Bats

A standard was added to provide bat access to abandoned mines when those entrances are closed. This ensures their habitat continues to be available.

Summary of Changes

The changes made to Modified Alternative 6 were made in response to comments, specifically those comments that said the likelihood and extent of future disturbance was not considered in the development of forest plan direction. The changes mitigate to some extent the effects to vegetation from the bark beetle epidemics occurring on the BDNF by providing guidance to retain and restore habitat likely to decline (mature and old growth forests). These changes are minor in scope and are intended to protect, restore and enhance the environment.

(Revised Table 1 Comparison of Design Criteria by Alternative in Errata page 38)

Under Alternative 6 the “dominance type retained in old growth (minimum)” is changed under Modified Alternative 6. Alternative 6 requires retaining 10% old growth by dominance type. Modified Alternative 6 requires retaining the age and number of large trees and basal area above minimum requirements for Eastern Montana old growth.

ADDITIONAL EFFECTS ANALYSIS

This section describes the environmental consequences of Modified Alternative 6. It is intended to be an addition to the FEIS, and builds upon the analysis previously presented. Only those sections which would result in different effects are displayed.

Fire Management

Effects on Fire Management from Vegetation Management.

(Addition to FEIS page 249)

The acres available for fire management in Modified Alternative 6 are the same as in Alternative 6 as presented in the FEIS. The primary change that could potentially affect fire management is in regards to the old growth retention requirements and the addition of an objective to maintain or improve resilient forest conditions of the large size class of dry forest communities and some lodgepole pine communities by reducing forest densities.

Modified Alternative 6 would require maintaining all old growth, except that mechanical vegetation treatments and prescribed fire could occur in old growth stands if they retain the “minimum criteria” for age and number of large trees and basal area. This would allow for the ability to improve the resiliency, resulting in stands more able to withstand bark beetle mortality and stand-replacing fire (Agee and Skinner 2005, Fettig et al. 2008). Restoring forest

composition and structure before wildfires occur should allow fire to play its characteristic role in maintaining ecosystem structure and function in the forest (Noss et al. 2006, Johnson 2007).

Whether restoration should focus on ecological processes (e.g., fire), or re-establishing forest structure, to reincorporate natural disturbance processes in managed ecosystems, continues to be debated (Stephens and Moghaddas 2005). Dry old growth forest types are at highest risk from wildland fire, due to increasingly dense understories composed of drought- and fire-intolerant species that have created ladder fuels, as well as increases in ground fuels and in main canopy densities. In addition, the large size classes of dry forest types, including old growth are at high risk of increased mortality over the next 5 to 15 years because of the ongoing bark beetle infestation (Bollenbacher 2008a). Based on the high potential for future disturbance, Modified Alternative 6 emphasizes restoration of dry old growth forests to a more resilient structure (Agee and Skinner 2005, Hessburg et al. 2005, Noss et al. 2006, Spies et al. 2006, Abella et al. 2007, Brinkley et al. 2007, Egan 2007, Fiedler et al. 2007a, Johnson 2007).

In a recent study, a strategy of management by reserves of old growth communities in the area of Washington and Oregon covered by the northwest forest plan, resulted in significant loss of old growth reserves due to the inability to protect some of them from wildland fire on National Forest System lands. Losses to fire were concentrated on federal lands in the drier East Cascades and Klamath provinces, where increased disturbance by fire outweighed decreased disturbance by harvest (Healley, Spies, 2008).

Management options for creating or restoring a fire-resilient forest structure within the drier forest types includes the reduction of surface and ladder fuels and canopy bulk density and the maintenance of large thick bark trees in the stand (Agee and Skinner . 2005). All of these structural characteristics significantly changed after decades of vigorous fire exclusion, which was facilitated by a moderate climate between 1930 and 1980 (Morgan et al. 2008). Several studies show that increasing forest resilience can be accomplished with various silvicultural treatments (Fiedler 2002, Agee and Skinner . 2005, Stephens and Moghaddas 2005, Metlen and Fiedler 2006, Youngblood et al. 2006, Fettig et al.2008, Ritchie et al. 2008, Zhang et al. 2008). Specifically, thinning combined with prescribed underburning, compared with no treatment, was considered the most effective strategy, while prescribed burning alone could scorch and kill many of the old trees intended for retention (reviewed in Kolb et al. 2007, Ritchie et al. 2008).

The desired result of developing resilient old growth conditions through management techniques is to meet restoration objectives while maintaining composition and structure that conforms to the Green et al old growth definition (Green et al 1992, errata corrected 2005, 2007). Based on the current literature, this approach to maintaining resilience in old growth ecosystems has been incorporated into Alternative 6 modified (e.g., Hawe and Delong 1997, Fiedler 2000b, Quesnel and Steeger 2002, Steeger and Quesnel 2003, Briana et al. 2004, Lindh and Muir 2004, Sala and Callaway 2004, Spies et al. 2006, Kolb et al. 2007, Ritchie et al. 2008, Zhang et al.2008).

Soils

Effects on Soils from Vegetation Management

(Addition to FEIS page 421)

Modified Alternative 6 requires mechanical vegetation treatments and prescribed fire to maintain minimum requirements for old growth, except it does not apply to removing hazard trees and meeting other public safety needs. The intent of any treatments would be to improve the resiliency of old growth conditions so they are retained on the landscape. Retaining areas as old growth may have beneficial effects on long term soil productivity because it reduces the area susceptible to erosion risk from management activities. Soils may be affected if activities occur within old growth.

Timber production

Effects on Timber Production from Vegetation Management

(Addition to FEIS analysis on page 445)

Modified Alternative 6 retains the objectives for aspen restoration and conifer encroachment, and adds an additional objective to increase resiliency. The objective was added to maintain or improve resilient forest conditions of the large size classes of dry forest communities and some lodgepole pine communities by reducing forest density. Effects to timber production are created when the objectives overlay with acres allocated as suitable timber. The objective to increase resiliency may contribute to timber harvest where biomass is harvested.

In addition, changes are made to the old growth direction. Modified Alternative 6 requires maintaining all old growth, except mechanical vegetation treatments and prescribed fire can occur in old growth if they retain minimum old growth requirements. The intent of any treatments would be to improve the resiliency of old growth conditions so they are retained on the landscape. Because of the conditions to retain old growth components, less old growth timber would be available for harvest than alternatives 1 through 6. However, Alternative 6, which required retaining 10% old growth, has 1.47% of the old growth based as a percentage of the total forested type on suitable timber lands that would be subject to harvest for timber production. Requiring the maintenance of old growth components on these lands is a not a significant change.

Vegetation

Old Growth Retention

(Addition to FEIS analysis on page 470)

There is a significant existing outbreak of Douglas-fir bark beetle in medium and high hazard Douglas-fir in each landscape and a very large outbreak in medium and high hazard lodgepole pine in the landscapes. In addition, probably due to warmer weather in higher elevations, whitebark pine is being killed in unprecedented levels. In view of the bark beetle infestation and

continuing hazard, large size classes, including old growth, of lodgepole pine, Douglas-fir and whitebark pine is at risk for increased mortality over the next 5 to 15 years.

Based on the potential threat to old growth, Alternative 6 was modified and would require maintaining all old growth, except that mechanical vegetation treatments and prescribed fire could occur in old growth stands if they retain the “minimum criteria” for age and number of large trees and basal area. These treatments would primarily occur in the dry forest types and in some lodgepole pine communities in response to the objective to maintain and improve resilient forest conditions. This would allow for the ability to improve the resiliency, resulting in stands more able to withstand bark beetle mortality and stand-replacing fire (Agee and Skinner 2005, Fettig et al. 2008). Restoring forest composition and structure before wildfires occur should allow fire to play its characteristic role in maintaining ecosystem structure and function in the forest (Noss et al. 2006, Hauessler 2006, Johnson 2007).

Whether restoration should focus on ecological processes (e.g., fire), or re-establishing forest structure, to reincorporate natural disturbance processes in managed ecosystems, continues to be debated (Stephens and Moghaddas 2005). Dry old growth forest types are also at high risk from wildfire, due to increasingly dense understories composed of drought- and fire-intolerant species that have created ladder fuels, as well as increases in ground fuels and in main canopy densities. Because of the high incidence of bark beetles and the high risk of wildland fire, Alternative 6 was changed to emphasize restoration of dry old growth forests to a more resilient structure (Agee and Skinner 2005, Hessburg et al. 2005, Noss et al. 2006, Spies et al. 2006, Abella et al. 2007, Brinkley et al. 2007, Egan 2007, Fiedler et al. 2007a, Johnson 2007).

In a recent study, a strategy of management by reserves of old growth communities in the area of Washington and Oregon covered by the northwest forest plan, resulted in significant loss of old growth reserves due to the inability to protect some of them from wildland fire on National Forest System lands. Losses to fire were concentrated on federal lands in the drier East Cascades and Klamath provinces, where increased disturbance by fire outweighed decreased disturbance by harvest (Healley, Spies, 2008).

Management options for creating or restoring a fire-resilient forest structure within the drier forest types includes the reduction of surface and ladder fuels and canopy bulk density and the maintenance of large thick bark trees in the stand (Agee and Skinner . 2005). All of these structural characteristics significantly changed after decades of vigorous fire exclusion, which was facilitated by a moderate climate between 1930 and 1980 (Morgan et al. 2008). Several studies show that increasing forest resilience can be accomplished with various silvicultural treatments (Fiedler 2002, Agee and Skinner . 2005, Stephens and Moghaddas 2005, Metlen and Fiedler 2006, Youngblood et al. 2006, Fettig et al.2008, Ritchie et al. 2008, Zhang et al. 2008). Specifically, thinning combined with prescribed underburning, compared with no treatment, was considered the most effective strategy, while prescribed burning alone could scorch and kill many of the old trees intended for retention (reviewed in Kolb et al. 2007, Ritchie et al. 2008).

The desired result of developing resilient old growth conditions through management techniques is to meet restoration objectives while maintaining composition and structure that conforms to the Green et al old growth definition (Green et al 1992, errata corrected 2005, 2007). Based on the current literature, this approach to maintaining resilience in old growth ecosystems has been incorporated into Modified Alternative 6 (e.g., Hawe and Delong 1997, Fiedler 2000b, Quesnel

and Steeger 2002, Steeger and Quesnel 2003, Briana et al. 2004, Lindh and Muir 2004, Sala and Callaway 2004, Spies et al. 2006, Kolb et al. 2007, Ritchie et al. 2008, Zhang et al. 2008).

Modified Alternative 6 affords the most protection of the above ground old stand structures from disturbances under Forest Service control of all the alternatives, because it would maintain all old growth, unless treatment is done to reduce surface and ladder fuels in order to improve resiliency. The intent with any treatment in old growth is to improve the likelihood that old growth is retained on the landscape. Modified Alternative 6 has 1.47% of the old growth based as a percentage of the total forested lands located on suitable timber lands.

Forest Vegetation Structure

(Addition to FEIS page 473)

Forest vegetation structure provides the basis for maintaining or restoring forested ecological communities of sufficient diversity to provide for the viability of the majority of species that occur or make use of the forested types on the BDNF. Alternative 6 had specific objectives to bring the Douglas-fir, lodgepole pine and whitebark pine/subalpine fir cover types into SIMPPLE modeled historical range of variability (HRV) for the small size class primarily by reducing the mid and large size class to 0-4.9" dbh through fire and timber harvest.

As stated before, a number of people expressed concern that the proposed Forest Plan (Alternative 6) did not take into consideration the extent or importance of current insect and disease infestations on the BDNF or how climate change could expand the spread of insects and disease, and the incidence of large wildland fires. Based on this concern additional analysis was completed to project potential future disturbance. That analysis projects we are likely to see that 47.5% lodgepole pine dominance type set back to early seral stage of succession due to current and expected mortality. This will come largely from the 9"+ size class with some coming from the 5-9" size class. The current lodgepole pine dominance type covers approximately 1.14 million acres, thus up to 545,000 acres could have stand replacing mortality; with the majority expected to occur within the next five years. In addition 45.5% of the Douglas-fir dominance type could be set back to early seral stage of succession over the next 5 to 15 years. This translates into approximately 240,500 acres. In addition losses are expected to be very high in the whitebark pine dominance type as these infestations run their course (table 3 presented earlier). This will reduce the large tree component in much of these types.

Modified Alternative 6 contains direction responsive to this analysis and to the existing significant departures from historic amounts of forest dominance and size classes. The objective for Douglas-fir and lodgepole pine types were clarified to say that increase in the number of acres in the 0 to 5 inch dbh class will primarily occur where existing stands are dead or dying or where needed to reduce the risk from wildland fire for public and firefighter safety, and to protect structures, infrastructure and municipal watersheds. The purpose of this change is meet NFMA requirements¹ by managing stands that are reverting to an early seral stage. Without preparation of a seedbed, and treatment of undesirable fuel levels from the dead trees, the sand

¹ NFMA Section 4(d)(1) "it is the policy of the Congress that all forested lands in the National Forest System shall be maintained in appropriate forest cover with species of trees, degree of stocking, rate of growth, and conditions of stand designed to secure maximum benefits of the multiple use sustained yield management in accordance with land management plans.

may not result in an appropriate tree cover or adequately stocked stands to develop into a mid and late seral stand that contains appropriate forest cover. By concentrating even-aged and two-aged regeneration harvest primarily in dead and dying stands, forest stands composed of the large size class that are alive and functioning, would be retained to the extent possible given the magnitude of the current and anticipated infestation.

An additional objective was added to maintain or improve resiliency in the dry forest communities and in some lodgepole pine communities. This objective recognizes that especially in the large size classes of dry forest communities and some lodgepole pine communities the vegetation density has become uncharacteristically dense, and by reducing forest density in specific areas, resiliency would be improved.

Based on these changes Modified Alternative 6 considers HRV along with projected future conditions and trends to provide direction to maintain ecosystem diversity.

Effects on Vegetation from Vegetation Management

(Addition to FEIS page 480)

Modified Alternative 6 would likely have beneficial effects on vegetation management for restoration of quaking aspen and would increase resiliency of large forest structure, including old growth – see the discussion above.

Wildlife Habitat

Sensitive species

(Addition to FEIS page 494)

The Biological Evaluation was revised to address the public comments that were concerned that the potential of the insect and disease outbreaks were not considered in the analysis. In addition, to aid in the presentation the format of the Biological Evaluation was changed to identify the potential threats to a species and how the plan components address those threats. The Biological Evaluation analyses in detail the effects of Modified Alternative 6 on all sensitive wildlife species, as well as other species identified by the public as having viability concerns.

Snags

(Addition to FEIS page 494)

Modified Alternative 6 changes the snag density minimums from Alternative 6 based on an analysis of the snag ecosystem component completed for the east-side Forests including the BDNF (Bollenbacher et al 2008b). Region 1 completed an analysis related to snag densities for planning purposes and project-level retention and recruitment options for consideration, for Forests on the east-side of the Region; the Beaverhead-Deerlodge, Custer, Gallatin, Helena, and Lewis and Clark. This analysis determined mean snag densities both in wilderness/roadless on the east-side Forests and mean snag densities outside wilderness/roadless on the east side Montana Forests. It used Forest Inventory and Analysis (FIA) data to explore the density and distribution of snags by various geographic areas, habitat type groups, dominance groups, and seral stages. This analysis took into consideration recent findings on the effect that timber

harvest and human access have on snag density; how snag density is related to stand succession and disturbances; and the spatial pattern of snags. Id.

The analysis indicates snags greater than 15 inches in diameter are naturally uncommon, and snags greater than 20 inches in diameter are naturally quite rare. Snags were also distributed differently by various biophysical types, and were distributed in a very clumpy arrangement. Snags less than 15 inches in diameter are common and insect and disease are increasing this snag component.

Modified Alternative 6 address those snag components that are uncommon and rare. It requires all snags greater than 20" dbh be retained (except for hazard trees). In addition it identifies a minimum number of snags per acre to be retained across all the treatment units in a project area (Table 3-1). This calculation allows for variability among treatment units which produces a more natural clumpy distribution. The minimum average of snags to be retained uses the midpoint value of the warm and cool dominance group for early seral stages and the midpoint value of the cold dominance group for the late seral stage in Table 8a of Bollenbacher et al. 2008b. These values were derived from FIA data for wilderness/roadless lands on the east-side Forests. This ensures that the low point of any range would not be inadvertently selected and that minimum snags to be retained is a conservative amount as the highest mean within a seral stage for a snag group was chosen. Id. Modified Alternative 6 does not include a standard for >10" snags as Bollenbacher et al. 2008b shows a high level of such snags existing on the landscape and that due to the ongoing and future predicted bark beetle epidemics and fire many more snags will be available in the 10"+DBH (see Appendix E of Bollenbacher et al. 2008b and Bollenbacher et al 2008a).

Further, where Modified Alternative 6 provides that where there are insufficient snags in treatment units live trees in the same class size would be retained (Table 3-2). This enables recruitment of sufficient numbers of snags to meet the Forest Plan goal.

Table 3.1. Minimum snags per acre to retain, calculated for the total treatment unit acreage in a project area.

Vegetation Category	Minimum average snags per acre to retain Snags $\geq 15.0"$ dbh
Warm	3.6
Cool	8
Cold	5
PICO	6.4

Modified Alternative 6 also includes a requirement to retain some green trees to be used as replacement snags in the future. These live tree retention levels are consistent with those found in unmanaged areas in the early seral stage (Table 8b Bollenbacher et al. 2008b). Thinning, underburning and selection harvest that does not revert the stand to the early seral stage will retain adequate live trees based on the harvest prescription alone.

Table 3-2. Minimum average live trees per acre to be retained after regeneration harvest, to supply future snags (if available), calculated for the total treatment unit acreage in a project area.

Vegetation Category	Minimum average live trees per acre to retain Live trees $\geq 10.0"$ dbh
Warm	1.3

Vegetation Category	Minimum average live trees per acre to retain Live trees \geq 10.0" dbh
Cool	0.9
Cold	1.4
PICO	0.6

In summary, where active vegetation treatments occur, the Modified Alternative 6 in conservative in retaining snags $>20''$ DBH (except for safety concerns) and prescribes snag and live tree retention levels consistent with those found in unmanaged areas.

Summary of Effects by Alternative

(Addition to FEIS page 497)

Modified Alternative 6 would have similar effects as Alternative 6 in regards to road density, aspen restoration, and reduction of conifer encroachment, secure habitat, and wildland fire use.

Coarse Filter Analysis

Ecosystem diversity is an important factor influencing the viability of individual species. Evaluation of ecosystem diversity is often referred to as “coarse filter” analysis. Coarse filter analyses of ecosystem diversity, together with “fine filter” analysis of “at risk” species, provide the support for plan decisions and conclusions regarding NFMA legal and regulatory requirements to maintain the diversity of plant and animal communities as habitat for viable populations (Hunter et al. 1988; Haufler et al. 1996; Haufler et al. 2002). Coarse filter analysis is often completed by first subdividing ecosystems into terrestrial, riparian and aquatic ecosystems, then analyzing the associated characteristics.

Coarse filter analyses focuses on the variety and relative extent of ecosystem types, including the existing composition, structure and function (Haufler et al. 2002). While ecosystem composition, structure and function are dynamic across space and time, management approaches to restore and maintain a range of landscape conditions within which species coevolved are most likely to produce sustainable ecosystems that provide for viability of species (Hann, 1992). This concept, which emphasizes insights gained from HRV, heavily influenced the analysis and development of the BDNF plan. However, consideration and analysis of current and future trends—particularly with respect to disturbance regimes and the potential influence of climate change—that represent a departure from HRV have also been considered and have influenced the management direction in Modified Alternative 6. Natural disturbances common to the plan area that affect terrestrial, riparian and aquatic ecosystems include wildfire; insect and disease outbreaks; and weather events such as wind and storms. Natural disturbances, particularly with respect to fire and insect and disease outbreaks, have increased in recent years and are likely to increase in the years to come (Bollenbacher et al. 2008a).

Additional analysis evaluated the diversity of forested environments in the plan area by tracking changes over time in the dominance types and size classes (Bollenbacher et al. 2008a). Based on this analysis, the Modified Alternative 6 contains direction that is responsive to significant departures from historic amounts of forest dominance types and size class. For example, the Modified Alternative 6 contains direction to restore aspen stands that have declined dramatically from historic levels. Modified Alternative 6 also recognizes where expected increases in

disturbances due to insect and disease and wildfire are likely to pose additional risk to certain dominance types and size classes that are currently within the historic range of variability. These include the larger size classes of dry forest communities. Modified Alternative 6 includes guidance to focus on improving the resiliency of these “at risk” dominance types and sizes classes given the increased levels of landscape disturbance from fire and insects and disease that is expected to persist into the future. Thus Modified Alternative 6 is not focused only on HRV, but rather considers HRV along with projected future conditions and trends to develop direction intended to maintain ecosystems that support viable populations.

In addition to dominance types and size class, an analysis was completed of snags and old growth forests that are attributes contained within the coarse level dominance types occurring on the Forests (Bollenbacher 2008a). Modified Alternative 6 contains direction that minimizes impacts to old growth that could occur through management actions. It also includes forest-wide snag standards based on analyses from unmanaged areas that represent high quality habitat and functional landscapes (i.e. roadless and wilderness areas). Collectively, Modified Alternative 6 thus contains direction regarding dominance type and age class, including both snags and old growth that are designed to restore, maintain, and retain a range of landscape conditions reflecting the conditions under which species coevolved, as well as expected future trends.

The FEIS also analyzes the amount of non-forested vegetative habitats in the plan area. Analysis shows decreasing amounts of non-forested habitat from historic condition. In response to these decreases, Alternative 6 includes direction to reduce conifer encroachment into grassland and shrubland areas, thus moving landscape conditions towards those under which species coevolved. This direction is retained in Modified Alternative 6.

The amount, distribution and connectivity of habitats are factors influencing species distributions and populations (Fahrig 1997, 2002). Nearly two-thirds of the BDNF are roadless. The amount and location of recommended wilderness in the plan, along with existing wilderness help to retain existing landscape pattern. Additionally, open motorized roads and trails under the Modified Alternative 6 will be reduced by 392 miles which will improve connectivity. In addition, Modified Alternative 6 identifies a goal that “Forest management will contribute to wildlife linkages between landscape areas, unless landscape isolation is considered beneficial.”

Fine Filter Analysis

A fine filter analysis (analysis of the specific conditions and threats for a species) was conducted for those species identified and analyzed for viability concerns including: federally listed threatened or endangered species, species on the Regional Forester’s sensitive species list, species identified by the public as having viability concerns, and selected high priority species of concern identified by the State of Montana. The purpose of the fine filter analysis is to maintain the diversity and population viability of the species in a given geographic area that may not be fully considered by the coarse filter.

Federally listed threatened and endangered species, because of their federally designated status were identified as having a viability concern in the plan area and included in the analysis. These include the gray wolf and Canada lynx.

Species identified on the Regional Forester’s sensitive species that occur on the BDNF were also identified as having a viability concern and included in the analysis. These include the northern leopard frog, western (boreal) toad, fisher, Great Basin pocket mouse, grizzly bear,

wolverine, northern bog lemming, pygmy rabbit, spotted bat, Townsend's big-eared bat, peregrine falcon, bald eagle, flammulated owl, sage grouse, harlequin duck, and trumpeter swan (see the Revised Biological Evaluation).

Species identified by the public as having viability concerns through public comment on the Forest Plan were also included in the analysis. These include the northern goshawk and great gray owl (see the Revised Biological Evaluation).

Selected high priority State species of concern not already identified using the above criteria were also considered in order to determine if there were additional species with viability concerns in the plan area (see document *Other Species Considered for Viability Concerns*). All State species of concern having also been identified as Tier 1 species², with habitat ranges encompassing the BDNF were given consideration. These species were the black-tailed prairie dog, black tern, common loon, long-billed curlew, mountain plover, olive-sided flycatcher, whooping crane³ and yellow rail. Also considered was a federal candidate species (yellow billed cuckoo). In order to determine whether or not there is a viability concern for these species in the plan area, each species was evaluated based on the following:

- Species use of habitat in the plan area (i.e. is the species an occasional or transient visitor, does it breed in the planning area, etc.)
- Whether habitat for the species in the plan area is in decline
- Whether population numbers in the plan area are low or in decline
- If the species or its habitat in the plan area is subject to imminent threat
- If the species is dependent upon limited or specialized habitat in the plan area.
- The extent to which the species depends on National Forest Lands in the plan area. (i.e. does the plan area serve as a refuge for the species).

Summary

Management direction developed in Modified Alternative 6, based on the analysis and consideration of these "coarse filter" elements, maintains viability for the majority of species, particularly those that are common and not thought to be at risk in the plan area.

As part of the plan analysis, a fine filter analysis was completed for those species for which viability is, or may be a concern. Analysis for these species examined the threats to species viability in light of the plan direction pertaining to coarse filter elements addressed in the plan. For several species, additional species-specific direction was included in Modified Alternative 6 to address a particular threat. For example, Modified Alternative 6 contains a standard that addresses bat access when closures of existing mine sites occur. A standard for mitigating effects

² Tier 1 species: Greatest conservation need. Montana Fish, Wildlife & Parks has a clear obligation to use its resources to implement conservation actions that provide direct benefit to these species, communities, and focus areas (MNHP, FWP 2006)

³ Whooping crane is listed as threatened species, but is not considered a species that is present on the BDNF

around known active nest trees for raptors was added as well as an updated snag standard for snag dependent species. Thus, consideration of coarse filter elements in the plan, along with additional species specific plan components (fine filter), address the NFMA viability responsibilities for species that were determined to be at risk, as well as those considered more common and not at risk in the planning area.

In summary, based on the amount of lands recommended for wilderness, lands that are not suitable for timber harvest, and areas where motorized use would be restricted, the small portion of the forest where active vegetation treatments are expected under the plan, as well as measures prescribed to protect ecosystem components and species, the analysis shows the management direction in Modified Alternative 6 will meet NFMA and its regulations to provide for diversity of plant and animal communities (16 USC 1604(g)(3)(B); 36 CFR 219.19 and 219.27).

Effects on Wildlife Habitat from Livestock Grazing

(Addition to FEIS page 504-506)

Modified Alternative 6 includes an additional Goal, Objective and Standard for sagebrush habitat to ensure sage grouse habitat needs are addressed at the project level. As with the other alternatives, Modified Alternative 6 is unlikely to have an effect on sage grouse because grazing normally occurs after the nesting season. In addition, the Modified Alternative 6 includes an objective to consider conservation strategies for managing sage grouse in Montana. Currently, these strategies, such as Connelly et al. 2000 have been applied on grazing allotments that overlap with sage grouse habitat.

Effects of Lynx Conservation Assessment and Strategy

(Addition to FEIS page 512)

The Northern Rockies Lynx Management Direction Record of Decision (USDA 2007) lists the BDNF as unoccupied habitat for Canada lynx. The Record of Decision selected Alternative F, Scenario 2. Alternative 6A applies the management direction found in the Lynx Record of Decision (see Forest Plan, Appendix G), including the monitoring requirements.

The analysis for lynx in this EIS is tiered to the FEIS for the Northern Rockies Lynx Management Direction. The Lynx Record of Decision says Alternative F, Scenario 2 applies the management direction to occupied habitat. It goes on to say “When National Forests are designing management actions in unoccupied mapped lynx habitat they should consider the lynx direction, especially the direction regarding linkage habitat. If and when those National Forest System lands become occupied, based upon criteria and evidence described in the Conservation Agreement, the direction shall then be applied to those forests.”

The Northern Rockies Lynx Management Direction FEIS evaluated the potential effects of Alternative F Scenario 2. It states that the Beaverhead-Deerlodge, Bitterroot, Nez Perce and Salmon-Challis National Forests are secondary habitat which is currently classified as unoccupied. Habitat under the BDNF plan in these areas may be modified in a way where the structure and composition would be less capable of supporting lynx. A majority of vegetation management expected to occur in lynx habitat is related to fuel treatments. In the Northern Rockies Lynx Management Direction FEIS it was projected that 2.4% of lynx habitat would be treated over a ten year period based on management direction in the existing BDNF Forest Plan.

Management direction under any of the alternatives in BDNF FEIS would be equal to or more constraining than the management direction in the Existing Plan (Alternative 1).

The Lynx Record of Decision determined whether or not lynx would be viable in the planning area (i.e. the range of lynx encompassed by national forests subject to this decision). It goes on to say there is currently no evidence that suggest that unoccupied secondary habitat is considered necessary for a viable population of lynx in the northern Rocky Mountains. Secondary, unoccupied lynx habitat will have management direction applied to conserve lynx if and when those administrative units become occupied (including the BDNF). The Record of Decision also found that projected fuel treatments on unoccupied habitat would be well within the 6% limit established for occupied forests. The FWS found that lynx habitat in secondary areas will likely remain available for lynx recovery over time (USDI FWS 2007). The Lynx Record of Decision also incorporates a monitoring component to develop and complete a protocol to survey and to develop a method to monitor the amount and condition of lynx habitat in unoccupied secondary habitat. Both the survey protocol and the habitat monitoring methodology have been completed.

Effects on Wildlife Habitat from Timber Production

(Addition to FEIS page 531)

There are no changes in the amount of suitable habitat between Alternative 6 and Modified Alternative 6; however Modified Alternative 6 would retain more mature and old growth forests than Alternative 6 because the focus would be to regenerate dead and dying stands, and to maintain all old growth. Some timber harvest could occur in old growth stands if the minimum requirements of Green et al are met.

Effects on Wildlife Habitat from Vegetation Management

(Addition to FEIS page 532)

Modified Alternative 6 provides the best overall vegetation management for wildlife because it considers HRV along with projected future conditions and trends to develop direction intended to maintain ecosystems that support viable populations. Modified Alternative 6 retains the focus to restore quaking aspen and whitebark pine, and the conifer/grassland/sagebrush ecotone to benefit wildlife.

Modified Alternative 6 also maintains all old growth which may be at risk from insect and disease and wildland fire. It allows for management options for creating or restoring a fire-resilient forest structure within the drier forest types includes the reduction of surface and ladder fuels and canopy bulk density and the maintenance of large thick bark trees in the stand (Agee and Skinner 2005).

Effects on Wildlife Habitat from Wildlife Habitat Management

(Addition to FEIS page 534)

Modified Alternative 6 provides the same level of secure habitat for grizzly bears and elk as Alternative 6.

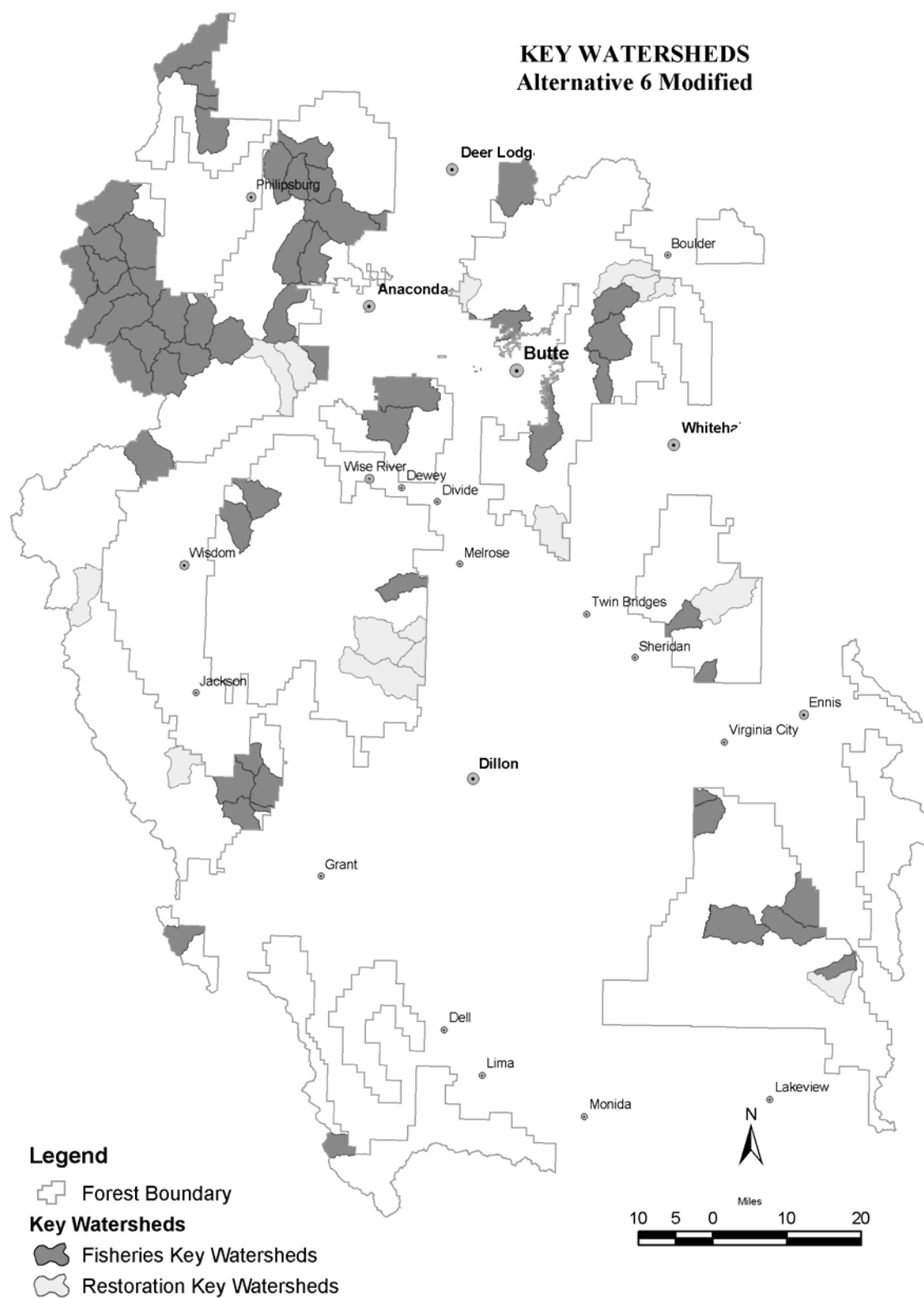
Modified Alternative 6 changes the snag density minimums from Alternative 6 based on an analysis of the snag ecosystem component completed for the east-side Forests including the BDNF (see pervious discussion in Wildlife Habitat-Snags section).

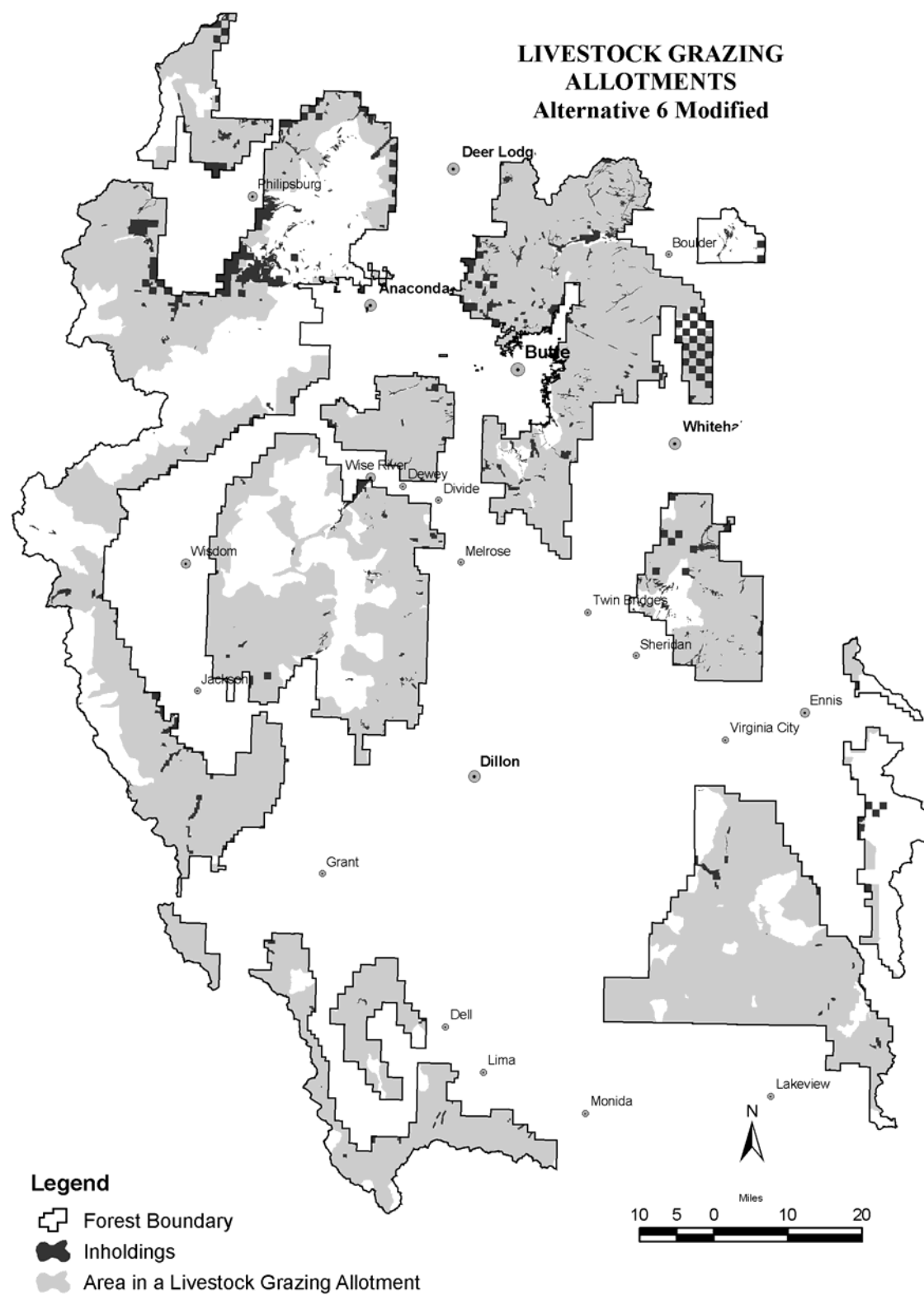
Snag retention levels have been the focus of extensive research, and recommended densities to support cavity users typically vary across vegetation and size classes (Thomas et al. 1979; Bull 1994; Bull et al. 1997; USDA Forest Service Northern Region 2000; Bunnell et al. 2002). Modified Alternative 6 direction will retain all snags greater than 20" dbh (except for hazard trees); and, for all snags greater than 15" dbh, retain 3.6-8 snags/acre (depending on vegetation category), as an average of for the total treatment unit acreage in the project area. If the treatment area does not have sufficient snags, live trees from the same vegetation category and size class must be retained and counted toward the snag requirement. To further ensure snag recruitment, Modified Alternative 6 includes additional direction to retain live trees greater than 10" dbh on a per acreage basis. In sum, the direction in Modified Alternative 6 provides management guidance for habitat components to support viable populations of cavity users; plan direction is consistent with Bull et al. (1997) and the previous regional protocol (USDA Forest Service Northern Region 2000).

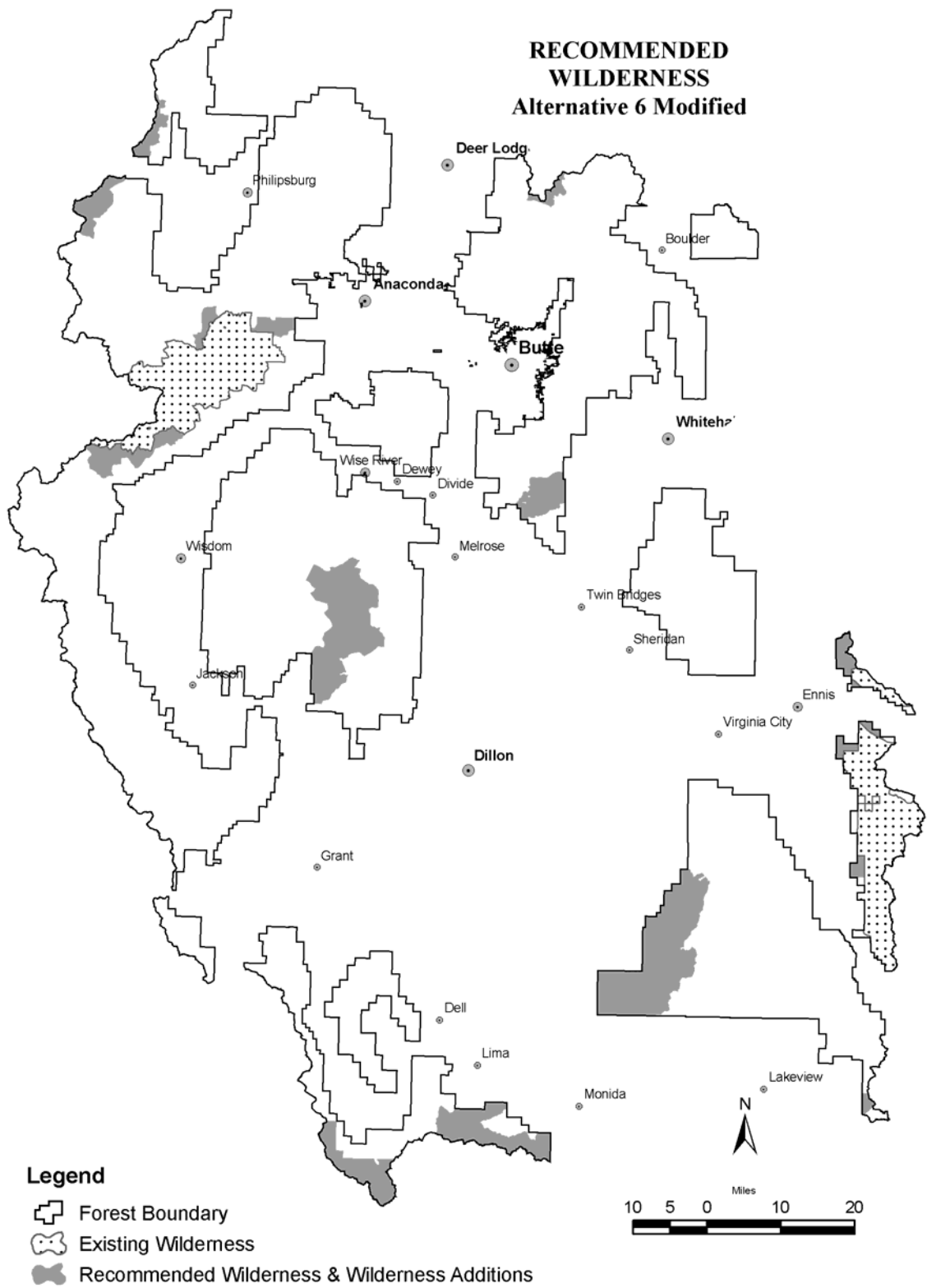
COMPARISON MAPS

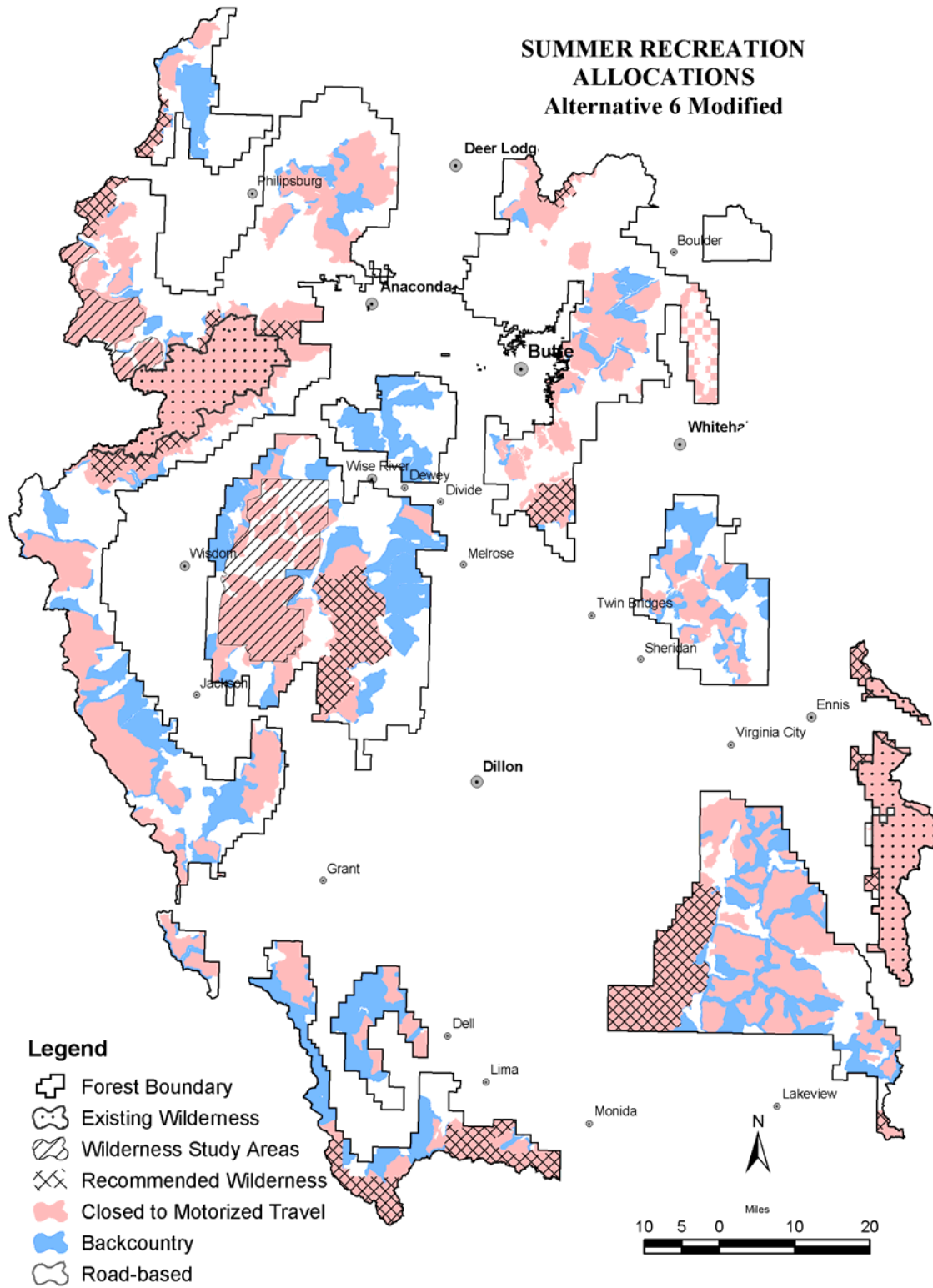
(Addition to FEIS comparison maps beginning on page 40))

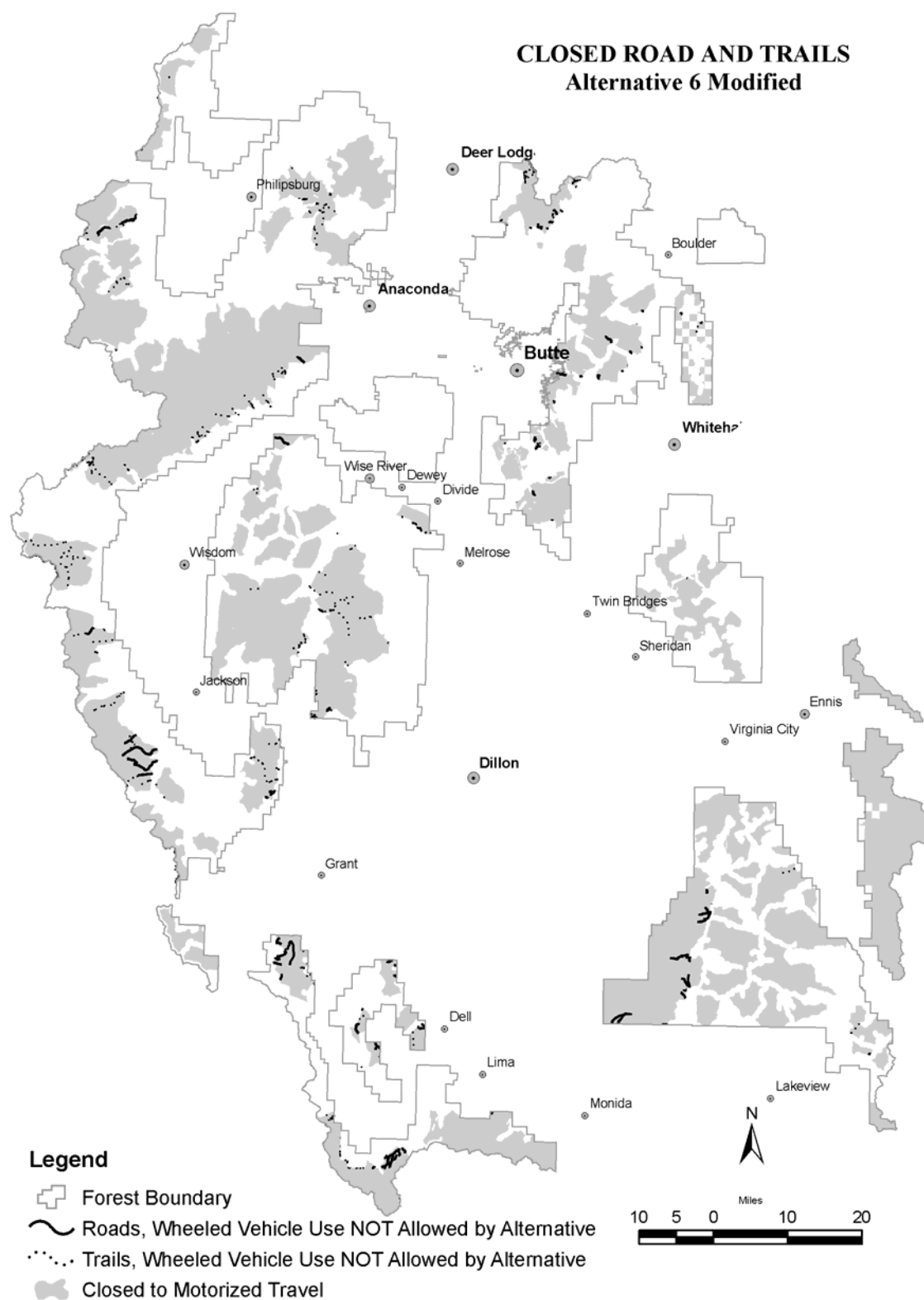
Maps are include on the following pages for Modified 6, Key Watersheds, Livestock Grazing Allotments, Recommended Wilderness, Summer Recreation Allocations, Closed Roads and Trails, Winter Recreation Allocations, and Wildland Fire Use Availability.

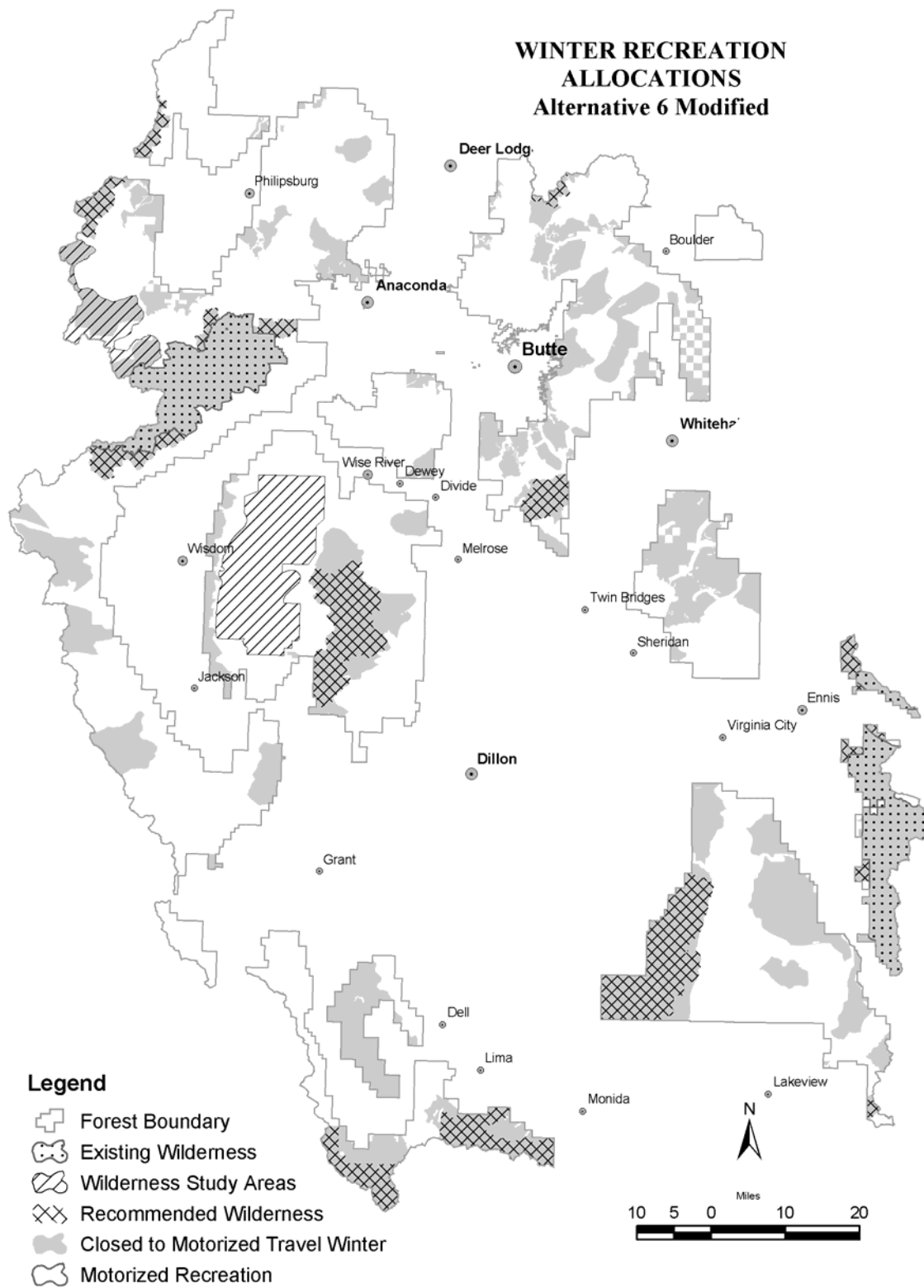


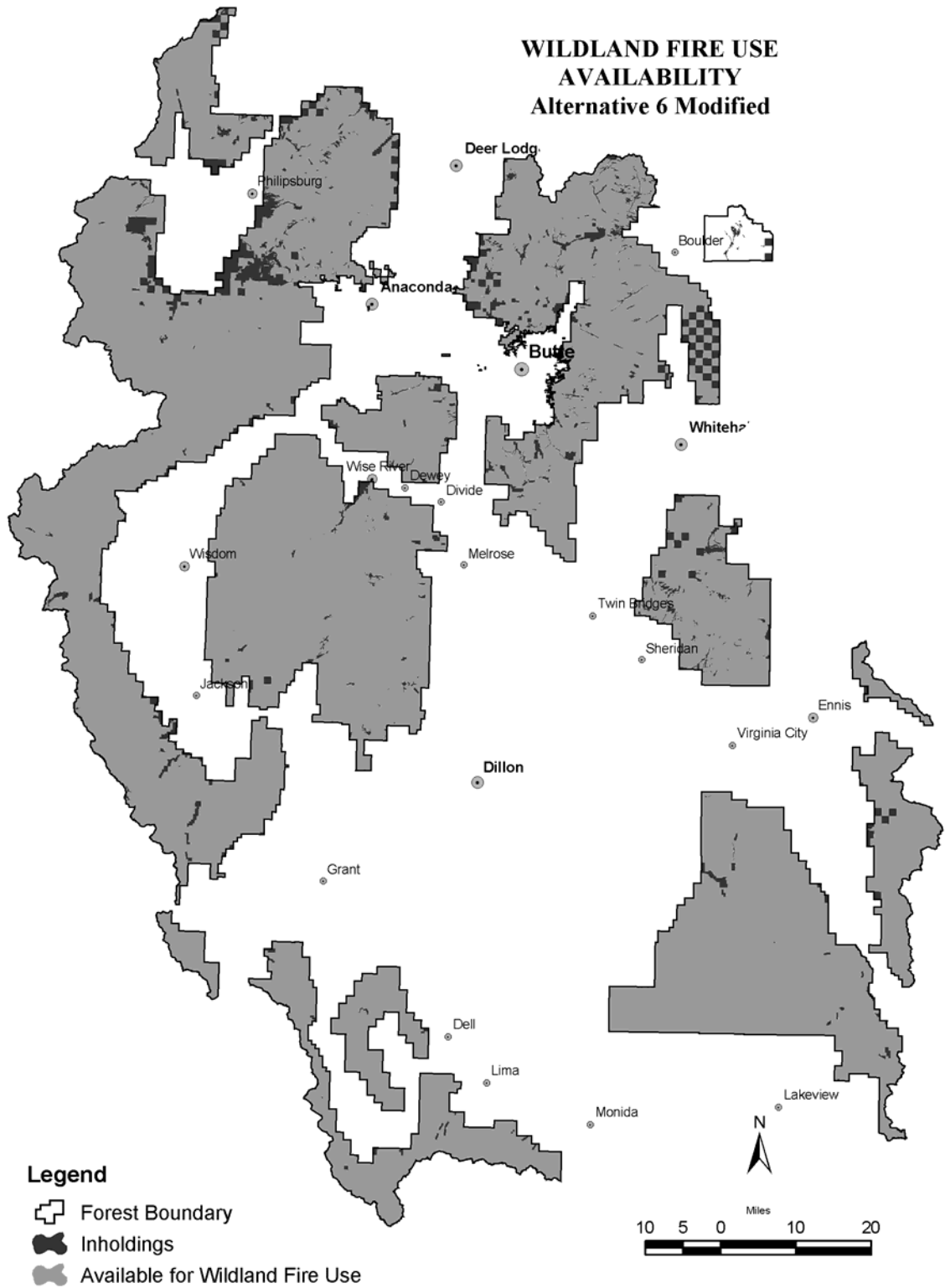












ADDITIONAL ANALYSIS LITERATURE CITED

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APPENDIX A

BIOLOGICAL EVALUATION FOR THREATENED, ENDANGERED, AND SENSITIVE VASCULAR PLANT SPECIES

It is Forest Service policy to protect the habitat of federally listed threatened and endangered species (FSM 2670.31), and to avoid or minimize adverse impacts to species designated by the Forest Service as sensitive (FSM 2670.32). All Forest Service projects, programs, and activities are to be reviewed for possible effects on threatened, endangered, candidate, and sensitive (TES) species. The findings of these analyses are to be documented in the decision document (FSM 2772.4). This biological evaluation is the method used to evaluate impacts on TES plant species for revision of the Beaverhead-Deerlodge National Forest Plan.

Effects to Threatened, Endangered and Candidate Vascular Plant species

No threatened, endangered, or candidate vascular plant species are known to occur on the Beaverhead-Deerlodge National Forest. Therefore no effect to threatened, candidate, or endangered vascular plant species will occur from any alternative.

Impacts to Sensitive Vascular Plant Species

Sensitive Plants

Vascular plants with an identified viability concern. The species with sensitive status are identified on the Regional Foresters Sensitive Vascular Plant species list in effect at any given time. Forest Service policy states that activities initiated by the Agency will not cause a loss of viability or a trend to federal listing of these species. There are currently 34 vascular plant species on the October 2004 Sensitive species list with known occurrences on the Beaverhead-Deerlodge National Forest. Occupied and surrounding habitat of these species will generally be protected, restored or enhanced in all alternatives. Impacts to individuals that will not cause a loss of viability or trend to federal listing may occasionally be allowed

The vegetation types occurring on the BDNF were analyzed to determine if they showed a high level of departure from historic range of variability (course filter approach) as determined by the SIMPPLLE Model. Only the quaking aspen type was shown to have a high level of departure from estimated historic conditions. None of the listed sensitive plants on the BDNF are known to be obligate dependents on the aspen type. Therefore it is unlikely that any of these plants are at viability risk due to departure from historic range of variability of the major vegetation types. A dominant feature of conservation of sensitive plants will include a fine filter approach with special attention to those species that have a special physical environment that is required to support them. This approach is supported by the work of Hunter Jacobson and Webb (Hunter 1988) regarding changes in plant distribution over time under the influence of changing climates.

Mehring (1996) found two principles emerged from extensive review of Quaternary Vegetation world wide studies. "Change is continual and change is unpredictable." He further stated: "Unpredictability, the second principle, is best illustrated by unusual late glacial and Holocene assemblages of both plant and animals." These non-analog assemblages suggest that individuals rather than communities or vegetation zones react to climate change and that fossil assemblages and modern communities are loosely organized collections of individually distributed species. This further supports the concept that managing for retention of physical environments on which rare plants may move about in response to climate change are more likely to allow for perpetuity of these species. Ensuring the environment for development of the mycorrhizal associates of these and, indeed, for most plants is necessary. The National Forest Management Act requires that a diversity of animals and plants be maintained well distributed over the planning area. The term well distributed is often interpreted to mean normally distributed. However for many species, particularly the narrow endemics, distribution was never normal over an artificially created planning area such as a national forest. Rather they were distributed according to the physical substrates to which they were locally adapted.

Vascular Plant Guilds on the Beaverhead-Deerlodge N.F.

Plant guilds are groups of plant species that exploit the same class of environmental resources in a similar way. These plants are found on the BDNF.

Hydrophytes - Plants that grow in excessive water or aquatic conditions. Some are submergent or grow entirely under the water surface while others are emergent with roots in water saturated zones and other portions extending into the air. Some occur in specialized habitats such as vernal pools, fens, bogs, wet meadows, and riparian zones.

Mesophytes- Plants that live in moderately humid soil and air, sometimes divided into warm season, cool season, and nitrogen fixation guilds. Nitrogen fixation guilds are the most common on this forest.

Xerophytes plants are able to live in very dry places.

Calciphyte plants prefer soils derived from carbonate rocks.

Halophytes plants have the ability to live in areas of high salt concentrations.

Talus-plants live on slopes formed by the accumulation of rock debris.

Tundra plants live in areas of permafrost with freeze/thaw conditions and solifluction activity during warm months. These plants are adapted to a very short growing season.

Calcium/Silicate Endemic plants occur on soils derived from metamorphosed limestone/silicate rock.

Forest Service Sensitive Vascular Plant Species

Table 186. Known Occurrences of Sensitive Vascular Plant Species on the BDNF (USDA 2004a)

Forest Service Sensitive Species with Montana Natural Heritage Rank (RISK Factors)	Guild	Threats
G1 Rank Critically imperiled due to extreme rarity, imminent threats, and or Biological factors		
No G1 Ranked species occur on the BDNF		
G2 Rank, Imperiled due to rarity or with very restricted range, or otherwise vulnerable to extinction		
<i>Primula alcalina</i> (Proposed)	Wetland-Calciophyte	Loss of hummock wetland habitat and noxious weeds
<i>Arabis fecunda</i>	Metamorphosed Limestone/silicate endemic	Destruction of its limited habitat, autogenic processes, noxious weeds especially spotted knapweed
<i>Botrychium paradoxum</i>	Mesophyte	Noxious weeds, autogenic processes, recreational use of habitat, Mining claims, Road construction
<i>Lesquerella pulchella</i>	Calciophyte	Native plant competition and noxious weeds
<i>Saxifraga tempestiva</i>	Tundra	Climate warming
<i>Phlox kelseyi</i> var missoulensis	Xerophyte	Noxious weeds
G3 Rare and local throughout its range, or with very restricted range, or otherwise vulnerable to extinction		
<i>Agastache cusicki</i>	Talus/calciophyte	Noxious weeds
<i>Antennaria densifolia</i>	Tundra	Climate warming
<i>Astragalus scaphoides</i>	Mesophyte	Noxious weeds Road construction Herbivory, seed predation, mining
<i>Balsamorhiza macrophylla</i>	Mesophyte	Noxious weeds Trampling, horse/bicycles off trail
<i>Botrychium crenulatum</i>	Mesophyte	Noxious weeds Autogenic processes
<i>Botrychium hesperium</i>	Mesophyte	Noxious weeds, autogenic processes
<i>Lesquerella paysonii</i>	Mesophyte	Noxious weeds
<i>Penstemon lemhiensis</i>	Mesophyte	Fire absence Browsing after fire Noxious weeds
<i>Suasurea weberi</i>	Tundra/Talus	Climate warming

Biological Evaluation
TES Vascular Plant Species

Forest Service Sensitive Species with Montana Natural Heritage Rank (RISK Factors)	Guild	Threats
<i>Thalictrum alpinum</i>	Mesophyte	Noxious weeds, especially Canada thistle Hydrologic alterations
G4 Apparently secure though frequently quite rare in parts of its range, especially at the periphery		
<i>Carex parryana</i> ssp <i>idaho</i>		Hydrologic interruptions
	Mesophyte	Apparently secure
<i>Epipactus gigantea</i>	Mesophyte	Noxious weeds
<i>Erigeron asperugenius</i>	Mesophyte	“
<i>Gentianopsis simplex</i>	Mesophyte	“
<i>Happlopappus macronema</i> var <i>macronema</i>	Mesophyte	“
<i>Mimulus primuloides</i>	Mesophyte	“
<i>Orogenia fusiformis</i>	Mesophyte	“
<i>Ranunculus jovis</i>		“
G5 Demonstrably secure though frequently quite rare in parts of its range		
<i>Adoxa moschatellina</i>	Mesophyte	Interruption of cold air drainage from rock slide areas.
<i>Allium acuminatum</i>	Mesophyte	Noxious weeds
<i>Eleocharis rostellata</i>	Hydrophyte	“
<i>Juncus halli</i>	Hydrophyte	“
<i>Polygonum douglasii</i> <i>austina</i>	Mesophyte	“
<i>Potentilla quinquefolia</i>	Mesophyte	“
<i>Primula incana</i>	Hydrophyte	Hydrologic degradation Noxious weeds
<i>Scirpus cespitosus</i>	Hydrophyte	Hydrologic degradation
<i>Scheuchzeria palustris</i>	Hydrophyte	Hydrologic degradation
<i>Veratrum californicum</i>	Hydrophyte	“

Effects of Alternatives

It is Forest Service Policy to avoid or minimize adverse impacts to species whose viability has been identified as a concern. If impacts cannot be avoided the potential adverse impacts are analyzed and the line officer with project approval authority makes a decision as to whether to allow impact, but the decision must not result in a loss of species viability or a trend to federal listing. Impacts to sensitive vascular plant species are analyzed with a biological evaluation as part of the National Environmental Policy Act process for each site specific project in all alternatives. It is also Forest Service policy to assist the state in achieving conservation goals of endemic species. Under alternative 1, Forest Service Policy would be relied upon to protect sensitive plants. Under Alternatives 3, 4, 5, and 6 the forest plan will include language to continue monitoring and evaluation of sensitive species populations. Conservation assessments

and conservation strategy development for those species with identified threats not being addressed by other means will be authorized. The most prominent threat identified to sensitive species, especially the mesophytes and xerophytes, at the present time is displacement and habitat degradation by invasive species. In all alternatives the Beaverhead-Deerlodge National Forest Noxious Weed EIS decision of 2002 will be implemented to mitigate this threat.

Alternative 3 minimizes ground disturbance, retains the maximum of roadless areas including those in designated wilderness, and maximizes niche occupancy by existing native vegetation which reduces the risk of invasive weed species invading new sites. Alternative 4 provides for more road construction, timber harvest, and ground disturbance which increase the risk of invasion by noxious weeds on disturbed sites and thus the risk to sensitive plants.

The objective of maintaining sensitive plant populations well distributed over their range is common to all alternatives. From a genetic point of view Neel and Cummings (2003) indicate that “it is necessary to conserve 20-64% of populations to reliably represent heterozygosity.” They also recommend “conserving larger number of populations to increase the probability of long term species persistence by reducing stochastic extinction threats and maintaining ecological processes.” All alternatives will attempt to ensure this level of population occurrence as a minimum range with conservation of all populations as a desired goal.

The exact size of the habitat occupied by sensitive plants on the BDNF is not well inventoried but preliminary estimates indicate that less than 1% is occupied by these species. Because of the small acreages involved it is unlikely that conservation of sensitive plants will adversely impact other resources on the forest. For some species, maintenance of the disturbance regime required by the sensitive plants may be accomplished using grazing strategies, fire, or harvest techniques that meet the requirements for the plants while accomplishing other societal needs for products or services concurrently.

Sensitive Plants in Protected Areas

All alternatives retain the West Fork Buttes Botanical Special Interest Area where one of two known populations of Payson’s bladderpod *Lesquerella paysonii* in Montana occurs along with a population of Missoula phlox *Phlox kelseyi* var *missoulensis*. The main population concentration for Payson’s bladderpod is located in Northwestern Wyoming (Wyoming Rare Plant Field guide 2004) where 20 populations are known. This plant occurs on sparsely vegetated rocky slopes often on calcareous substrate (MNHP 2004). Grazing does not appear to be adverse to the species and may be beneficial in removing competing grasses. There are 16 occurrences of *Phlox kelsyi* var *missoulensis* in Montana. Two of these populations occur on the BDNF. This dry site Phlox is primarily threatened by noxious weeds particularly spotted knapweed. A focused weed control effort is underway in the West Fork Buttes SIA to attempt to alleviate this threat.

Fourteen Research Natural Areas are established and retained under all alternatives. The population of *Mimulus primuloides* thought to be the largest in Montana occur in one of these (Pierce 1993). In addition populations of *Botrychium paradoxum*, *B. crenulatum*, *Thalictrum alpinum*, *Saussurea weberii*, *Saxifraga tempestiva*, and *Antennaria densifolia* are protected in some of these 14 RNA’s. Dense-leaved *Antennaria densifolia* is known from only one population in Montana (and the only population confirmed in the lower 48 states) where it is disjunct from the main population found in the Northwest Territories of Canada. This alpine plant is protected in an RNA that is also in a designated Wilderness. It is unlikely that threats

under Forest Service control will adversely impact this plant. Weber's sawwort *Saussurea weberi* is an alpine talus species endemic to SW Montana and the Wind River Range in Wyoming. Six populations are recorded from Wyoming (WNHP 2004) and one from Montana. (MNHP 2004). The Montana population is located away from trails and it is unlikely that adverse impacts will occur to this population from actions under Forest Service control. Storm saxifrage *Saxifraga tempestiva* is a small perennial found in meadows and rock ledges in the subalpine and alpine zones. There are 14 known occurrences in Montana with 8 found on the BDNF, 7 of these populations occur in designated wilderness. It is unlikely adverse impacts under Forest Service control will occur to this plant under all alternatives. The best known *Festuca scabrella*/*F.idahoensis* habitat where *Botrychium paradoxum* and *Botrychium crenulatum* are found are protected in an RNA (USDA 1996). This habitat reported in near pristine condition has been largely undisturbed, a feature Vanderhorst (1993) found ideal for these Botrychiums. The RNA will remain in RNA status in all alternatives. Therefore it is unlikely adverse impacts will occur to these populations from any alternative. A population of Missoula Phlox *Phlox kelseyi* var *missoulensis* is also found in the Windy Ridge RNA (USDA 1996) that will be retained in all alternatives. No impact will occur to this population under any alternative.

All alternatives have two proposed RNAs. Cattle Gulch proposed RNA contains a population of Sapphire Rockcress *Arabis fecunda* that would be protected under all alternatives. Preserving the very limited metamorphosed calcium silicate limestone habitat and prevention of noxious weed incursion is the most needed conservation measure for this local endemic species. Sapphire Rockcress is known only from Montana with 21 occurrences in three mountain ranges, 10 of which occur on the BDNF. It is not certain if grazing impacts this species but a number of populations are located on fairly steep slopes unlikely to be grazed by cattle. No adverse impacts, but likely beneficial impacts are expected if Cattle Gulch is designated as a Research Natural Area for Sapphire Rockcress under all alternatives

Sensitive Plants outside of Special Areas

Some sensitive plant species are fire adapted as in the case of Lemhi penstemon *Penstemon lemhiensis*. Heidel and Shelly (1997) report this species is negatively associated with high vegetation cover, and that seedling establishment is lowest at the site having highest cover of sagebrush. They also consider the species to likely be an increaser under at least some fire conditions. For example at Big Hole Battlefield National Monument there were more *Penstemon lemhiensis* a decade after a burn than before treatment while the species disappeared from an adjoining untreated site.

Seeds of this iteroparous (short lived perennial) species germinate following heat treatment from fire. Fire use in all alternatives is expected to likely increase germination of soil seed banks of *Penstemon lemhiensis*. Survival of the seedlings is however dependent upon the level of browsing by native and domestic ungulates. Where large acreages are burned there will likely be a dilution effect from browsing but where only small areas are burned this could attract browsers that could rapidly destroy new *Penstemon lemhiensis* sprouts.

A conservation strategy was in effect for this species from 1997 through 2002. A re-inventory was conducted for the Montana populations in 2005.

The population estimate for Montana is 7,787 individuals of which 2750 occur on the B-DNF. The BDNF will participate in developing and implementing a revised conservation strategy for this plant. With continued fire suppression, small burns may germinate seeds and attract browsing by high populations of wild and domestic animals.

It is likely that adverse impacts will continue to occur under Alternative 1. Alternatives 2, 3, 4, 5 and 6 use fire on a larger landscape scale and are more likely to provide the heat treatment for seed germination and dilution of ungulate browsing that is thought to be necessary for this species. These alternatives may impact individuals but will not likely cause a loss of viability or trend to federal listing for Lemhi penstemon.

One of the rarest sensitive plants on the BDNF is Alkali primrose *Primula alcalina*. A single population with at least six subpopulations occurs in Beaverhead County, the only known population in Montana. Four populations are known from Idaho. It is found in wet alkaline meadows on soils derived from carbonate rocks of the Beaverhead, Lemhi, and Lost River Ranges. The plant grows on low level benches adjacent to creeks often in hummock topography. Grazing is reported to benefit the species by reducing competition as long as it does not lead to stream erosion or loss of wetlands (MNHP 2004). Muir and Mosely (1994) found no significant association between grazing pressure and the abundance of *P. alcalina*. Changes that adversely impact the hydrologic function of occupied habitat or incursion of the riparian zones by noxious weeds such as Canada thistle are the known threats, along with the extreme rarity of this species. No adverse impacts are likely under any alternative.

Mealy Primrose *Primula incana* is a second species of primrose found on saturated often calcareous wetlands. 22 occurrences in nine counties are known in Montana but the species range is from Southern Colorado and Utah north to the Yukon and Alaska where it is reported to be more common. There are two occurrences on the BDNF. Livestock grazing is reported to most likely benefit this species by producing hummocky habitat and reducing competing vegetation. Changes that adversely impact the hydrologic regime are the most likely adverse threats to this species. No adverse impacts are likely under any alternative.

Beautiful bladderpod *Lesquerella pulchella* occurs only in the state of Montana, where it is found on gravelly calcareous and quartzite soils and poorly developed stony soils of subalpine slopes usually occupied by sparse grasses and cushion plant types in the Pioneer and Centennial Ranges. There are 14 known occurrences in Montana with 7 on the BDNF. It tolerates, and may benefit from, disturbance that reduces competition such as grazing. The plant is small and flowers early in the spring usually before grazing occurs (Montana Natural History Program or MNHP 2004). It is unlikely that conserving the habitat of this plant will impact management of other resources or that an adverse impact to Beautiful bladderpod will occur under any alternative.

Cusick's Horsemint *Agastache cusikii* is found on talus derived primarily from calcareous rocks. Other vegetation is often very sparse on these debris fields. It is unlikely that grazing by wild or domestic ungulates occurs on these debris fields. Only activities such as construction or mining that destroys the talus field are likely to adversely impact this plant. No such activities are likely in occupied habitat under any alternative so no adverse impacts are likely under any alternative. It is unlikely that conservation of occupied talus slopes would impact management of other resources.

There is one known occurrence of Bitterroot Milkvetch *Astragalus scaphoides* on the BDNF in the Tendoy Range prior to 2004. A second population of approximately 70 plants occupying one acre of land was found in June 2004. A larger population, (estimated at about 700 plants) occurs on BLM lands at lower elevations in the same general vicinity. This species occurs in sagebrush/grassland on silty soils with soils derived from limestone, basalt, and diabase. This species may be sensitive to high levels of grazing and to seed predation by insects. Rest/rotation Grazing may allow for adequate regeneration and recruitment for this species. Road construction and mining are also listed as potential threats (MNHP 2004 and Lesica 1984, 1995). Grazing by domestic livestock and wild ungulates in the two known BDNF populations may impact individuals but will not cause a loss of viability or trend to federal listing under any alternative.

Large-leafed Balsamroot, *Balsamorhiza macrophylla* is known from 6 populations in Montana. Three of these populations are on the BDNF. It is a fringe of range species here but more common in the Great Basin. Large leafed Balsamroot is a large taprooted perennial with large pinnately dissected basal leaves that grows mainly in sagebrush and grasslands. It occasionally grows in Douglas-fir or lodgepole pine forests on steep dry, slopes of 45%. Primary identified threats are from off trail horseback or bike riding (MNHP 2004). Populations of this species also occur in areas of oil and gas potential but stipulations in the Beaverhead Oil and Gas FEIS/ROD (1995) require any proposed operations “will have to be located or conducted in such manner as to maintain viability of these (sensitive plant) species.” No adverse impacts are likely to large-leaf balsamroot from any alternative

Musk-root *Adoxa moschatellina* is known from about 13 populations in Montana. Four occurrences are on the BDNF. This species is found at the bottom of undisturbed rock slides that promote cold air drainage. According to MNHP data, disruption of the rock areas by roads or trails that interrupt this cold air flow may threaten the existence of this species. No road or trail construction is currently proposed in the vicinity of the BDNF populations so no adverse impacts are likely from any alternative.

California False-hellebore *Veratrum californicum* is a wide ranging species in wet meadows and riparian zones of the west. It is most likely at the fringe of its range in Montana where 6 occurrences are known. Three occurrences are known on this Forest. The populations were surveyed in 2003 and found to be healthy, occupying 12 acres of habitat in stringer meadows at 7300-7400 feet in elevation, with no identified threats. No adverse impacts are likely from any alternative for this species.

Jove’s Buttercup *Ranunculus jovis* is known from 9 occurrences in Montana. On this Forest all six occurrences are found on the Madison Ranger District. Recent surveys by Kevin Suzuki have indicated this species may be more widespread than just those six. The habitat of sagebrush grasslands to open forest slopes in the montane and subalpine is widespread on the BDNF and should not be a limiting factor. Information on threats is lacking for this species. No adverse impact to this species is likely under any alternative.

Austin’s Knotweed *Polygonum douglasii* ssp *austinae* is known from 16 occurrences in Montana. Two populations are known from the BDNF. Information on specific threats to this species is lacking. No impact is likely to this species from any alternative.

Botrychiums outside protected areas

Western moonwort *Botrychium hesperium* is known from 13 occurrences in Montana. It is a widely distributed species of the Rocky Mountains and in the East. There is insufficient information on the biology and conservation needs of this species. Population trends are not known on the BDNF. Adverse impacts to this species are unlikely under all alternatives.

Peculiar moonwort *Botrychium paradoxum* is known from 36 populations in Montana. Three populations are known to occur in the Anaconda Range and one from the Jefferson Ranger District in addition to the protected population in Windy Ridge RNA on the BDNF. An additional small population of this moonwort was discovered on the Pintler Ranger District in 2003. Intensive surveys for this species were last conducted in 1993 by Vanderhorst. This moonwort prefers undisturbed sites primarily in the *Festuca scabrella*/*F. idahoensis* grassland habitat type. Vanderhorst (1996) reported the Storm Lake population to be threatened by recreational use, road construction, off road vehicles, water impoundments, and trampling. Population trends on the BDNF are not known at this time. Adverse impacts from any alternative are unlikely to occur.

Wavy moonwort *Botrychium crenulatum* is known from three populations on the BDNF. This fern develops when spores germinate underground that develop into non-photosynthetic gametophytes with a dependence on endo mycorrhizae for nutrition. It is found around seeps, the edges of marshes and in wet swales. Total population and trends for the BDNF are presently unknown for this moonwort. Adverse impacts to this species are unlikely under any alternative.

Idaho fleabane *Erigeron asperugineus* is known from 7 populations in Montana. Three populations are known from the BDNF. It occurs in alpine habitats on rocky slopes and ridges often on limestone derived soils and relatively isolated from human disturbance. Trends are not well known. It is unlikely that adverse impacts will occur to this species from actions in any of the alternatives.

Discoid goldenweed *Haplopappus macronema* var *macronema* is known from three occurrences in Montana. Two of these are known from the BDNF. The habitat is in steep rocky open slopes on talus at or above tree line. MNHP (2004) identified no known threats other than extreme rarity in Montana. It is unlikely that any adverse impact will occur to this species from any alternative.

Hiker's Gentian *Gentianopsis simplex* is known from 5 occurrences in Montana. Two occurrences are known from the BDNF (MNHP 2004). This plant is found in seeps, fens, and wet meadows in the montane and alpine zones. Adverse impacts to this species are unlikely under any alternative.

Giant helleborine *Epipactis gigantea* is known from 23 occurrences in Montana. One population is known from the BDNF. This perennial orchid is found on stream banks, fens, seeps and lake margins. It is a wide ranging species over most of the western United States. Threats would include invasion of the wetlands habitat by noxious weeds such as Canada thistle, Leafy spurge, or Purple Loosestrife. Adverse impacts to this species are unlikely from any alternative.

Idaho Sedge *Carex idahoensis* is known from 40 populations in Montana. Ten of these are on the BDNF. This species is associated with seeps, springs and low gradient streams. The principal problem for this species is the relatively small size of occupied habitat.

Dredge mining and road construction are identified as threats if they were to occur on the limited acreage of occupied habitat estimated in Montana at about 200 acres, but these are unlikely to occur on the BDNF under any alternative. Displacement by noxious weeds such as Canada thistle in wetland habitat may pose a threat. No adverse impact is likely to this species from any alternative.

Pod Grass *Scheuchzeria palustris* is known from 25 occurrences in Montana. One on the BDNF is known near Trail Pass. The plant occurs in wet organic soil of fens where it forms creeping rhizomes. Adverse impacts to this species are unlikely from any alternative.

Tufted Club-Rush *Scirpis cespitosus* is known from 14 occurrences in Montana, one of which is on the BDNF. Its habitat is wet meadows and bogs in the alpine to montane zone. Adverse impacts to Tufted Club-Moss are unlikely under all alternatives.

Tapertip onion *Allium acuminatum* is known from 5 occurrences in Montana. Two of these occur on the BDNF. One is in designated wilderness and thus protected from ground disturbing impacts. Adverse impacts are unlikely under all alternatives.

Five-leaf Cinquefoil *Potentilla quinquefolia* is known from 13 occurrences in Montana. Two populations occur on the BDNF. It is found on dry gravelly soils of exposed ridges and slopes from the montane to the alpine. No known threats are reported for this species and it is unlikely that adverse impacts will occur from any alternative.

Tapered-root Orogenia *Orogenia fusiformis* is known from 16 occurrences in Montana. Six populations are known on the BDNF. Found on open slopes, ridges and meadows this diminutive plant blooms very early usually just after snowmelt. There are no known threats to this plant on the BDNF. It is not likely that any adverse impacts will result from any alternative.

Hall's rush *Juncus hallii* is known from 12 occurrences in Montana. Six of these are on the BDNF. Noxious weed infestation in its wet meadow habitat is the most likely threat to this rush. It is unlikely that this plant will be adversely impacted from any alternative.

Beaked spikerush *Eleocharis rostellata* is known from 23 occurrences in Montana. One of these occurrences is on the BDNF. Beaked spikerush is found on wet often alkaline soils associated with warm springs in valley and foothills zones. These environments are proposed to be managed as unique habitats and are protected thus it is unlikely that any adverse impacts will occur to Beaked spikerush under any alternative.

Alpine meadowrue *Thalictrum alpinum* is known from 11 occurrences in Montana where it is a fringe of range species. There are 5 occurrences known on the BDNF. Two of these are located in protected RNAs. Grazing is reported to be beneficial to this species by creating the hummocky habitats preferred by this species. It also reduces competition from taller graminoids so long as excessive trampling does not occur especially where it may lead to bank instability or alteration of the hydrologic function in wetland habitats. Adverse impacts to *Thalictrum alpina* are unlikely as a result of any alternative.

Recommended Objectives for Mitigation of adverse impacts to sensitive plants for alternatives 3, 4, 5 and 6.

1. Prefield reviews and if needed surveys will be conducted in accordance with FSM 2670 prior to completion of project level NEPA analysis and decision. Biological evaluations

disclosing impacts to sensitive plant species will be prepared as part of the NEPA analysis.

2. Reference populations of G-1-G3 sensitive plants will be monitored and conservation assessments and strategies prepared for species showing downward trends resulting from factors under managerial control.

Literature cited is incorporated in Chapter 4 list.

APPENDIX B

REVISED BIOLOGICAL EVALUATION SENSITIVE WILDLIFE SPECIES

AN INTERDISCIPLINARY ASSESSMENT

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INTRODUCTION

Forest Service policy (2670.32(2)) directs that as part of the NEPA process a biological evaluation be prepared to determine the potential effects on sensitive species. Sensitive species are those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by:

- a. Significant current or predicted downward trends in population numbers or density.
- b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

This Biological Evaluation replaces the evaluation in the FEIS Appendix B. The Biological Evaluation was revised to address public comments that were concerned that the potential insect and disease outbreaks were not considered in the analysis. The Biological Evaluation analyzes the potential effects of Alternative 6 modified. In addition, to aid in the presentation, the format of the Biological Evaluation was changed to identify the potential threats to a species and how the plan components address those threats.

This biological evaluation addresses bird and mammal species on the 2004 Northern Region Sensitive Species List (2004) as revised through 2007.

In addition, species identified by the public as having viability concerns, either through public comment on the Forest plan or through recent appeals and litigation were also included in this analysis. These include the northern goshawk, great gray owl and spotted bat.

The following sensitive and public interest avian and terrestrial species are found on the BDNF. There are no sensitive insects or reptiles found on the BDNF. The two amphibian species in Table 1 are discussed in detail in the aquatic species biological evaluation.

Table 1. R1 Sensitive and Public Interest Wildlife Species on the BDNF

Birds	Mammals	Amphibians
American Peregrine Falcon (<i>Falco peregrinus anatum</i>)	Fisher (<i>Martes pennanti</i>)	Northern Leopard Frog (<i>Rana pipiens</i>)
Black-backed woodpecker (<i>Picoides arcticus</i>)	Great Basin Pocket Mouse (<i>Perognathus parvus</i>)	Western Toad (<i>Bufo boreas</i>)
Flammulated Owl (<i>Otus flammeolus</i>)	North American Wolverine (<i>Gulo gulo luscus</i>)	
Greater Sage-Grouse (<i>Centrocercus urophasianus</i>)	Northern Bog Lemming (<i>Synaptomys borealis</i>)	
Harlequin Duck (<i>Histrionicus histrionicus</i>)	Pygmy Rabbit (<i>Brachylagus idahoensis</i>)	
Trumpeter Swan (<i>Cygnus buccinator</i>)	Townsend's Big-Eared Bat (<i>Corynorhinus townsendii</i>)	
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Grizzly Bear (<i>Ursus arctos horribilis</i>)	
Northern goshawk (<i>Accipiter striatus</i>)	Spotted bat (<i>Euderma maculatum</i>)	
Great grey owl (<i>Strix nebulosa</i>)		

AMERICAN PEREGRINE FALCON

HABITAT

The peregrine is a summer resident in SW Montana that nests high on cliff ledges. Nests are usually below 9500 ft, within 1 mile of water, and within 10 miles of hunting habitat which includes wetland and riparian areas, meadows and parklands, croplands, gorges, mountain valleys, and lakes.

In the Greater Yellowstone Ecosystem, river gorges and mountain cliffs are typically used by the species (summarized in Hart et al. 1998).

Peregrines prey almost entirely on small bird species to medium-sized bird species, often taken on the wing. They have occasionally been reported to prey on small mammals (e.g., bats, lemmings), lizards, fishes, or insects (by young birds). Prey is pursued from a perch or while soaring (Montana Natural Heritage Peregrine Account).

Suitable nesting cliffs and foraging habitat are found across the entire forest at the landscape scale. Breeding and wintering habitat is scattered widely throughout western Montana and in a few locations in north and south central Montana (Hart et al. 1998). The Hidden Lake Eyrie, however, is the only known active peregrine site on the entire BDNF (Sumner & Rogers 2003).

Peregrine falcons are among the most strident of nest defenders. Tolerance of disturbance varies among individuals, and with seasonality and timing of the breeding cycle, but peregrines will actively defend an area around the nest and that ranges outward from approximately .2 - 1.0 mile (US Fish & Wildlife Service-Peregrine Habitat Model).

As displayed in Figure 1 (Sumner & Rogers 2003) extensive State-wide survey efforts have included portions of the seven county area encompassing the Forest without documenting peregrine falcon activity on the forest beyond the Hidden Lake site.

POPULATION STATUS AND DISTRIBUTION

The peregrine falcon is considered globally secure, but locally rare in portions of its range. The Montana heritage program ranks its breeding habitat as imperiled (MNHP 2004). Populations declined dramatically in the United States due to the use of chlorinated hydrocarbons; and in the northwest, breeding falcons were nearly eliminated by 1970. The species was delisted range wide by the US Fish and Wildlife Service (FWS) in August 1999, with a requirement to monitor the species for not less than five years after delisting (*Federal Register* / Vol. 64, No. 164 / Wednesday, August 25, 1999). Calendar year 2003 marks the initial year for the FWS monitoring program scheduled to survey selected regional Peregrine Falcon eyries every third year through the year 2015 (Sumner & Rogers 2003). Presently, there are 40 active eyries in Montana, twice the recovery goal of 20 nesting pairs (Sumner & Rogers 2003).

Peregrine falcons are known to nest on the south half of the BDNF near Hidden Lake in the Gravelly Range and in the nearby Centennial Valley. The seven county cumulative effects area for the plan encompasses 5 active eyries. The Hidden Lakes eyrie is the only

known active site on the Forest. A sixth active eyrie is located approximately 18 miles northeast of Hidden Lakes at Coal Canyon on the Gallatin National Forest and a seventh active eyrie located at Hebgen Dam approximately 15 miles northeast of Hidden Lakes (Table 2).

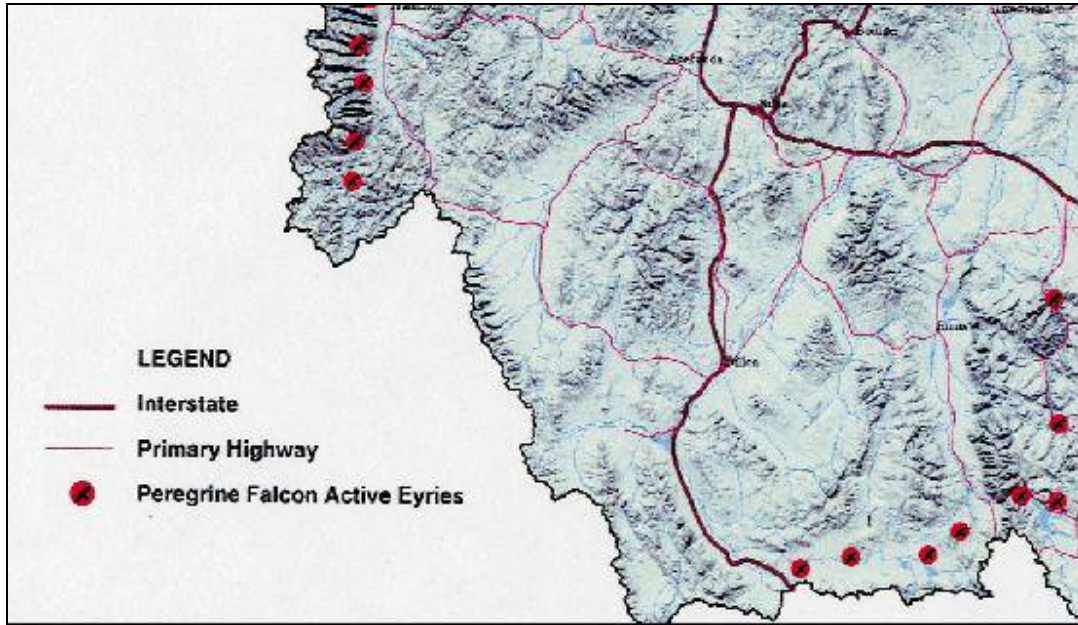


Figure 1. Active Peregrine Eyries in SW Montana (Sumner & Rogers 2003)

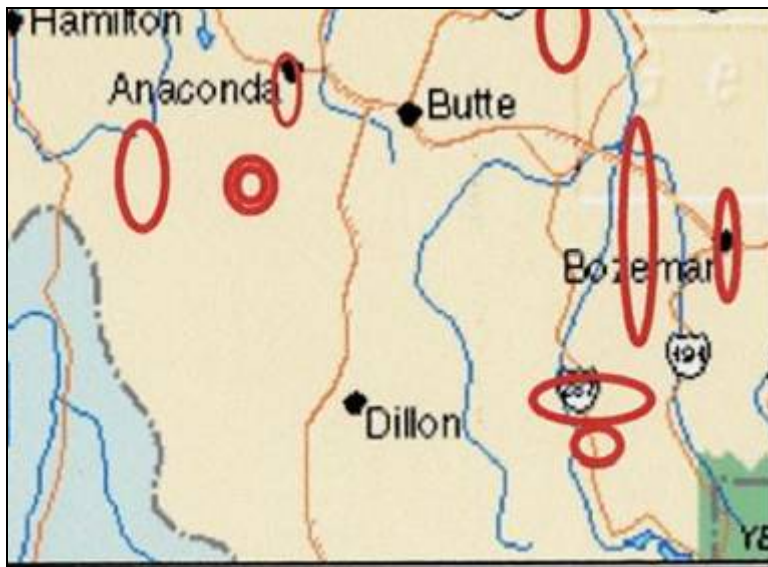


Figure 2. Survey Areas in SW Montana (Sumner & Rogers 2003)

Table 2. SW Montana Eyrie Production (Sumner and Rogers 2003)

Eyrie	1994-1998 Fledglings	1999 Fledglings	2000 Fledglings	2001 Fledglings	2002 Fledglings	2003 Fledglings
Baldy Mountain Centennial Valley	1	2	unknown	failed	unknown	unknown
Coal Canyon Gallatin NF	unknown	unknown	unknown	unknown	2	1
Hidden Lake BDNF	3	1	1	failed	1	4
Lake View Centennial Valley	2	unknown	unknown	unknown	unknown	unknown
Lima Tower Centennial Valley	14	0	2	1	3	1
Prentice Gallatin NF	unknown	3	1	2	3	failed
Red Rock Tower Centennial Valley	11	4	3	1	1	failed
Refuge Tower Centennial Valley	2	1	2	1	2	1

THREATS

Human disturbance of nesting areas is the greatest threat to peregrine falcons. While less of a factor, disturbance in foraging areas may also be a threat. The foraging base is extensive therefore the disturbance to any one particular area is of little consequence.

EFFECTS

The Hidden Lake eyrie is the only known active peregrine site on the entire BDNF (Sumner & Rogers 2003). The Chain of Lakes Management Area traverses part of the territory east of the nest site and is proposed for non-motorized summer and winter use under the preferred alternative. The West Fork Madison Management Area which encompasses the western portion of the nest territory is also proposed for non-motorized summer and winter use for quiet recreation and wildlife habitat under the preferred alternative. Therefore, suitable nesting habitat for the one known active eyrie on the forest would not be affected under the preferred alternative.

While foraging birds at the Hidden Lakes eyrie could be disturbed occasionally by recreational hiking and fishing in the area, monitoring has not shown this to be an issue (Sumner & Rogers 2003). The eyrie has been continuously active from 1994 – 2003 with 6 young being fledged from 1994 – 2002. Productivity was outstanding in 2003 with four young being fledged (Sumner & Rogers 2003). The forest plan management direction for this area would not change; therefore we would anticipate continued nest success for the Hidden Lakes eyrie.

The plan contains provisions that reduce the likelihood of disturbance to nesting and foraging peregrines forest-wide. There is no motorized, wheeled cross country travel permitted anywhere on the forest during the summer, which encompasses peregrine

nesting season. Consequently, indirect effects from vehicular disturbance are virtually non-existent. Furthermore, the plan would close approximately 304 miles of existing motorized roads and trails which will provide for increased quiet recreation and secure areas for wildlife. Coupled with the naturally forbidding terrain on which peregrines establish nests, this should provide well dispersed nesting habitat available for peregrine population expansion.

Finally, because preventing disturbance of nest sites during incubation and through the fledging period is particularly important, the plan contains direction to avoid disturbance at nest sites.

CONCLUSION OF EFFECTS

The species has recovered and been de-listed from its Federal threatened status. The plan direction would result in the continued success of the Hidden Lake eyrie and provides for widespread habitat that would be available for additional nesting and foraging. The plan also provides direction to avoid disturbance at nest sites. The plan maintains conditions to support the viability of this species and would not create a trend toward re-listing.

BALD EAGLE

HABITAT

The bald eagle is associated with aquatic environments, occupying riparian or lakeside habitats almost exclusively during the breeding season (USDI 1994 - Montana Bald Eagle Management Plan). Food habits are wide-ranging including fish, waterfowl, and carrion, both wild ungulates and livestock.

Montana nest sites are usually found within one mile of water and located in larger, dominant trees, most often the tallest trees in the nest stand. Nest locations are most commonly located along the periphery of lakes greater than 80 acres in size and along forested corridors of major rivers, (USDI 1994 - Montana Bald Eagle Management Plan).

Known nest sites in the analysis area are located along the Madison River on mixed ownerships. Wintering use is known from private land along Blacktail Deer Creek in Beaverhead County, southeast of Dillon.

POPULATION STATUS AND DISTRIBUTION

The FWS announced the ESA de-listing of the species on June 28, 2007. The final rule was published in the *Federal Register* on July 9, 2007. The eagle is now added to the Northern Region sensitive species list. Montana has the third highest population in the lower 48 States west of the 100th meridian.

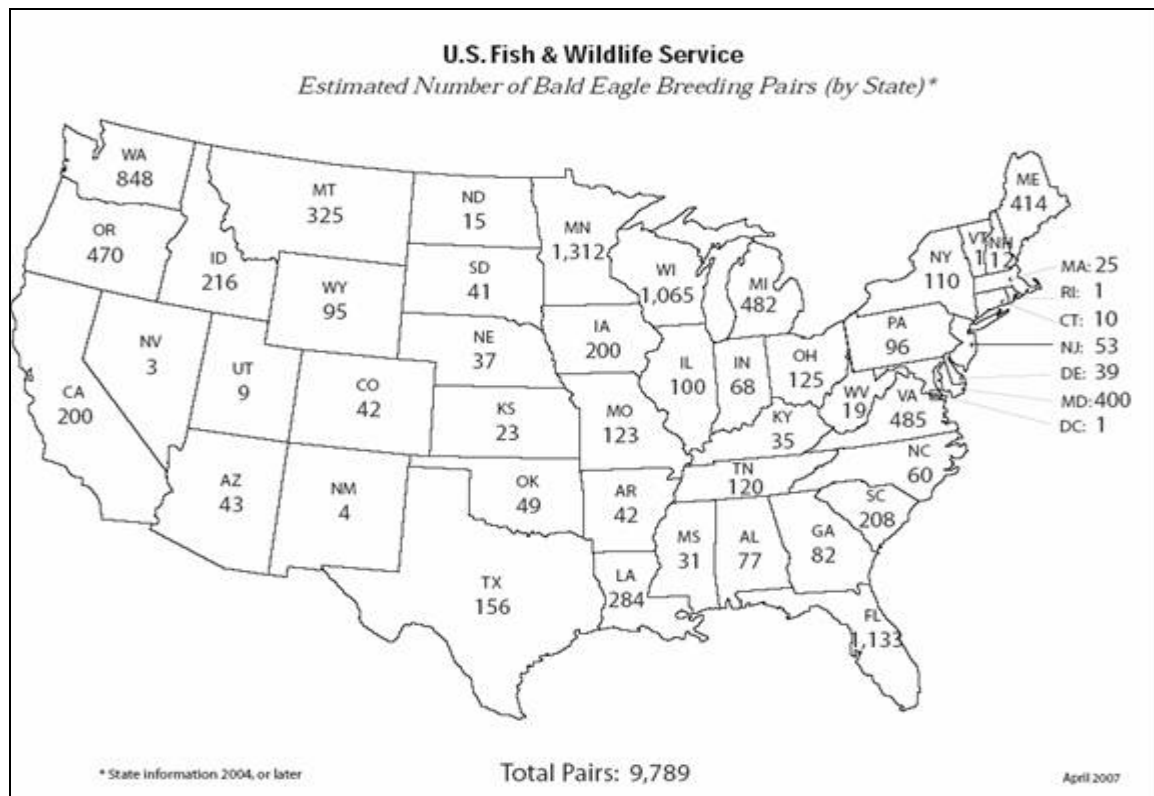


Figure 3. "Lower 48" bald eagle pair distribution

Approximately 87 detections have been documented in the analysis area from 1991 – 2006 (Montana Natural Heritage database).

THREATS

The greatest threat to eagles was the use of DDT.

Currently, eagles are directly or indirectly affected by disturbance and displacement at nest locations. Other threats include decreases in food supply (such as the decrease in salmon runs in western Washington) and illegal shooting.

Indirect effects also include potential loss of habitat along major rivers through subdivision development.

EFFECTS

The eagle is still protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. As a Northern region sensitive species, the Act will be followed under all alternatives (Forest Plan Wildlife Habitat Goals).

Preventing disturbance of nest sites during incubation and through the fledging period is particularly important. The plan includes direction to avoid disturbance at nest sites. The plan also references the Montana Bald Eagle Management Plan as a source of additional information that can be used to conserve eagles.

The plan would not result in a decrease in food supply or illegal shooting. While the plan itself does not and cannot eliminate illegal activities, prohibiting motorized cross-country travel as directed in the plan may reduce the risk of illegal shooting.

The majority of eagle habitat exists along major river corridors outside of National Forest boundaries. Where eagle habitat does exist on National Forest System (NFS) lands, the plan includes management direction that maintains and enhances aquatic and riparian integrity and function. Such provisions provide for good eagle habitat.

Cumulative effects on eagle populations have been conclusively linked to the pesticide DDT in the environment. The US ban on the use of DDT in 1972 has been the single most important factor in the recovery of the species. The ban will not be altered by the preferred alternative.

CONCLUSION OF EFFECTS

The plan provides riparian management direction that would retain bald eagle habitat. The plan also contains direction to avoid disturbance at nest sites. The plan will maintain conditions to support the viability of the bald eagle and will not create a trend toward re-listing the bird.

BLACK-BACKED WOODPECKER

HABITAT

The black-backed woodpecker is a primary cavity nester that excavates its own cavities in April and May and most often in dead or dying conifer trees (Short 1974, Raphael and White 1984, Weinhausen 1998, Martin and Eddie 1999). Territory size around a nest cavity varies in size; 61 ha in Vermont, 72 ha in southwest Idaho, and 124 ha in Oregon (Dixon and Saab 2000). Young depart from the nest from early June through early July.” (Samson 2005, amended March 6, 2006).

Like most woodpeckers, they feed on insects living in dead or diseased trees, and hunt for wood boring insects by peeling patches of dead bark.

In Montana, preferred habitat consists of coniferous forests (fir, spruce), especially sites that previously burned or experienced windfall. The species nests and forages in sites that were recently disturbed (i.e., typically in previous five years) and also nests in dense forest stands (MT NHP-VCA 1996). They appear to be more numerous in lower elevation Douglas-fir and pine forest habitats than in higher elevation subalpine spruce forest habitats.

Black-backed woodpeckers are highly responsive to forest fire and other processes, such as spruce budworm outbreaks, resulting in high concentrations of wood-boring insects invading dead trees. Local and regional irruptions and range extensions have been observed in response to burns and wood-borer outbreaks (summarized at Montana Natural Heritage site species account).

While Hutto (1995) describes post-fire habitat as definitely preferred, he also noted the value of having large diameter (>5” dbh) green trees available as foraging substrate after fire. Mature and old-growth coniferous forests with decadent trees, snags, and fallen logs are important to provide heart-rot in trees and snags for nests, diseased trees for roosts, and beetle-infested trees for foraging (NatureServe Explorer). Dead trees in the 8-12” dbh range were preferred. Winter habitat requirements and use by the black-backed woodpecker are virtually unknown.

Woodpecker habitat is steadily increasing as insect epidemics expand across the forest. Continuing wildfires such as the 2007 Pattengail fire in the Pioneer Mountains have also increased the amount of habitat. Potential black-backed woodpecker habitat from the Northern Region viability model is estimated as 395,316 acres on the BDNF (Samson 2006; USFS 2008). Model output suggests that the critical habitat threshold for black-backed woodpecker viability in the Northern Region is 29,406 acres (Samson 2006). Samson’s evaluation (2006) indicates that existing black-backed woodpecker habitat is not limiting viability at the scale of the Forest or the Region.

Using a habitat requirement of approximately 77 – 126 hectares (190 – 311 acres) of insect habitat per woodpecker pair, Samson (2006) estimates the Northern Region habitat threshold to maintain species viability at 119 km² (29,406 acres). Habitat on the BDNF is approximately 13.4 times the amount of the habitat needed to meet the threshold for viability across the entire Northern Region. The updated potential habitat estimates (Bush & Lundberg 2008) also show that neighboring forests also have sufficient habitat above Samson's (2006) habitat threshold.

Post-fire or insect infested areas for black-backed woodpeckers are currently well distributed across the Region and by Forest (Figures 4 and 5). Distances between neighboring post-fire or insect infested areas are all within 102 km (63 miles), well within the known dispersal distance of the species.

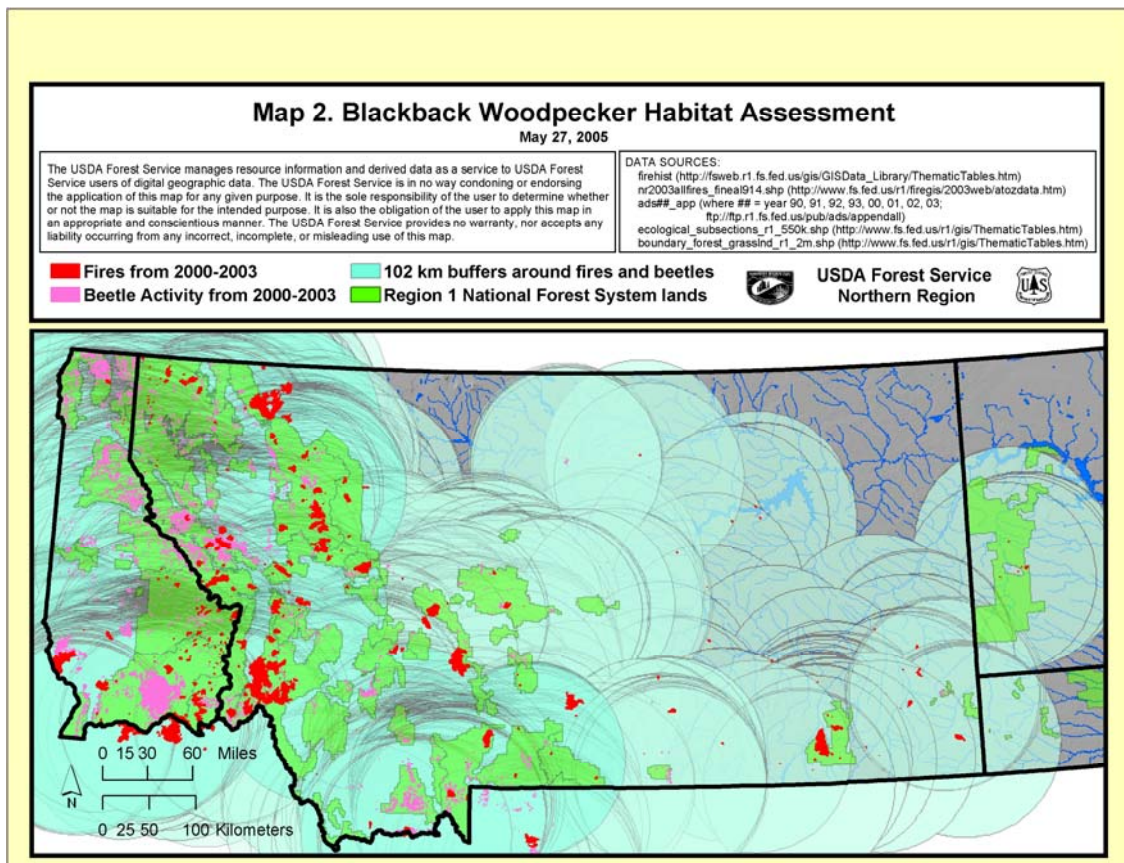


Figure 4. Northern Region Black-backed Woodpecker Habitat Assessment (Samson 2006)

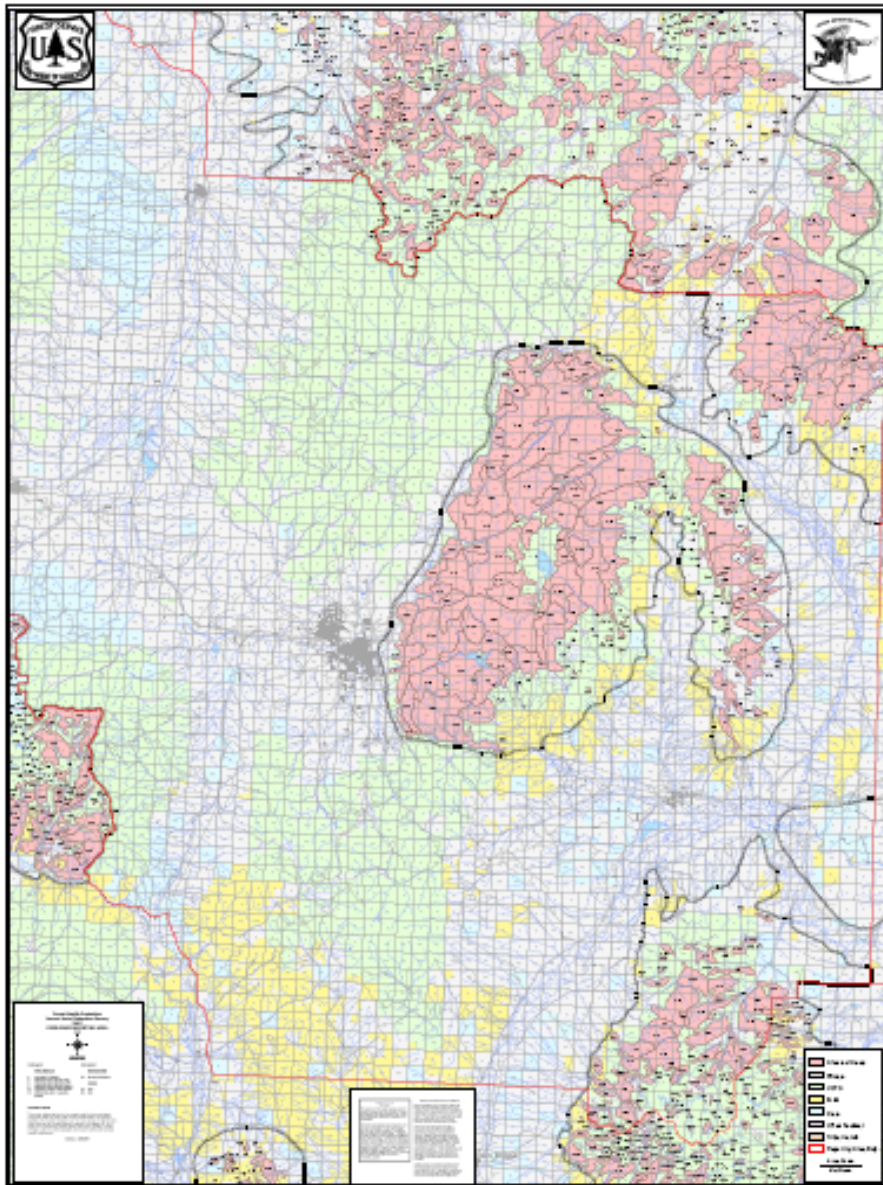


Figure 5. 2007 Deerlodge Insect Map (Gibson 2008)

POPULATION STATUS AND DISTRIBUTION

The black-backed woodpecker breeds from central Alaska and northern Canada south to the mountainous regions of California, Wyoming, Black Hills, upper Great Lakes and New England states, and into Newfoundland. In the Northern Region the species is classified as imperiled in Montana and vulnerable in Idaho.

The Montana Natural Heritage program has only 16 confirmed breeding records as of this evaluation. Fifteen of these records are located in northwestern Montana counties. While Hart et. al (1998) do not display this species in southwest Montana, unconfirmed breeding records exist for the black-backed woodpecker that would expand their range to

most counties in the western part of the State, including areas in southwestern Montana, the Big and Little Belt Mountains area, and the Bridger Range.

There is little information on species numbers and distribution on the Forest. Jay Frederick, BDNF east zone wildlife biologist, reports evidence of breeding in 2005 on the Johnny Ridge fire in the Gravelly Mountains. The Northern Region Landbirds Program has documented 3 detections on the Forest from 1994 – 2004 (University of Montana. Avian Sciences Center)

Both disease and fire as ecological processes important to the black-backed woodpecker often operate at relative large scale both in time and space due to factors such as climate (Schoennagel et al. 2004). The species itself is adapted to irruptive movements over large distances to new sources of habitat. This suggests that a viability strategy for the black-backed woodpecker should be regional in scale; that the distribution of habitat is not a limiting factor; and that lack of habitat in the BDNF at some points in time would not impair the viability of the species as a whole if such habitat existed elsewhere. Nevertheless, the Beaverhead-Deerlodge plan is designed to provide a mix of conditions over time that would include habitat for viable populations of black-backed woodpeckers in the plan area.

THREATS

Timber harvest of fire killed and insect infested trees, and conversion of mature or old growth stands to young stands with few decayed trees have been identified as threats. Past practices involving aggressive fire suppression have reduced the amount of burned forest preferred by black-backed woodpeckers.

EFFECTS

Insect activity and wildland fires are expected to continue to create excellent black-backed woodpecker habitat well distributed throughout the Forest. Projected mortality of large diameter dry forest types alone from insect activity is expected to exceed 750,000 acres (Bollenbacher 2008a). These dead and dying trees provide habitat for black-backed woodpeckers and create stand conditions that are susceptible to wildfire. From 1970 to 2001, the size and number of fires on the BDNF have increased. Since 2000, approximately 0.5 percent of the Forest has burned per year. Similar trends have been observed on neighboring forests and east of the Continental Divide. This trend is expected to continue.

Under the plan the full range of appropriate management responses to wildland fire is available. The Forest Service recognizes the need to return landscapes to conditions where forest conditions and fire return intervals reflect healthy sustainable ecosystems. Through appropriate management response, fire suppression tactics are dictated by a number of factors that are specific to each wildfire event (public and firefighter safety, the values at risk, and probability of safely and successfully implementing actions). To the extent that ecological goals can be achieved within this context, wildfires can be managed to the benefit of species such as the black-backed woodpecker. Given current conditions, continued high levels of wildfire occurrence on the Forest are expected. All wildfires will not be suppressed. Thus, we expect continued persistence of abundant and

well distributed burned areas that are of high value to black-backed woodpecker into the future. Coupled with the habitat created through insect activity, the amount of black-backed habitat created on an annual basis in the near future is likely to be in the hundreds of thousands of acres.

Black-backed woodpeckers are highly associated with burned areas, but also utilize dead and dying trees and snags in “green” forests as well as areas of extensive bug killed forest. Under the plan, the focus of timber harvest operations would be salvage of bug killed and burned timber. Based on monitoring of harvest levels from previous years (2005 monitoring plan) and on the projections in the plan (14 mmbf and 1,700 acres per year) 2,000 acres or less per year is likely to be harvested. The declining trend in timber sale activities on the Forest can be seen in Figure 6.

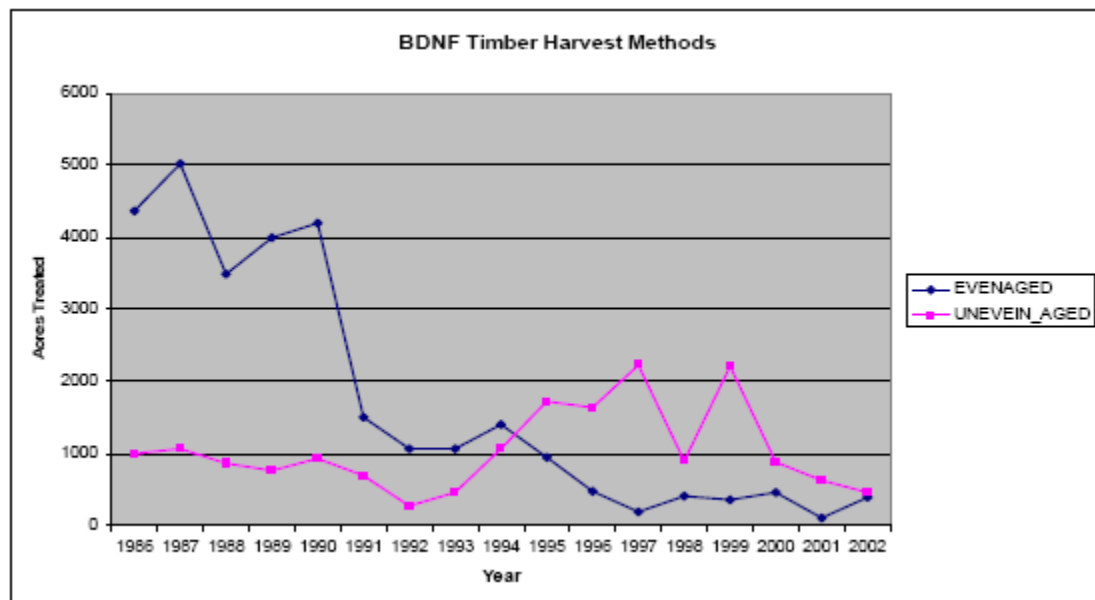


Figure 6. Trend in Timber Harvest Acres: 1986 - 2002

While harvest activity is permitted in green timber under the plan, harvest in green timber is not a focus of the plan, and it has been only a small portion of the timber sale program on the Forest in recent years. Current black-backed habitat and habitat projected to be created through continuing disturbance events measures in the hundreds of thousands of acres (well above the viability threshold identified by Samson, 2006). Timber harvest activities would be measured in the thousands of acres. Thus, timber harvest activities under the plan are expected to occur on a small fraction of the area providing black-backed habitat.

Where timber harvest would occur under the plan, the plan includes provisions for both snag and green tree retention. The standards for snag and green tree retention in the plan were derived from a Regional east-side snag analysis of FIA data. The FIA analysis compared snag retention across several biophysical groupings in both managed and unmanaged (wilderness and roadless) areas. Results from unmanaged areas were used to

characterize snag and green tree retention representative of good quality habitat and functional landscapes.

CONCLUSION

Habitat for black backed woodpecker is currently abundant and well distributed on the Forest at levels well above those estimated by Samson (2006) as a viability threshold for black-backed woodpecker. Natural disturbance agents (insects and wildfire) are expected to continue to create additional high quality habitat into the foreseeable future. The ability to use wildland fire as a tool under the plan also provides for continued creation of additional black-backed habitat. Active vegetation treatments expected under the plan would only occur in a small portion of the available black-backed habitat. Where active vegetation treatments occur, the plan prescribes snag and live tree retention levels consistent with those found in unmanaged areas. Therefore, the plan would maintain habitat to provide for viable populations of black-backed woodpeckers on the Forest. Furthermore, the plan would not cause a trend toward federal listing for this species.

FISHER

HABITAT

Fishers inhabiting conifer forests of the northern Rockies prefer dense late-successional stands with high canopy closure (Hart et al. 1998). They avoid areas with less than 40% canopy cover. Fallen logs, stumps and seedlings, shrubs and herbaceous cover are important (Hart et al. 1998). Fishers are often found in or near riparian areas as well (Hart et al. 1998). Fishers in a Rocky Mountain study preferred late-successional forests with complex physical structure, especially during the summer (Ruggiero et al. 1994). “In general, studies in the Western United States show the fisher to be associated with mature coniferous forests and require specific structural elements—particularly large trees and coarse woody debris” (Ruggiero et al. 1994). An example of fisher habitat is in central Idaho, where Jones (1991) found that fisher preferred old growth and mature forests in summer, young and old-growth forest in winter, and had a strong affinity for riparian areas in both seasons.

Females raise their young in protected dens. The vast majority of documented dens were in dead or living tree cavities (Ruggiero et al. 1994). A documented den in Montana was found in a hollow log with a cavity approximately 12” in diameter (Ruggiero et al. 1994).

Fishers are generalized predators that eat anything they can catch, generally small to medium-sized mammals and birds, and they readily eat carrion and fruits (Ruggiero et al. 1994). Snowshoe hares are the most common prey items (Ruggiero et al. 1994).

Fishers appear to be restricted to areas with relatively low snow accumulation. Deep fluffy snow affects habitat use and may affect distribution and population expansion (Ruggiero et al. 1994). Fishers in Idaho and Montana select flat areas and avoid mid-slopes (Ruggiero et al. 1994). Potential barriers to dispersal include large rivers, mountain divides above timberline, open-canopied habitats and highways. Fishers released from Wisconsin into the Cabinet Mountains avoided high elevation and selected for low elevation (2000 – 3200 ft) after they became established (Ruggiero et al. 1994).

There is controversy within the scientific community as to the distributional extent of the fisher in northwest Wyoming and southwest Montana. Graham and Graham (1994) did not recognize northwest Wyoming or southwest Montana as being within the range of fishers. Foresman (2001) does not recognize Madison County as being occupied by fisher, but does recognize Gallatin County as occupied. Strickland et al. (1982) do not recognize southwest Montana or northwest Wyoming as being within the distributional area of the fisher. Likewise Vinkey (2003), following criteria established by McKelvy (Vinkey 2003) found no verifiable sightings of fisher in northwest Wyoming. Gibilisco (1994), however, includes the Greater Yellowstone Ecosystem (GYE) in the mapped distribution of the Fisher. Montana Natural Heritage detections (Figures 7 and 8) lend credence to southwest Montana being outside the species’ range.

Currently, mature forest is widely present across the forest (FEIS, Table 162, Figure 26). Estimated suitable habitat from the Northern Region viability model (Samson 2006; USFS 2008) includes 192,778 acres of fisher summer habitat and 697,904 acres of fisher

winter habitat on the BDNF. Model output suggests that the critical habitat threshold for fisher viability in the Northern Region is 74,378 acres (Samson 2006). Samson's evaluation (2006) indicates that existing fisher habitat is not limiting viability at the scale of the Forest or the Region.

POPULATION STATUS AND DISTRIBUTION

The fisher is found only in North America. The present range is reduced from pre-European settlement times with most reduction occurring in the United States (Ruggiero et al 1994). Trapping and habitat loss appear to be the primary reasons.

The fisher was apparently previously extirpated in Montana with no documented occurrence from 1920-1960. In 1959, 36 fishers from central British Columbia were released at three sites in western Montana; one release site was at Moose Lake on the BDNF. At least one transplant was successful and is apparently increasing (Hart et al 1998).

Distribution maps of fisher in the western United States indicate that the analysis area (and adjacent mountain ranges) is at the southernmost fringe of Montana's population.

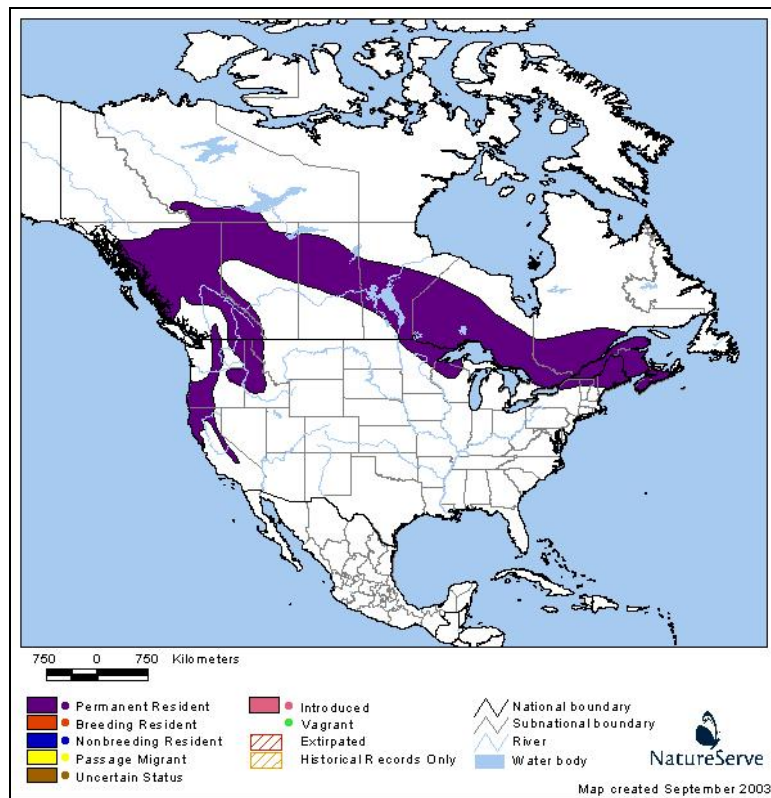


Figure 7. Fisher distribution. (NatureServe 2005)

Verified fisher records (n = 248) can be found in the Bitterroot, Coeur D'Alene, Sapphire, Garnet, Mission, Swan, Cabinet, Purcell, Whitefish, Flathead, Livingston, and Beartooth ranges (Vinkey 2003). In the Pioneer, Madison, Gallatin, and Absaroka ranges, fisher presence has not been verified (Vinkey 2003). As can be seen from Figures 9 and 10, the majority of records are found along the Idaho border in the Bitterroot Range.

Vinkey (2003) discusses possible fisher tracks in the Rock Creek drainage in the Upper Rock Creek landscape. Verified records do occur in the Sapphire Range (Vinkey 2003) which forms the Forest border with the Lolo National Forest.

• = verified record • = track locations • = sightings

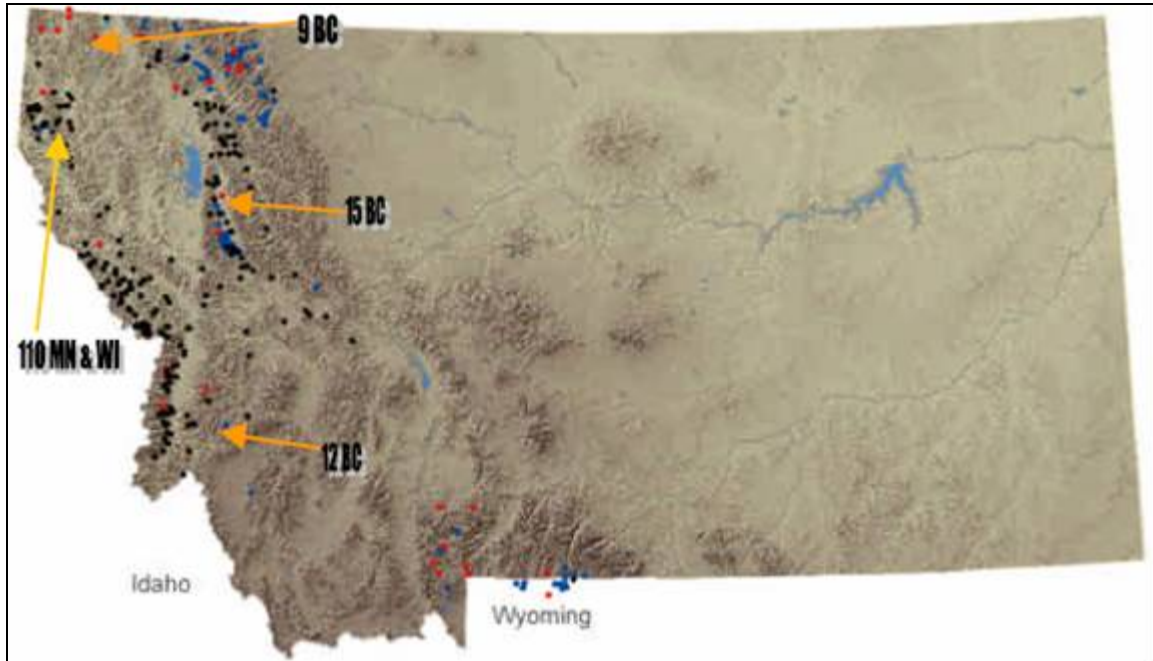


Figure 8. Distribution and release of fishers in western Montana (1968-2003) and introduction sites (Vinkey 2003).

Vinkey (2003) shows a track detection on the western slopes of the Pioneer Mountains in the Big Hole Landscape. The Rocky Mountain Research Station conducted extensive snow track surveys in the Anaconda-Pintler Range during winter 2000-2003 and no fisher tracks were detected during this effort. State trapping records from 1996 – 2002 (Montana FWP) show no fisher captures across the entire seven-county analysis area.

Despite the lack of records, mature forest is widely available across the forest (FEIS, Table 162, Figure 26) that can provide habitat for fisher population expansion, as suggested by habitat estimates from the Northern Region viability model (Samson 2006; USFS 2008). This suitable habitat may also facilitate dispersal and population connectivity.

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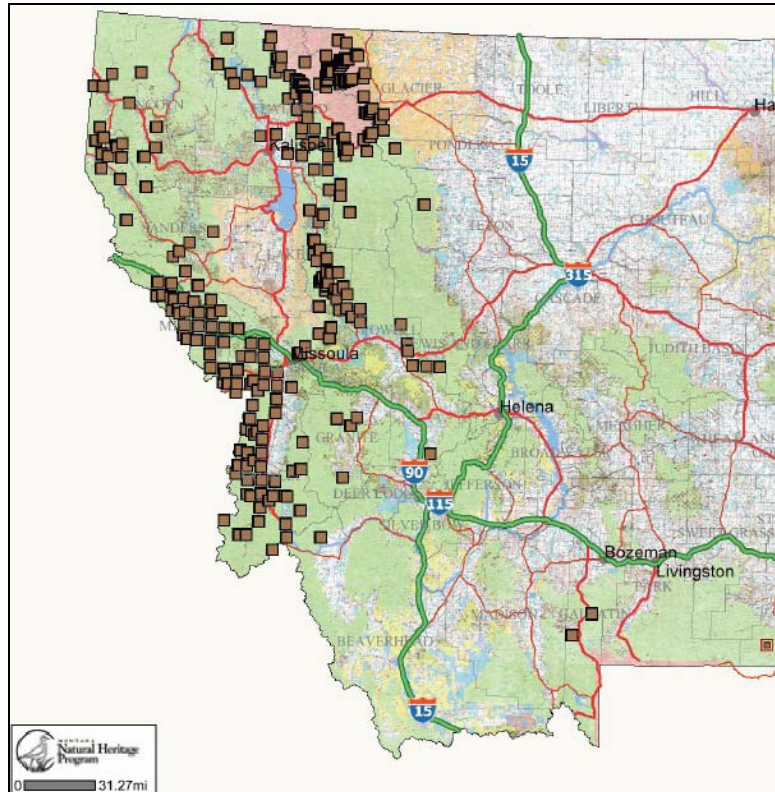


Figure 9. Montana Fisher detections pre-1970 – 2008. Heritage Tracker



Figure 10. SW Montana Fisher Detections 1970 – 2008. Heritage Tracker

THREATS

Fisher populations are directly or indirectly affected by several factors. First, fishers are affected by disturbance and displacement. Fishers are more common where density of humans is low and human disturbance is reduced (Douglas and Strickland 1987, Powell 1993, Ruggiero et al. 1994). Second, fisher populations are affected by management activities that reduce the amount of suitable habitat (i.e. habitat degradation and loss). Timber harvest can fragment fisher habitat, reduce it in size, or change the forest structure to be unsuitable for fishers. Habitat loss and fragmentation appear to be significant threats to the fisher. (US Fish and Wildlife Service 2004). Finally, fishers are easily trapped and the value of their pelts in the past created sufficient pressure to extirpate them from large geographic areas (Ruggiero et al. 1994); trapping regulations are the responsibility of Montana Fish, Wildlife, and Parks.

Current and expected trends regarding insect infestations as well as increased size and frequency of wildfire also represent a threat to fishers. Modeled projections of future cover types indicate that reductions are likely to occur in the large diameter size classes on the Forest (Bollenbacher et al. 2008a).

EFFECTS

Samson 2006 estimated fisher summer habitat on the Forest to be 192,741 acres. While some of that habitat may have been degraded or lost from wildfire or insect infestations, the amount of habitat on the Forest estimated by Samson 2006 (192,741 acres) far exceeds the viability threshold of 100,078 acres for viability of fishers region-wide (Samson 2006; USFS 2008).

An analysis of cover type and size class on the Forest indicates that much of the Forest remains within the range of historic variability for those forest characteristics. However, substantial changes in forest composition and structure have been predicted through several modeling exercises (Bollenbacher et al. 2008a). These predicted changes, are likely to affect large-size class forest, including old growth used by fishers.

Old growth habitat is currently well distributed across the Forest (FEIS, Table 162, Figure 26). The plan contains direction that recognizes the importance of retaining old growth, well distributed across the forest, and includes a standard that would minimize impacts to old growth that could occur through management actions. Under the standard, old growth could be impacted through management actions involving hazard tree removal and other treatments needed to meet public safety issues. Hazard tree removal and other treatments needed to meet public safety issues is likely to occur on a very limited basis in old growth and would not be expected to influence the viability of fishers on the Forest. Under the plan, treatments (both mechanical harvest and prescribed fire) could occur in old growth stands as long as the treatments do not cause the stands to no longer meet the minimum old growth stand characteristics standards described by Green et al. Such treatments in old growth are likely to reduce canopy cover and structural diversity. These treatments may improve habitat conditions for certain species such as the flammulated owl, but may also reduce the suitability of habitat for fishers. These types of treatments are expected to occur in relatively few of the old growth stands on the Forest.

Large snags are in plentiful supply across the Forest (FEIS, Figure 28), which will provide denning habitat for fishers. Where timber harvest would occur under the plan, the plan includes provisions for both snag and green tree retention; retention levels are based on snag analyses from unmanaged areas that represent high quality habitat and functional landscapes (i.e. roadless and wilderness areas). With respect to fisher habitat preferences, plan direction will retain all snags greater than 20" dbh (except for hazard trees).

Fishers may be associated with riparian habitats. The plan contains direction that would maintain aquatic and riparian habitat conditions where those habitats are functioning properly. The plan also provides direction to improve function of aquatic and riparian habitats where it has been degraded. The plan also includes a series of key watershed across the Forest Where riparian and aquatic values would be emphasized. Collectively these provisions in the plan pertaining to riparian habitats will benefit fishers.

The plan contains direction that will decrease disturbance and displacement of fishers. Open motorized roads and trails under the preferred alternative will be reduced by approximately 392 miles. Open road density objectives will maintain relatively undeveloped areas in the eleven individual Forest landscapes as well as Forest-wide. The plan would retain at least 40 % of the forest in non-motorized allocations both summer and winter and the plan prohibits cross-country motorized travel.

CONCLUSION OF EFFECTS

The amount of fisher habitat that currently exists on the BDNF exceeds the estimated amount needed to maintain fisher viability (Samson 2006; USFS 2008). The plan includes direction that restricts management activities that would adversely impact or otherwise decrease old growth. Impacts of management activities to old growth, and subsequently to fisher are expected to be minimal. The plan maintains snags at levels similar to those found in unmanaged areas, maintains or restores riparian areas, and reduces open roads and road densities. Therefore the plan would not cause a loss of viability of fishers or cause a trend toward federal listing of the species.

FLAMMULATED OWL

HABITAT

Flammulated owls are Nearctic-Neotropical migrants that winter in Central America, and breed throughout montane coniferous forests of the western United States and Mexico. The flammulated owl forages almost exclusively on insects, especially moths and beetles, and forages in the tree canopy, between trees, and on the ground (McCallum 1994). Flammulated owls are secondary cavity nesters that often use old pileated woodpecker or northern flicker cavities as nest sites, and nest cavities may be reused for several years (McCallum 1994).

In the northern Rockies, flammulated owl breeding habitat consists primarily of low- to mid-elevation montane forests with low to moderate canopy closure, a large tree component, snags, and a brushy understory. Although older ponderosa pine forests and shade-intolerant ponderosa pine/Douglas-fir forests appear to be favored, flammulated owls have also been found breeding in older Douglas-fir forest types, and to a lesser extent, in grand fir, western larch, spruce/fir, lodgepole pine, and aspen habitats (Hart et al. 1998). The association of flammulated owls with larger diameter trees in dry forest types suggests that these owls are adapted to forests that were historically maintained by fire. Thus, many decades of fire suppression, and the resulting higher tree densities, especially in the smaller diameter classes, may create sub-optimal habitat for flammulated owls.

On the BDNF, dry forest types used by the flammulated owl are largely confined to the Deerlodge portion west of the Continental Divide in the Northern Flint Creek Range. Within the dry forest types, ponderosa pine habitats appear to be preferred. Potential flammulated owl habitat from the Northern Region viability model is estimated at 7,321 acres on the BDNF (Samson 2006; USFS 2008). Model output suggests that the critical habitat threshold for Flammulated owl viability in the Northern Region is 4,695 acres (Samson 2006). Samson's evaluation (2006) indicates that existing flammulated owl habitat is not limiting viability at the scale of the Forest or the Region.

POPULATION STATUS AND DISTRIBUTION

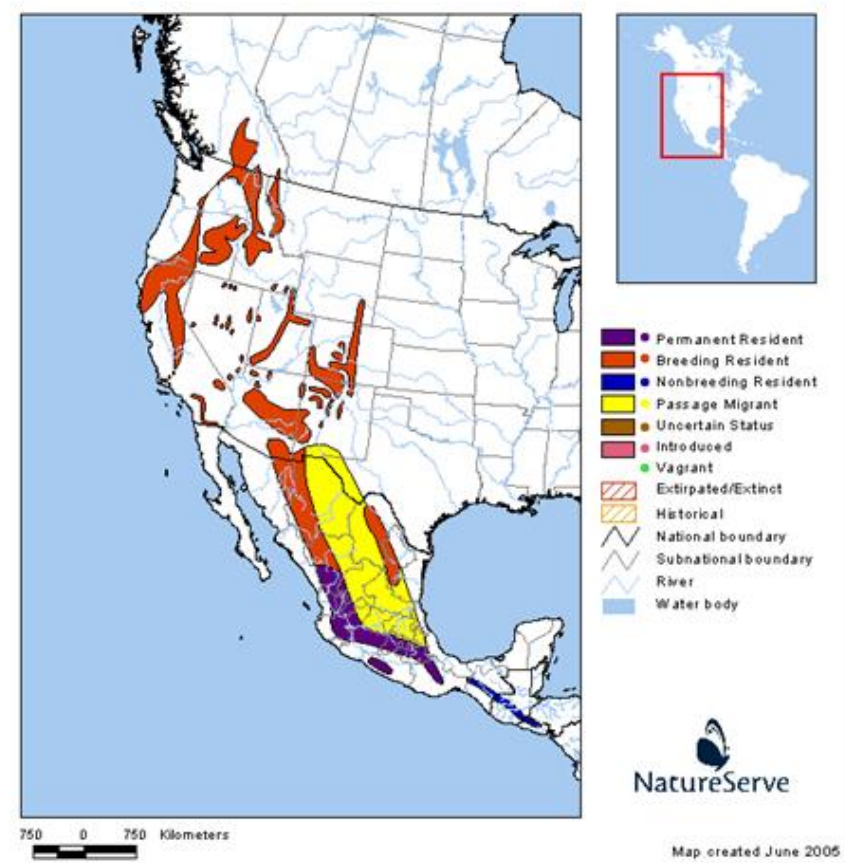


Figure 11. Flammulated owl distribution (NatureServe. 2006. NatureServe Explorer: An online encyclopedia of life [web application].)

The Montana bird distribution database shows that most flammulated owl detections are from western Montana (Montana Natural Heritage). Currently the database documents flammulated owl in 7 LatiLongs within the Forest plan area: From 2000 – 2008 the Heritage database shows seven point detections of indirect evidence of breeding. All of the detections are south of Butte (Figure 12). Five LatiLongs show transient birds, and two LatiLongs show breeding detections. The Northern Region Landbird Monitoring Program conducted regional flammulated owl distributional surveys in 2005; on the BDNF, flammulated owls were detected at 10 points on five transects (Figure 13), out of a total of 171 points on 17 transects (Univ. of Montana - Avian Science Center 2005).

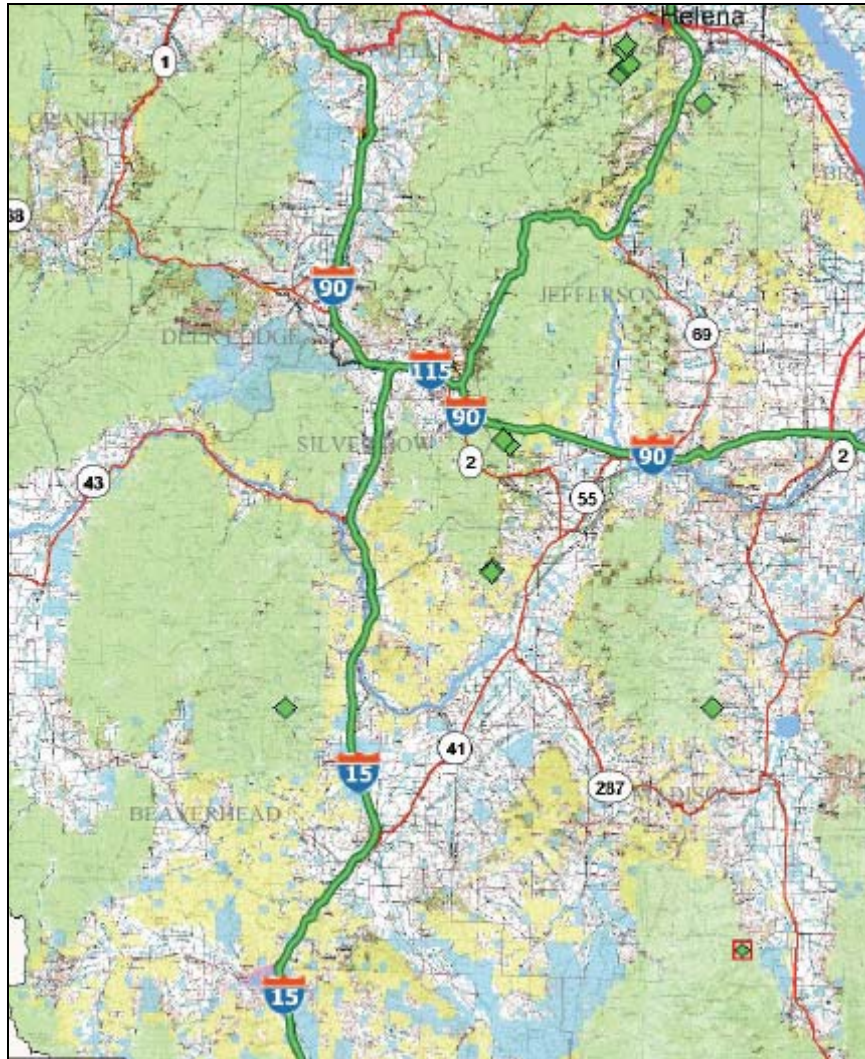


Figure 12. Indirect evidence of breeding. 2000 – 2008 Montana Heritage Tracker

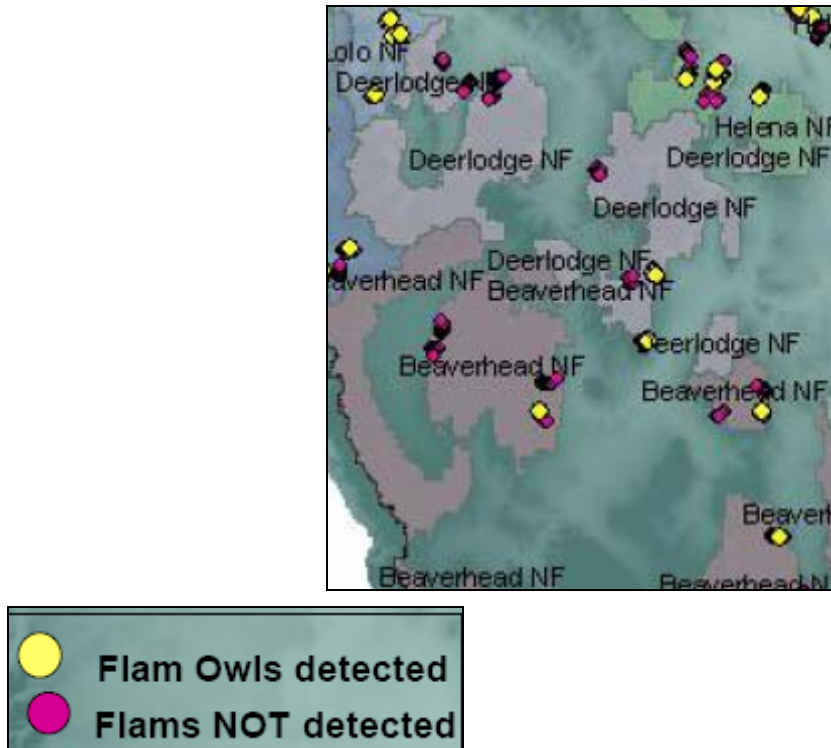


Figure 13. Flammulated Owl Detections. Land Bird Flammulated Owl Final Report

THREATS

Harvest of fire- or insect-killed snags and conversion of mature or old growth stands to young stands with few decayed trees have been identified as threats. Past practices involving aggressive fire suppression have resulted in stand conditions representing a threat to flammulated owls. Dense understory conditions resulting from fire exclusion may reduce suitability of forested habitats for flammulated owl and make those habitats more vulnerable to insect infestations and stand replacing fire events (summarized in McCallum 1994).

EFFECTS

Samson 2006 estimated flammulated owl habitat on the Forest to be 7,321 acres. While some of that habitat may have been affected by wildfire or insect infestations, the amount of habitat on the Forest estimated by Samson 2006 (7,321 acres) exceeds the viability threshold of 4,695 acres for viability of flammulated owls Region-wide (Samson 2006; USFS 2008). In addition, the return of wildfire to dry forest types adapted to frequent fire intervals promotes resiliency in these stands and generates the habitat conditions preferred by flammulated owls.

An analysis of cover type and size class on the Forest indicates that much of the Forest remains within the range of historic variability for those forest characteristics. However, substantial changes in forest composition and structure have been predicted through several modeling exercises (Bollenbacher et al 2008a). The plan recognizes the importance of retaining flammulated owl habitat and includes an objective to improve

resiliency of large diameter dry forest types used by flammulated owls. While harvest activity is permitted in green timber under the plan, harvest in green timber is not a focus of the plan, and it has been only a minor portion of the timber sale program on the Forest in recent years. Timber harvest activities under the plan are expected to occur on a small fraction of the area providing flammulated owl habitat.

Old growth habitat is well distributed across the Forest (FEIS, Table 162, Figure 26). The plan contains direction that recognizes the importance of retaining old growth, well distributed across the forest, and includes a standard that would minimize impacts to old growth that could occur through management actions. Under the standard, old growth could be impacted through management actions involving hazard tree removal and other treatments needed to meet public safety issues. Hazard tree removal and other treatments needed to meet public safety issues is likely to occur on a very limited basis in old growth and would not be expected to influence the viability of flammulated owls on the Forest. Under the plan, treatments (both mechanical harvest and prescribed fire) could occur in old growth stands as long as the treatments do not cause the stands to no longer meet the minimum old growth stand characteristics standards described by Green et al. Such treatments are expected to occur in relatively few of the old growth stands on the forest.

Large snags are in plentiful supply across the Forest (FEIS, Figure 28), which will provide nest and roost sites for flammulated owls. Where timber harvest would occur under the plan, the plan includes provisions for both snag and green tree retention; retention levels are based on snag analyses from unmanaged areas that represent high quality habitat and functional landscapes (i.e. roadless and wilderness areas). With respect to flammulated owl habitat preferences, plan direction will retain all snags greater than 20" dbh (except for hazard trees).

The plan includes direction to avoid disturbance at nest sites. The plan also identifies *A Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region, USDA Forest Service* (Samson 2006) as an additional source of information that can be used to conserve flammulated owls.

Under the plan the full range of appropriate management responses to wildland fire is available. The Forest Service recognizes the need to return landscapes to conditions where forest conditions and fire return intervals reflect healthy sustainable ecosystems. Through appropriate management response, fire suppression tactics are dictated by a number of factors that are specific to each wildfire event (public and firefighter safety, the values at risk, and probability of safely and successfully implementing actions). To the extent that ecological goals can be achieved within this context, wildfires can be managed to the benefit of species such as the flammulated owl (McCallum 1994). Given current conditions we expect to see continued high levels of wildfire occurrence on the Forest. All wildfires will not be suppressed. Thus, we expect continued persistence of abundant and well distributed burned areas. Many of these burned areas will ultimately provide flammulated owl habitat, with low to intermediate canopy closure, snags, and a brushy understory.

CONCLUSION OF EFFECTS

The amount of flammulated owl habitat that currently exists on the BDNF exceeds the estimated amount needed to maintain flammulated owl viability (Samson 2006; USFS 2008). The plan includes direction that allows for appropriate management responses to wildland fire, which should facilitate the return of characteristic fire regimes in the dry forest types preferred by flammulated owls. In most cases, the plan restricts management activities that would adversely impact or otherwise decrease old growth. Impacts of management activities to old growth, and subsequently flammulated owl, are expected to be minimal. The plan maintains densities of snags at levels similar to those found in unmanaged areas, and reduces open roads and road densities. The plan also recognizes those forest types facing increased risk from fire and insects/disease, including those forest types important to flammulated owl. Plan components include objectives to improve the resiliency of these forest types. Therefore the plan would not cause a loss of viability of flammulated owls or cause a trend toward federal listing of the species.

NORTHERN GOSHAWK

The Northern Goshawk, hereafter referred to as goshawk, is the largest and heaviest-bodied of the three North American *Accipitridae* raptors. The northern goshawk ranges widely across the western United States and is generally considered a year-round resident or partial winter migrant in southwestern Montana. The goshawk is considered a generalist, opportunistic predator throughout its range, and preys on species that rely on a variety of forested and non-forested habitats (Squires and Reynolds 1997, Montana Field Guide 2008).

HABITAT

Ecosystem characteristics important for the goshawk involve the availability of suitable nesting areas, post fledgling areas (PFA), and foraging habitat within a home range. In North America, the size of goshawk home ranges during the nesting period may vary from approximately 1,400 to 8,650 acres, depending on factors such as sex of the bird and habitat conditions.

Goshawks nest in a variety of forest types throughout their range. Goshawks typically select nest sites in mature coniferous forests with relatively closed canopies (50 to 90%), and open understory conditions (USFWS 1998; USFS 2007), though the FWS found no evidence that goshawks depend on large, unbroken tracts of “old growth” or mature forest. Less commonly, goshawks have also been found nesting in more open forests, small aspen stands surrounded by shrub-steppe, and riparian forests (USFS 2007). The area immediately surrounding the nest tree, often contains alternative nests and may be reused in consecutive years (USFS 2007).

The PFA surrounds the nest area and is defined as the area used by the family group from the time the young fledge until they are no longer dependent on the adults for food. The size, shape, habitat composition, and functional importance of the PFA may vary with local conditions. The PFA will be an approximately 420-acre area centered on known or recently-occupied nests. Some amount of mid- to late-seral forest with > 50% canopy cover and structural diversity in the understory appears important at the PFA scale.

Goshawk foraging areas are heterogeneous and may include mature forest, as well as a mix of other forest and non-forest components (i.e., sagebrush, grasslands, lowland riparian, and agriculture) (USFS 2007). The habitat of many prey species are linked to structural habitat components such as snags, downed wood, and vegetative diversity in the understory as well as on a landscape scale (Reynolds et al. 1992; USFWS 1998).

On the BDNF, potential goshawk habitat from the Northern Region viability model is estimated as 53,685 acres of nesting habitat, 363,593 acres of PFA habitat, and 976,089 acres of foraging habitat (Samson 2006; calculations errata USFS 2008). Model output suggests that the critical habitat threshold for goshawk viability in the Northern Region is 30,147 acres (Samson 2006). In determining habitat estimates for maintaining viable populations, Samson (USFS 2006b) used the goshawk PFA identified by Reynolds et al. (1992) as the critical amount of habitat since goshawks actively defend the PFA during

the nesting season. Samson's evaluation (2006) indicates that existing goshawk habitat is not limiting viability at the scale of the Forest or the Region.

POPULATION STATUS AND DISTRIBUTION

The range of the northern goshawk is wide-spread and occupies boreal and temperate forests throughout the northern hemisphere. In North America, goshawks breed in a variety of habitat types in the United States, and Canada, and Mexico (Figure 14).

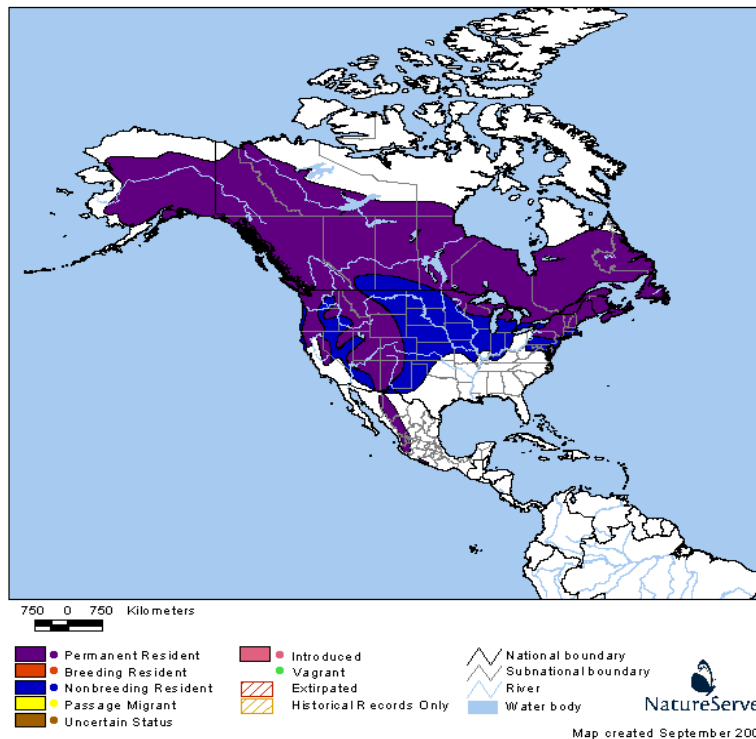


Figure 14. North American goshawk distribution. "Data provided by NatureServe in collaboration with Robert Ridgely, James Zook, The Nature Conservancy - Migratory Bird Program, Conservation International - CABS, World Wildlife Fund - US, and Environment Canada - WILDSpace."

According to NatureServe (accessed 10/21/2008) the northern goshawk has a conservation status rank of G5. This indicates the species is globally secure which means the species is "common, widespread and abundant". In the state of Montana, goshawks were recently downgraded from a Species of Concern/rank S3 to a Potential Species of Concern/rank S4, which is considered uncommon but not rare and usually widespread (Montana Natural Heritage. Montana Animal Species of Concern - October 2008).

On July 17, 2007 the northern goshawk was removed from the Regional Forester's Sensitive Species list based on a review of the best available scientific information about the ecological status of the species; the estimated amounts and distribution of northern goshawk habitat in the Northern Region (USFS 2006); the results of the 2005 R1 grid-based inventory of the species (Kowalski 2006); and the completion of the *Northern*

Goshawk Northern Region Overview: Key Findings and Project Considerations (USFS 2007).

In the Northern Region, the species breeds in mountainous or coniferous regions throughout western and southern Montana. Goshawks also winter throughout their breeding range with a portion of the population wintering outside regularly used areas. Wintering goshawk occur in southwest Montana (Montana Natural Heritage Tracker 2008).

In 2005 the Northern Region conducted a Region-wide survey to determine the frequency of goshawk presence. The results, combined with known active goshawk nest sites from 2000-2004, indicate that goshawks are well distributed across the BDNF with greater numbers of sites in the western and northern portions of the Forest. The study demonstrated that: (1) habitat exists to support reproductive individuals on each Forest; (2) habitat is well-distributed; and (3) individual goshawks can interact with one another across the Region (Kowalski 2005).

The Montana Natural Heritage Tracker (2008) contains slightly over 70 point locations where there is direct or indirect evidence of breeding on the BDNF. The majority of these locations are located in the western half of the BDNF (Figure 15).

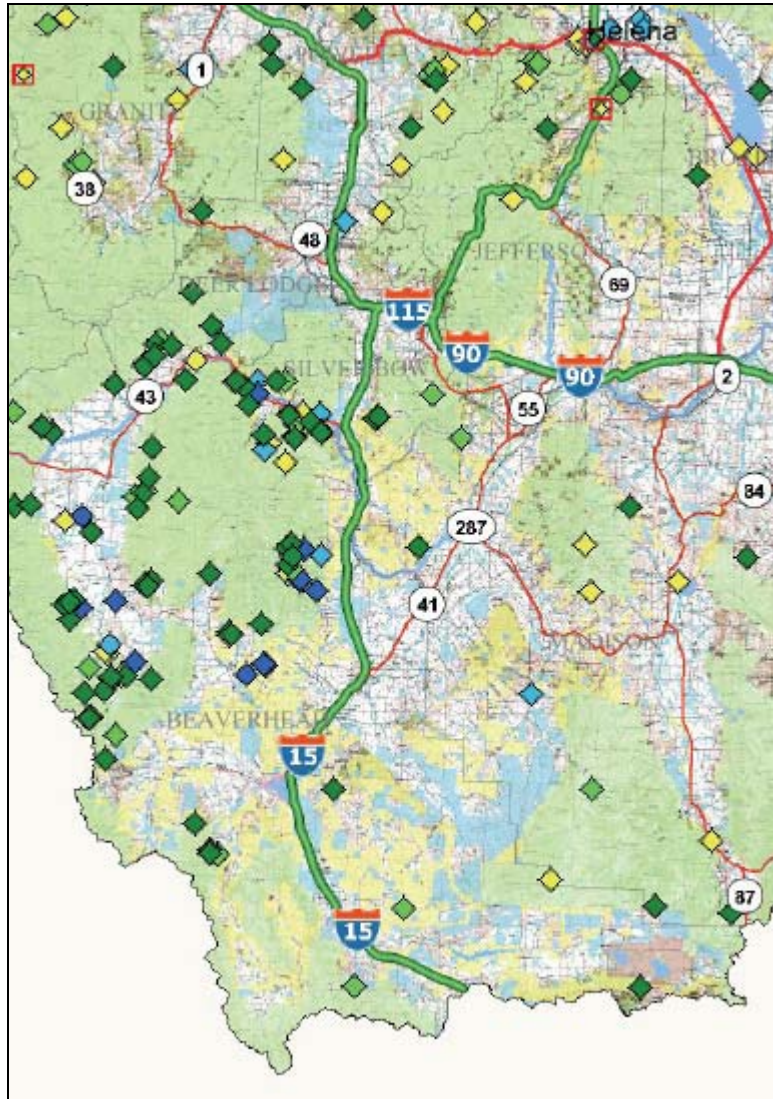


Figure 15. BDNF Goshawk Detections. Montana Natural Heritage Tracker

The 2008 habitat estimates show the BDNF contains 53,685 acres of goshawk nesting habitat, 363,593 acres of PFA habitat and 976,089 acres of foraging habitat.

THREATS

Range-wide, the primary threats to goshawk viability are habitat degradation and loss. Alterations to vegetation through management and natural disturbance can directly and indirectly affect habitat and reduce prey populations.

Range-wide, timber harvest is the principal threat to breeding goshawk populations (Squires and Reynolds 1997). In addition to the relatively long-term impacts of nest tree removal and habitat degradation/destruction, logging activities conducted near nests during the incubation and nesting periods can result in nest failure due to abandonment (Squires and Reynolds 1997). Timber harvest may reduce or eliminate live and dead large-diameter trees used for nesting, leaning trees used by juveniles for roosting before

they can fly, and dense canopy closures in stands used by juveniles for cover and protection.

Other activities that can influence the species include fire management, and livestock grazing. Past practices involving aggressive fire suppression have resulted in stand conditions representing a threat to goshawks. Large numbers of seedlings and saplings in many forests have created dense forest stands and encroachment of conifers into unforested areas (Pilliod et al. 2006). Grazing has affected both forest structure and composition. Heavy livestock grazing reduces ground cover, which encouraged the establishment of dense stands of saplings, thus degrading goshawk habitat (Reynolds et al 1992). Goshawks also use riparian areas for both nesting and foraging; thus, grazing impacts in these areas can negatively affect habitat for goshawk prey and reduce or eliminate foraging habitat potential (Graham et. al. 1999, Reynolds et al 1992).

Current and expected trends regarding insect infestations as well as increased size and frequency of wildfire also represent a threat to the goshawk. Traditional timber harvest and particularly fire suppression have altered the forest structure and composition in goshawk habitat that facilitates insect and disease outbreaks (Reynolds et al 1992). While epidemic outbreaks of insects can alter the composition and structural changes of forests, goshawks can nest successfully in beetle-killed forests where suitable nesting habitat remains. However, these areas are at risk to loss from large-scale wildfire events (Graham et. al. 1999). Modeled projections of future cover types indicate that reductions are likely to occur in the large diameter size classes in dry forest types on the Forest, to include the lodgepole pine and Douglas-fir cover types.

EFFECTS

Samson's analysis (2006; USFS 2008) estimated goshawk habitat on the Forest to be 53,685 acres of nesting habitat, 363,593 acres of PFA habitat, and 976,089 acres of foraging habitat. While some of that habitat may have been affected by wildfire or insect infestations, the amount of estimated PFA habitat on the Forest (363,593 acres) far exceeds the viability threshold of 30,147 acres for viability of goshawks region-wide (Samson 2006; USFS 2008).

An analysis of cover type and size class on the Forest indicates that much of the Forest remains within the range of historic variability for those forest characteristics. However, substantial changes in forest composition and structure have been predicted through several modeling exercises. The plan recognizes the importance of retaining goshawk habitat and includes an objective to improve resiliency of large diameter forest types used by goshawks.

The plan includes direction to avoid disturbance at nest sites. The plan also identifies *A Conservation Assessment of the Northern Goshawk, Black-backed Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region, USDA Forest Service* (Samson 2006) and *Northern Goshawk Northern Region Overview: Key Findings and Project Considerations* (Brewer et al. 2007) as additional sources of information that can be used to conserve goshawks.

Under the plan, the focus of timber harvest operations would be salvage of bug killed and burned timber. Based on monitoring of harvest levels from previous years (2005 monitoring plan) and on the projections in the plan (14 mmbf and 1,700 acres per year) 2,000 acres or less per year are estimated to be harvested under the plan. The declining trend in timber sale activities on the Forest can be seen in figure 16.

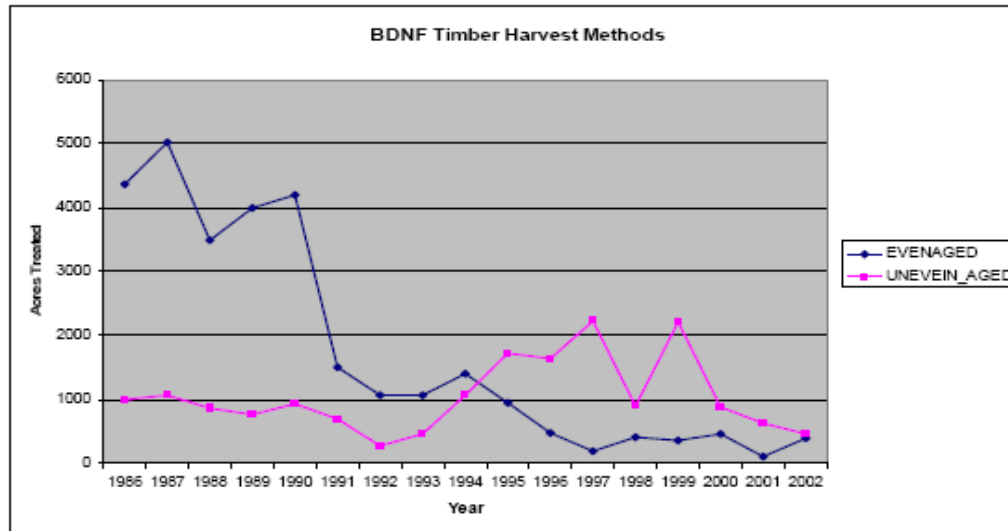


Figure 16. Trend in Timber Harvest Acres: 1986 - 2002

While harvest activity is permitted in green forests under the plan, harvest in green forests is not a focus of the plan, and it has been only a minor portion of the timber sale program on the Forest in recent years. Current goshawk habitat measures in the hundreds of thousands of acres. Thus, timber harvest activities under the plan are expected to occur on a very small fraction of the area providing goshawk habitat.

Later-successional forest stands, including old growth, are well distributed across the Forest (FEIS, Table 162, Figure 26). The plan contains direction that recognizes the importance of retaining old growth, well distributed across the forest, and includes a standard that would minimize impacts to old growth that could occur through management actions. Under the standard, old growth could be impacted through management actions involving hazard tree removal and other treatments needed to meet public safety issues. Hazard tree removal and other treatments needed to meet public safety issues is likely to occur on a very limited basis in old growth and would not be expected to influence the viability of fishers on the Forest. Under the plan, treatments (both mechanical harvest and prescribed fire) could occur in old growth stands as long as the treatments do not cause the stands to no longer meet the minimum old growth stand characteristics standards described by Green et al. Such treatments are expected to occur in relatively few of the old growth stands on the forest.

Fire-suppressed stands, which are typically characterized by closed canopies and dense conifer understory, are not as valuable for nesting because of the dense conifer understory that reduces nesting and foraging habitat quality. Under the plan the full range of appropriate management responses to wildland fire is available. The Forest Service recognizes the need to return landscapes to conditions where forest conditions and fire

return intervals reflect healthy sustainable ecosystems. Through appropriate management response, fire suppression tactics are dictated by a number of factors that are specific to each wildfire event (public and firefighter safety, the values at risk, and probability of safely and successfully implementing actions). To the extent that ecological goals can be achieved within this context, wildfires can be managed to the benefit of species such as the goshawk. Given current conditions we expect to see increased wildfire occurrence on the Forest. All wildfires will not be suppressed. Thus, we expect continued persistence of abundant and well distributed burned areas. Many of these burned areas will ultimately create more open understory conditions, which are favored by goshawk prey populations.

The indirect but negative effects of grazing on nesting habitat are related to impacts that could occur to foraging habitat. The plan includes direction that would retain roughly 55% of forage in uplands. This amount of forage is expected to support a suitable prey base for the goshawk. The plan also contains direction regarding aquatic and riparian habitats, which is expected to result in the maintenance of those riparian habitats that are currently in good condition and restoration of those that are not. Thus, under the plan, habitat for prey species for goshawks that are associated with riparian areas will be maintained or enhanced.

CONCLUSION OF EFFECTS

The amount of goshawk habitat that currently exists on the BDNF exceeds the estimated amount needed to maintain goshawk viability (Samson 2006; USFS 2008). Through timber harvest activities, only a small fraction of that habitat would be negatively impacted under the plan. The plan includes direction that allows for the appropriate management responses to wildland fire, provisions regarding grazing practices, and direction on conifer encroachment treatments that should help maintain and improve goshawk habitat. In most cases, the plan prohibits management activities that would adversely impact or otherwise decrease old growth. Impacts of management activities to later successional stands, and subsequently goshawk, are expected to be minimal. The plan also recognizes those forest types facing increased risk from fire and insects/disease, including those later successional forest types important to goshawks. Plan components include objectives to improve the resiliency of these forest types. Therefore the plan would not cause a loss of viability of goshawks or cause a trend toward federal listing of the species.

GREAT BASIN POCKET MOUSE

HABITAT

Very little is known about this pocket mouse in Montana. Information from other parts of its range suggests the Great Basin pocket mouse is not considered a social animal; individuals occupy separate nests. During winter it enters torpor and is not surface-active, but it may also enter torpor for various periods at any season. Male emergence from winter torpor is in late March or April, depending on location, and females emerge about a month later. All Montana captures have occurred between mid-June and mid-August. It is nocturnal or crepuscular when active away from its burrow (Montana FWP – Great basin pocket mouse species account)

Their diet in Montana has not been studied or reported, but information from other areas of the species' range indicate that this species is primarily a seedeater of grasses, legumes, borragens, composites, nettles, and mustards, and in spring also feeds on insects (20 to 25% of diet and contents in cheek pouches) and some green vegetation (Montana FWP – Great basin pocket mouse species account).

Occupied habitats in Montana are arid and sometimes sparsely vegetated. They include grassland-shrubland with less than 40% cover, stabilized sandhills, and landscapes with sandy soils, more than 28% sagebrush cover, and 0.3 to 2.0 (12 – 78”) meters shrub height (Montana FWP – Great basin pocket mouse species account).

Data from other portions of its range suggest a variety of western arid and semiarid habitats are occupied, including pine woodland, juniper-sagebrush scablands, sandy short-grass steppes, and shrubland covered with sagebrush, bitterbrush, greasewood, and rabbitbrush; heavily forested habitats are avoided. They usually are found in habitats with light-textured, deep soils, and sometimes in shrublands among rocks. Presence is positively correlated with percent sand and negatively with percent clay. Adults sleep and rear young in underground burrows (Montana FWP – Great basin pocket mouse species account).

While known from Beaverhead County and suspected in Madison County, there are no known detections on the Forest.

POPULATION STATUS AND DISTRIBUTION

The Great Basin pocket mouse is found throughout the Great Basin and adjacent regions of the West, from south-central British Columbia southward through eastern Washington and Oregon to southern California, Nevada, northern Arizona, western Utah, southern Idaho, southwestern Montana, and southwestern Wyoming. It usually occurs below elevations of 8200 feet. Very little is known about this pocket mouse in Montana (Montana FWP – Great basin pocket mouse species account).

In Montana the species is limited to the southwestern portion of the State. It is known to occur in Beaverhead County and suspected in Madison County, (Flath 1984). It is probably limited to arid areas in southwestern Montana (Hart et al. 1998). Southwest

Montana is on the periphery of the species' range (Figure 17). The Idaho portion of the species range is ranked as secure (NatureServe 2005).

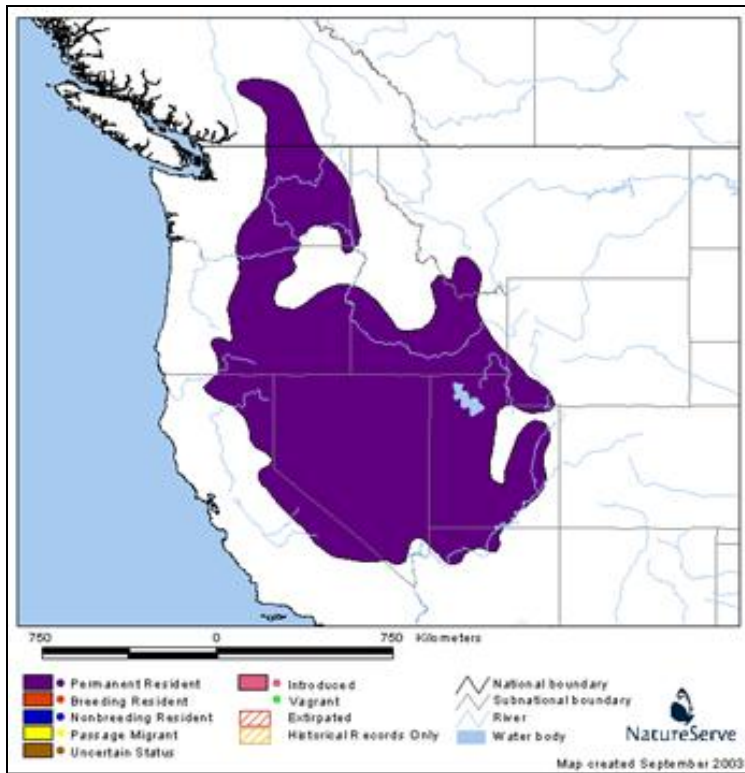


Figure 17. Great Basin Pocket Mouse Range Map. NatureServe. 2005. NatureServe Explorer: "Data provided by NatureServe in collaboration with Bruce Patterson, Wes Sechrest, Marcelo Tognelli, Gerardo Ceballos, The Nature Conservancy-Migratory Bird Program, Conservation International-CABS, World Wildlife Fund-US, and Environment Canada-WILDSPACE."

THREATS

The primary threat to the pocket mouse is direct habitat alteration, particularly conversion of habitat to agriculture (i.e. hay fields, row crops). Another possible threat is the encroachment of conifers into grassland/shrubland habitats.

EFFECTS

The valley floors in Beaverhead County have incurred alteration from dry sagebrush and grasslands to irrigated pasture, hayfields, some grain fields, and urbanization. None of those impacts have occurred or are expected to occur on the Forest under the forest plan.

On NFS lands the most likely areas to find the pocket mouse are the southern end of the Forest. There is very little Forest Service management activity scheduled to occur under the Plan in these areas. Most of this area is in recommended wilderness or inventoried roadless areas. There is limited potential for oil and gas development in the area. One well has been previously drilled on NFS lands. It and others in the area (BLM and other lands) all came up dry. In addition, currently there are no leases in the area that would allow surface occupancy. Therefore, it is unlikely there would be any extensive

development in the area. Any future development would be subject to additional site-specific NEPA that considers impacts to sensitive species such as the pocket mouse.

Conifer encroachment can detrimentally affect habitat quantity and quality for the pocket mouse. The forest plan analysis has identified the need to address this issue by identifying an objective to restore up to 74,000 acres of shrublands and grasslands (Vegetation Objective). This need is based on analysis of the historic and current range of foothills xeric shrublands and grasslands (Table 3). Such direction and subsequent treatments would likely improve habitat conditions for the pocket mouse.

Table 3. Comparison of BDNF Historic and Current Range of Foothills Xeric Shrubland/grasslands

Landscape	Acres of Historic Shrublands	Acres of Current Shrublands	Percent Lower Estimate of Historic Range
BDNF	38, 131 – 61, 587	22,231	58%

Grazing also occurs in pocket mouse habitat; however the grazing on the BDNF is generally widely dispersed and does not result in large areas of habitat alteration that would adversely affect mouse habitat. The forest plan contains management direction for sage grouse habitat. Based on what we know about pocket mouse habitat needs it appears that the management direction for sage grouse would also help provide for the habitat needs of the pocket mouse. The Montana Field Guide states that “No special management activities are currently recognized as necessary for maintaining viable populations of this species in Montana.” It goes on further to indicate that land management designed to maintain a mosaic of sage brush cover, size, and age classes will benefit this species. The plan includes a goal that cover and forage for animals is provided by a mosaic of species and age classes of native trees, shrubs, grasses and forbs

CONCLUSION OF EFFECTS

The BDNF is on the periphery of the range of the pocket mouse and the Forest contains limited pocket mouse habitat. Habitat that does exist on the Forest is not likely to be impacted by management activities and the plan contains objectives to restore shrubland/grassland habitat in a manner that may benefit the mouse.

The predominant threat to this species, urbanization or cropland development, will not occur on BDNF lands. The plan may impact individual mice that are found on the Forest but would not result in a loss of viability or trend towards federal listing.

GREAT GRAY OWL

The Great gray owl (*Strix nebulosa*) is the largest owl in North American. The great gray owl ranges into the interior western United States finding suitable habitat south into the northern Rocky and Sierra mountains and is generally considered a year-round resident in western and southwestern Montana, and a summer resident east of those areas into the central island mountain ranges of Montana. The great gray owl is considered a rodent specialist, favoring areas near bogs, forest edge, montane meadows, and other openings preying on small mammals that occur in those habitats (Bull et al 1993). Some Great Gray Owls may remain on the breeding territory all year. Others move irregularly in search of favorable foraging conditions. Little specific information exists regarding great gray owl ecology, habitat use and reproduction in Montana (Montana Field Guide 2008).

HABITAT

Great gray owls are a contrast species, requiring the juxtaposition of rather specific habitats used for foraging and nesting conditions (Wisdom et al 2000). Ecosystem characteristics important for the great gray owl involve the availability of suitable nesting areas and foraging habitat within a home range (USFS 2000, USFS 2004).

1. Mid- or late-succession conifer forests containing large, broken-top snags (> 24 in, dbh) in the forest matrix in sufficient numbers (5-6 snags/acre) to provide nest sites. Old and decadent hardwoods have been used for nesting at lower elevations.
2. Suitable nest sites located < 300 yards from montane meadows or grass-forb forage types between 2,000 and 8,000 feet in elevation.
3. Canopy closure greater than 60% in at least portions of the forest stands adjacent to meadows or other openings.
4. Meadows or openings that have sufficient herbaceous cover to support pocket gophers and microtine rodents. Meadows with standing water remaining at mid-summer are not suitable.

Great gray owls nest in the tops of large broken-off trees (snags), in old nests of other large birds (e.g. hawks and ravens), or in debris platforms from dwarf mistletoe, frequently near bogs or clearings. Bull and Henjum (1990) found the majority (74%) of great gray owl nests in stands with trees 19 inches in diameter or larger trees. Nests are frequently reused and the same pair often nests in the same area in successive years (Franklin 1988). The species has also been known to use human-made platforms (Bull and Duncan 1993).

Food supply likely regulates the abundance of great gray owls in much of the species range (Duncan and Hayward 1994). The great gray owl forages in seasonal wet meadows, boreal forests, spruce-tamarack bogs, and coniferous forest and meadows in mountainous areas. The species usually forage in forested stands with open understories, and open areas where scattered trees or forest margins provide suitable roost or perching sites for visual searching (Bull and Henjum 1990). In the winter great gray owls may move from higher to lower elevations during periods of low prey abundance and/or large

snowfalls and be seen a mix of other forest and non-forest conditions (i.e. lower elevation forests, lowland riparian, and agriculture areas) (Montana Field Guide). Many prey species (small mammals and birds) are linked to structural habitat components (e.g. snags and downed wood) and vegetative diversity in the understory, therefore maintaining a diversity of components throughout suitable habitat at a landscape scale may be important (Duncan and Hayward 1994).

Great gray owls use a variety of forest types throughout their range (Bull and Duncan 1993). On the BDNF the species is known to use spruce-fir, lodgepole pine and Douglas-fir cover types (Verner 1994). In nearby eastern Idaho and northwestern Wyoming, over 90% of sightings were in lodgepole pine, Douglas-fir, and aspen (Franklin 1988, Whitfield and Gaffney 1997). There is no evidence that the great gray owl is dependent on “old growth” forest, however nests are typically located in large diameter trees. Based on forest inventory analysis estimates, the BDNF contains approximately 2,308,359 acres of spruce-fir, lodgepole pine and Douglas-fir cover types (602,469 acres of Douglas-fir 1,256,056 acres of lodgepole pine, and 449,834 acres of spruce-fir). Approximately 50% of these cover types are in large size classes that would provide nesting habitat for the owl.

The Forest is characterized by a mosaic of openings including bogs, swamps, wet meadows and stream-side riparian. SILC3 coverage indicates that these habitat types total over 57,000 acres, with the majority of these habitats located in the northwest portion of the Forest. Most of these acres are suitable for owl foraging as they are likely to be dry in the summer.

There has been no “specific” great gray owl habitat quantification or quality assessment anywhere in Montana to include the BDNF.

POPULATION STATUS AND DISTRIBUTION

The range of the northern great gray owl is wide-spread. It is a permanent resident in boreal and montane forests throughout the mountainous portions of the western United States, and throughout large portions of Alaska and Canada (Figure 18).

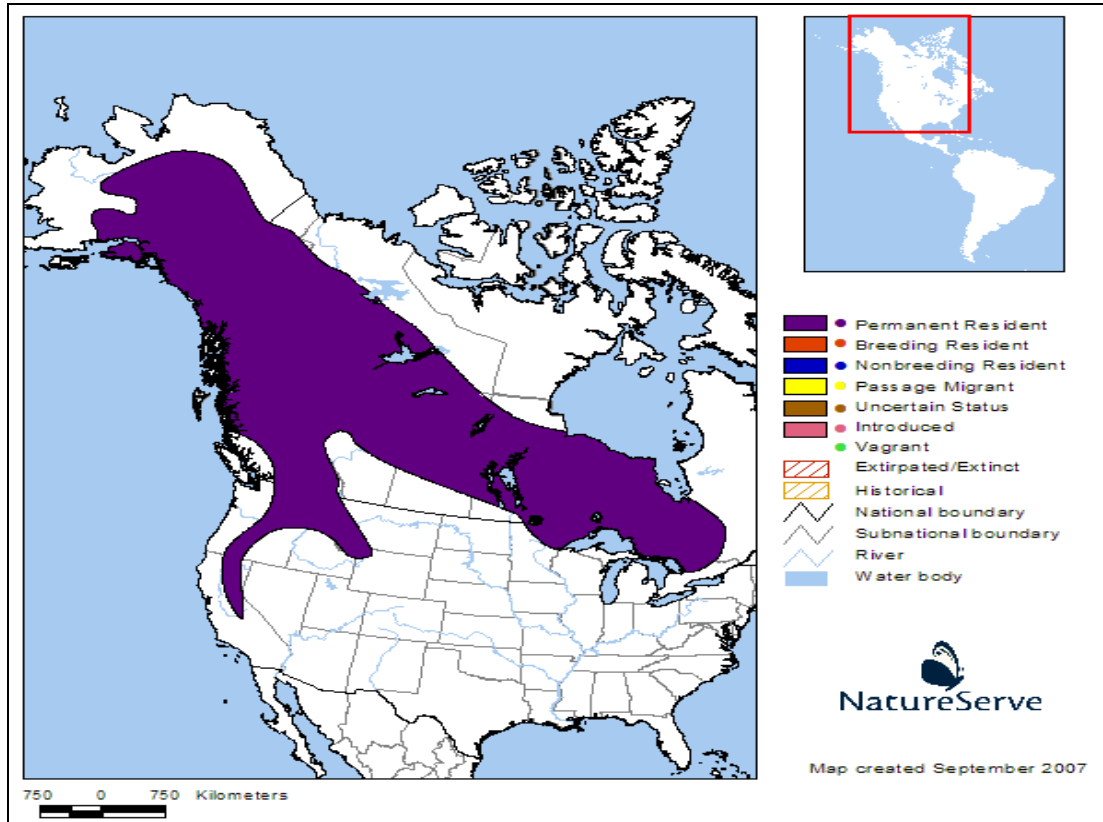


Figure 18. Range of Great Gray owl in North America

According to NatureServe (accessed 10/23/2008) the great gray owl has a conservation status rank of G5. This indicates the species is globally secure which means the species is “common, widespread and abundant”. In the Northern Region (Region 1) the state conservation status ranks for the species in Montana is displayed in Table 4.

Table 4. Great gray owl conservation status in Region 1.

State	Rank	Definition
Montana	S3	Vulnerable – Vulnerable in the state due to a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation

The great gray owl is considered a “species of concern” by the State of Montana (http://fieldguide.mt.gov/detail_ABNSB12040.aspx) and is classified as a Tier 2 species in the State of Montana’s Comprehensive Fish and Wildlife Conservation Strategy (CFWCS) (Montana Field Guide 2008). The great gray owl is protected under the Migratory Bird Treaty Act of 1918. The species is also covered by Executive Order 13186 of 2001 describing the responsibilities of Federal agencies to protect migratory birds, and these responsibilities include inventory and monitoring.

No statewide population estimates are available for Montana (Montana Field Guide 2008). No long-term, rigorous, or standardized data on regional or local breeding populations are available (Duncan and Hayward 1994, Sauer et al 2008). Duncan and

Hayward (1994) reported that populations in the southern portion of the species western U.S. range appear stable. They also indicate that standardized, species-specific survey protocol (or at least one that is specific to owls) is needed to obtain long-term trend data.

Based on broad-scale data contained in the Montana Natural Heritage Tracker (2008) the great gray owl appears widely distributed and relatively well represented on NFS lands in the western half of Montana (Montana Natural Heritage Tracker 2008).

Available habitat on the BDNF, while naturally scattered based on the island mountain range landscapes, appears to link concentrations of point locations to National Forests in western and central Montana.

The Montana Natural Heritage Tracker (2008) contains nearly 20 point locations where there is direct or indirect evidence of breeding on the BDNF (Figure 19). The majority of these locations are located in the western half of the BDNF, west of I-15 and I-90. Fewer direct/indirect breeding locations are located in the southern and eastern portions of the BDNF. Over 15 non-breeding observations are scattered across the BDNF.



Figure 19. Great Gray Owl detections – BDNF. Pre -1970 – 2008. Natural Heritage Tracker

Based on the amount of available forest cover types, the amount of natural forest disturbances and the low amount of timber harvest and other human developments it is expected that great gray owls are found in the old, unmanaged young and stand-initiation stages of the montane and riparian forests that exist on the BDNF.

THREATS

Range-wide, the primary risks or threats to great grey owl habitat are vegetation alterations that have a negative affect on prey populations, vegetation alterations that degrade or destroy nesting habitat within a home range, and increased risk of predation or other mortality factors.

Timber harvest may reduce or eliminate live and dead large-diameter trees used for nesting, leaning trees used by juveniles for roosting before they can fly, and dense canopy closures in stands used by juveniles for cover and protection. If perches are not left in clearcuts, great gray owls cannot readily hunt from them and juveniles may be more susceptible to predation (Bull and Duncan 1993). Great gray owls may also benefit from timber harvest if it results in more open forest structure conditions (Pilliod et al. 2006).

The great gray owl preys on small mammals (pocket gophers and voles) and has been shown to depress or control prey species populations. Increases in foraging habitat that may result from timber harvest can be offset by the use of poisons that are sometimes used to control pocket gophers and other rodents in areas where trees are planted following timber harvest or fire (Hayward 1994). Use of poisons, reduces prey availability.

Other activities that can influence the species include fire exclusion and livestock grazing. Great gray owl habitat has been impacted by effective wildfire suppression throughout the interior west. Large numbers of seedlings and saplings in many forests have created dense forest stands and encroachment of conifers into unforested areas (Pilliod et al. 2006). Livestock grazing practices can directly degrade meadow sites important to great gray owls by altering both the structure and species composition of the grass, forb and shrub layers in montane meadows thereby impacting the habitat of prey species (Belsky and Blumenthal 1997). Great gray owls also use riparian areas for both nesting and foraging and adverse impacts caused by livestock grazing in those areas can negatively affect habitat for great gray owl prey and reduce or eliminate foraging habitat potential (Hayward 1994).

Current and expected trends regarding insect infestations as well as increased size and frequency of wildfire also represent a threat to the great gray owl. Modeled projections of future cover types indicate that reductions are likely to occur in the large diameter size classes in dry forest types on the Forest, to include the lodgepole pine and Douglas-fir cover types.

EFFECTS

An analysis of cover type and size class indicates that much of the Forest remains within the range of historic variability for those forest characteristics. However, substantial

changes in forest composition and structure have been predicted through several modeling exercises. Through insect infestations alone, acres of large size class dry forest type that is currently estimated at more than 1.1 million acres is projected to decrease to less than 400,000 acres. The predicted loss of large diameter size classes through insect infestations and wildfire in forest cover types used by the owl is a concern.

The plan recognizes the importance of retaining great gray owl habitat and includes an objective to improve resiliency of large diameter forest types used by this species. While harvest activity is permitted in green timber under the plan, harvest in green timber is not a focus of the plan, and it has been only a minor portion of the timber sale program on the Forest in recent years. Timber harvest activities under the plan are expected to occur on a very small fraction of the area providing great gray owl habitat. Treatments would be expected to focus on reducing stand density using both mechanical and prescribed fire methods. To the extent that these treatments are successful in retaining the large diameter size classes of the forest types used by the owl, the treatments would be beneficial to the owl. The declining trend in timber sale activities on the Forest can be seen in Figure 20.

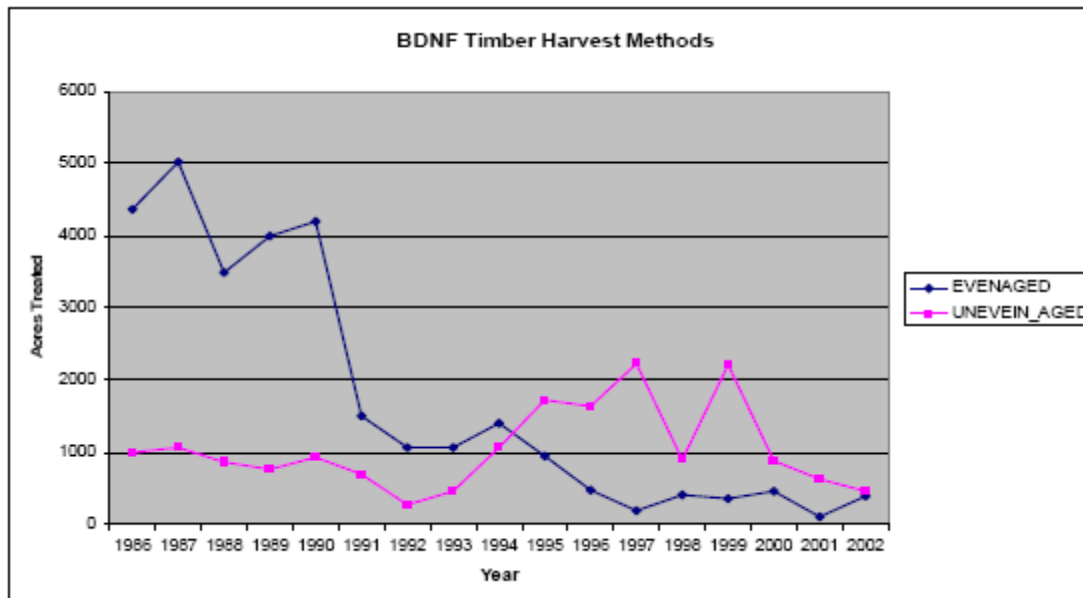


Figure 20. Trend in Timber Harvest Acres: 1986 - 2002

Old growth habitat is well distributed across the Forest (FEIS, Table 162, Figure 26). While the great gray owl is not an old growth obligate species, the species does use large trees for nesting. The plan contains direction that recognizes the importance of retaining old growth, well distributed across the forest, and includes a standard that would reduce impacts to old growth that could occur through management actions. Under the standard, old growth could be impacted through management actions involving hazard tree removal and other treatments needed to meet public safety issues. Hazard tree removal and other treatments needed to meet public safety issues is likely to occur on a very limited basis in old growth and would not be expected to influence the viability of great gray owls on the Forest. Under the plan, treatments (both mechanical harvest and prescribed fire) could occur in old growth stands as long as the treatments do not cause the stands to no longer meet the minimum old growth stand characteristics standards

described by Green et al. Such treatments are expected to occur in relatively few of the old growth stands on the forest.

Large snags are important to great gray owls and are in plentiful supply across the Forest (FEIS, Figure 28). Where timber harvest would occur under the plan, the plan includes provisions for both snag and green tree retention; retention levels are based on snag analyses from unmanaged areas that represent high quality habitat and functional landscapes (i.e. roadless and wilderness areas). With respect to great gray habitat preferences, plan direction will retain all snags greater than 20" dbh (except for hazard trees). Great gray owls typically do not build their own nests, but use existing nests built by other large birds such as ravens and goshawks. On the Forest, we expect that goshawk nests may be the most common structures great gray owls use, since both species nest in dense forest settings. The plan includes direction to avoid disturbance at nest sites.

With respect to pocket gopher control (poisoning) to meet reforestation needs the Forest does not use poison to control pocket gophers. The plan does not anticipate use of poison to control pocket gophers. Therefore there will be no impacts to great gray owl prey base through the use of poisons.

Fire-suppressed stands, which are typically characterized by closed canopies and dense conifer understory, are not as valuable to great gray owls for nesting because of the dense conifer understory that reduces nesting habitat quality. Properly planned vegetation management could reduce or eliminate these effects, to include the use of fire to achieve desired conditions. Under the plan the full range of appropriate management responses to wildland fire is available. The Forest Service recognizes the need to return landscapes to conditions where forest conditions and fire return intervals reflect healthy sustainable ecosystems. Through appropriate management response, fire suppression tactics are dictated by a number of factors that are specific to each wildfire event (public and firefighter safety, the values at risk, and probability of safely and successfully implementing actions). To the extent that ecological goals can be achieved within this context, wildfires can be managed to the benefit of species such as the great gray owl.

The indirect but negative effects of grazing are related to impacts on foraging habitat. Meadows or openings should have sufficient herbaceous cover to support pocket gophers and microtine rodents. The plan includes direction that would retain roughly 55% of forage in uplands. This amount of forage is expected to support a suitable prey base for the owl. Anecdotally, pocket gophers, a main prey species for the owl, appear to be abundant. Riparian areas may also produce prey species important to great gray owls. The plan contains direction regarding aquatic and riparian habitats. In short, the guidance is expected to result in the maintenance of those riparian habitats that are currently in good condition and restoration of those that are not. Thus, under the plan, habitat for prey species for great gray owls that are associated with riparian areas will be maintained or enhanced. Also with respect to open meadow habitats important for owl foraging, the plan contains direction to treat 74,000 acres by removing conifers that have encroached into grassland and shrubland areas. Not all, but some of these treatments would be expected to benefit the owl, particularly where they occur in montane meadow areas adjacent to forest types utilized by the owl.

CONCLUSION OF EFFECTS

Specific viability threshold information, similar to the information available for other species analyzed in the plan (goshawk, fisher, flammulated owl, and black-backed woodpecker) is not available for the great gray owl. Natural disturbance processes are expected to result in substantial losses of large diameter dry forest types utilized by the owl. Loss of such habitat through management activity is expected to be minimal, since the focus of timber harvest activities under the plan are expected to be largely focused in bug-killed timber that does not provide good quality habitat for the owl.

The plan recognizes ongoing trends regarding large scale insect infestations and increased occurrence of wildland fire that represent significant threats to great gray owl habitat. The Forest plan provides for active vegetation management to improve resiliency of these areas. Successful implementation of this plan objective could lessen some of the impacts from natural disturbances and offset impacts from Forest service vegetation management activities that reduce or degrade great gray owl habitat.

The plan includes direction that in most cases prohibits management activities that would adversely impact or otherwise decrease old growth. Impacts of management activities to old growth, and subsequently great gray owl are expected to be minimal. The plan maintains a snag densities at levels similar to those found in unmanaged areas. The plan also includes provisions regarding grazing practices and prescribes conifer encroachment treatments that should help maintain and improve foraging areas. The plan would not cause a loss of viability of the great gray owl or cause a trend toward federal listing of the species.

GRIZZLY BEAR

HABITAT

Grizzly bears are opportunistic feeders and will prey or scavenge on almost any available food including ground squirrels, ungulates, carrion, and garbage. In areas where animal matter is less available, roots, bulbs, tubers, fungi, and tree cambium (thin layer in most vascular plants that is responsible for growth) may be important in meeting nutrient requirements. High quality foods such as berries, nuts, and fish are important in some areas (USFS 2006c).

The search for food has a primary influence on grizzly bear movements. Upon emergence from dens, they seek lower elevations, drainage bottoms, avalanche chutes, and big game winter ranges where their food requirements can be met. Throughout late spring and early summer, they follow plant maturity back to higher elevations. In late summer and fall, there is a transition to fruit and nut sources, as well as other plant materials. This is a generalized pattern and it should be noted that bears will go where they can best meet their food requirements (Grizzly EIS - USDA 2006c).

Grizzly bears in the GYA have the highest percent of meat consumption in their diet of any inland grizzly bear population (Hilderbrand et al. 1999). Approximately 30 to 70 percent of the Yellowstone grizzly bear diet is some form of meat. Adult males eat the greatest proportion of meat. Meat is considered to be any form of animal including big game (i.e., deer, elk, moose, bison), fish, army cutworm moths, other insects, and small mammals (i.e., ground squirrels, mice, voles) (Grizzly EIS - USDA 2006c).

Specific to the GYA, four seasonal foods have been identified as being important to the grizzly bear population (Grizzly EIS - USDA 2006c).

Ungulates (primarily elk and bison, but also deer and moose) are especially important during spring after emergence from dens and through the calving/fawning seasons. Recent research has demonstrated that grizzly bears seek hunter-killed carcasses and gut piles (Grizzly EIS - USDA 2006c).

Whitebark pine seeds are the most important fall food of Yellowstone grizzly bears. The availability of nuts influences annual feeding strategies and movement patterns and influences the number of grizzly bear/human conflicts and human-caused bear mortalities, (Grizzly EIS - USDA 2006c).

Army cutworm moths are a preferred source of nutrition for many grizzly bears in the Yellowstone ecosystem and represent a high quality food that is available during the summer (Grizzly EIS - USDA 2006c).

Grizzly bears feed on spawning cutthroat trout along the tributaries of Yellowstone Lake during the spawning season from May 1 to July 15. Male bears consumed 92 percent of all trout ingested by grizzly bears and that the estimated cutthroat trout intake per year by the grizzly bear population was only a small fraction of that estimated by previous investigators. These data suggest that female grizzly bears living near these spawning streams have a poorer quality diet (Grizzly EIS - USDA 2006c).

Ninety percent of 2,261 aerial radio relocations of 46 instrumented grizzly bears were in forest cover too dense to observe the bears. The importance of an interspersed open parks as feeding sites associated with cover is also recorded in Blanchard's study, as only 1 percent of the radio relocations were in dense forest more than a kilometer from an opening (Grizzly EIS - USDA 2006c).

Forest cover was found to be very important to grizzly bears for use as beds. Most beds were found less than a yard or two from a tree; only 16 of 233 beds observed (6.7 percent) were without immediate cover (Grizzly EIS - USDA 2006c)

Secure habitat as defined in the grizzly EIS is more than 500 meters from an open or gated motorized access route or recurring helicopter flight line. Secure habitat must be greater than or equal to 10 acres in size. Large lakes greater than one square mile are not included. Denning habitat has been described as follows (Grizzly EIS - USDA 2006c):

- Den sites are associated with moderate tree cover (26 to 75 percent canopy cover).
- Den sites are usually on 30 to 60 degree slopes.
- Den sites occurred on all aspects, although northerly exposures were most common.
- Grizzly bears usually dig new dens, but occasionally used natural cavities or a den from a previous year.
- Mean elevation at den sites for females with cubs that emerged from dens was 8,845 feet. Mean elevation for other females was 8,467 feet, and for males was 8,444 feet.
- Denning habitat is well distributed and abundant throughout the GYA (Grizzly EIS - USDA 2006c).

As noted at Figure 21 the southeast portion of the Beaverhead Forest (Gravelly landscape) is occupied by grizzly bears. Individual bear sightings, however, have been documented well north of the distribution line in the Gravelly landscape. Reproduction and denning, however, have yet to be documented beyond the distribution line in the Gravellys. At the rate the bear population has been expanding, however, it appears to be just a matter of time before such activity is documented throughout the Gravelly Range.

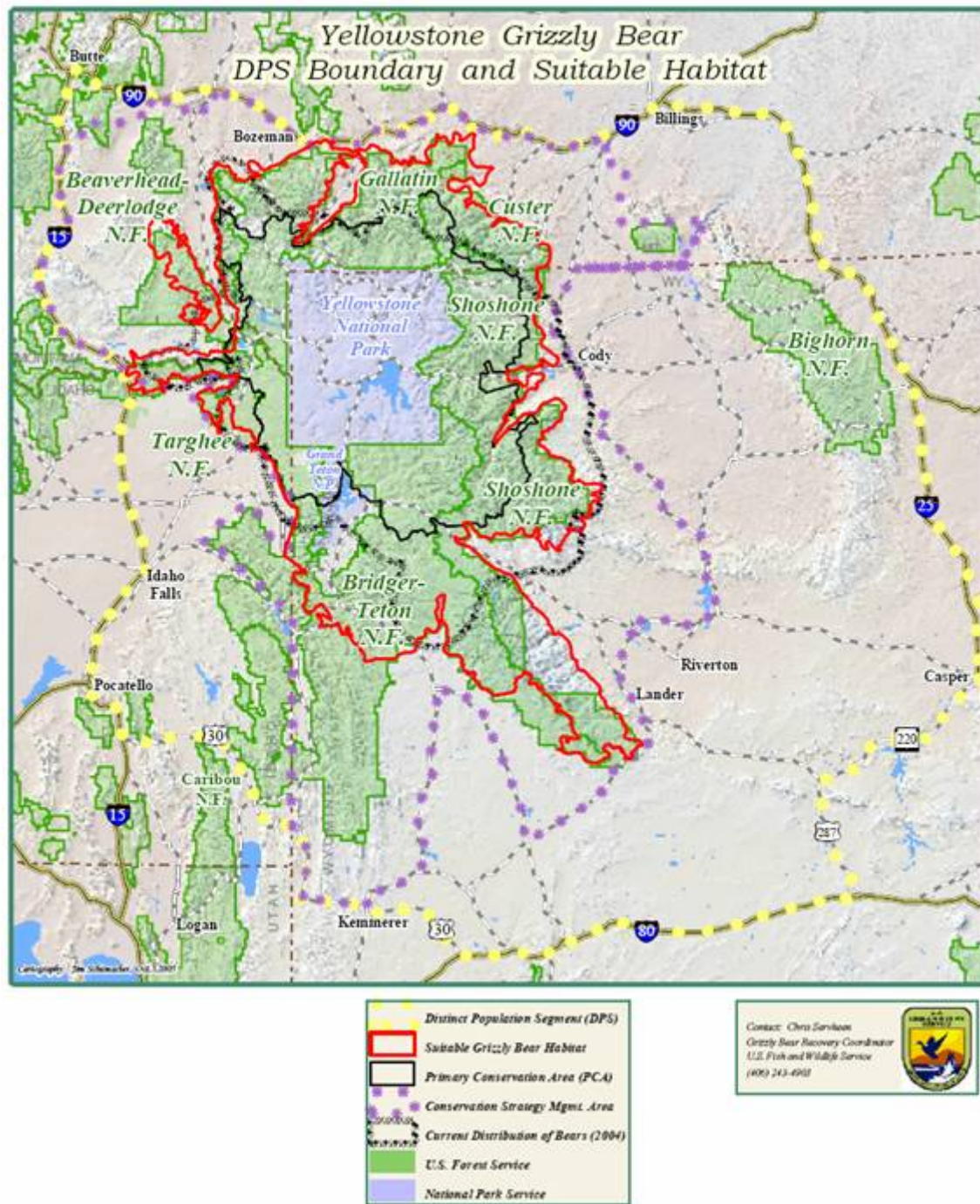


Figure 21. Yellowstone DPS Habitat

Whitebark pine stands in the Gravelly Range have incurred severe mortality over the past few years due to mountain pine beetle outbreaks. Losses are particularly evident in the Black Butte area. It remains to be seen what the effect will be on bear distribution and potential human – bear conflicts.

POPULATION STATUS AND DISTRIBUTION

As of April 30, 2007 the Yellowstone distinct population segment has been de-listed (*Federal Register* / Vol. 72, No. 60 / Thursday, March 29, 2007) as a threatened species under the Endangered Species Act. It has been re-classified to the Northern region sensitive species list. The stronghold of the Yellowstone segment is the primary conservation area centered on Yellowstone National Park (Figure 22).

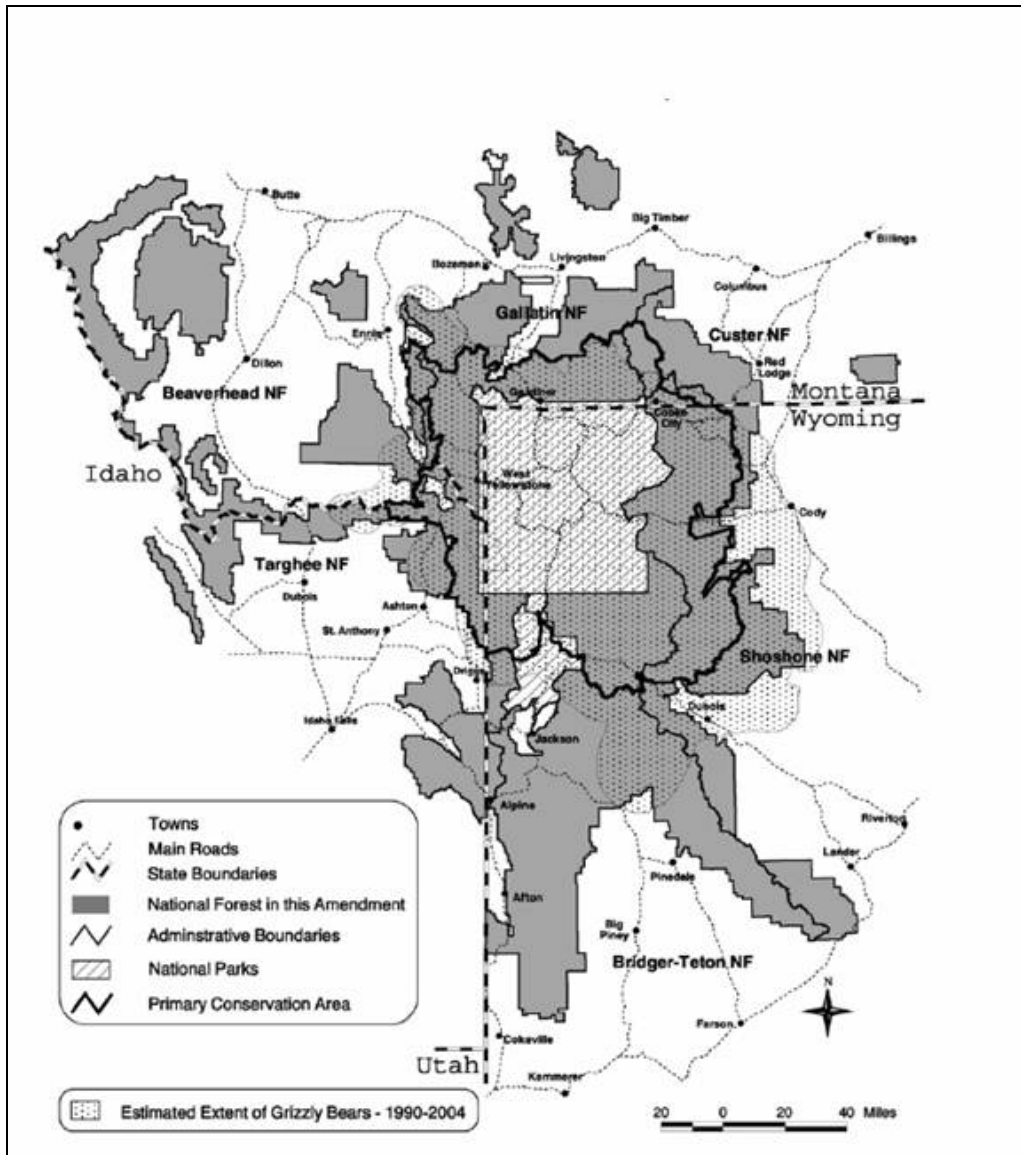


Figure 22. Extent of Yellowstone Grizzly Bear Population 1990 – 2004. *Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests. 2006. Grizzly EIS-USDA Forest Service*

THREATS

Grizzly bear distribution and abundance is directly and/or indirectly affected by the following factors:

Grizzly Bear/Human Conflicts – Grizzly bear/human conflicts are defined as incidents in which grizzly bears injure people, damage property, kill or injure livestock, damage beehives, obtain anthropogenic (unnatural) foods, or damage or obtain garden and orchard fruits and vegetables. These conflicts often lead to the death of the offending bear(s) and may reduce the suitability of areas within which grizzly bears may exist.

Grizzly Bear/Motorized Access and Secure Habitat Interactions - It has been documented in several research projects, completed and ongoing, that unregulated human access and development within grizzly bear habitat can contribute to increased bear mortality and affect bear use of existing habitat (IGBC 1998 - Interagency Conservation Strategy Team 2003).

Grizzly Bear/Developed Site Interactions - The effects of human activity associated with developments on grizzly bear habitat use have been reported by Mattson et al. (1987), and include the following:

- Grizzly bear use was lower in areas near human developments
- Foraging behavior was disrupted
- Dominant bears tended to displace subordinate bears into areas with more human development
- Adult females and subadult males residing closer to developments were more likely to be involved in management actions (such as being trapped and relocated)

Grizzly Bear/Livestock Interactions – Grizzly bears have been documented to prey on both cattle and domestic sheep (Knight and Judd 1983, Anderson et al. 1997). Domestic sheep are more vulnerable to predation by grizzly bears and where the two overlap this conflict is highly likely. Consequently grizzly bears are at greater risk of being shot where domestic sheep occur in grizzly bear habitat.

EFFECTS

The Record of Decision for the Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests (USDA 2006b) provides grizzly bear management guidance. The Montana Grizzly Bear Management Plan for Southwestern Montana (MTFWP 2002) supplements this direction because the grizzly bear amendment does not include the Deerlodge portion of the forest (FEIS, p. 493, Forest Plan Appendix G)

Standards, guidelines and monitoring are identified in the aforementioned Forest Plan Amendment (USDA 2006d), which address the threats of Grizzly Bear/Human Conflicts, Grizzly Bear/Motorized Access and Secure Habitat Interactions, Grizzly Bear/Developed Site Interactions, Grizzly Bear/Livestock Interactions identified in the previous section.

Road density objectives are established for NFS lands on all hunting districts. Under the plan, reduction in road densities are expected, thus resulting in increased security for grizzly bears. Gravelly Landscape fall open motorized road and trail densities will range from 0.4 to 0.8 miles/sq mi. at the hunting district scale. These road densities are compatible with open road density recommendations within the Primary Conservation Area itself (Appendix G. ROD – Grizzly Bear Amendment) and would help to reduce human-bear conflicts during the most intense recreation use period, general hunting season. Fall is of particular importance because there is a dramatic pulse of recreation pressure during the general hunting season. The Gravelly landscape receives more elk hunting pressure than any other landscape on the Forest and Southwest Montana. The plan management direction would prohibit summer motorized wheeled cross-country travel Forest-wide.

Fall secure habitat within the Gravelly Landscape hunting districts ranges from approximately 54% to 73% using a buffer of 1/3 mile. This buffer was developed by the interdisciplinary team as a tool to assess impacts on both secure habitat and quiet recreation experience. Consequently secure habitat is actually underestimated compared to the 500 meter buffer used in the Grizzly EIS Plan direction. This will provide for widespread secure habitat in the Gravelly landscape for expansion of bear use.

Maintaining active sheep allotments in the Gravelly landscape can lead to depredations by grizzly bears. There will be no increases in permitted sheep AUMs under the Plan. Standard 6 in the plan states that sheep allotments in the Gravelly Landscape which become vacant will be closed to sheep grazing or the vacant allotment may be used by an existing Gravelly Landscape sheep Permittee, with no increase in permitted use (Scale - Gravelly Landscape).

Alternatives 5 and 6 also include options to reduce encounters between grizzly bears and domestic sheep conflicts when sheep allotments become vacant in occupied grizzly bear habitat (FEIS Chapter 3, P. 312-313. A vacant sheep allotment could be added to an existing sheep permit. The number of sheep permitted to graze would not be increased even though the area available to graze is greater. This would give the Permittee more places to move sheep to avoid bear-sheep encounters. The other possibility would be to stock the sheep allotment with cattle if it is suitable for cattle grazing. This alternative benefits existing permittees, even though it may not maintain AUM production. Replacement of sheep with other livestock as sheep allotments become vacant is compatible with direction in the Grizzly EIS.

Under the plan, food storage and sanitation orders are in place across the entirety of the Madison Ranger District and will be maintained by plan implementation. This will further reduce the potential for adverse bear-human encounters.

There are no acres allocated to intensive timber management throughout the Gravelly landscape. Consequently, plan implementation will reduce the amount of potential disturbance to bears from timber harvest activity.

Landscape permeability as a function of lower road densities is particularly favorable for bear movement westward from Yellowstone through the Centennial Mountains and then northwards along the western border of the forest. This facilitates connectivity with the

Bitterroot and Lolo National Forest for potential expansion of grizzly bear use. Lower road densities also increase the amount of secure habitat for grizzly bears forest-wide.

The forest plan management direction would improve habitat quantity and quality favorable for grizzly bears.

With respect to grizzly bear conservation outside the primary conservation area, the following highlights are extracted directly from the grizzly ROD which is included verbatim in Appendix G of the plan.

- Outside the Primary Conservation Area in areas identified in state management plans as biologically suitable and socially acceptable for grizzly bear occupancy, accommodate grizzly bear populations to the extent that accommodation is compatible with the goals and objectives of other uses.
- Outside the Primary Conservation Area in areas identified in state management plans as biologically suitable and socially acceptable for grizzly bear occupancy, livestock allotments or portions of allotments with recurring conflicts that cannot be resolved through modification of grazing practices may be retired as opportunities arise with willing permittees.
- Outside the Primary Conservation Area in areas identified in state management plans as biologically suitable and socially acceptable for grizzly bear occupancy, emphasize proper sanitation techniques, including food storage orders, and information and education, while working with local governments and other agencies.
- Outside the Primary Conservation Area in areas identified in state management plans as biologically suitable and socially acceptable for grizzly bear occupancy, maintain the productivity, to the extent feasible, of the four key grizzly bear food sources as identified in the Conservation Strategy. Emphasize maintaining and restoring whitebark pine stands inside and outside the Primary Conservation Area.
- Outside the Primary Conservation Area in areas identified in state management plans as biologically suitable and socially acceptable for grizzly bear occupancy, monitor, and submit for inclusion in the Interagency Grizzly Bear Study Team Annual Report: changes in secure habitat by national forest every two years.
- Inside and outside the Primary Conservation Area, monitor and evaluate allotments for recurring conflicts with grizzly bears.
- Inside and outside the Primary Conservation Area in cooperation with other agencies, annually submit for inclusion in the Interagency Grizzly Bear Study Team Annual Report: Results of Whitebark Pine Cone Production from Transects or Other Appropriate Results of Other Whitebark Pine Monitoring.

CONCLUSION OF EFFECTS

The Plan incorporates the 2006 Record of Decision for Grizzly Bear habitat conservation for the greater Yellowstone Area National Forests, and includes additional provisions that would conserve bears outside of the primary conservation area. The plan would reduce

road densities, reduce the acres available for intensive timber management, provide for increased secure habitat for grizzly bears, address grizzly bear human conflicts and grizzly bear livestock interactions, and provide for connectivity between Yellowstone National Park, the Gallatin and Caribou-Targhee National Forests through the BDNF to public lands to the west and north including the Salmon, Bitterroot, and Lolo National Forests in particular. While individual bears may be impacted through implementation of activities identified in the Forest Plan, the plan would enhance the recovery of the Yellowstone distinct population segment of the grizzly bear and help to prevent a return to listing as a threatened species. The plan would provide habitat conditions to support grizzly bear viability.

HARLEQUIN DUCK

HABITAT

In Montana, most Harlequin ducks inhabit fast moving, low gradient, clear mountain streams. Overstory in Montana does not appear to affect habitat use: 1) in Glacier National Park, birds used primarily old-growth or mature forest (90%); and 2) most birds in streams on the Rocky Mountain Front were seen in pole-sized timber. Banks are most often covered with a mosaic of trees and shrubs, but the only significant positive correlation is with overhanging vegetation (Montana Natural Heritage Program-Harlequin Duck Species Account).

This species uses riparian habitats for feeding, nesting, and cover. They breed near swiftly flowing, clear, forested or well vegetated, undisturbed mountain streams (Hart et al 1998). The birds feed primarily on aquatic invertebrates. Prey items in droppings at Grand Teton National Park consisted primarily (95%) of Stoneflies, Mayflies, and Caddisflies (Montana Natural Heritage Program-Harlequin Duck Species Account). High water quality is required to sustain this prey base.

POPULATION STATUS AND DISTRIBUTION

The harlequin duck breeds from northern Yukon, northern British Columbia, and southern Alberta south to Oregon, Idaho, Wyoming, and east of the Continental Divide in Montana. The western breeding center is located in Alaska and British Columbia (Hart et al 1998). Montana breeding distribution is concentrated in the northwestern portion of the State with some breeding activity documented near Bozeman (Montana Natural Heritage Query). The Harlequin Duck range is small and fragmented in Montana. The highest Montana densities are still low (1.7 – 2.3 pairs/sq. mile at McDonald Creek in Glacier National Park (Montana Natural Heritage Program-Harlequin Duck Species Account).

In Montana, egg-laying takes place between April 30 and July 4 with most between May 10 and June 10; it tends to be during the earlier dates on the lower Clark Fork River tributaries and during the later dates on the streams north of Yellowstone National Park (Kuchel 1977, Reichel and Genter 1996). Kuchel (1977) estimated hatching dates for broods on McDonald Creek, Glacier National Park: 13 of 15 occurred between June 27 and July 7 with extremes on June 11 and August 2. Young fledge in Montana between July 15 and September 10, with most fledging between July 25 and August 15 (Montana Natural Heritage Program-Harlequin Duck Species Account).

The birds winter almost exclusively in coastal waters of Oregon and Washington.

As noted from figure 23, breeding has been documented only in Granite County (Rock Creek) on the Forest. Portions of Powell and Jefferson County include transient records. Evident from Figure 23 is the heart of breeding activity occurring well outside the Forest in northwest Montana. The one breeding record for the forest is located on the Middle Fork of Rock Creek approximately 2 miles south of Moose Lake.

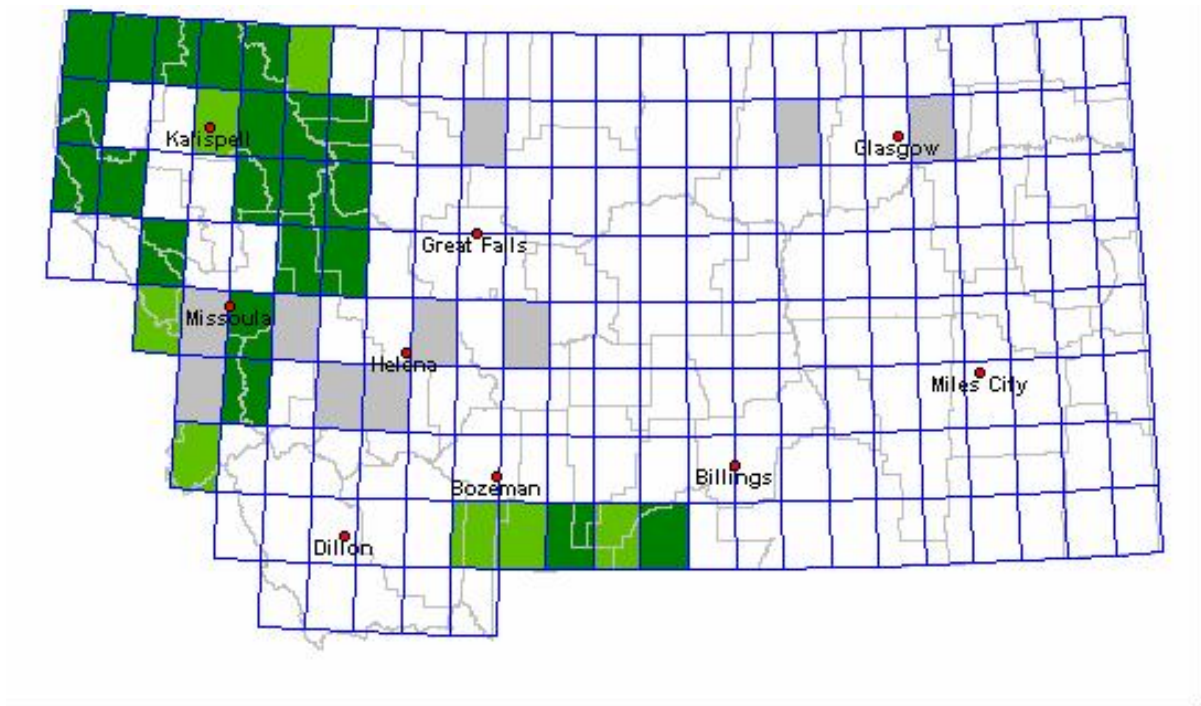


Figure 23. Harlequin duck breeding detections in Montana (Montana Bird Distribution Database).

The Pacific North American populations appear to be stable in Idaho, Montana, and Wyoming (NatureServe Explorer)

THREATS

Land disturbing activities such as roading, logging and mining can impact riparian habitat, affect breeding areas, and reduce water quality. Impacts to water quality could indirectly affect aquatic organisms which the birds feed on.

Harlequins can also be susceptible to other disturbance, such as human use along stream courses.

EFFECTS

The plan contains Forest-wide aquatic and riparian management direction that will maintain or improve aquatic and riparian integrity and function that provide for harlequin duck habitat. The plan also contains direction that would mitigate impacts to aquatic and riparian habitats that could arise from the use of pesticides in adjacent upland habitats.

There is only one known breeding detection on the BDNF. The detection is upstream of Moose Lake in the upper Rock Creek Middle Fork Management area. It is in a key watershed under the plan. Management of this area is not expected to change under the new plan. Thus, disturbance levels in this area where breeding has been detected is not expected to change.

The Forest contains other remote areas with habitat that could support breeding harlequin ducks. The plan includes a variety of allocations such as wilderness, recommended

wilderness, non-motorized use and key watershed well distributed across the forest. These areas encompass approximately two thirds of NFS lands in the plan area. Additionally, there is a Forest-wide prohibition of wheeled cross country travel. Thus, continued existence of undisturbed riparian and aquatic habitats that is currently prevalent on the Forest is expected to persist at current levels.

CONCLUSION OF EFFECTS

The plan contains aquatic and riparian management direction that will maintain or improve aquatic and riparian integrity and function that provide for harlequin duck habitat. Habitat conditions or disturbance levels at the location where breeding has been detected on the Forest is not expected to change. The plan retains large amounts of remote stream and riparian habitat, distributed across the Forest that provides other potential breeding habitat for the harlequin duck. Under the plan there will be no loss of species viability or a trend towards Federal listing.

NORTHERN BOG LEMMING

HABITAT

Bog lemming populations occur primarily in sedge or alder-willow bogs on the edge of spruce-fir and/or lodgepole pine forest, and sphagnum bog mats are considered important (summarized in Hart et al. 1998). Large, thick moss mats (> 1 ac), particularly sphagnum moss is the best habitat predictor for potential northern bog lemming sites (Reichel and Corn 1997). The bog lemming is an herbivore, thus serving a role in ecosystem process and function through plant seed dispersal creating changes in plant species composition and density; however, little is known about the specific food habits of the bog lemming. It maintains a home range of probably less than 1-acre, although data regarding movements are unavailable. Population densities may range up to 36 per acre. It is very sociable and may be found in small colonies. (Montana Natural Heritage species account)

Throughout their range a variety of habitats are occupied, especially near the southern edge of the global distribution, and include sphagnum bogs, wet meadows, moist mixed and coniferous forests, montane sedge meadows, krummholz spruce-fir forest with dense herbaceous and mossy understory, alpine tundra, and mossy streamsides. Areas with extensive moss mats, primarily sphagnum, are the most likely sites in which to find new populations (Wright 1950, Reichel and Beckstrom 1994, Reichel and Corn 1997, Pearson 1999, Foresman 2001a in Montana Natural Heritage species account).

Detectability of this species is very low (Reichel and Corn 1997), requiring considerable effort to trap even one specimen. While Hart et al. (1998) speculate that the species may eventually be found to occur locally across much of western Montana, there is no empirical evidence to demonstrate that this is likely. Despite the low likelihood of detection, GIS modeling of riparian spruce habitat shows widespread distribution at low levels across the forest. With small home ranges and the island mountain range landscapes characteristic of the BDNF, it seems unlikely that there would be interchange between existing populations. The only detection at this time is from Maybee Meadows on the Wisdom Ranger District (Figure 25).

Table 5. Modeled BDNF Riparian/Spruce Habitat.

Landscape	Acres of Riparian / Spruce
Pioneer	878
Big Hole	497
Rock Creek	223
Clark Fork Flint - Upper Clark Fork	360
Boulder River	85
Jefferson River	53
Tobacco Roots	0
Gravelly	260
Madison	261
Lima-Tendoy	0
Total	2617 (Less than 1% of the BDNF land base)

Query 2 in wildlife section of project file

POPULATION STATUS AND DISTRIBUTION

Until recently, there were only a few known northern bog lemming locations known in Montana: several in Glacier National Park (Wright 1950, Weckwerth and Hawley 1962) and one in the Rattlesnake drainage north of Missoula (Adelman 1979). From 1992-93, 10 additional sites were found, with locations ranging from the northwestern corner of Montana south to just north of Lost Trail Pass in Beaverhead County and east to the Rocky Mountain Front (Reichel and Beckstrom 1993, 1994). The northern bog lemming may eventually be found to occur locally across much of western Montana. (Hart et al. 1998)

In Montana, the northern bog lemming is at the southern margin of its global range (Figure 24). Records are available for six counties (Beaverhead, Flathead, Lewis and Clark, Lincoln, Missoula, Ravalli), with all but two sites (one in Beaverhead County - Lost Trail Pass, one in Lewis and Clark County) occurring west of the Continental Divide. Elevation of these sites ranges from 3,340 to 6,520 feet, but a 2003 record from a new site in Ravalli County extends the upper elevation limit to 7,400 feet. (Montana Natural Heritage species account).

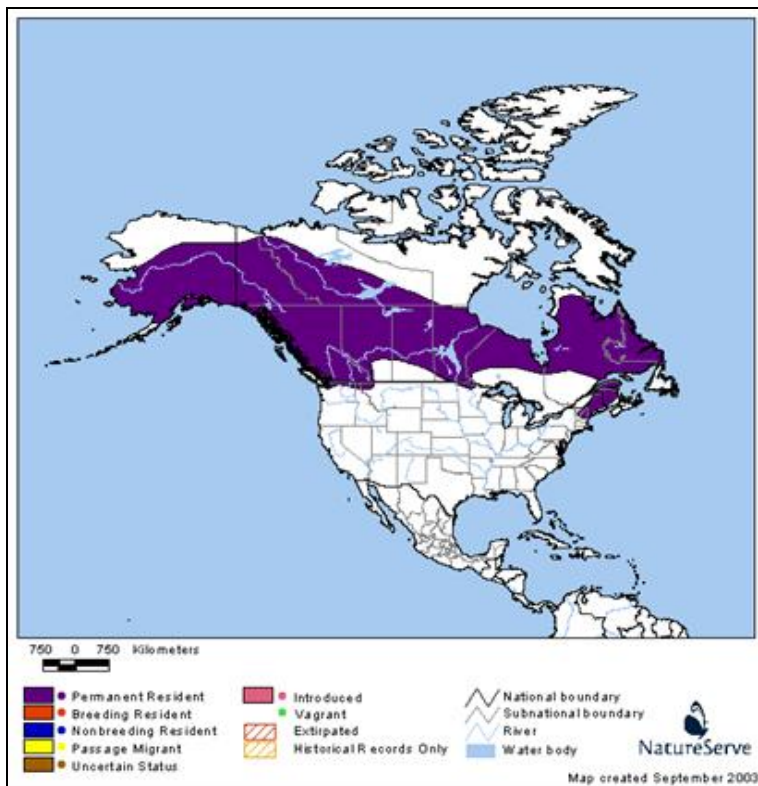


Figure 24. Northern bog lemming range. NatureServe. 2005. NatureServe Explorer: An online encyclopedia of life [web application]. Version 4.4. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. "Data provided by NatureServe in collaboration with Bruce Patterson, Wes Sechrest, Marcelo Tognelli, Gerardo Ceballos, The Nature Conservancy-Migratory Bird Program, Conservation International-CABS, World Wildlife Fund-US, and Environment Canada-WILDSPACE."

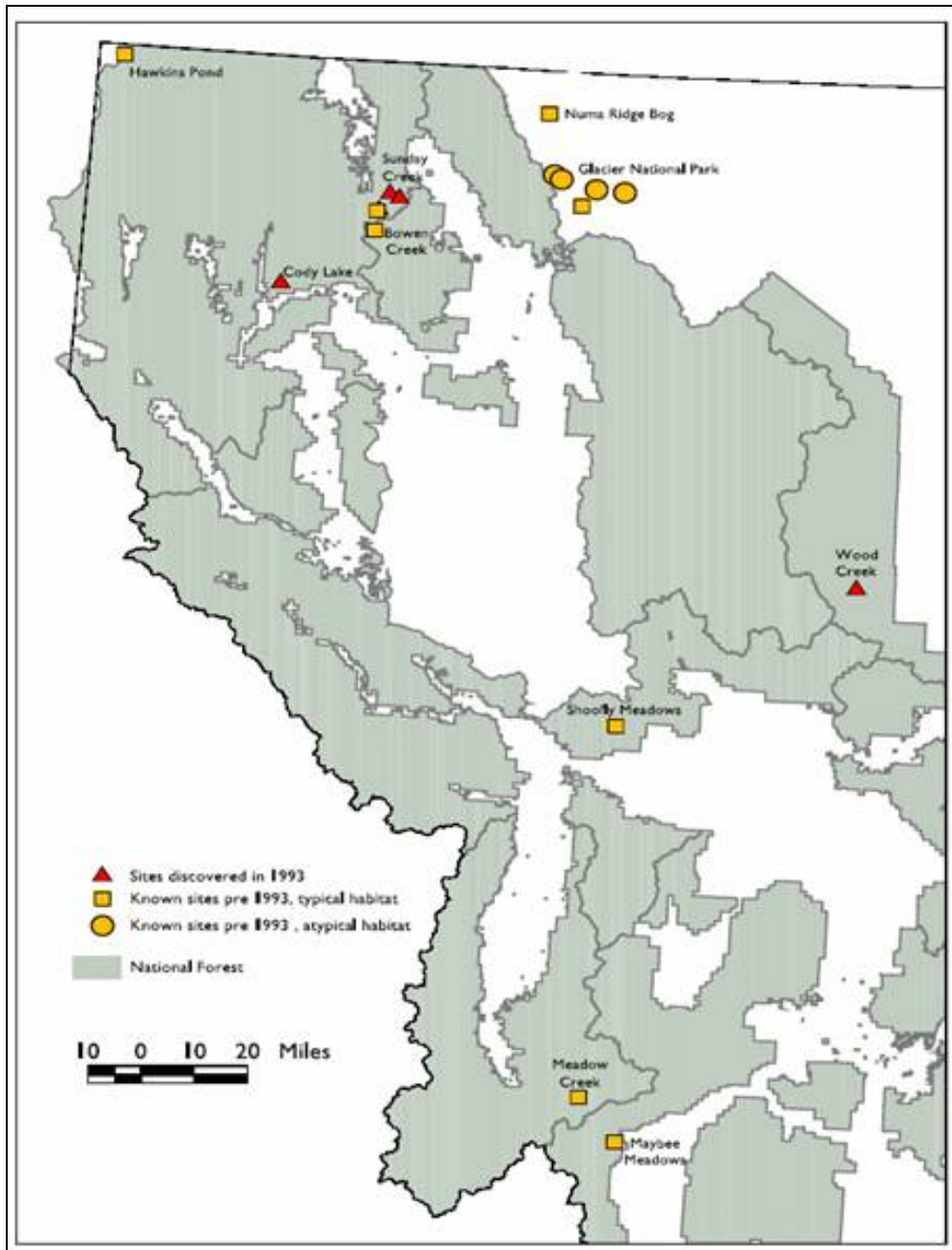


Figure 25. Northern bog lemming locations in Montana (Reichel and Corn 1997). The Maybee Meadows detection is from the Wisdom Ranger District

THREATS

Activities that degrade habitat favored by the bog lemming (wet meadows, fens or bog-like environments) are a threat to northern bog lemmings. Livestock overgrazing is the most likely activity occurring on the Forest that could impact bog lemming habitat; particularly where livestock graze on palatable plants found in bogs with sphagnum moss and in other wet areas where this species occurs. Cattle movement through bogs and

other wet areas can cause soil compaction, lowering of water tables, and introduction of non-native plants.

EFFECTS

Wet meadows, fens, and bog-like environments favored by the bog lemming are likely to fall within riparian conservation areas, as defined under the plan. The plan includes direction that any activity in an RCA shall be designed to enhance, restore, or maintain the physical and biological integrity of the RCA through a number of specific requirements (also outlined in the plan). The plan also contains direction regarding livestock management designed to prevent reduction of existing water quality or physical or biological functions of riparian-wetland areas. Specific standards pertaining to the amount of disturbance and vegetation to remain in areas that are grazed is included in the plan. The Maybee Meadows, a known lemming site is located within a watershed designated as a restoration key watershed. Under the plan goals for aquatic resources, restoration key watersheds are recovered to meet desired fish habitat, riparian habitat and water quality desired conditions. Management focused on such a goal would benefit northern bog lemming habitat.

Snowmobile use in open meadows and fen habitat can compact snow and delay snowmelt by increasing snow density. This could delay the onset of plant growth that lemmings may feed upon. The plan would prohibit winter cross country motorized travel over approximately 39% of the Forest to protect wildlife and provide for quiet recreation opportunities. The likelihood of extensive and widespread snow compaction at levels that would affect the northern bog lemming is very unlikely.

Beaverhead County, which encompasses known detections of bog lemmings harbors 31 species of noxious plants. Noxious weeds displace more desirable native plant species and cause adverse biological and economic effects by reducing productivity of native vegetation. The plan contains direction to prevent, reduce or eliminate infestations of non-native or noxious weed species.

CONCLUSION OF EFFECTS

Bog lemmings occur on the Forest in specialized moist habitats. The extent to which this species uses the analysis area is uncertain, especially given the empirical evidence (Reichel and Corn 1997) that indicates comprehensive surveys are needed over an extended period of time to even detect one individual.

The plan contains comprehensive direction for aquatic and riparian habitat, to include habitat favored by the bog lemming (wet meadows, fens and bog-like areas). The plan will provide habitat that provides for the viability of the species and will not cause a trend towards federal listing of the species.

PYGMY RABBIT

HABITAT

Pygmy rabbits require sagebrush habitats. Tall clumps of Big Sage (Green and Flinders 1980) are particularly desirable with shrub canopy cover > 21%. Since they make extensive use of burrows, many of their own construction, they also need loose, friable soil generally deeper than 14" (Weiss and Verts 1984 summarized in Hart et al. 1998). The preferred habitat in Montana appears to be gently sloping or level floodplains where adequate sagebrush and appropriate soils exist. However, many occupied sites have marginal sagebrush cover and shallow soils (Rauscher 1997).

Big sagebrush (*Artemisia tridentata*) is the primary food source (up to 99% of the winter diet), but grasses and forbs are eaten in mid- to late summer, and can comprise up to 40% of the diet during that season. They sometimes climb into tops of sagebrush to feed. Diet in Montana has not been reported, although samples have been collected for analysis (Rauscher 1997); browsing on big sagebrush near burrows was noted (Montana Natural Heritage Program - Pygmy Rabbit Species Account).

Montana occupied habitats include shrub-grasslands on alluvial fans, floodplains, plateaus, high mountain valleys, and mountain slopes, where suitable sagebrush cover and soils for burrowing are available. Though patch size may differ, the sites where the species has been detected all support patches of denser sagebrush and deeper soils. Big sagebrush was the dominant shrub at all occupied sites, averaging 21.3 to 22.6 % coverage; bare ground averaged 33 % and forbs 5.8 %. Average height of sagebrush in occupied sites was 0.4 meter (Montana Natural Heritage Program - Pygmy Rabbit Species Account).

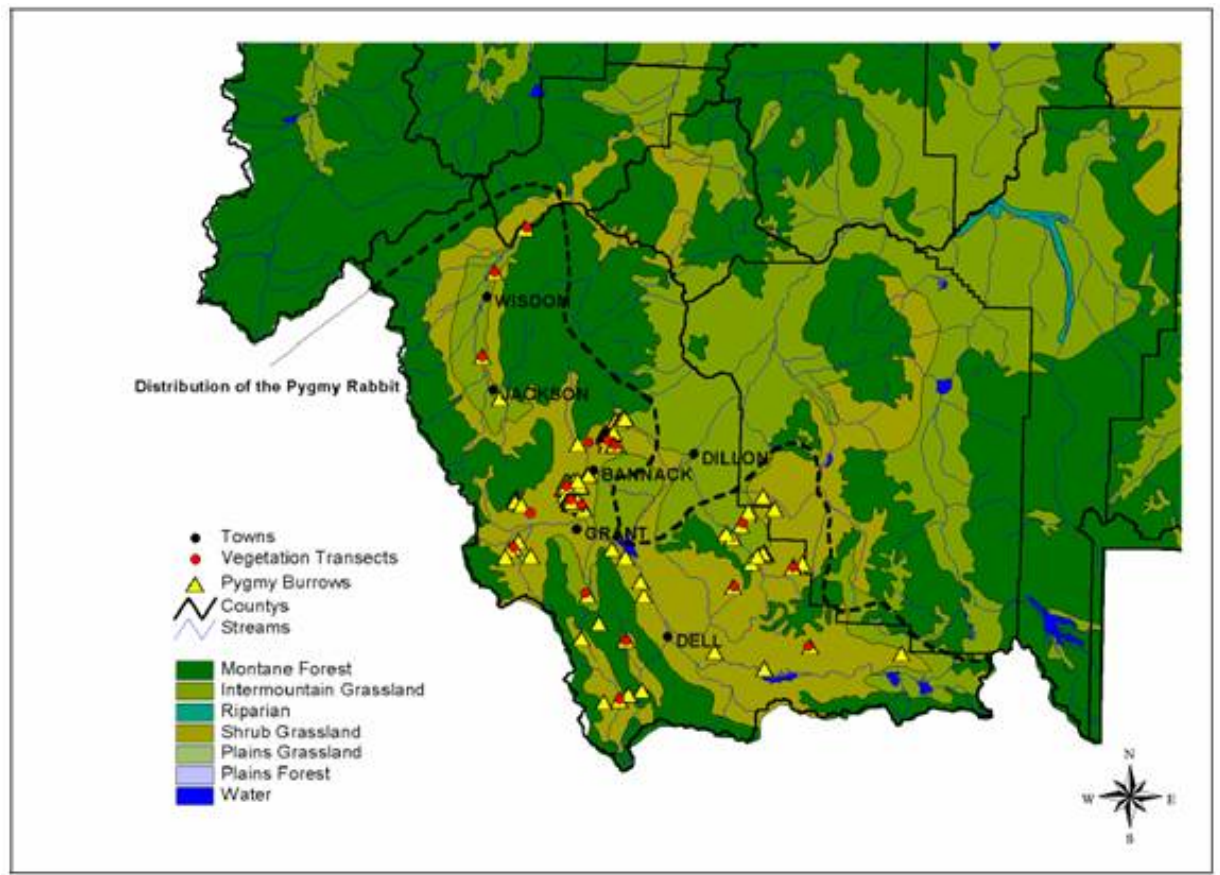


Figure 26. Pygmy rabbit distribution in Southwest Montana (Rauscher 1997)

POPULATION STATUS AND DISTRIBUTION

Montana lies on the northeastern edge of pygmy rabbit distribution. There are confirmed records dating back to 1918 from three southwestern counties (Beaverhead, Jefferson, Madison), with most of the Montana range in Beaverhead County (Montana Natural Heritage Program, Pygmy Rabbit Species Account). Montana records are between 4500 – 6700 feet.

While the pygmy rabbit is ranked S3 in Montana, the State has advised that this ranking needs to be re-examined (R1 Sensitive Species list 2005) with possible re-ranking as imperiled.

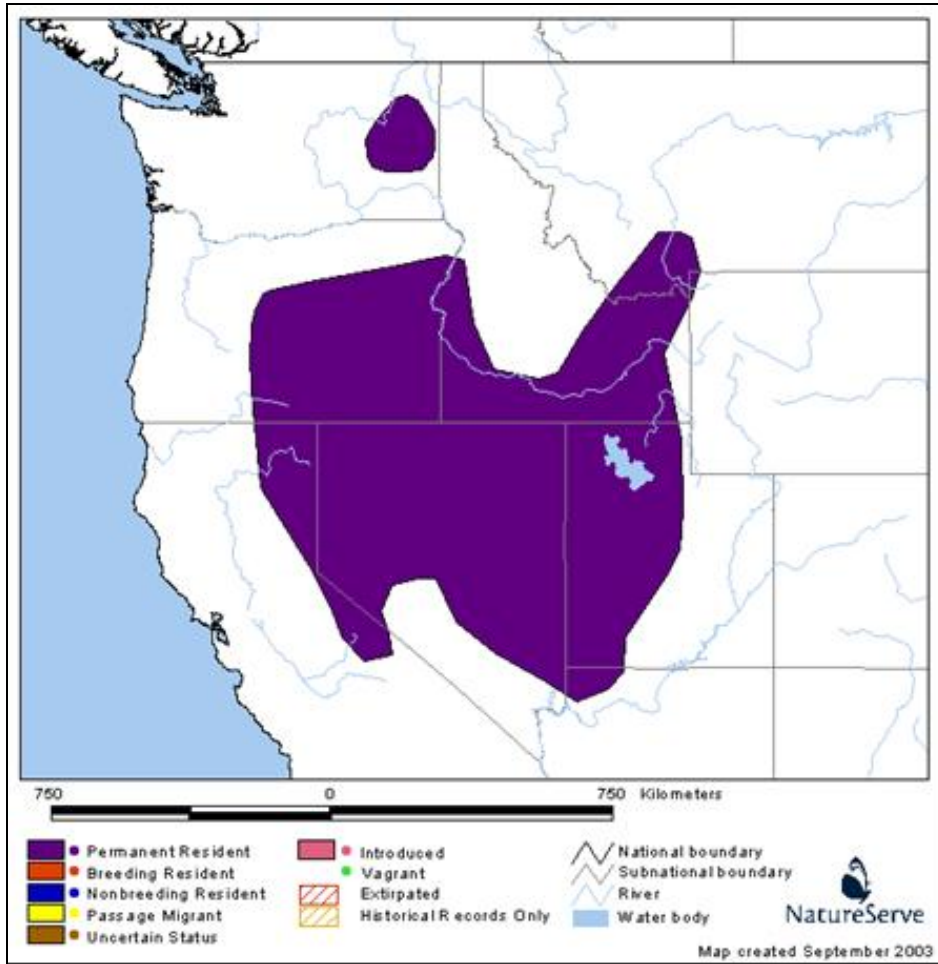


Figure 27. Pygmy Rabbit range. NatureServe. 2005. NatureServe Explorer: An online encyclopedia of life [web application]. Version 4.4. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. "Data provided by NatureServe in collaboration with Bruce Patterson, Wes Sechrest, Marcelo Tognelli, Gerardo Ceballos, The Nature Conservancy-Migratory Bird Program, Conservation International-CABS, World Wildlife Fund-US, and Environment Canada-WILDSPACE."

While information on movement patterns is limited, pygmy rabbits have relatively small home ranges. They do not like to cross large open areas and instead appear to key into dense stands of sage brush cover. Information from other portions of its range suggests that pygmy rabbits are non-migratory with daily winter movements usually less than 100 meters (averaged 30 meters in Wyoming). Although at one site, pygmy rabbits had to cross about 500 meters of open terrain to occupy a coulee-bottom stringer of dense sagebrush (Rauscher 1997).

Museum specimens have been collected from the following locations (Rauscher 1997).

- Three miles SE of Leodore on the Donovan Ranch, 1918 (Exact location unknown)
- Sage Creek, 15 miles E of Dell, Beaverhead Co., 1963 (Exact location unknown)
- R12W, T9s, Sec 9, Beaverhead Co 1977

- Red Rocks Refuge, Beaverhead Co 1949 (Exact Location unknown)
- Tash Ranch, near Dillon, MT (Exact location unknown)
- Centennial Valley, Beaverhead Co. (Exact location unknown)

While no elevations are cited, it appears that all collections occurred below 6700 ft.

Recent Forest Service surveys in the north Big Hole have documented 3 rabbit detections on the Mudd Creek allotment approximately 17 miles north of Wisdom, MT. These detections were below 6300 feet. Rabbits have also been seen in the Reservoir Creek drainage on BLM lands southwest of Bannack at approximately 6400 feet. This location is 3 miles east of the nearest NFS lands. It is reasonable to expect to find this species on Forest lands below 6700 feet. Habitat at these elevations is very limited on the Forest, probably less than 1% of the Forest and mainly occurring south of an east-west line below Dillon. There are no detections north of Melrose.

THREATS

The loss of habitat through fire, grazing, invasion of exotic annuals, and agricultural conversion is probably the most significant factor contributing to pygmy rabbit population declines. Sagebrush cover is critical to pygmy rabbits and sagebrush eradication is detrimental. Fragmentation of sagebrush communities also poses a threat to populations of pygmy rabbits because dispersal potential is limited (NatureServe 2005).

EFFECTS

Little information is available on pygmy rabbit population trend in most states and no information for the State of Montana could be found. The trend for Great Basin shrub-steppe habitats is generally downward due to fire, grazing, invasion of exotic annuals, and agricultural conversion, which likely correlate with downward trends for sagebrush obligate species (NatureServe 2005). However, the sagebrush/grassland component on the Forest has undergone fundamentally little change.

Fires have had little impact in Beaverhead County; the area previously described where we would expect to find pygmy rabbits on the Forest. A Forest-wide analysis of xeric shrublands/grasslands indicates that these habitats have been reduced from historic levels. Conifer encroachment into shrubland/grassland habitat is considered to be the primary cause of the reductions. Conifer encroachment into shrubland habitat is more prevalent in higher elevations. Thus, losses of low elevation grassland/shrubland areas containing pygmy rabbit habitat is likely to be less than the reductions reflected in the forest-wide calculation. The plan does include direction to reduce conifer encroachment where it is occurring. If any of these treatments do occur at lower elevations, they would potentially expand pygmy rabbit habitat on the Forest.

There is very little Forest Service management activity scheduled to occur under the plan in areas containing pygmy rabbit habitat. Grazing does occur in areas containing pygmy rabbit habitat. The Montana Field Guide for pygmy rabbits indicates that grazing could be detrimental if overgrazing results in loss of forbs and grasses or if livestock damage sagebrush structure by trampling plants and thinning the shrub canopy. Plan direction for

sage grouse address both of these concerns in areas that may be used by sage grouse. Connelly (2000) recommendations for grasses and forbs that are incorporated into the plan should result in retention of adequate grasses and forbs for pygmy rabbits. Plan direction for sage brush cover were increased above the guidelines recommended for sage grouse by Connelly (2000) to account for Rauscher (1997) findings for the pygmy rabbit. Connelly recommended greater than 15% sage brush canopy cover for sage grouse, while Rauscher (1997) found pygmy rabbit needing 21% canopy cover or more. The plan direction for sage grouse is to maintain 21% or more sage brush canopy

With respect to any threats to the rabbit regarding habitat fragmentation, the plan does not anticipate or prescribe activities that would fragment sagebrush habitats. The plan does not prescribe removal of sage brush, which according to the Montana Field Guide, renders habitat unsuitable for pygmy rabbits. The plan also includes a goal that cover and forage for animals is provided by a mosaic of species and age classes of native trees, shrubs, grasses and forbs.

CONCLUSION OF EFFECTS

With most of the Forest at higher elevation and beyond the distribution of pygmy rabbit activity (Figures 26 and 27) and southwest Montana recognized as being on the periphery of the species range, it is not reasonable to expect Forest Service management to play a vital role in long-term conservation of this species in southwest Montana. The long term sustainability of the pygmy rabbit in southwestern Montana is directly linked to the maintenance of sagebrush habitat on State, BLM, and private ownerships which encompass the bulk of the known distribution of the species.

Where pygmy rabbit habitat does exist on the Forest, little management activity is expected to occur. For those activities that do occur (i.e. grazing) the plan includes provisions that will maintain the quality of existing pygmy rabbit habitat needs; namely dense sage brush canopy cover. The plan will not cause a loss of viability or trend towards federal listing for this species.

Sage Grouse

HABITAT

The sage grouse is native to the sagebrush steppe of western North America, and their distribution closely follows that of sagebrush, primarily big sagebrush. Important seasonal habitat includes:

Breeding Habitat: Breeding grounds (leks) are key activity areas and most often consist of clearings surrounded by sagebrush cover.

Nesting Habitat: Sage grouse invariably prefer sagebrush for nesting cover, and quality of nesting cover directly influences nest success. Successful nesting requires concealment provided by a combination of shrub and residual grass cover. Sage grouse most frequently select nesting cover with a sagebrush canopy of 15-31 percent.

Brood-Rearing Habitat: Areas that provide abundance and diversity of succulent forbs, an important summer food source for young sage grouse, provide key brood-rearing habitat. Research in central Montana indicated that sage grouse broods prefer relatively open stands of sagebrush during summer, generally with a canopy ranging from 1-25 percent. As palatability of forbs declines, sage grouse move to moist areas that still support succulent vegetation. Sage grouse in southwest Montana and eastern Idaho often move to intermountain valleys during late summer where forbs remain succulent through summer and early fall. Reported sagebrush canopy on these sites varied from 8.5 to 14 percent.

Winter Habitat: Sage grouse generally select relatively tall and large expanses of dense sagebrush during winter. Wintering areas in central Montana include sagebrush stands on relatively flat sites with a 20-percent canopy and an average height of 10 inches. The importance of shrub height increases with snow depth. Thus, snow depth can limit the availability of wintering sites to sage grouse

Sage grouse only occur on the Beaverhead portion of the Forest. There are no breeding grounds (leks), active or inactive on the Forest and no known records of sage grouse nesting on the Forest. Neither is there any known wintering. Some birds are known to winter on the surrounding valley floors south of Dillon.

The Beaverhead does provide summer habitat that birds can move upslope onto during the summer. The latest SILC3 information was used to identify potential sage grouse habitat based on dispersal capability as per Connelly (2000) guidelines for migratory sage grouse (11 miles/18 km of leks) (figure 28). Connelly 2000 recommends that habitat within this 11 mile radius of leks be considered for conservation of sage grouse. While this analysis based on dispersal capability from leks can be used to identify both nesting and brood rearing habitat, for the BDNF, habitat modeled through this exercise is thought to represent brood-rearing habitat only. Areas within the 11 mile radius on the Forest are substantially higher in elevation than the lek sites. Snow depth restrictions and later plant phenology in these areas of the Forest are thought to prohibit use of the habitat for nesting. Within the 11 mile radius a total of 2,190,725 acres of potential brood rearing habitat were identified across all ownerships. Roughly 15% of these acres (335,750 acres) were on the Forest.

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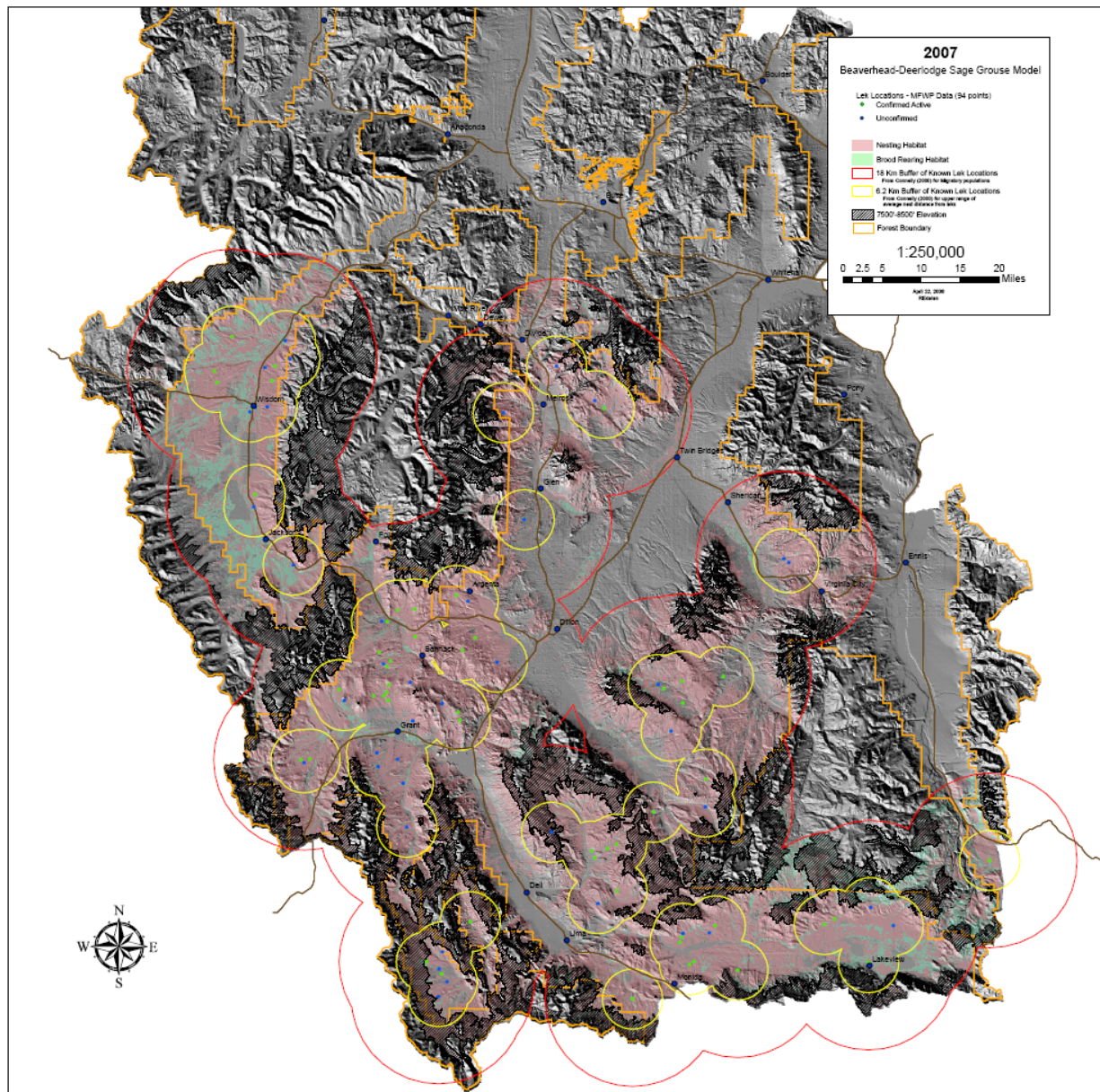


Figure 28. Southwest Montana modeled Sage Grouse Habitat

Table 6. Forestwide Summary of Habitat Ownership - 18 km model.

Habitat	All Ownership Acres	BDNF Acres / % of Total
Nesting	1,900,915	259,290 / 13.6%
Brood Rearing	298,810	76,460 / 25.6%
Total	2,190,725	335,750/ 15.3%

Research findings in central Montana suggest that about two-thirds of nests occur within 2 miles (3.2km) of a lek (Montana Fish, Wildlife, and Parks 2005). The modeled radii of 18km (Connelly 2000 for migratory populations), and 6.2km (Connelly 2000 upper range of average nest distance from leks) shown in figure 28 demonstrate where Beaverhead-Deerlodge NF lands are located relative to known lek sites. Consequently, in comparison to the State's findings, the modeled Connelly radius of 18km for migratory populations represents an optimistic picture of the forest's role in providing sage grouse habitat.

Big sagebrush is rarely distributed evenly across the landscape. Because sage-grouse depend on sagebrush for both food and cover, climatic conditions, such as the depth and distribution of snow, can influence which areas of a landscape are used by sage-grouse. (Michael A. Schroeder, John W. Connelly, Carl L. Wambolt, Clait E. Braun, Christian A. Hagen, and Michael R. Frisina. 2006. Society for Range Management Issue Paper: Ecology and Management of Sage-Grouse and Sage-Grouse Habitat—A Reply. Rangelands- June 2006)

Although big sagebrush plants generally have a similar growth form, there is considerable morphological variation with several subspecies and ecotypes (USDA/NRCS – Plant Guide). Mountain big sagebrush (*Artemisia t. vaseyana*) plants are normally smaller than those of basin big sagebrush, averaging about 0.9 m (3 ft) tall (Table 7). This species predominates on BDNF lands (Reyer Rens – pers comm. 12/09/2008). The Connelly (2000) guidelines for productive breeding and brood rearing habitat display 40cm – 80cm (1.3 ft – 2.6 ft) sagebrush heights. Most of this habitat on BDNF is snow covered during the breeding and nesting period and unavailable to sage grouse.

Table 7. Summary of big sagebrush characteristics – USDA/NRCS Plant Guide

	Basin	Wyoming	Mountain	Xeric	Subalpine	Parish's
Height	3 to 6' (13)	2 to 3'	2 to 3'	3 to 6'	2 to 5'	See basin
Stem	Single main trunk	Branching at or slightly above ground	Branching at or slightly above ground	Branching at or slightly above ground	Branching at or slightly above ground	See basin

POPULATION STATUS AND DISTRIBUTION

Statewide, sage grouse numbers increased from the mid-1960s through 1973 and then remained relatively stable. Numbers declined rather sharply statewide from 1991 through 1996 and increased through 2000 (Montana State Plan 2005). Information since then is spotty, but suggests a slight increase in number of birds.

A significant number of birds in southwest Montana breed in Idaho, move to higher elevation summer range in Montana, and migrate back to Idaho winter ranges, much of which has been converted to cropland. Populations now appear more stable, seemingly as a result of a reduction in sagebrush control programs, although some smaller declines have occurred in recent years in some locations (Montana State Plan 2005). The species was petitioned for listing under the Endangered Species Act by several parties during

2002 – 2003. The FWS after formal review determined that the species was not warranted for listing (*Federal Register* / Vol. 70, No. 8 / Wednesday, January 12, 2005 / Proposed Rules).

Population trend monitoring of sage grouse is best done through lek counts. With no leks on the National Forest, southwest Montana counts are performed by a mix of State personnel and National Wildlife Federation personnel. Results of these counts indicate that sage grouse are active on the valley floors bordering the Beaverhead portion of the forest. The greatest number of active leks are located in Centennial Valley – Dell area west of Red Rock Lakes NWR, and the Bannack-Horse Prairie-Medicine Lodge area west-southwest of Dillon (Figure 28). Birds are known to move upslope onto the Forest in the south end of the Gravelly landscape and from the Medicine Lodge area south of Grant. However, there is no specific information on the extent of the movement or numbers of birds involved.

The modeled Forest Service nesting and brood rearing habitat shown in Table 6 and Figure 28 amounts to slightly more than 15% of all modeled nesting and brood rearing habitat in southwest Montana. The primary challenges for sage grouse conservation in southwest Montana are found on private, State, and BLM lands. The Beaverhead portion of the BDNF does play a limited role in providing some habitat available for upslope movement during the summer months.

THREATS

The key threats identified in the Montana Sage Grouse Management Plan (2005) and the Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats (Connelly et al. 2004) include: fire management (net loss of sagebrush), grazing management (removal of understory vegetation), harvest management (hunting pressure), noxious weed management (loss of forbs to invasive species), mining and energy development (habitat loss from development and production activities), urbanization and agriculture (direct habitat loss), and wildlife browsing (impacts to sagebrush)

EFFECTS

Forest plan management does not provide direction relating to hunting mortality, urbanization and agriculture, and wildlife browsing.

Hunting is regulated by Montana Fish, Wildlife and Parks with the 2008 season running from September 1 to November 1. The limit for sage grouse is two per day/hunter with no season long quota. Total harvest is directly related to hunting pressure. The FWS status review (2005) indicated that regulated hunting of sage-grouse does not pose a threat that would lead to the likely endangerment of the species in the foreseeable future.

Urbanization and agriculture will not occur on NFS lands. To the extent that increased development and subdividing of valley floor private lands were to occur, sage grouse habitat could be adversely affected. The Forest Service does not manage private lands.

Over browsing by large ungulates can be locally detrimental to sage grouse. No areas of overgrazing due to wildlife are identified in the Montana State plan for sage grouse.

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Fire management - Wildfire has not been a major change agent on sagebrush habitats on the Forest and sagebrush has not been identified as being outside the historic range of variation on the Forest (LRMP FEIS). Fires have occurred in all Forest landscapes (Query 4 project file). Aggressive fire suppression has likely held fires at smaller acreages. Thus, most fires have been small events less than 5 acres in size (Figures 29 and 30). Over the past 93 years there have been approximately 119 fires in the 5.1 – 90 acre size class across the Forest. Of those fires 77 have occurred on the Beaverhead portion (Table 9), that portion of the BDNF with sage grouse. Large scale fires with dramatic effects on the Forest have increased in frequency in recent years.

Table 9. Fire Events 1910 – 2003 on the Beaverhead portion of the BDNF.

Landscape	5.1 - 90 acre fires more than 5 years old	5.1 - 90 acre fires less than 5 yrs old	Large fires less than 5 yrs old	Total
Pioneer	16	3	1 approx 3,300 acres	20
Big Hole	30	1	2 approx 50,000 acres	33
Tobacco Roots	3	0	0	3
Gravelly	7	1	0	8
Madison	0	2	0	2
Lima Tendoy	9	2	0	11
TOTAL	65	9	3	77

The recent trend of increased wildfire size and frequency is expected to continue into the future. Under the plan, the full range of appropriate management responses to wildland fire is available to meet social needs and to achieve ecosystem sustainability. Even with expectations of larger and more frequent fires, burns are expected to occur predominantly in forested habitats and not in sagebrush where they could affect sage grouse habitat.

Except for use as a tool to address conifer encroachment into shrublands, the plan does not prescribe or anticipate use of fire as a tool in sagebrush habitats. The plan contains an objective to reduce conifer encroachment on 74,000 acres. Where fire would be used to address conifer encroachment, it would help expand sagebrush habitat. Thus, the extent or location of sagebrush Forestwide is not expected to be reduced under the plan.

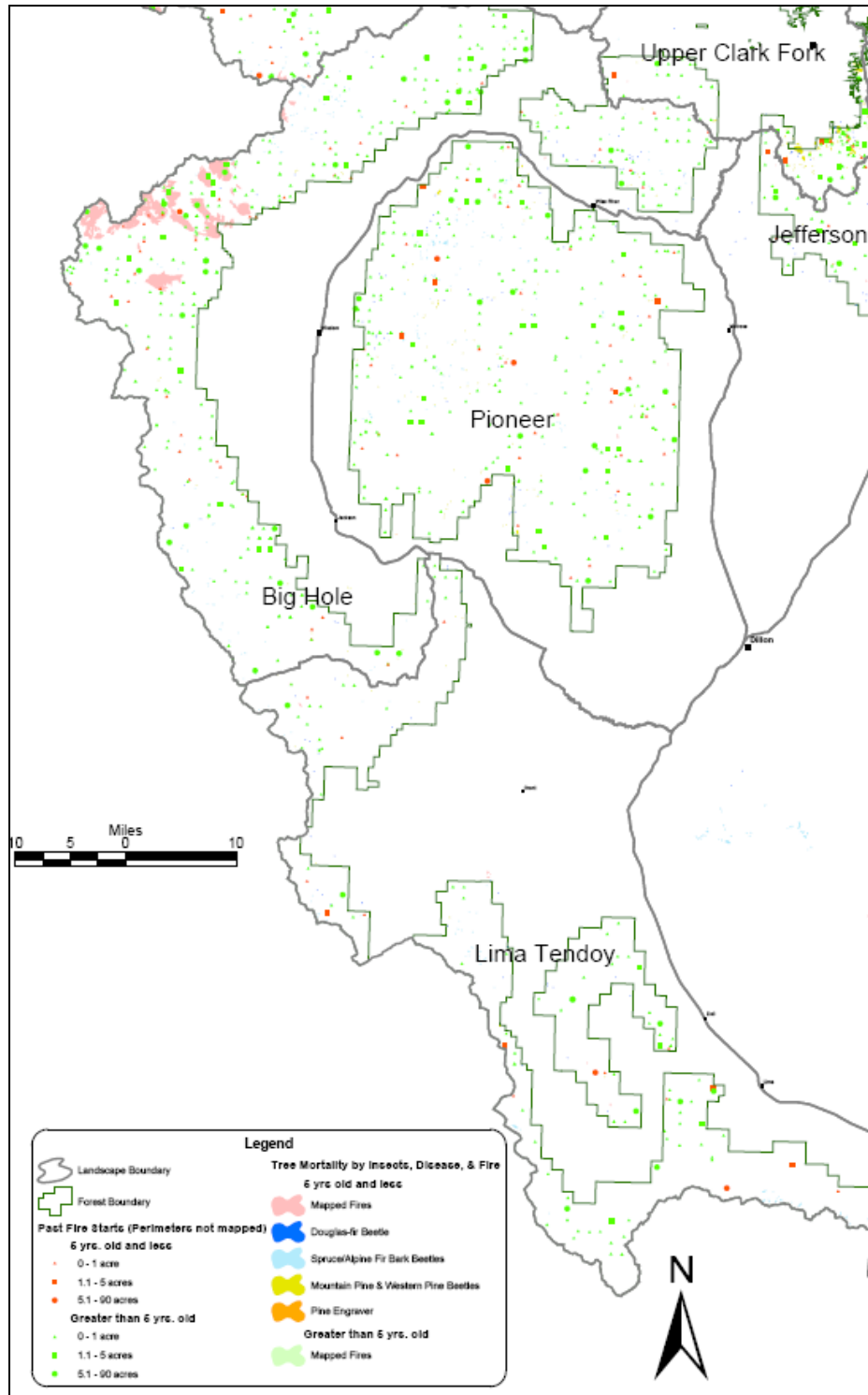


Figure 29. Western Beaverhead NF Fire Events 1910 – 2003

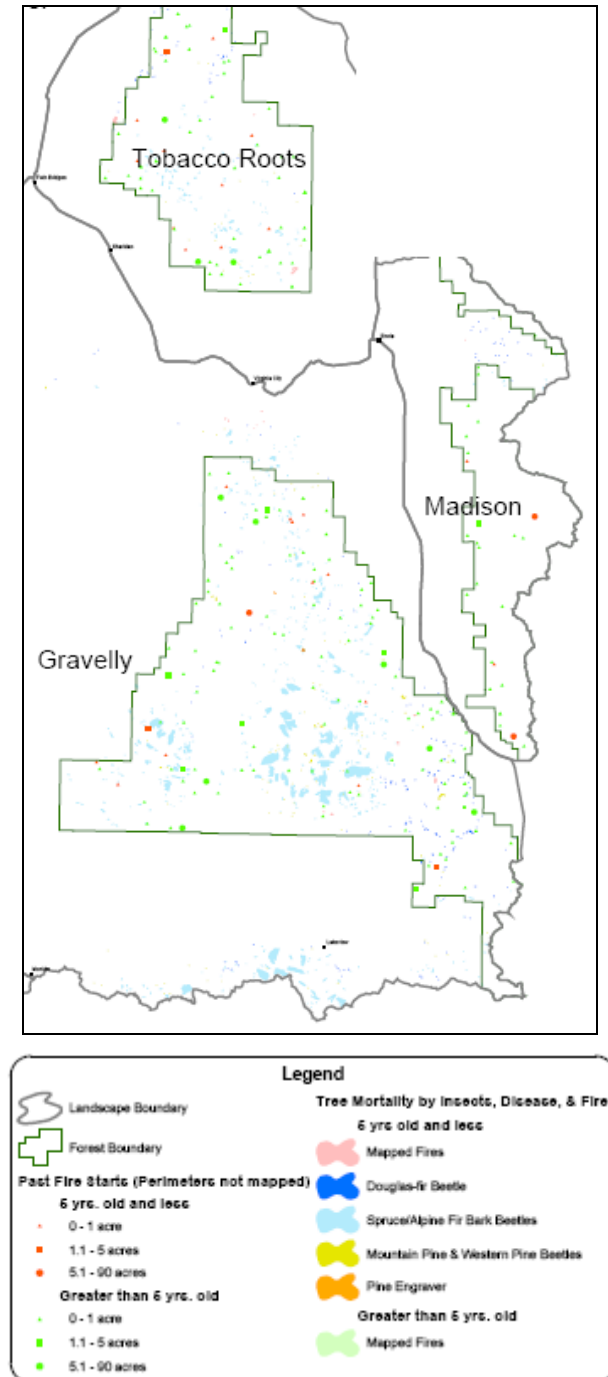


Figure 30. Eastern Beaverhead NF Fire Events 1910 – 2003

Grazing management – There is little direct experimental evidence linking grazing practices to sage grouse population levels (Braun 1987, Connelly and Braun 1997 in Connelly 2000)). However, grass height and cover affect sage grouse nest site selection and success (Wakkinen 1990, Gregg 1991, Gregg et al. 1994, Delong et al. 1995, Sveum et al. 1998a in Connelly 2000). Thus, indirect evidence suggests grazing by livestock or wild herbivores that significantly reduces the herbaceous understory in breeding habitat may have negative impacts on sage grouse populations (Braun 1987, Dobkin 1995 in

Connelly 2000). Connelly (2000) at table 3 identifies desirable grass/forb height as >18cm (7 ") for breeding habitat but "variable" for brood rearing. Connelly (2000) further states under breeding habitat management "the herbaceous height requirement may not be possible in habitats dominated by grasses that are relatively short when mature. In all of these cases, local biologists and range ecologists should develop height and cover requirements that are reasonable and ecologically defensible."

Livestock allotment "on dates" for the BDNF consistently occur in late June – early July. Under summer-late brood rearing habitat management Connelly (2000) notes that 10–20% canopy cover of sagebrush and <25% total shrub cover will provide adequate habitat for sage grouse during summer.

The Forest Plan identifies the Management Plan and Conservation Strategy for Sage Grouse in Montana (2005) as an additional source of information that can be used to conserve sage grouse. The Montana Sage Grouse Management Plan (2005) states that "the effects of livestock on sage grouse habitat, and on the birds, may be positive, negative, or neutral depending on the specific grazing prescription and on the ecological site. To minimize the potential impact of removing important understory vegetation, flexible grazing management programs need to be planned and implemented while considering the needs of sage grouse."

Range management activities occurring under the Forest Plan would be consistent with the guidance in Connelly 2000 and the 2005 Montana Plan and Conservation Strategy for sage grouse. For example, the grazing utilization standards included in the plan (See Table 10) are consistent with both the Montana State Plan (pp 56 – 59) and the Connelly 2000 guidelines. The State Plan incorporates Connelly (2000) in its entirety as Appendix A.

The plan also contains direction to maintain free water and wet meadows for sage grouse at sites where springs are developed for livestock watering.

Table 10. Grazing utilization standards.

Category	Season Long or Continuous	Deferred or Rest Rotation	Area	Key Species (others may be used for specific allotments)
Upland range utilization	< 40% of forage utilized on suitable range on 85% of the area < 50% utilization on the remaining 15%	< 55of forage utilized on suitable range on 85% of the area < 65utilization on the remaining 15%	Suitable range	Idaho fescue Bluebunch-wheatgrass Rough Fescue

Range infrastructure, particularly fences, can provide perches for potential predators. However, there is little information suggesting that nest predation is a widespread problem. The Forest is not unlike other locations where predation studies have been conducted, thus we do not expect predation from range infrastructure to be an issue on the Forest.

Noxious weed management – As noxious weeds spread and control efforts follow, there is the increased possibility of declining habitat quality in sage brush habitats. Both the spread of weeds themselves and the treatment of weeds could have a detrimental impact on sage grouse or their habitat. The spread of weeds can reduce the herbaceous understory desirable for sage grouse. Weed infestations and treatments on the BDNF encompass very little of the forest (Beaverhead-Deerlodge National Forest Weed Control FEIS 2002 Appendix B). Current weed infestations in the existing mapped sage grouse habitat on the Forest are relatively low. Infestations are primarily scattered point and roadside locations (Figures 31 to 35).

The plan includes direction to prevent, reduce, or eliminate infestations of non-native or noxious weed species with emphasis on areas where there is a high likelihood of establishment and spread. Aerial spraying in particular could increase disturbance and possible displacement of sage grouse. Aerial spraying for weed control does occur on the forest, but efforts to date have been on the northern portions of the forest where sage grouse do not occur. Because most of the weed infestations in and around sage grouse habitat are limited to roadsides and scattered point locations, weed control efforts are expected to occur through localized ground applications that are not expected to impact sage grouse or their habitat.

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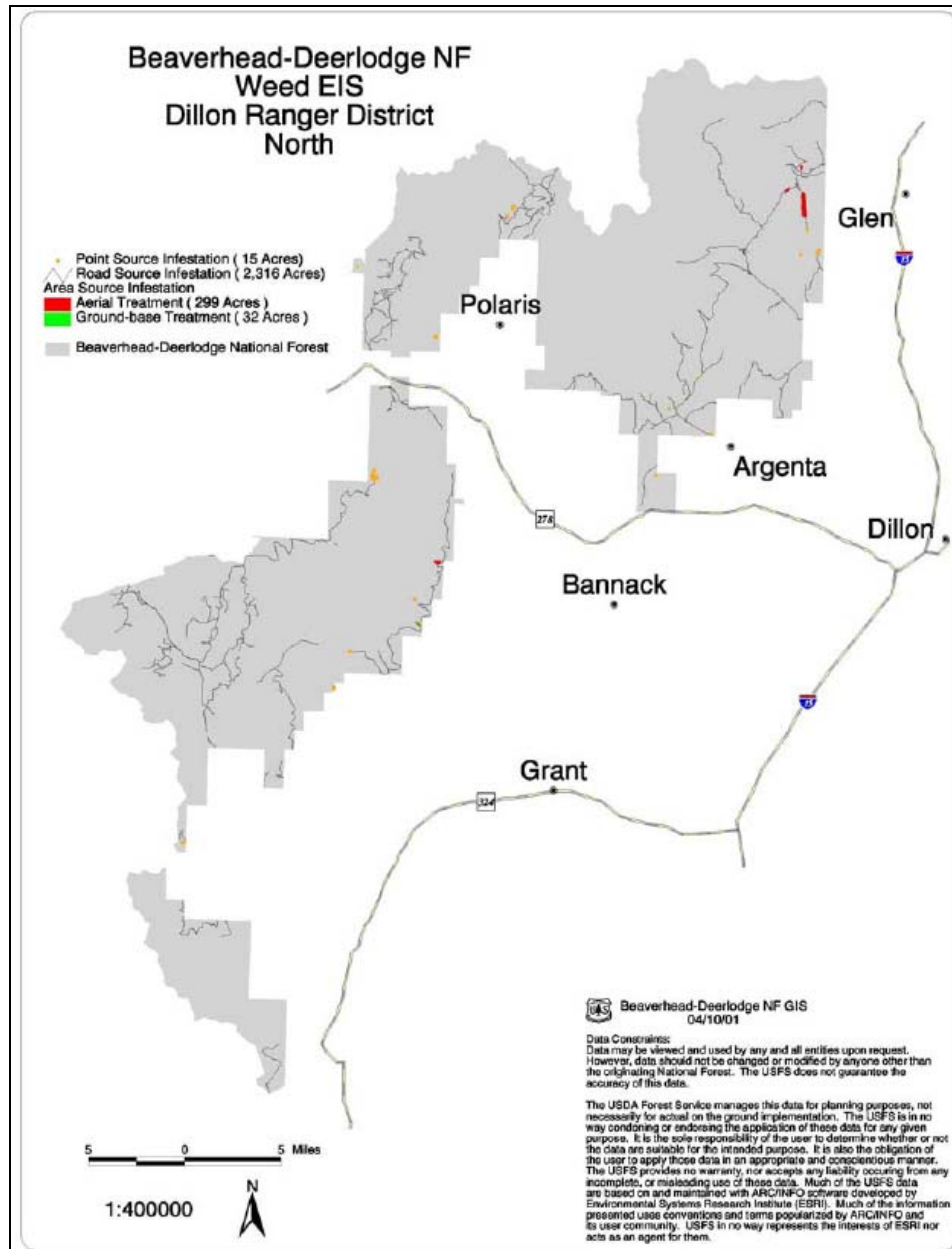


Figure 31. Dillon North Weed Locations

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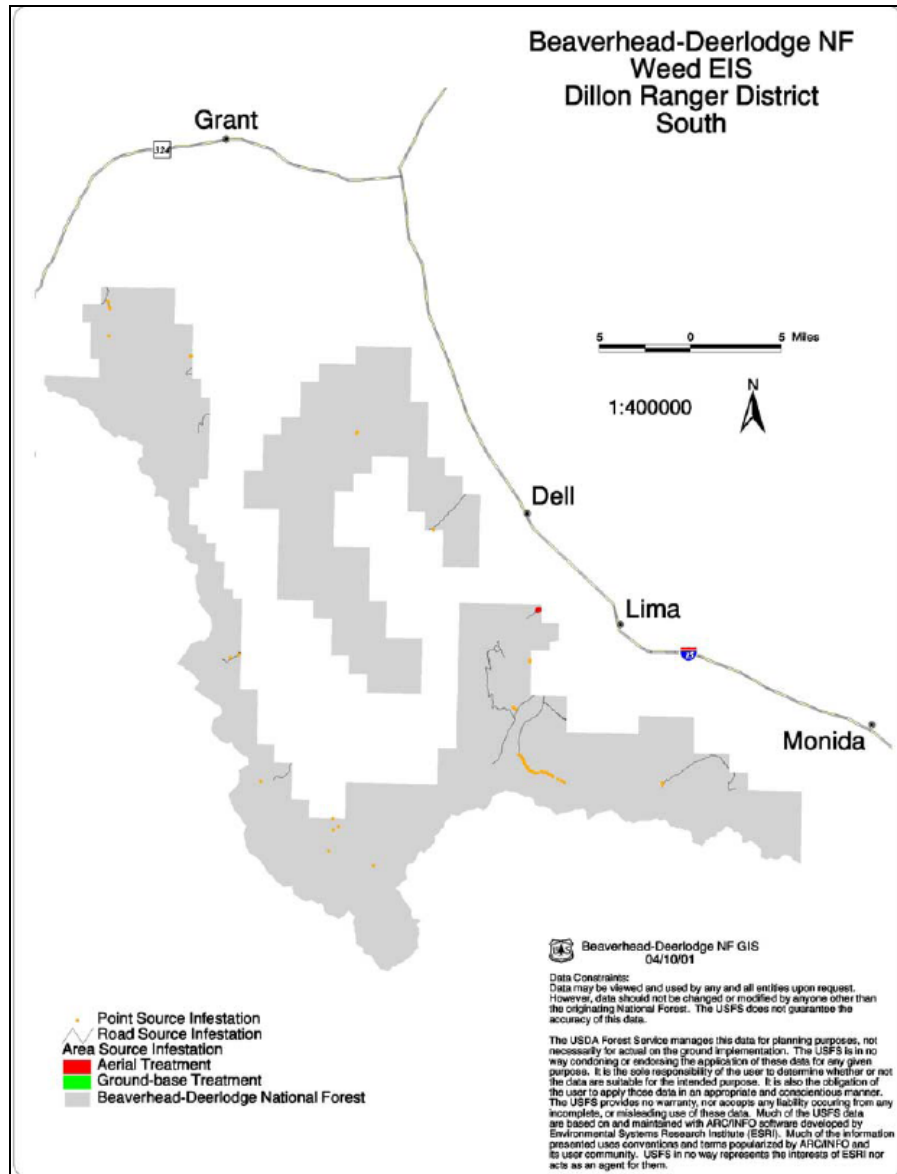


Figure 32. Dillon South Weed Locations

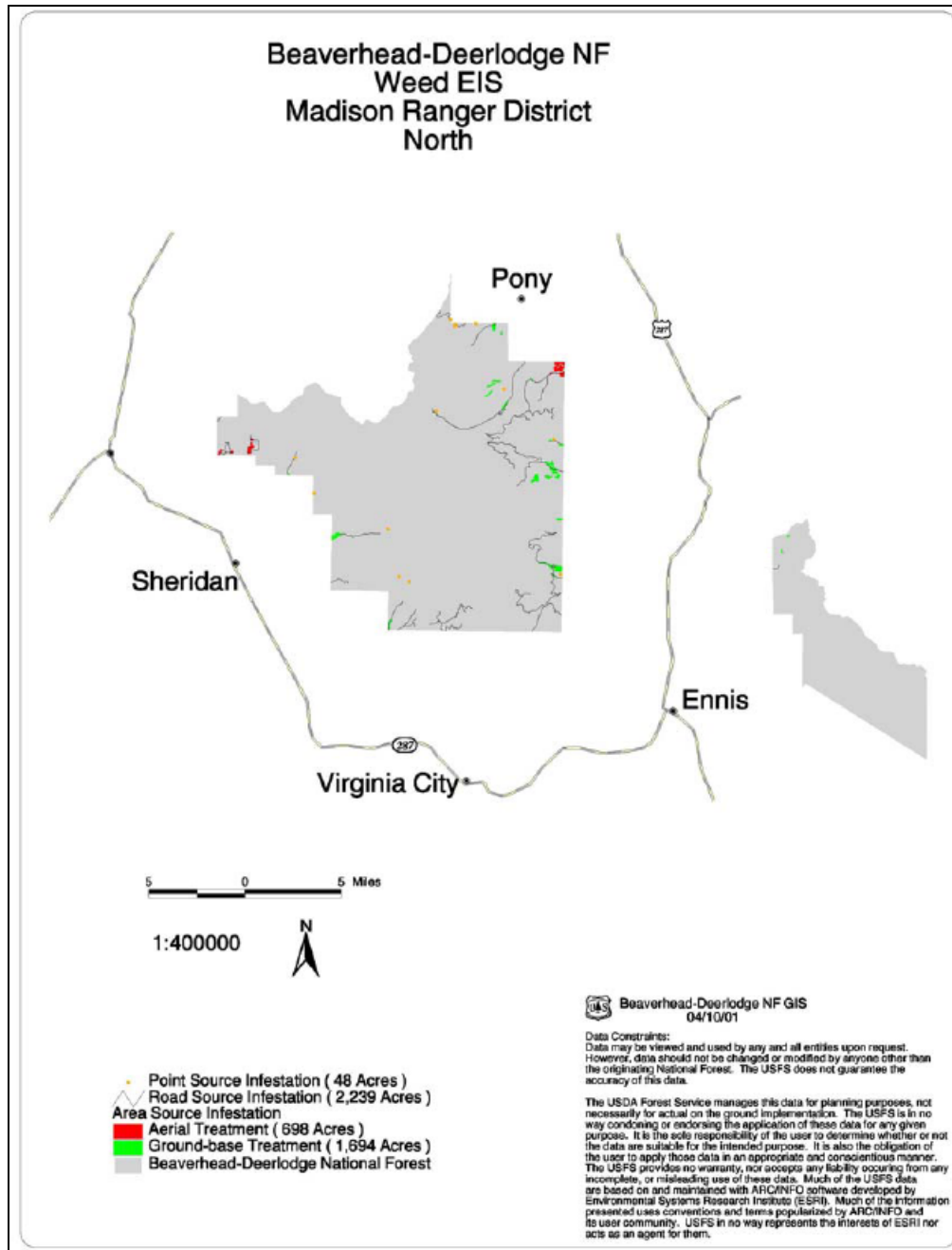


Figure 33. Madison North Weed Locations

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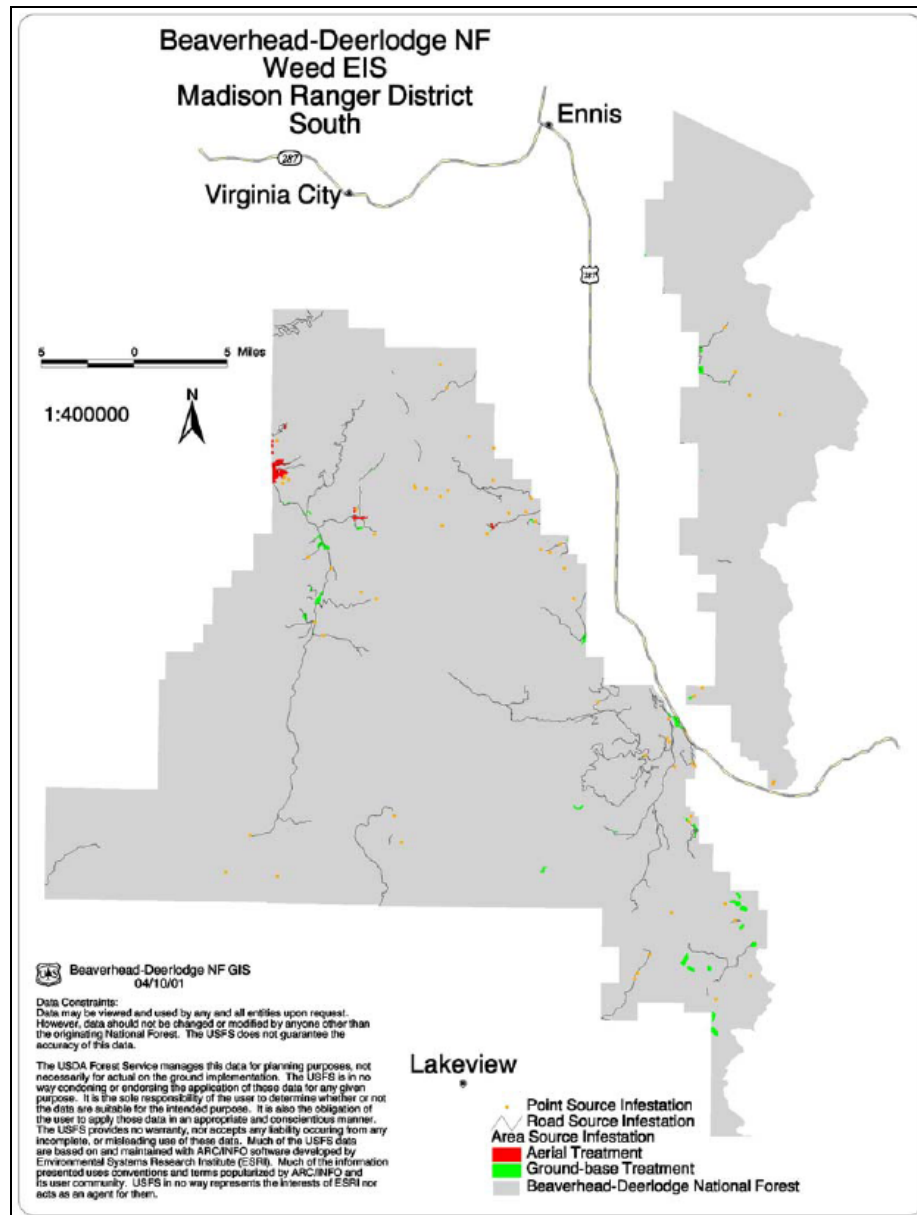


Figure 34. Madison South Weed Locations.

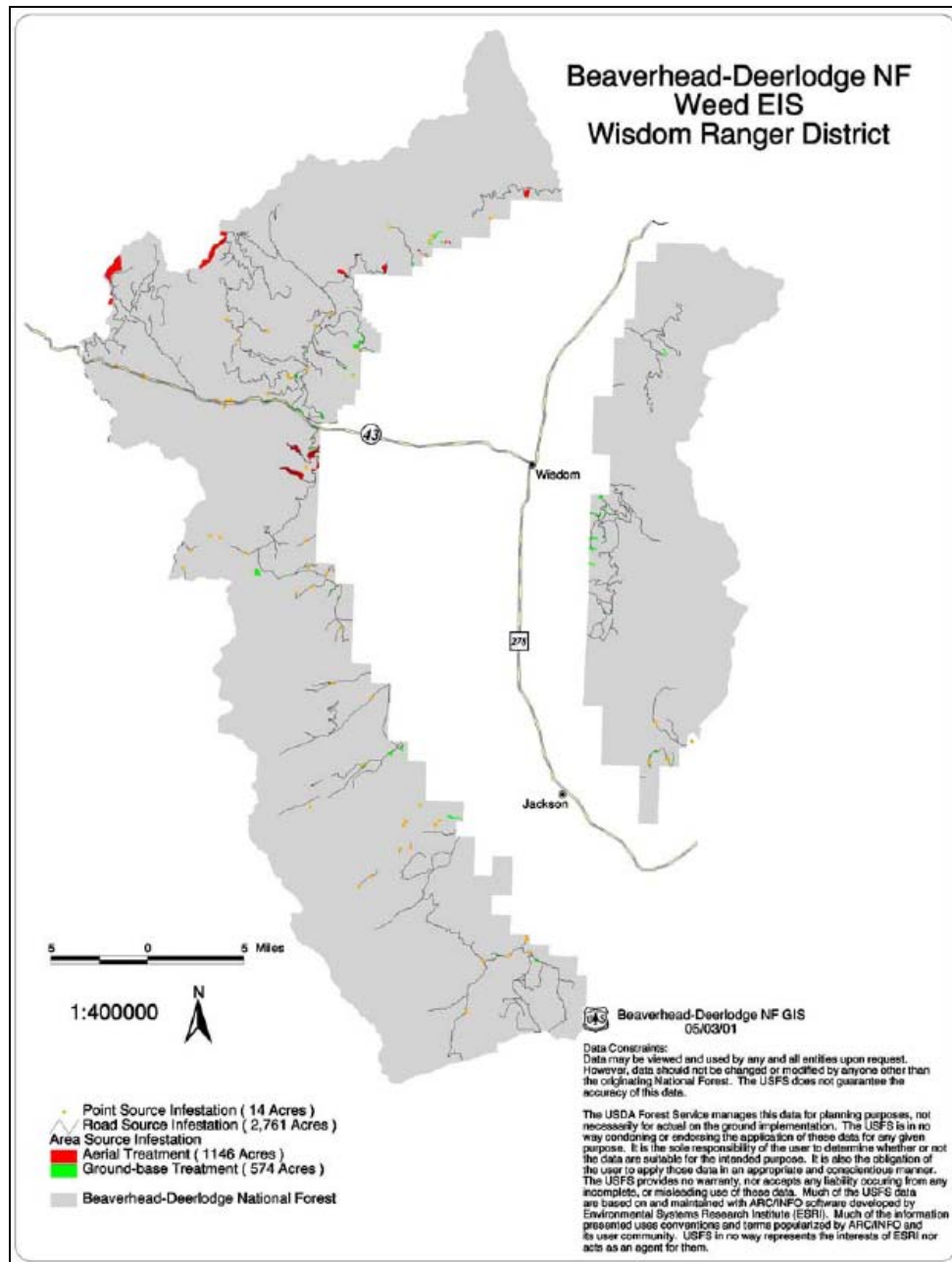


Figure 35. Wisdom Weed Locations

Mining and energy development - Oil lease sales were made by BLM in southern Beaverhead County in 2007. Approximately 27,000 acres were offered for sale. Some of the parcels encompass NFS land; however, the leases are in recommended wilderness and subject to no surface occupancy stipulations. Under no surface occupancy stipulations there would be no infrastructure development on NFS lands and no impacts to sage grouse or their habitat.

Future lease development on other NFS land is possible and could lead to direct habitat loss due to associated infrastructure such as roads, pipelines, additional power lines, and drill pads. At present, there is no indication that leases are in demand. Before development could occur, and through the lease notice, the Forest Service would notify the project proponent if a biological evaluation is needed. Through the evaluation process, impacts to sage grouse would be evaluated and mitigated where possible. The Montana State Plan, identified in the Plan as an additional information source for sage grouse conservation would be helpful in the evaluation process. Given current low demand and mitigation option available through the leasing and analysis process, future lease development on the Forest is not expected to result in viability concerns for sage grouse.

CONCLUSION OF EFFECTS

The recurrent theme through Connelly (2000), the Greater Sage Grouse Conservation Assessment (Connelly et al 2004), and the US Fish and Wildlife Service 12 month Finding on the petition to list sage grouse (*Federal Register* / Vol. 70, No. 8 / Wednesday, January 12, 2005) is habitat loss, particularly conversion of sage grouse habitat to agriculture, as the primary conservation concern for maintaining sage grouse populations.

While there are no leks, active or inactive, anywhere on the Forest and the Forest alone does not provide habitat to support viable populations of sage grouse, the Forest does provide brood rearing habitat for sage grouse. Also, birds are known to summer on the Forest. The plan includes guidance from Connelly 2000 to address threats to sage grouse that exist on the Forest. Implementation of the Forest Plan will not impact any known active or inactive lek sites on lands adjacent to the BDNF. Under the Forest Plan, existing habitat is expected to be maintained. Also under the plan efforts to reduce conifer encroachment are expected to create additional sagebrush habitat. The plan will not reduce viability of sage grouse or lead to a trend toward federal listing.

SPOTTED BAT

HABITAT

Spotted bats have been encountered or detected most often in open arid habitats dominated by Utah juniper (*Juniperus osteosperma*) and sagebrush (*Artemisia tridentata* and *A. nova*), sometimes intermixed with limber pine or Douglas-fir, or in grassy meadows in ponderosa pine savannah (Fenton et al. 1987, Worthington 1991b, Hendricks and Carlson 2001). Cliffs, rocky outcrops, and water are other attributes of sites where spotted bats have been found (Foresman 2001), typical for the global range. Spotted bat has been captured foraging over an isolated pond within a few kilometers of huge limestone escarpments in the Big Horn Canyon National Recreation Area, Carbon County (Worthington 1991a, 1991b), and the first record for the state was of an individual that flew in an open window at a private residence in Billings, Yellowstone County (Nicholson 1950). Roost habitats and sites have not been documented in Montana.

Spotted bats roost in caves, and in cracks and crevices in cliffs and canyons, with which this species is consistently associated; it can crawl with ease on both horizontal and vertical surfaces (Snow 1974, Van Zyll de Jong 1985). In British Columbia, individuals used the same roost each night during May through July, but not after early August (Wai-Ping and Fenton 1989). Spotted bat is a non-colonial species that prefers to roost solitarily on cliff faces. Winter habitat is poorly documented.

The spotted bat's patchy distribution across its range is due to its close association with prominent rock features (Idaho Bat Conservation Plan). Spotted bats have been detected at water sources and in meadow openings, often with large cliffs nearby (Leonard and Fenton 1983, Storz 1995, Perry et al. 1997, Rabe et al. 1998, Gitzen et al. 2001). The spotted bat will forage over a variety of habitat types, including ponderosa pine forests, hayfields, cliff faces, talus slopes, sagebrush, bunchgrass, and open water (Johnson and Cassidy 1997). Open meadows may be important foraging sites for spotted bats (Storz 1995). Specimens have most commonly been collected in rough, xeric terrain (Watkins 1977). Spotted bats feed primarily on Lepidopterans and may fly continuously throughout the night (Wai-Ping and Fenton 1989).

Rock outcrops abound on the forest including limestone which can provide excellent roosting habitat. Ponderosa pine forest is restricted to the northwest portion of the forest. There are no hayfields on BDNF lands. Cliff faces and talus slopes are widespread, as are sagebrush, and riparian areas.

POPULATION STATUS AND DISTRIBUTION

Spotted bats are a State Species of Concern in Montana and Forest Service sensitive species in R1. Three detections have been recorded on the Forest along the eastern edge of the Pioneer Mountains landscape. The Heritage Tracker database also shows 4 detections on BLM lands in the Humbug Spires Wilderness Study Area. There are prominent limestone outcrops in this area. The 7 detections constitute the extent of known occurrences in southwest Montana. There have been few bat surveys conducted in

Montana and it is reasonable to expect that more detections can be confirmed in the future as survey efforts continue. Figures 36 and 37 show locations where bats have been detected on and around the Forest.

B-D Bat Surveys 2005-2008

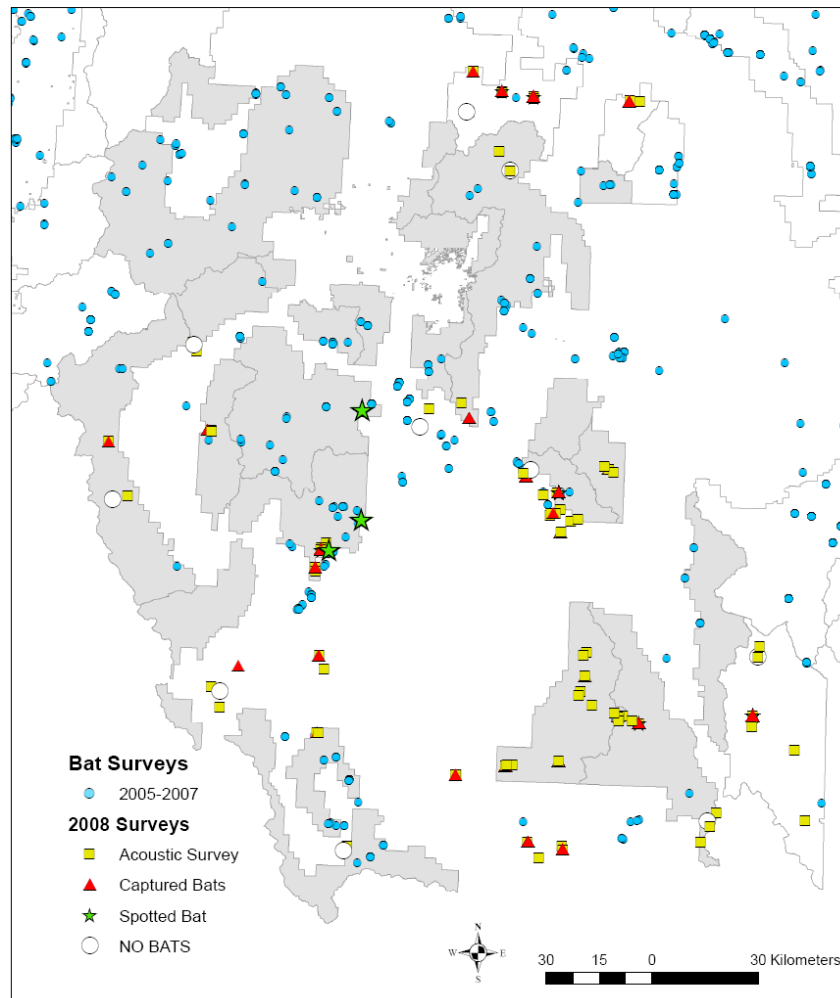


Figure 36. BDNF Spotted Bat Detections

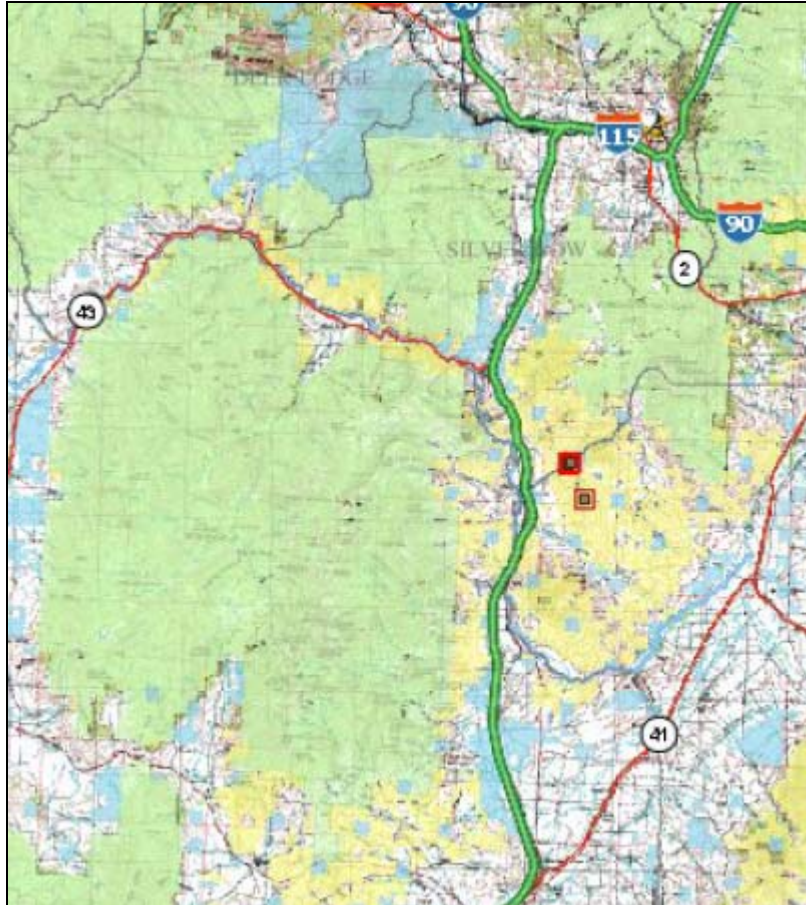


Figure 37. Heritage Tracker Spotted Bat Detection (4) on BLM

THREATS

Abundance, population trend, and threats are essentially unknown (Natureserve). Fenton et al. 1983) suggested that specimen collection by humans, bioaccumulation of pesticides and prey loss due to pesticide applications may be threats. Activities that would render cliff and cliff habitats unusable would be a threat to the spotted bat.

EFFECTS

There are no management activities prescribed in the plan that would alter the amount and quality of rock outcrops and cliffs on the Forest. Thus, there would be no impact to these key habitats used by the bat under the plan. In the event that spotted bats may utilize abandoned mines, the plan contains a standard that would require access by bats to be maintained when closing mine entrances, if the mines have bat habitat. Under the plan, open areas (sage habitats, meadows, and ponds or lakes) would continue to function as areas available for bats to forage. Protections for those areas include direction in the plan that would maintain and restore riparian and aquatic habitat. No sagebrush alteration is proposed. Also, the plan includes direction to treat grassland and shrubland areas where conifer encroachment have adversely impact those habitats. Expansion and improvement of these areas could increase the amount of open areas for bats to forage.

The plan includes direction to prevent, reduce, or eliminate infestations of non-native or noxious weed species with emphasis on areas where there is a high likelihood of establishment and spread. Thus, the plan does anticipate use of pesticides for weed control. However, because most of the weed infestations on the Forest are limited to roadsides and scattered point locations, weed control efforts are expected to occur through localized ground applications that are not expected to impact availability of prey to bats.

CONCLUSION OF EFFECTS

Key habitats for roosting (rock outcrops and cliffs) will not be altered under the plan. Current areas available for foraging (open areas) will be maintained and conifer encroachment treatments prescribed under the plan may expand bat foraging area. Pesticide treatments for weeds are expected to be localized and not expected to impact prey abundance for bats. Thus, the plan maintains existing habitat for the bat and would not cause a loss of viability or a trend toward federal listing of this species.

TOWNSEND'S BIG-EARED BAT

HABITAT

The Townsend's big-eared bat feeds on various nocturnal flying insects near the foliage of trees and shrubs, but appears to specialize primarily on small moths (Kunz and Martin 1982); other insects in the diet include lacewings, beetles, true flies, and wasps. There are reports of gleaning insects from foliage, but most prey are captured in the air, often near foliage (Montana Natural Heritage Program - Townsend's Big-eared Bat Species Account)

In western Montana they are most closely associated with cavernous habitat and rocky outcrops of sedimentary or limestone origin, which are used for roosting. In old-growth forests, large diameter hollow trees may be used for roosting. It is known to use caves, buildings, and tree cavities for roosts. In California they have been known to forage along the edges of Douglas fir forests and woodlands, primarily along the edges of riparian vegetation.

Maternity colonies occur in warm areas of caves, mines or occasional buildings, and hibernacula occur in caves or mines with winter temperatures at 35 - 45 degrees F and relative humidity > 50% (Hart et al. 1998). Habitats in the vicinity of roosts include Douglas-fir and lodgepole pine forests, ponderosa pine woodlands, Utah juniper-sagebrush scrub, and cottonwood bottomland (Montana Natural Heritage Program - Townsend's Big-eared Bat Species Account).

In 2001, 13 abandoned mine shafts located in the Delmoe Lake and Pipestone Pass areas were evaluated for bat presence by Lorraine Brewer, former North Zone wildlife biologist. Presence was not documented at any of the 13 sites, but suitable habitat was determined to exist at 2 of the 13 sites. Recommendations were made to provide for structures that allow bat access, yet ensure that the public cannot enter the shafts. The remaining 11 shafts were recommended for complete closure to ensure public safety.

Old growth is abundant and widespread on the forest landscapes (Table 11 and Figure 38).

Table 11. Estimates of Probable Forest-wide Old Growth by Dominance Type and Associated 90% Confidence Intervals

BDNF Dominance Group	Standard Error	90% Confidence Interval Lower Bound	Percent Old Growth	90% Confidence Interval Upper Bound	Total Number PSU	Number of Forested PSU
Douglas-fir, Ponderosa pine Limber Pine	3.0	15.6%	20.4%	25.4%	99	99
Engelmann Spruce/Subalpine fir	5.0	28.1%	36.1%	44.4%	57	57
Lodgepole pine	2.0	13.7%	17.0%	20.4%	204	204
Whitebark pine	5.3	26.0%	34.7%	43.6%	45	45
OTHER	5.6	18.6%	27.6%	36.9%	37	37

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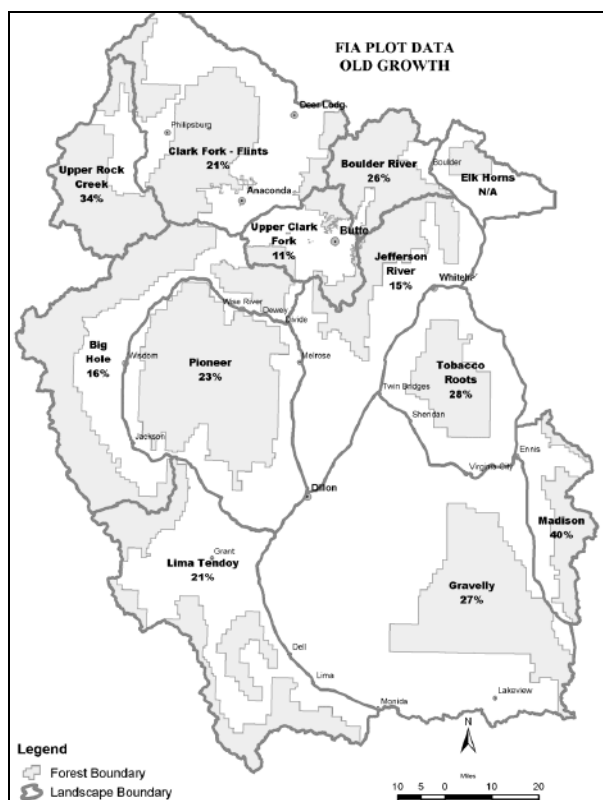


Figure 38. BDNF old growth distribution determined with FIA subplot data and using the old growth definitions in Green, et al. 1992.

Riparian foraging habitat for bats is available in wet meadow and riparian habitats distributed throughout the Forest. More than 1200 high mountain lakes are scattered across the Forest ranging from less than 1 acre in size to large reservoirs.

Table 12. Comparison of Lake and Riparian/Wetland Resources on the BDNF.

Landscape	Lake Surface Acres	Riparian Acres
Big Hole	1,954	28,143
Clark Fork -Flints	8,917	29,788
Gravelly	12,987	64,251
Jefferson River	2,215	10,181
Lima Tendoy	313	28,385
Madison	3,947	8,215
Pioneer	1,386	17,024
Tobacco Roots	779	8,241
Upper Clark Fork	1,280	7,284
Upper Rock Creek	1,112	7,279
TOTAL	34,890	208,791

POPULATION STATUS AND DISTRIBUTION

The species is a Montana Species of Concern and is also a Forest Service sensitive species in the Northern Region.

The complete extent of the range of Townsend's big-eared bat in Montana is unknown, due to the limited survey effort across many areas. It has been documented in over 20 counties and on both sides of the Continental Divide, from the Idaho state line in the west to the North Dakota and South Dakota state lines in the east, and from the Wyoming state line in the south to the Canadian border with Alberta in the northwest at elevations of 1968 to 7820 feet (Montana Natural Heritage Program - Townsend's Big-eared Bat Species Account).

The species is considered globally secure in population and numbers (G4), but locally imperiled in the state of Montana due to its rare and localized occurrence throughout its range as well as specialized habitat needs. Only five maternity colonies are known in Montana, with an estimated size in recent years of 25 to 100 adult females each (Montana Natural Heritage Program - Townsend's Big-eared Bat Species Account.)

The maternity colony at Lewis and Clark Caverns has persisted for over a century, even though it is exposed daily to tour groups (Montana Natural Heritage Program - Townsend's Big-eared Bat Species Account).

There are 11 detections in southwest Montana through 2008 that border the BDNF. One detection is from 1997 on the Dillon RD in the Bloody Dick drainage and one near the forest boundary in the Argenta area. Of these detections there are only 2 since the year 2000 with none on BDNF lands. The 2008 R1 bat survey did not detect this species on the BDNF. Detections are shown in figures 39 and 40.

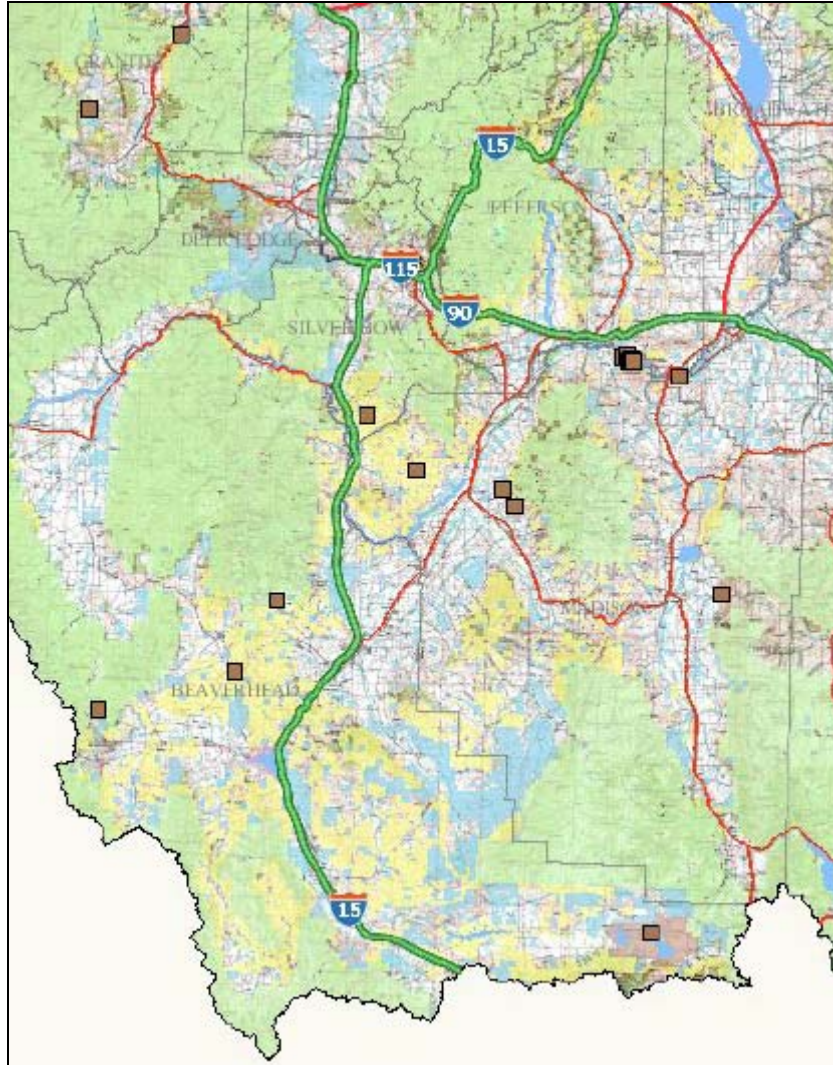


Figure 39. SW Montana Townsend's big-eared bat detections – pre 1970 to 2008

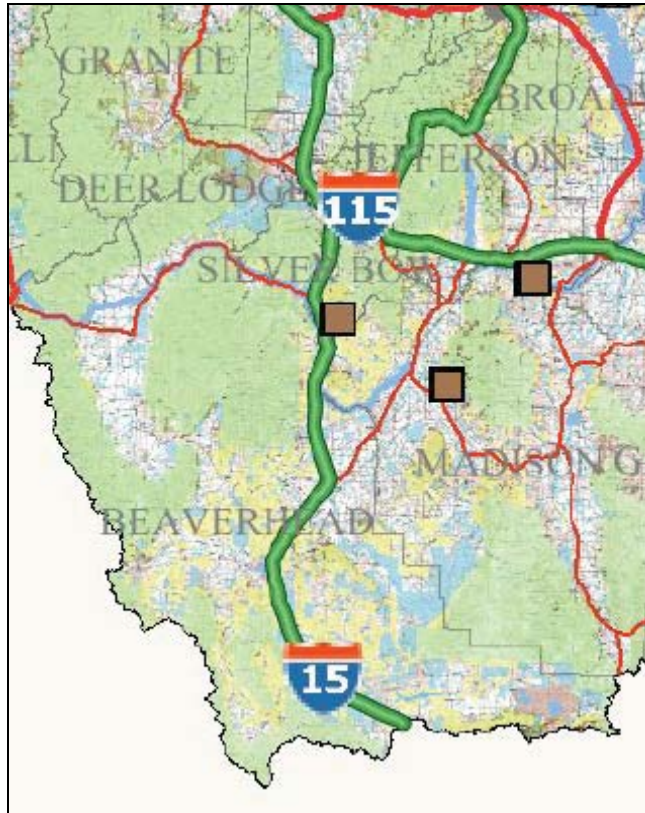


Figure 40. Townsend's Bat Detections 2000 - 2008

Because the specialized habitat of this species (limestone outcrops) is well distributed across the Forest and because the Forest provides other habitat that may be used by the species (old growth and riparian areas) it is possible that the species may be widespread on the forest, but in very low densities.

THREATS

Loss of habitat used as roosts or hibernacula, including the sealing of mines or caves, is a threat to this species. Other threats include timber harvest or other vegetation conversions where roosting in large snags occurs as well as pesticide spraying that could reduce prey availability.

EFFECTS

No changes in sedimentary and limestone rock habitats are likely under the plan. There are no proposals advocating quarry development. Surveys have identified over a thousand abandoned or inactive mine sites on the Forest. An estimated 200 of them may have open surface access to bats. Under the plan, closure of abandoned mine sites are likely to continue in order to address public safety concerns. Since 1999, 80 hazardous mine openings have been closed (Table 13). Under the Plan, mines found to have bat habitat or bat use would be closed in a manner that provides access by bats.

Table 13. Mine Closures

Beaverhead-Deerlodge Hazardous Mine Opening Closures				
Year	Type of HMO	Type of Closure		
		Backfill	Bat Structure	PUFF (polyurethane foam)
1999	1 shaft	x		
2001	2 shafts	x		
2001	4 glory holes	x		
2001	1 adit		Gate	
2001	2 adits	x		
2002	1 shaft	x		
2003	3 shafts			x
2003	8 shafts	x		
2003	16 glory holes	x		
2003	7 adits		Culverts	
2003	1 adit	x		
2004	5 shafts	x		
2004	1 glory hole	x		
2004	4 adits	x		
2005	6 shafts	x		
2005	4 adits	x		
2005	2 adits		Culverts	
2006	2 shafts	x		
2006	1 shafts		Cupola	
2006	2 adits	x		
2008	1 shaft		Culvert	
2008	5 shafts	x		
2008	1 adit		Culverts	

Through insect activity and wildfires, substantial declines in the amount of large size class dry forest types (to include old growth) are expected to occur. These declines could affect Townsend's bats, depending upon the amount of use that occurs in these habitats. The plan recognizes the importance of retaining large size class dry forest types and includes an objective to improve their resiliency.

Old growth habitat is well distributed across the Forest (FEIS, Table 162, Figure 26). The plan contains direction that recognizes the importance of retaining old growth, well distributed across the forest, and includes a standard that would reduce impacts to old growth that could occur through management actions. Under the standard, old growth would be negatively impacted through management activities that include hazard tree removal, and other treatments needed to meet public safety issues. Hazard tree removal and other treatments needed to meet public safety issues is likely to occur on a very limited basis in old growth and would not be expected to influence the viability of Townsend's bats on the Forest. Under the plan, treatments (both mechanical harvest and prescribed fire) could occur in old growth stands as long as the treatments do not cause the stands to no longer meet the minimum old growth stand characteristics standards described by Green et al. Such treatments are expected to occur in relatively few of the old growth stands on the Forest.

Large snags which could provide potential roosting habitat for bats are in plentiful supply across the Forest (FEIS, Figure 28). Where timber harvest would occur under the plan, the plan includes provisions for both snag and green tree retention; retention levels are based on snag analyses from unmanaged areas that represent high quality habitat and functional landscapes (i.e. roadless and wilderness areas). With respect to documented Townsend's big-eared bat habitat preferences, plan direction will retain all snags greater than 20" dbh (except for hazard trees).

Townsend's bats may be associated with riparian habitats for foraging. The plan contains direction that would maintain aquatic and riparian habitat conditions where those habitats are functioning properly. The plan also provides direction to improve function of aquatic and riparian habitats where it has been degraded. The plan also includes a series of key watershed across the Forest where riparian and aquatic values would be emphasized. Collectively these provisions in the plan pertaining to riparian habitats will benefit Townsend's bats.

The plan includes direction to prevent, reduce, or eliminate infestations of non-native or noxious weed species with emphasis on areas where there is a high likelihood of establishment and spread. Thus, the plan does anticipate use of pesticides for weed control. However, because most of the weed infestations on the Forest are limited to roadsides and scattered point locations, weed control efforts are expected to occur through localized ground applications that are not expected to impact availability of prey to bats.

CONCLUSION OF EFFECTS

The plan includes direction that restricts management activities that would adversely impact or otherwise decrease old growth. Impacts of management activities to old growth, and subsequently Townsend's bat are expected to be minimal. The plan maintains snag densities at levels similar to those found in unmanaged areas, while at the same time maintaining or restoring riparian areas. The plan also recognizes those forest types facing increased risk from fire and insects/disease, some of which may be important to Townsend's bats. Plan components include objectives to improve the resiliency of these forest types. Pesticide use is not expected to limit prey abundance for foraging bats. Perhaps most importantly, rock outcrop and cave habitat will be maintained, and bat access to abandoned mines used by bats or containing habitat for bats will be maintained. Therefore the plan would not cause a loss of viability or cause a trend toward federal listing of the species.

TRUMPETER SWAN

HABITAT

The breeding habitat for Trumpeter swans in the Red Rock Lakes/Centennial Valley of Montana includes lakes and ponds and adjacent marshes containing sufficient vegetation and nesting locations. Habitat requirements for breeding include room to take off (~100 m), shallow, unpolluted water with sufficient emergent vegetation and invertebrates, appropriate nest sites (i.e. muskrat lodges), and areas with little human disturbance (Montana Natural Heritage Program - Trumpeter swan species account.)

Adult swans feed almost exclusively on aquatic vegetation while cygnets feed primarily on insects, other invertebrates, and aquatic vegetation (Hart et al 1998).

Red Rock Lakes NWR harbors the greatest nesting population in southwest Montana. There are no known nesting occurrences on Forest lands, but swans do nest at Conklin Lake, a private inholding in the Gravelly landscape on the Madison RD.

Their non-breeding habitat in Montana encompasses many large and small lakes and ponds in extreme southern Montana, including the breeding area of the Red Rock Lakes/Centennial Valley. Swans also winter in the Ennis Lake and Madison River complex, as well as Hegben Lake and the surrounding area. During winter appropriate habitat is where water does not freeze and food is plentiful and accessible. Swans will move out of one lake or pond to another if conditions become too severe (Montana Natural Heritage Program - Trumpeter swan species account).

Swans have also been documented in winter at Wade Lake, in the Chain of Lakes management area, when parts of the lake still had open water (US Fish & Wildlife Service 2003).

POPULATION STATUS AND DISTRIBUTION

Trumpeter swans breeding in Montana are all part of the Rocky Mountain Population, which occurs all along the Rocky Mountain Range. The breeding range of swans in Montana (Figure 41) is restricted to the extreme southwest corner of the state (Beaverhead County) and along the Rocky Mountain Front (Lewis and Clark County). In Beaverhead County, Trumpeter swans breed in Red Rock Lakes National Wildlife Refuge in the Centennial Valley, specifically the Upper and Lower Red Rock Lakes (Montana Natural Heritage species account).

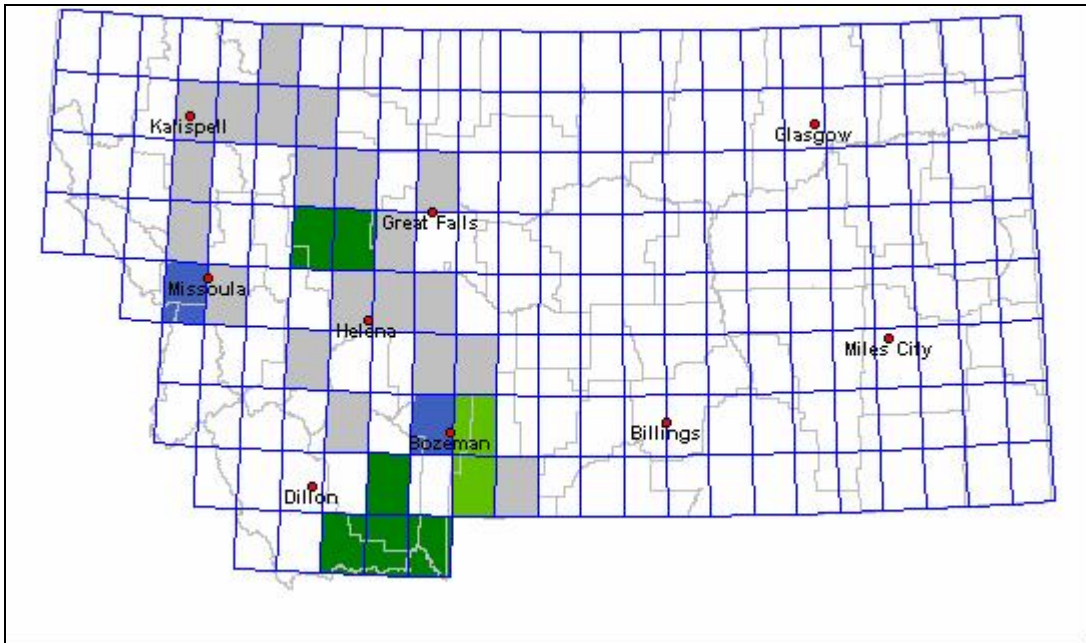


Figure 41. Trumpeter Swan Breeding Detections in Montana (Montana Natural Heritage Bird Distribution)



Figure 42. Approximate Swan Population Summer Ranges (From Caithamer 2001 in Trumpeter Swan Survey of the Rocky Mountain Population - Fall 2002)

There are no breeding sites on NFS lands on the Forest. There is one breeding site located in a private inholding (Conklin Lake). There have been wintering detections recorded from Hidden Lakes to the northwest of the Conklin Lake nest sites. These have occurred in January before the water bodies of frozen. Trumpeter swans nest in the marshy borders of lakes and ponds. The lack of nesting on water bodies on the Forest is largely due to an absence of lakes and ponds with adequate marshy borders.

The non-breeding range of Trumpeter Swans is also limited to several areas in the southwestern part of the state (Beaverhead, Gallatin, and Madison counties). Virtually all of the birds breeding in southwestern Montana also winter there. They are joined by birds

summering in Canada that migrate to the area to winter. In Beaverhead County, the Red Rock Lakes area in the Centennial Valley is a major wintering ground for the species. In Madison County, they winter at Ennis Lake and the Madison River up to approximately 15 miles upstream (Montana Natural Heritage Program - Trumpeter swan species account). Except for the few detection that have occurred northwest of Conlkin Lakes, overwintering habitat is not generally available because the water bodies on the forest freeze.

The FWS conducts regular winter surveys of trumpeter swans. The reported results following the 2007 survey indicates that total population numbers for the entire Rocky Mountain province have shown a 6% increase per year since 1972. Within Montana survey results show a 2.1 % increase per year. Numbers of birds in the area surrounding the BDNF also appear to be on the rise. The FWS is considering actions to move birds from the adjacent Red Rocks area where concentrations of swans are higher than biologists would like.

THREATS

Trumpeter swans are sensitive to human disturbance (Hart et al 1998) while nesting. Boating, fishing and other water related recreation activities can cause adults to abandon their nests. Non-point source pollution such as sedimentation from roads can reduce water quality affecting aquatic invertebrates that cygnets eat for a time after hatching.

Loss of riparian vegetation and marshlands around lakes and ponds can reduce breeding habitat.

EFFECTS

Known over-wintering areas consistently used by swans such as Red Rocks National Refuge and Ennis Lakes are not impacted by activities on the Forest.

There are no effects to known nesting locations on the Forest. Forest Road 3931 is located within a short distance of Conklin Lake and does afford views of the lake. The road gets limited use, however, administrative and recreational traffic along the road could potentially result in disturbance of nesting swans. To date, any impacts due to disturbance seem to have been minimal as nesting swans have successfully hatched young in the past (4 cygnets in 2004). The plan does not prescribe or anticipate Forest Service activities in the area that would lead to increased use on this road.

In general, the Forest Service lands adjacent to concentrations of swans occurring off of NFS lands are managed for low levels of motorized and recreational use. While there is limited probability of oil development in areas of the forest where nesting does or could occur, the plan also includes an oil and gas stipulation that would preclude surface disturbing activities near nest sites which may cause increased stress and/or displacement of birds during the critical April 1 to September 1 nesting period.

Lastly, where potential breeding or over-wintering habitat may currently exist on the Forest, plan direction regarding management of riparian and aquatic habitat would prohibit any habitat impacts that would render habitat unsuitable for swans.

CONCLUSION OF EFFECTS

Forest Plan direction for riparian and aquatic ecosystems protects the limited swan nesting and over-wintering habitat that currently exists on the Forest. The plan does not prescribe or anticipate increased Forest Service activities or recreational use that would lead to measurable increases in disturbance to nesting and over-wintering birds. Also where the limited potential for oil and gas development exists, the plan includes stipulations to mitigate any disturbance impacts that could arise. Therefore, the plan will not result in a loss of viability for trumpeter swans on the Forest or trend towards federal listing.

Wolverine

HABITAT

Wolverine habitat can be characterized by higher elevations, rugged terrain, spring snowpack, the presence of conifer forests, and edge associated with alpine timberline where there is typically a mix of subalpine parklands and meadows in the subalpine zone (Inman et al. 2007). Copeland et al (2007) describe elevation as the key variable for distinguishing the species' presence, with higher elevations preferred. They note that Magoun and Copeland (1998) contended that high elevations provide deep and persistent snow cover necessary for the presence and maintenance of late winter reproductive dens. Female wolverines construct natal and maternal dens under the snow during the February-April birthing and whelping period. Figure 46 displays modeled denning habitat (red polygons) across the forest. Denning habitat parameters are based on Heinemeyer et al., 2001 - *Aerial Surveys for Wolverine Presence. Unpublished Report, University of California, Santa Cruz Dept. of Environmental Studies, CA., 33pp.*

Year-round use of high-elevation habitats may be associated with the affinity of female wolverines for persistent snow cover for denning (Magoun and Copeland 1998, Aubry et al. 2007). Denning habitat is typically located on high north-facing basins and steep talus slopes that have traditionally been inaccessible to snowmobiles. For the most part, these areas remain difficult to access with current snow mobile mechanical technology.

Wolverines use these areas during the February-April birthing and whelping period.

Magoun and Copeland did not find wolverines close to elk winter ranges nor were they found close to trails. Grass-shrub habitat was universally avoided (Copeland et al. 2007)

POPULATION STATUS AND DISTRIBUTION

Wolverine numbers declined steadily in the U.S. beginning in the latter half of the 1800s. They were nearly extinct in Montana during the early 1900s but have been increasing in number since. One study in the northwest portion of Montana (Hornacker and Hash, 1981) asserted stable populations on their study area.

Wolverines occur on the BDNF. Detections were recorded in the Pioneer Mountain Range as part of the Rocky Mountain Research Station surveys (Squires et al. 2006). Additional sightings are documented in the Beaverhead and Madison ranges and the Boulder River Drainage, with new sightings in the Beaverhead Range during the winter of 2005.

While total populations are presently unknown, Inman (2007) shows the Pioneer, Anaconda-Pintler, and North Flint mountain ranges with the greatest number of mortality records (1974 – 2000) on the BDNF (Figure 43). As potential loci of wolverine activity, these mountain ranges compare favorably with Rocky Mountain Research Station telemetry studies (Squires et al. 2006). While virtually all the BDNF landscapes have wolverine detection, the Pioneer-Anaconda/Pintler-North Flint Mountain appears to have the most vigorous populations of wolverines (Figure 43). Over a four year period (2002 - 2005), Squires et al. (2006) radio-tagged 14 separate individuals in this area. A total of 22

wolverines were detected in the Pioneer study area from 2002 – 2005, including trapper related mortalities.

Wolverines are normally found at low densities throughout their range. Based on sampling in the Pioneer-Flint-Anaconda/Pintler-Beaverhead Mountains study area (Squires et al. 2006), the Madison-Gravelly-Centennial Mountain Ranges (Inman et al. 2007), and the Lima-Tendoy landscape (Ulizio et al. 2006) they have been documented in most forest landscapes.

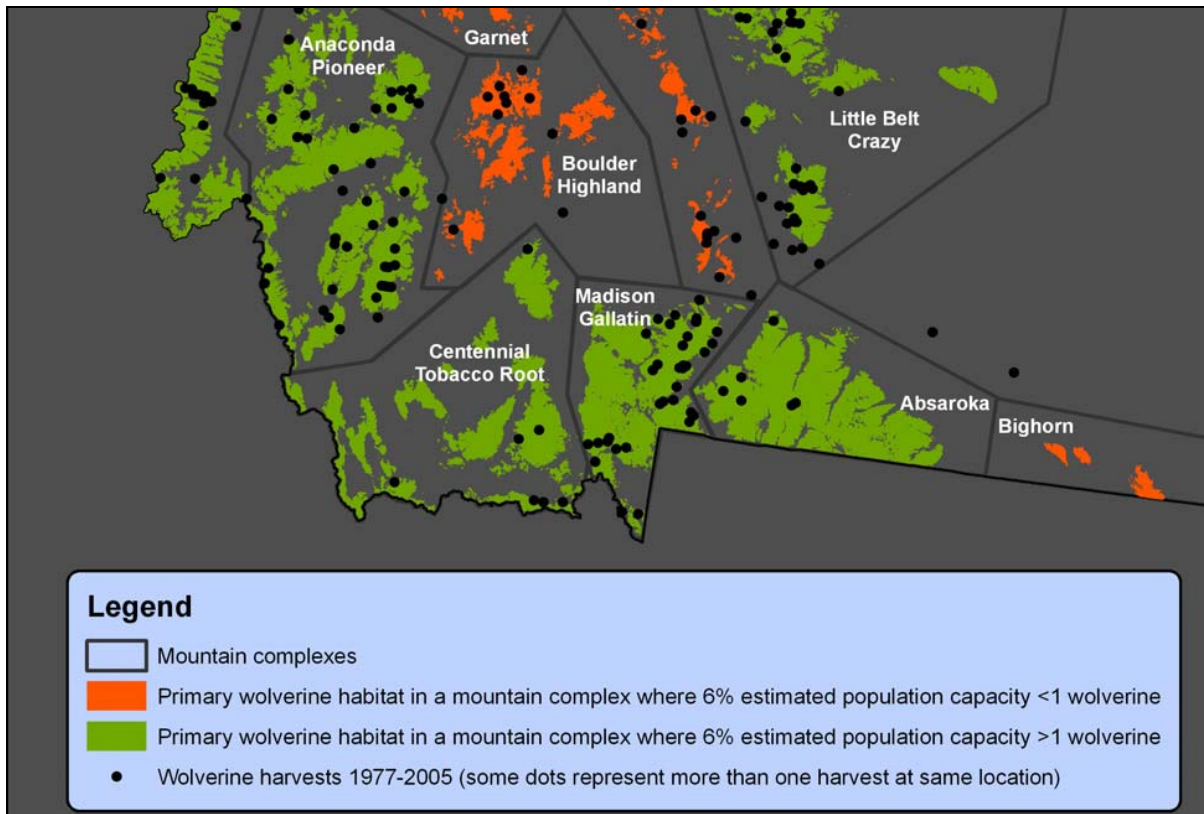


Figure 43. Wolverine Harvest – Inman (2007)

Wolverine occurrence in low densities may be a result of their large home ranges. Squires et al (2006) documented an average of 648 sq. mi for four adult males and 211 sq. mi. for four adult females in the Pioneer-Flint study (Figure 44). Inman et al (2007) show relatively limited potential for female home range across the majority of the BDNF as well as portions of the neighboring Bitterroot, Salmon-Challis, and Helena National Forests (Figure 45).

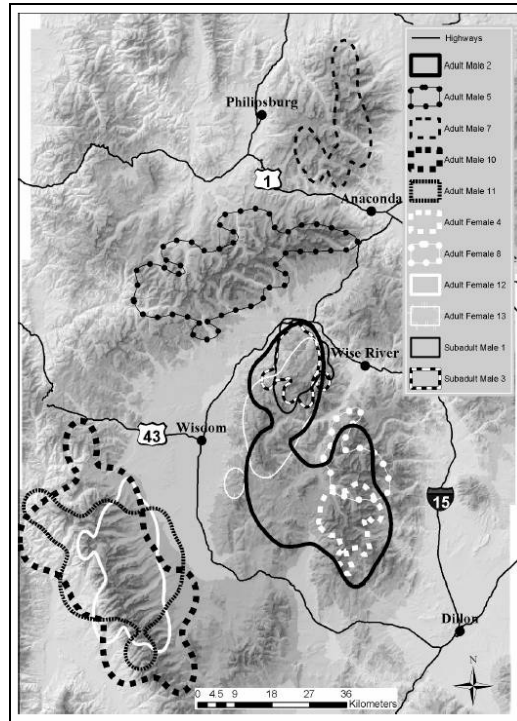


Figure 44. Spatial arrangement of wolverine home ranges in southwest Montana (Squires et al. 2006).

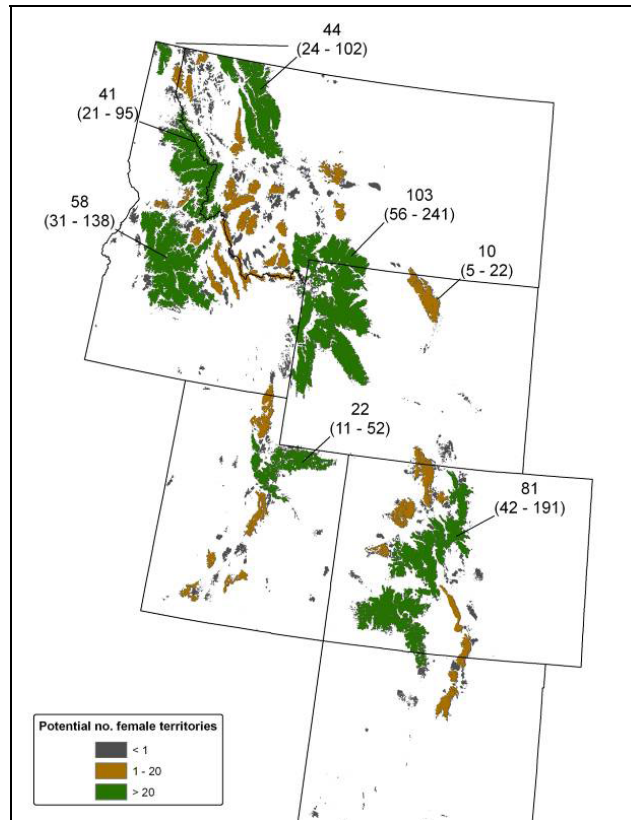


Figure 45. Potential female wolverine territories (Inman et al. 2007)

THREATS

Human disturbance: While human disturbance may in general affect wolverine distribution, the highest potential for negative disturbance impacts is theorized to be disturbance at den sites. This species lives at low densities under the best of circumstances; hence disturbance during this critical period may potentially have adverse effects on survival of young wolverines. Wolverine winter denning habitat in high mountain basins is increasingly accessible to snowmobiles as technological improvements enable riders to reach areas previously considered inaccessible.

As a Northern Region Sensitive Species, the wolverine was selected as an MIS to indicate changes in winter denning habitat security related to motorized disturbance.

Trapping: State trapping records tally 18 wolverines being taken from 1996 – 2002 in the analysis area (MTFWP 2002, 2003, 2004). Eight of these occurred in 2002 in Beaverhead County. While site specific locations are not noted in the State's report, it is reasonable to assume that some or all of the animals were taken from the Pioneer Range. Also, trapping losses of Rocky Mountain Station radio-tagged wolverines reached 75% of known radio-tagged animal mortalities (6 of 8) in the Pioneer range (Squires et al. 2006). Squires et al. 2007 concluded that few wolverines occupy small mountain ranges such as the Pioneers in western Montana and that trapper harvest during the study was the primary factor that affected wolverine survival. This information indicated that trapper harvest could cause local population declines in these isolated mountain ranges. Trapping is regulated by the

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State and not subject to Forest Service planning. Non-motorized winter allocations may influence trapping access.

Climate change: Aubry et al. (2007) note that snow is generally regarded as an important component of the wolverine's seasonal habitat requirements. Virtually all reported wolverine reproductive dens (sites where kits are born and raised prior to weaning) are relatively long, complex snow tunnels that may or may not be associated with large structures, such as fallen trees or boulders (Aubry et al. 2007). If the persistence of wolverine populations is linked to the availability and quality of relatively deep snow for reproductive den sites, insufficient snow cover during the denning period could play an important role in limiting their distribution (Aubry et al. 2007). Such impacts are likely to be long-term in nature and beyond the planning horizon for this plan. There are no known Forest Service actions that could affect local climate on such a scale as to prevent possible loss of high-altitude snow cover over the denning season.

EFFECTS

With respect to threats from human disturbance of denning habitat, the forest plan would provide management direction that would restrict winter motorized use. These restrictions would limit human disturbance in wolverine habitat, especially in areas of denning habitat. The plan would restrict winter motorized use on over 70% of wolverine denning habitat (Table 12 and Figure 46). Under the current plan only 37% of wolverine denning habitat is restricted. While snow mobile use may not currently be established in many areas where denning habitat exists, the plan would ensure security of those habitats before use becomes established. Additionally, under the preferred alternative, area closures are widely distributed across all landscapes on the Forest where wolverine denning habitat occurs. Because there is no empirical evidence documenting snowmobile disturbance as a factor causing wolverine mortality, motorized closure of 72% of the denning area is adequate for maintaining viability of wolverines on the Forest.

Table 14. Total Acres of Denning Habitat/Acres of Winter Non-motorized Denning Habitat

Landscape	Alt 1 Acres of Total Denning/Amount closed under Travel Plan	Alt 2 Acres of Closed Denning	Alt 3 Acres of Closed Denning	Alt 4 Acres of Closed Denning	Alt 5 Acres of Closed Denning	Alt 6 Acres of Closed Denning
Big Hole	32,129 / 12,209	24,418	29,237	12,209	21,526	21,526
Boulder River	1551 / 0	0	760	0	838	853
Clark Fork-Flints/Upper Clark Fork	12415 / 1241	3,104	7,697	1,241	5,711	6,206
Gravelly	15484 / 3871	6,194	14,710	3,871	12,232	12,232
Jefferson River	3851 / 0	3,543	3,774	0	3,620	3,812
Lima Tendoy	25810 / 9808	9,808	17,809	9,808	13,937	16,777
Madison	29635 / 28,450	29,042	29,339	28,450	29,339	29,042
Pioneer	30615 / 612	15,920	18,675	612	15,307	18,369
Tobacco Roots	21442 / 3431	3,431	16,510	3,431	14,152	13,508
Upper Rock Creek	9126 / 7233	7,210	7,575	7,210	7,210	7,940
Forestwide Total	182,058 / 66,855	102,670	146,086	66,832	123,872	130,265

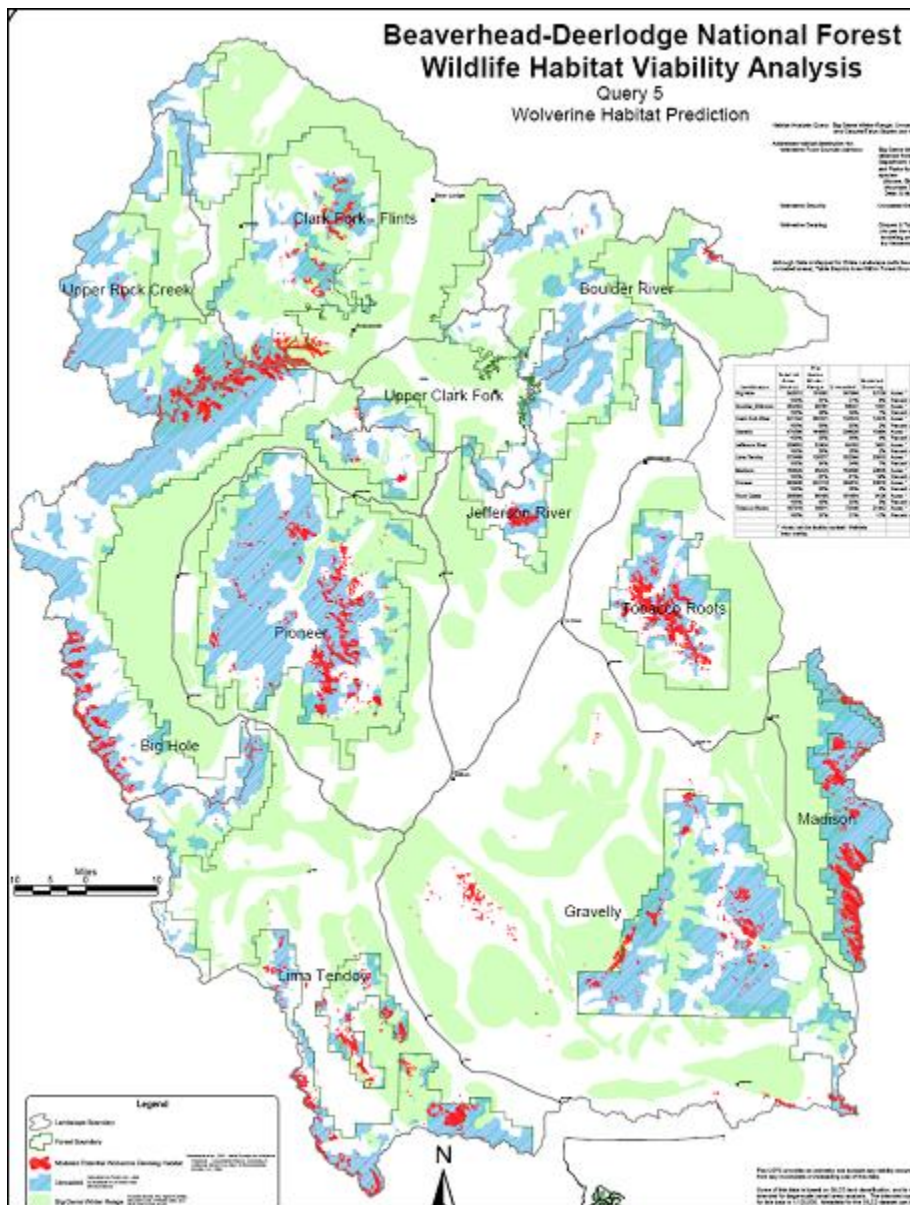


Figure 46. Modeled Wolverine Denning Habitat – Red Polygons

Reductions in open road density, prohibitions of motorized cross country travel, and restricted motorized winter travel that are included in the plan reduce disturbance to wolverines across all vegetation types. Secure habitat as a function of road density, roadless areas, wilderness and recommended wilderness that provides for wolverine habitat connectivity and reduced disturbance across all vegetation types and landscapes is presented in Tables 14 and 15. Figures 47 and 48 shows the location of security areas across the Forest. The preferred alternative provides an increased amount of secure habitat over the existing plan.

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Table 15. Percent Secure Habitat Summer/Fall

Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt6 - Preferred
50% / 57%	52% / 59%	58% / 63%	50% / 58%	53% / 59%	52% / 59%

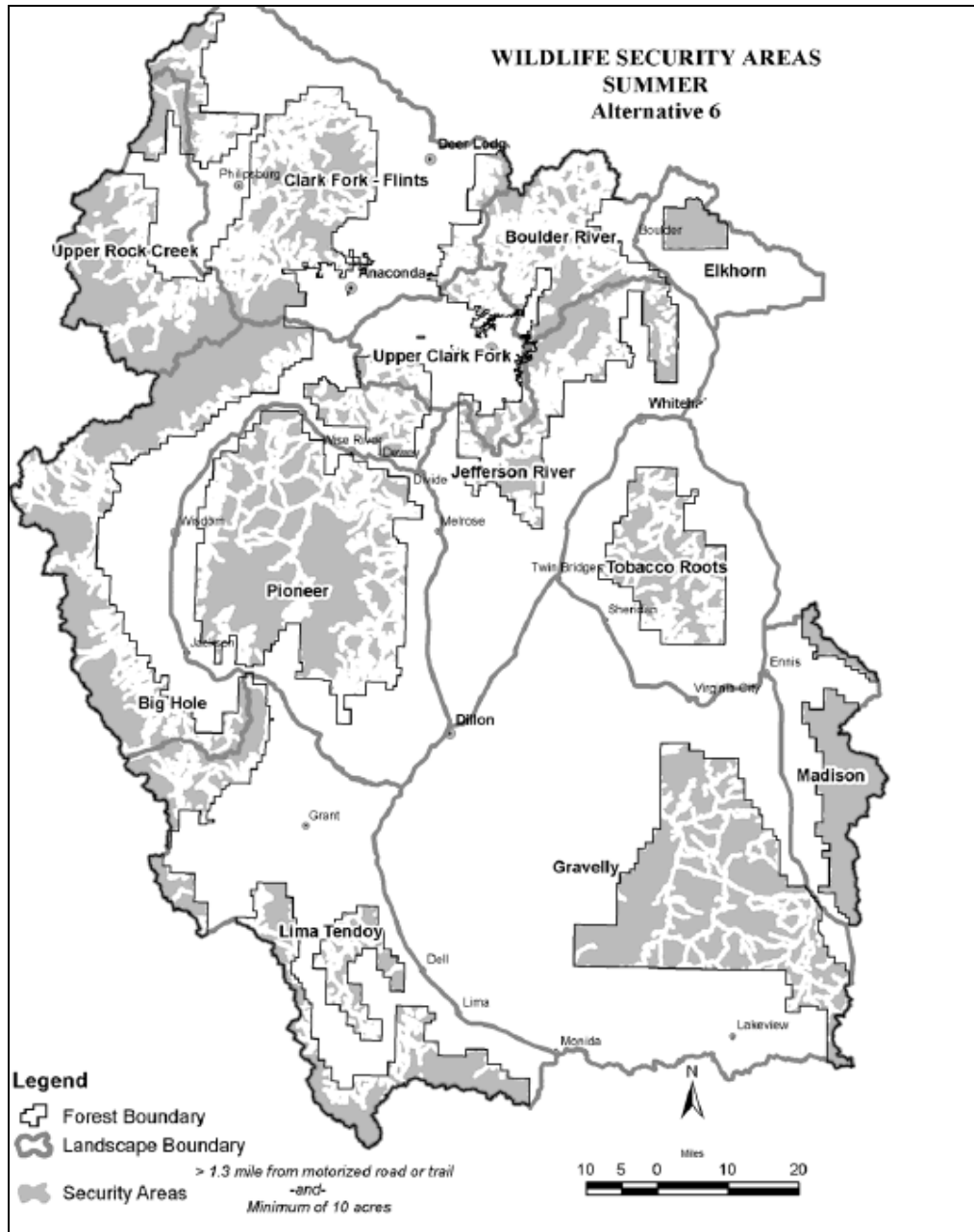


Figure 47. Summer Secure Habitat

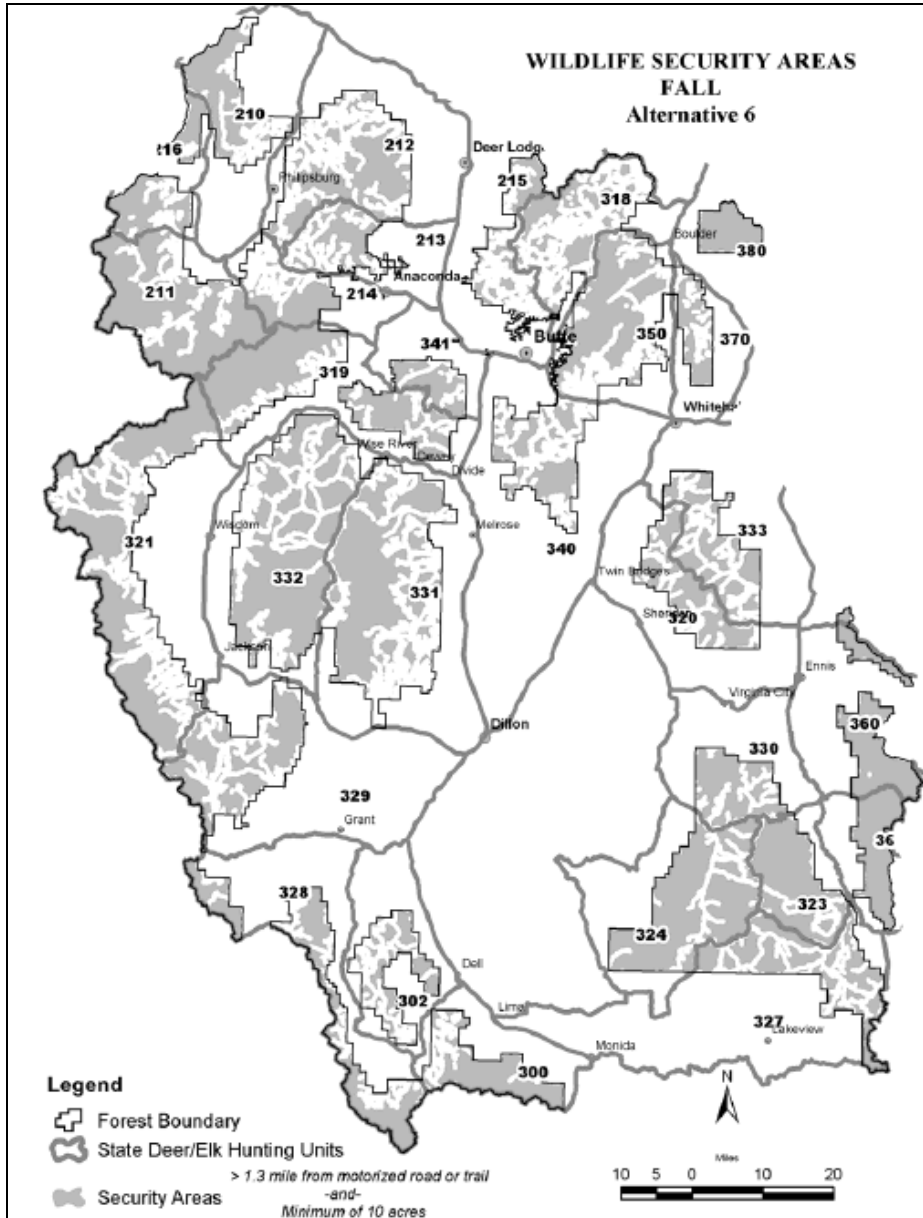


Figure 48. Fall Secure Habitat

Sustainability of the wolverine in southwestern Montana may also be directly linked to the management of trapping pressure by Montana Fish, Wildlife, and Parks. Montana is the only state in the contiguous United States that permits wolverine trapping. The 2007 State quotas in units encompassing the Forest totaled 5 animals. For 2008, the State of Montana has created new trapping units for wolverine. The new units encompassing portions of the BDNF also include portions of the Bitterroot, Lolo, Helena, Kootenai, Flathead, Lewis and Clark, and Custer National Forests have a combined quota of 2 wolverines (1 each for units 2 & 4). We expect this to notably reduce harvest of wolverines on the BDNF since any of the other included forests could contribute to the total quota, thereby halting activities on the BDNF.

As previously stated, establishment of trapping regulations is the responsibility of the State and not the Forest Service. However trapping mortality of wolverines can be affected by access to areas where wolverines exist. The reduction in open road density and restrictions on motorized travel in the plan would result in reduced access to wolverine habitat than currently exists under the existing plan. The decrease in access that would occur under the new plan may also decrease trapping mortality of wolverines.

CONCLUSION OF EFFECTS

The plan contains direction that would restrict motorized winter travel in 72% of the existing wolverine denning habitat on the Forest. The plan also contains direction that would reduce open road densities and motorized travel in a manner that is favorable to wolverines. Under the plan there would be no loss of viability of wolverines or a trend toward federal listing of the wolverine.

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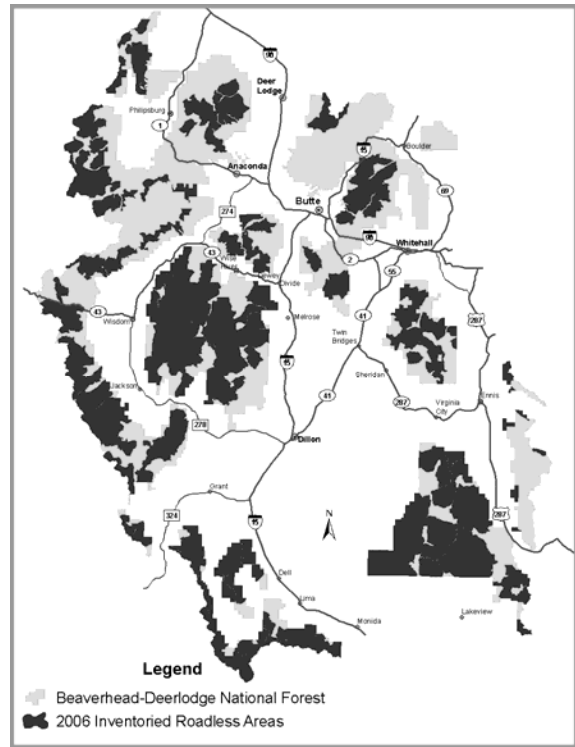
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APPENDIX C

EVALUATION OF AREAS WITH WILDERNESS POTENTIAL

National Forest Planning Regulations (36 CFR 219.17(1), 1982) tell us that “roadless areas within the NFS shall be evaluated and considered for recommendation as potential wilderness areas during the forest planning process.” Roadless or undeveloped areas with sufficient Wilderness characteristics are recommended for congressional consideration for designation as part of the National Wilderness Preservation System (NWPS). The inventory contains maps and descriptions of these areas upon which alternative recommendations in the FEIS were developed. Only congressional action may designate Wilderness. The revised forest plan makes only recommendations. The evaluation process is described below and individual evaluations follow.

Updating the Inventory of Areas with Wilderness Potential



Roadless areas were first evaluated for potential wilderness in Appendix C of the 1986 Beaverhead and 1987 Deerlodge forest plans. They were identified during the Roadless Area Review and Evaluation (RARE I) and modified during RARE II.

The earlier Appendix C inventory is used as a starting point to identify current roadless resources on the BDNF. From 2004 to 2006, district and forest specialists examined the status of roadless lands across the Forest to develop a new inventory of areas with wilderness potential. The areas evaluated, based on the 2006 inventory, may include all or portions of inventoried roadless areas in addition to new areas as explained below.

Inventoried Roadless Areas (IRAs) have a distinct status imparted to them by the 2001 Roadless Area Conservation Rule (RACR). The RACR formalized the boundaries of earlier Forest Plan IRAs through electronic maps developed nationally in 1999. RACR contains specific prohibitions and restrictions on activities allowed within the boundaries of these IRAs - road construction in particular. Prohibitions in the RACR do not apply to “Areas with Wilderness Potential” inventoried in 2006 unless they are *also* mapped as IRAs. Tables and narratives throughout the remainder of this Appendix use the terms “Inventoried Roadless” and “IRA” inappropriately. The correct term is “Areas with Wilderness Potential.” Please be aware of this distinction, though each table has not been corrected for the final printed version.

This appendix retains the roadless area numbering system assigned during the 1980s. However, a few subunit numbers were changed for easier reference. Additional areas with wilderness potential are identified and have been assigned the appropriate number sequence.

There are three types of map inventory updates:

1 - Area Boundary Adjustments and Changes: Calculations of acres in the 2006 inventory were made with Geographic Information Systems (GIS) technology which changed the 1986 and 1987 acres by digitizing old boundaries and reducing road buffers to fifty feet. Areas were added if they had been overlooked in earlier inventories, or roadless character was regained. Others were removed if they had been incorrectly included, or if activities such as road building, timber harvest, or mining changed their roadless character since the 1983 inventory. Private land inside the boundaries is excluded from final acreage.

2 - Areas Added to the Inventory: The following areas with potential for wilderness were added to earlier inventories.

Middle Creek Addition to Garfield Mountain Roadless Area 1-961: This area was recommended for inclusion by the Montana Wilderness Association. The inventory process supported the inclusion of this roadless area into the 2006 inventory. The area adds 6715 acres to 1-961, and received a Wilderness capability score of 27 on a scale of 4 to 40 points (moderate capability).

Cowboy Heaven Roadless Area 1-030: This area was recommended by the Madison Ranger District. The inventory process supported the inclusion of this roadless area into the 2006 inventory. The area comprises 6,916 acres adjacent to the Lee Metcalf Wilderness which rated a Wilderness capability score of 32 on a scale of 4 to 40 points (high capability).

Madison Roadless Area 1-031: This area was recommended by the Madison Ranger District. The inventory process supported the inclusion of this roadless area into the 2006 inventory. The IRA includes 6 parcels totaling 12,230 acres, and received a Wilderness capability score of 34 on a scale of 4 to 40 points (high capability).

Lost Creek Roadless Area 1-436: This area was part of a larger property acquired in a land exchange and was recommended for inclusion by the Montana Wilderness Association. The roadless inventory identified this part of the land exchange as roadless. The IRA contains 9538 acres, and received a Wilderness capability score of 25 on a scale of 4 to 40 points (moderate capability).

3 - Areas Removed from the Inventory: A roadless area must have at least 5,000 acres or be contiguous to an existing congressionally designated Wilderness area in order to be included in the roadless area inventory. Two areas included in earlier inventories do not meet these criteria and were eliminated. They were evaluated for Wilderness potential in case a high value ranking might lead to special consideration. Both areas rated below the minimum for recommendation.

Beaver Lake Roadless Area 1-003B: The unit is 4,466 acres, with a Wilderness capability score of 8.9 on a scale of 4 to 40 points. Unit 1-003B is an isolated parcel separated from the larger unit 1-003A by about two miles.

Dixon Mountain Roadless Area 1-019: This unit is 4,420 acres with a Wilderness capability score of 13.1 on a scale of 4 to 40 points (low capability). The area is very small and cannot be combined with other roadless areas because the road at Little Water Canyon

separates it from other roadless areas. Boundary adjustments would be necessary to remove incompatible uses and would further reduce the size of the area.

Changes in Acres of Areas Considered for Wilderness Potential between 1987 and 2007

Acre Updates to Map Categories	BDNF Acres only
1987 Total	1,850,475
Added	73,676
Dropped	-69,089
GIS Acreage Recalculated	-9,894
2007 Total	1,846,168

Updating the Roadless Area Evaluation

This section contains the summary of the Wilderness characteristics and process used to determine suitability of areas for Wilderness. Criteria identified in Forest Service Handbook 1909.12, Chapter 7 (WO Amendment 1909.12-92-1 effective 8/3/92) and examples from other forests were used to develop the Process for Evaluation of Roadless Areas for Wilderness (Project File). This process was used by planners and ranger district staff to evaluate Wilderness suitability.

Suitability

Suitability is determined from capability, availability, and need. Criteria for suitability ratings are: 1) suitability cannot be higher than capability, but may be higher than availability or need; 2) suitability is low if either capability or availability is rated low.

Capability

Capability is the degree to which an area contains the basic Wilderness qualities. These include the integrity of the natural environment and scenery; opportunities for solitude, challenge, and primitive recreation; unique ecological or cultural features. Factors such as size, shape, relationship to external influences, and boundary location were examined to determine manageability.

In addition to a narrative assessment, a set of capability assessment criteria were developed to insure consistent capability ratings across the forest. These numeric ratings were mistakenly labeled in the DEIS Appendix C as “Wilderness Suitability”. The ratings are based on a scale of 4 to 40. For the FEIS these ratings were rounded to the nearest whole number, and grouped into high, moderate, and low capability: low if rated less than 19, moderate if rated 19 through 27, and high if more than 27.

Availability

Availability is conditioned by the value of and need for the Wilderness resource compared to the value of and need for other resources. A brief description of uses, wildlife, water resources, livestock grazing, timber, minerals, oil and gas, heritage resources, land use authorizations, lands

not in federal ownership, and disturbances is included in the availability section of each roadless inventory form.

Wilderness availability is rated high, moderate, or low for each area. A high rating means there are few or no obligations such as special use permitted dams, access roads, and others. A moderate rating has more limiting obligations, and a low rating means the area has a need or limiting obligations which make it difficult to manage for Wilderness.

Need

Need is evaluated based on the Region One Wilderness Needs Assessment (2003) and public comments on the Proposed Action (2003) Draft Forest Plan, and DEIS, (2005). The Region One Assessment evaluated potential contributions to the local and national distribution of Wilderness and associated ecological and social values. The assessment found that Wilderness is fairly well distributed near population centers in Montana.

Ecological values which are underrepresented in the NWPS include:

- The Beaverhead Mountains Ecological Section which (grassland/shrubland, riparian shrublands, and aspen woodland communities),
- Montana sensitive plants,
- Wildlife refuge, particularly at low elevations, and
- Protected habitat for native fish species.

Need is rated high, moderate, or low for each area. Areas with a high rating have both a broad base of public support and two or more ecological qualities identified in the Region One Assessment. A moderate rating means the area has a minimum of one ecological quality *or* a broad base of public support for recommendation. Areas with a low rating have only a single ecological contribution and no public support specific to that particular roadless area.

Effect of Alternatives on Areas with Wilderness Potential

Alternatives were built around activities which are likely to occur over the life of the plan. The interdisciplinary team relied on a number of assumptions about inventoried roadless areas. The primary assumption was the 2001 Roadless Area Conservation Rule (RACR) would which prohibits road construction and timber harvest in IRAs with few exceptions, would prevail.

Managing for suitable timber lands was not a likely activity. See the FEIS, Alternatives Considered but not Analyzed in Detail. No action alternative includes suitable timber land in IRAs. Alternative 1 includes suitable timber lands in 10% of the IRAs. Timber harvest for other purposes is allowed within IRAs under very limited exception, RACR, 2001. Site specific analysis would have to examine effect on Wilderness characteristics and mitigate impacts therefore harvest wasn't displayed in the disposition table below.

Lands with moderate oil and gas potential lie within a number of IRAs. These lands may be leased and could be developed under stipulations described in the Forest Plan, Appendix B. However, because RACR prohibits road construction, development potential is very low in IRAs inventoried prior to passage of RACR. Where alternatives prescribe Wilderness recommendations for the IRA there will be no effect. A Recommended Wilderness allocation includes a stipulation of "No Surface Occupancy."

The acres of suitable range vary based on the disposition of vacant allotments. Difference in acres between alternatives does not reveal much about disturbance of Wilderness characteristics related to grazing. Grazing is an allowable activity in Wilderness areas, so the presence or absence of livestock is not evaluated here as a detrimental effect. The individual IRA capability descriptions describe grazing related structures or facilities and their effect on Wilderness characteristics.

Motorized travel is the activity most likely to reduce Wilderness characteristics. Alternatives offer a range of protective strategies. Recommended Wilderness and non-motorized allocations do the most to protect Wilderness characteristics. Key watersheds offer protection from activities that could impair watersheds or fisheries habitat. Key watersheds also have the potential to result in restoration of roads and other facilities that impair Wilderness characteristics, even if the impacts are short term. Backcountry recreation allocations in Alternative 6 don't have as much impact as roaded allocations because they maintain a semi-primitive setting.

Alternatives which apply the current travel plans over a large portion of the forest have a higher risk of affecting Wilderness characteristics because direction for how or what kind of activities can take place is not provided. In addition, while national direction constrains road construction to some degree, vegetation treatments can still occur with fewer constraints. Wilderness characteristics may be reduced by motorized roads and trails, snowmobile travel, suitable timber lands, and development of oil and gas potential.

Environmental Consequences

Alternative 3 provides the most Wilderness characteristics protection for in all IRAs and the least risk of disturbance. The alternative recommends 707,000 IRA acres for Wilderness and allocates a large percentage to non-motorized use. Disturbance is reduced by the effect of allocations on motorized use and potential for oil and gas development.

Alternatives 5 and 6 provide more protection than Alternative 2 because they include key watershed protection and a higher percent of Recommended Wilderness and non-motorized allocations. Of these two alternatives, Alternative 6 protects more IRAs with the best suitability ratings.

Alternatives 1 and 4 provide the least protection because of vulnerability to disturbance. Motorized use is allowed on a higher percentage of IRAs with fewer limitations on oil and gas development. Alternative 1 includes suitable timber land with commensurate thinning, fuel reduction, harvest and road building. The chance these activities would affect roadless characteristics, however, was eliminated by the RACR in 2001 with the exception of recreation activities.

IRA Disposition by Alternative

Inventoried Roadless Acres by Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	9%	10%	37%	--	13%	18%
Wilderness Study Area	11%	11%	11%	11%	11%	11%
Summer Non-Motorized *	39%	54%	81%	50%	63%	37%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	33%
Road-based	n/a	n/a	n/a	n/a	n/a	1%

Inventoried Roadless Areas Evaluation for Wilderness Potential

Inventoried Roadless Acres by Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Current Travel Plan Applies	60%	45%	19%	49%	36%	n/a
Winter Non-Motorized	11%	22%	55%	11%	42%	26%
Fisheries Key Watershed	n/a	n/a	21%	21%	21%	21%
Restoration Key Watershed	n/a	n/a	16%	--	5%	4%
Tentatively Suitable Timber	39%	39%	39%	39%	39%	39%
Modeled Suitable Timber	10%	--	--	--	--	--
Modeled Suitable Range	26%	26%	24%	26%	24%	24%
Moderate Oil & Gas Potential	10%	10%	10%	10%	10%	10%

- Summer Non-motorized *includes* Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are *mutually exclusive* in Alternative 6.

INDIVIDUAL ROADLESS AREA EVALUATIONS

The inventories were compiled in 2004 and updated in 2006. The maps were updated at the scale of 1:24000 and input into GIS. They exist as a single GIS data layer in the BDNF Corporate Database. The updates were completed in 2006 and were based on public comment and internal review.

The inventory section for each area includes a vicinity map, area description, and narrative assessments. Each section displays four tables. The first, not shown in this section, provides a summary of the capability, availability, and need for Wilderness recommendation. The second table displays changes in acres from digitizing and other reasons explained above. The third gives the disposition of allocations by alternative and the last compares of effects of recommendation by alternatives. Larger maps of the changes are included in the FEIS map packet.

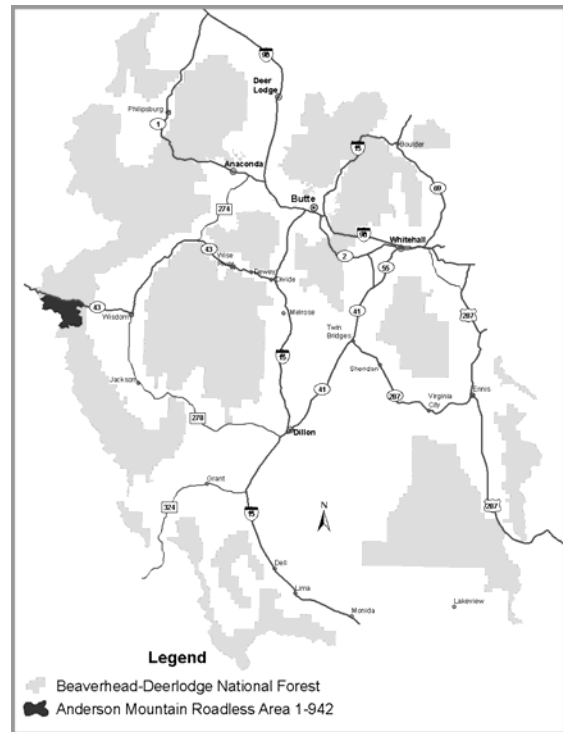
Anderson Mountain IRA (No. 1-942)

31,099 Acres

Description

Anderson Mountain Roadless Area is located on the Montana side of the Bitterroot Mountain Range in Beaverhead County contiguous to the Salmon-Challis National Forest Roadless Area 13-942 in Idaho. Access is available from Montana State Highway 43, the Foothills and Ruby roads. There is road and trail access from the Salmon National Forest in Idaho.

Elevations range from 6,300 to more than 8,000 feet. The terrain includes deep V-shaped valleys in rolling forested hills which rise to steep rugged peaks near the southern end of the Continental Divide. Whitebark and limber pine grow on the ridges near the timberline. The rest of the area is predominantly lodgepole pine forests with Douglas-fir and sagebrush parks present on south-facing slopes. Soils are moderately deep loams and sandy loams.



Capability

Integrity of the Natural Environment and Scenery: The area appears natural except for a few range improvements, irrigation ditches, and May Creek cabin. Scenic integrity is moderate to high. Natural integrity has been slightly reduced by livestock grazing.

Opportunities for Solitude and Primitive Recreation: There are many opportunities for solitude and primitive recreation opportunities like hiking, climbing, stock trips, snowshoeing, and skiing. More challenging travel is available in the area.

Special Features: Sections of the Continental Divide National Scenic Trail and May Creek National Recreation Trails are included.

Manageability and Boundaries: Boundaries are mostly manageable, but small adjustments may be needed in order to manage the area as Wilderness.

Availability

Recreation: The heaviest use occurs during fall hunting season. In summer people hike or ride horses and trail vehicles. Other activities include dispersed camping and firewood gathering. In winter the area is popular for snowmobiling and cross-country skiing. May Creek Cabin is a popular cabin rental.

Wildlife: The IRA contains secure habitat for wildlife enhancing linkages and connectivity across the landscape in between the Greater Yellowstone Area (GYA) and forests to the west and

north. Wolverines have been sighted and habitat for wolverine denning and Canada lynx are mapped. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function. The water source is important for downstream irrigation. Increased demand is likely.

Livestock Grazing: About a third of one allotment and a minor portion of another are included in this IRA. There are approximately 55 miles of fence.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Thirty-nine percent is favorable for gold-silver vein deposits, which may contain associated base metals. One percent is included in a high value, and five percent is in a medium value known locatable mineral deposit area. One percent has low oil & gas potential, and the rest is very low potential.

Heritage: The potential for historic and prehistoric sites is unknown.

Land Use Authorizations: There are many miles of irrigation ditches under special use permits in this area.

Non-federal Lands: There are 70 acres of private land in this roadless area.

Disturbances: Risk of mortality from bark beetles is increasing in Lodgepole Pine.

Need

Ecological: The Beaverhead Mountains Ecological Section has potential to contribute diverse vegetative cover types to the NWPS. The area is a part of the ecological subsection, and may contribute underrepresented plant communities as well as undisturbed habitat for wildlife (wolverine) and native fish.

Social: Support for Wilderness recommendation has been received **from** people who support Wilderness designation for all roadless areas. Opposition has been expressed by those who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural and scenic integrity have been slightly reduced by cattle grazing, irrigation ditches, and range improvements. There are opportunities for solitude and primitive recreation. The area is manageable as Wilderness.

Availability: There are obligations for maintenance of irrigation ditches. These obligations may limit Wilderness availability.

Need: The area would add lands, and may contribute underrepresented plant communities to the NWPS. Wilderness recommendation for Anderson Mountain has received some support and strong opposition from the public.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Anderson Mountain, BDNF 1-942	31,099	Moderate	Moderate	High	Moderate
Salmon-Challis NF 13-942	18,120	Not Rated	Not Rated	Not Rated	
Total	49,119				

**Nonfederal lands are excluded from the acreage.*

Anderson Mountain IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	30,331
Acres Added	0
Acres Dropped	-357
GIS Acreage Recalculated	1,125
2007 Total	31,099

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences**IRA Disposition by Alternative**

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	2%	54%	88%	--	83%	86%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	14%
Road-Based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	98%	46%	12%	100%	16%	n/a
Winter Non-Motorized	1%	66%	88%	--	88%	88%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	11%	--	--	13%
Tentatively Suitable Timber	95%	95%	95%	95%	95%	95%
Modeled Suitable Timber	50%	--	--	--	--	--
Modeled Suitable Range	2%	2%	1%	2%	2%	1%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked moderate for Wilderness suitability and was not recommended for Wilderness under any alternative.

A non-Wilderness recommendation may affect the IRA most under Alternative 1 because it offers no specific direction for motorized use and allocates half of the area as suitable timber base. The majority of the area is under summer and winter non-motorized allocations in Alternatives 3, 5 and 6 which would preserve existing Wilderness characteristics. Alternative 4 offers no specific direction for motorized use which creates a risk of impact to Wilderness characteristics.

Basin Creek (No. 1-430)

9,190 Acres

Description

The Basin Creek Roadless Area is located on the north side of the Highland Mountain Range in Silver Bow County, Montana. Access is available from the Highland Road on the east side and a county road on the north.

Elevations range from 5,880 feet to 7,200 feet. Around Basin Creek and Upper Basin Creek reservoirs the terrain is steep, and dissected into numerous small drainages with steep V-shaped valleys. Narrow riparian zones are thick with aspen, alder, and willows. The hillsides are covered with lodgepole pine and Douglas-fir forest interspersed with small grassland meadows. Large granite boulders and outcrops are common.

Capability

Integrity of the Natural Environment and Scenery: The area is natural appearing, with historic mining and exploration, an abandoned telephone right-of-way, and low standard roads. *Scenic Integrity* is high. Natural appearance has been reduced by stumps and skid trails from logging in the 1890's. Water levels fluctuate which affect the reservoirs' shorelines.

Opportunities for Solitude and Primitive Recreation: Solitude and primitive recreation opportunities are available in spite of close proximity to Butte. The area has topographic and vegetative screening, and terrain to enhance hiking and other non-motorized activities.

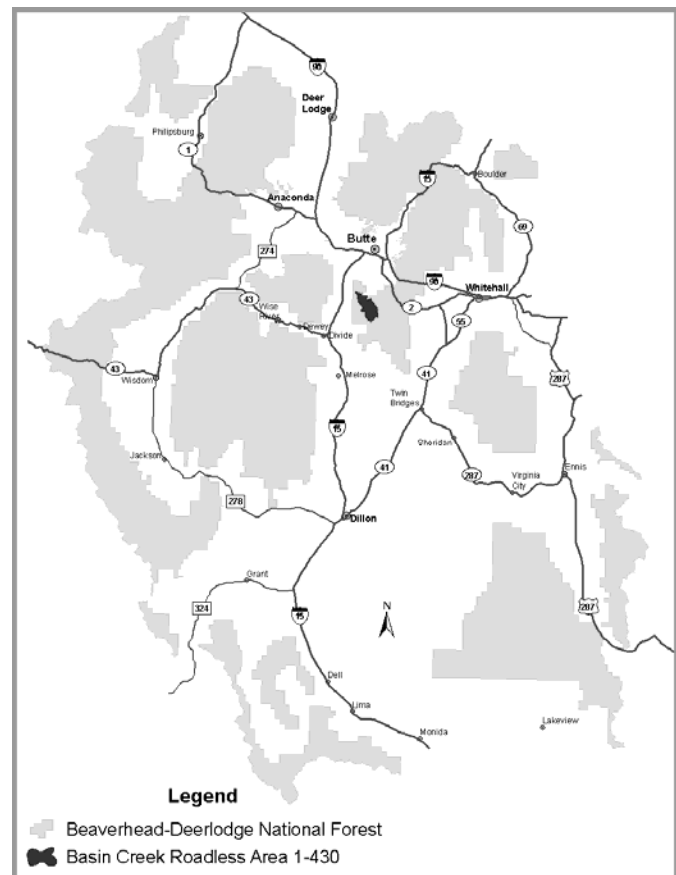
Special Features: The IRA contains a segment of the Continental Divide National Scenic Trail and Basin Creek Research Natural Area.

Manageability and Boundaries: The boundaries are identifiable on the ground and could be managed.

Availability

Recreation: Trail 108 provides OHV riding, cycling, and horseback riding in the summer.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Habitat has been mapped for the threatened Canada lynx. Westslope cutthroat trout inhabit some stream segments.



Water: Part of the area serves as a municipal watershed for Butte. This watershed has an A-Closed rating, which requires special management to maintain the designation.

Livestock Grazing: There is one grazing allotment on the west side.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals and for copper deposits. Five percent is favorable for replacement deposits of gold, silver and base metals. Thirty percent of the area is included in a high value known locatable mineral deposit area, and seven percent in a medium value known locatable mineral deposit area. The entire area has very low oil & gas potential.

Heritage: Nine sites were identified after a very limited field survey.

Land Use Authorizations: There are special use permits for a buried utility line and for the Upper Basin Creek Reservoir Dam.

Non-Federal Lands: There are 487 acres of private land in this roadless area.

Disturbances: There has been a very high mortality rate in lodgepole pine from mountain pine beetle since 2000.

Need

Ecological: The area is part of the Beaverhead Mountains Ecological Section and has potential to contribute underrepresented vegetative cover types to the NWPS.

Social: Management of the area is contentious due to the importance of the watershed to the residents of Butte. Support for designation of this area has been received from those who have supported Wilderness designation for all roadless areas. Opposition was expressed by those who wish to retain watershed management options.

Suitability

Capability: Natural integrity has been affected by mining, noxious weeds, and water impoundment. There are opportunities for solitude and primitive recreation. The area would be manageable as Wilderness.

Availability: There are contractual obligations to allow maintenance of the Butte water supply. These obligations limit Wilderness availability.

Need: The area would supply additional lands and may contribute underrepresented plant communities to the NWPS. Wilderness recommendation for Basin Creek is not well supported.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Basin Creek 1-430	9,190	Moderate	Low	Moderate	Low

**Nonfederal lands within the area have been excluded from the acreage.*

Basin Creek IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	9,658
Acres Added	0
Acres Dropped	0
GIS Acreage Recalculated	-468
2007 Total	9,190

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	21%	70%	71%	37%	71%	60%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	35%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	74%	25%	24%	58%	24%	n/a
Winter Non-Motorized	29%	78%	92%	28%	92%	76%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	24%	--	--	--
Tentatively Suitable Timber	77%	77%	77%	77%	77%	77%
Modeled Suitable Timber	12%	--	--	--	--	--
Modeled Suitable Range	3%	3%	3%	3%	3%	3%
Moderate Oil & Gas Potential	--	--	--	--	--	--

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

Basin Creek ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

A non-Wilderness recommendation for this area in all alternatives allows established social and economic uses and land use authorizations to continue, which facilitates management actions that may be required in municipal watersheds.

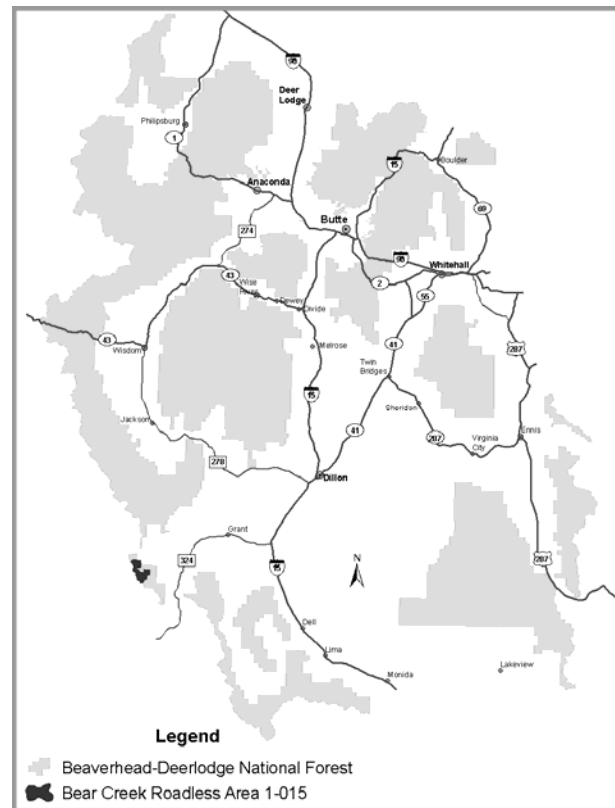
Bear Creek (No. 1-015)

7,277 Acres

Description

The Bear Creek Roadless Area is located about 45 miles south of Dillon in Beaverhead County, Montana. Access is available from low standard roads which join Lemhi Pass county road and Highway 324.

Elevations range from about 7,200 feet in Bear Creek to 9,400 feet along the Continental Divide. The majority of the terrain is long moderately steep canyon side slopes. Deep incised V-shaped canyons separated by narrow rounded ridge tops characterize the area. Vegetation is mostly lodgepole pine and Douglas-fir. Whitebark pine and subalpine fir preside in higher elevations. Small mountain meadows and grass lined streams are a minor part of the vegetation. Most soils are moderately deep rocky loams.



Capability

Integrity of the Natural Environment and Scenery: The appearance is mostly natural and scenic integrity is moderate to high. The natural integrity has been affected by livestock grazing, low standard roads, patches of noxious weeds, and mining claims.

Opportunities for Solitude and Primitive Recreation: Opportunities for primitive recreation and solitude are available in the canyons and valleys, but limited by the small size. There are no features available as recreation destinations; however, the terrain is challenging terrain near the Continental Divide.

Special Features: The Continental Divide National Scenic Trail.

Manageability and Boundaries: Much of the boundary is identifiable because it follows forest roads and the Continental Divide and could be managed.

Availability

Recreation: Hunting is the most common use. Motorized use on roads and trails is infrequent in summer and winter.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat is mapped and westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function. There are several developed springs for livestock. Increase in demand for water is unlikely.

Livestock Grazing: Portions or all of three grazing allotments are included in this roadless area. Bear Creek, North Black Canyon, and South Black Canyon are under intensive management systems.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Thirteen percent of the area is included in a high value known locatable mineral deposit area. The entire area has very low oil and gas potential.

Heritage: The potential for prehistoric and historic cultural resources is unknown. However, past use by Native Americans suggests sites may exist.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: There is a moderate to high risk of mountain pine beetle infestations.

Need

Ecological: Bear Lake roadless area is a part of the Beaverhead Mountains Ecological Section, and may contribute underrepresented vegetative cover types to the NWPS.

Social: Support for recommendation for Wilderness has been received from those who support Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected by noxious weeds, roads and adjacent forest uses. The limited opportunities for solitude and primitive recreation offer moderate challenge, and the area is manageable as Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands and may contribute underrepresented vegetative cover types to the NWPS. Wilderness recommendation for Bear Creek has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Bear Creek 1-015	7,277	Low	High	Low	Low

**Nonfederal lands have been excluded from the acreage.*

Bear Creek IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	8,252
Acres Added	0
Acres Dropped	-893
GIS Acreage Recalculated	-82
2007 Total	7,277

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	67%	67%	73%	67%	67%	68%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	32%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	33%	33%	27%	33%	33%	n/a
Winter Non-Motorized	--	--	--	--	--	--
Fisheries Key Watershed	n/a	n/a	76%	76%	76%	76%
Restoration Key Watershed	n/a	n/a	23%	--	--	--
Tentatively Suitable Timber	63%	63%	63%	63%	63%	63%
Modeled Suitable Timber	21%	--	--	--	--	--
Modeled Suitable Range	37%	37%	37%	37%	37%	37%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

The non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

Beaver Lake (1-003)

7,381 Acres

Description

This area is located north of Highway 43 on the lower slopes of the Anaconda Range in Beaverhead County, Montana. Access is from Highway 43 or the Trail, Tie, and Johnson Creek road systems.

Elevations range from about 7,000 to 8,000 feet. Slopes are generally gentle and rolling with the streams at the bottom of V-shaped valleys. Fires in 2000 burned dense lodgepole pine forest in part of this heavily forested area. Soils are mostly sandy loams derived from fine-grained igneous rocks.

Capability

Integrity of the Natural Environment and Scenery:

The area is mostly natural appearing with moderate to high scenic integrity. The natural integrity within this small area has been lowered by timber harvest and roads in the surrounding area, by 1960s and 1970s timber harvest and roads in the Elk Creek drainage, livestock grazing, and infestations of noxious weeds.

Opportunities for Solitude and Primitive Recreation: There are some opportunities for solitude. The area's small size and views of modified landscapes diminish primitive recreation opportunities. Some challenging activities are available for those willing to travel into the core area.

Special Features: The original route of the Nez Perce and Lewis and Clark trails is believed to follow meadows on the south edge of this roadless area.

Manageability and Boundaries: Boundaries are identifiable on the ground and are manageable.

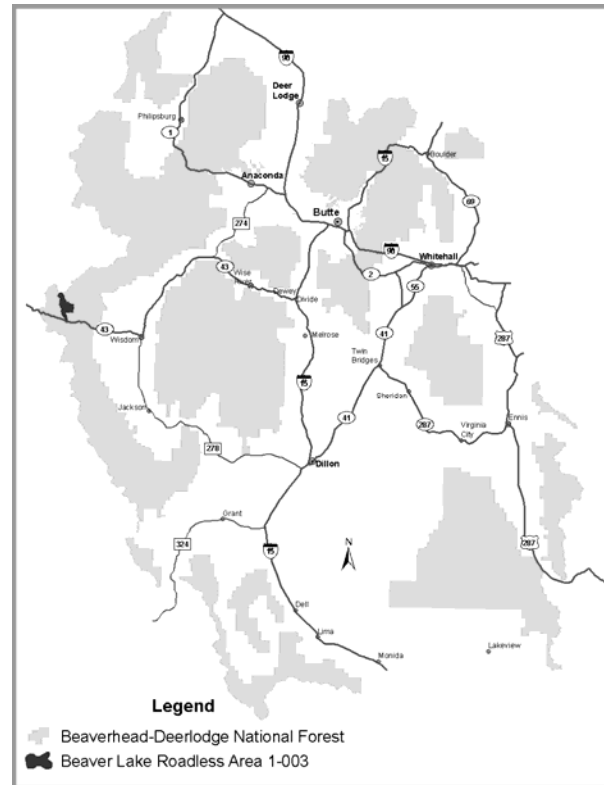
Availability

Recreation: The area is used most during elk hunting and snowmobile seasons. Dispersed car-camping, fishing, skiing, and snowmobiling are common in the lower areas near Trail Creek.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat has been mapped.

Water: Streams maintain biological values, channel structure, and riparian function. There is limited water development and increases in demand are unlikely.

Livestock Grazing: All of 1-003A is in the Trail Creek Grazing Allotment. Range improvements include several short segments of drift fence.



Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Two percent of the area is favorable for small vein deposits of gold, silver, and associated base metals. Less than one percent of the area is included in a medium value known locatable mineral deposit area. The entire area has very low oil & gas potential.

Heritage: The Nez Perce Trail is believed to follow meadows on the south edge of 1-003.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: Some of the dense lodgepole pine forests burned in the fires of 2000. There is a moderate to high risk of mountain pine beetle infestations.

Need

Ecological: Beaver Lake roadless area is a part of the Beaverhead Mountains Ecological Section, but has little acreage of underrepresented cover types.

Social: Support for recommendation of this area for Wilderness comes from those who support Wilderness designation for all roadless areas. Opposition is from people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected by use and noxious weed infestations. The limited opportunities for solitude and primitive recreation offer moderate challenge, and the area is manageable as Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add land to the NWPS. Wilderness recommendation for Beaver Lake has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Beaver Lake 1-003	7,381	Low	High	Low	Low

**Nonfederal lands within the area have been excluded from the acreage.*

Beaver Lake IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	13,474
Acres Added	0
Acres Dropped	-4,562
GIS Acreage Recalculated	-1,531
2007 Total	7,381

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	--	--	94%	--	69%	--
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	100%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	100%	100%	6%	100%	31%	n/a
Winter Non-Motorized	--	--	--	--	--	--
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	100%	--	--	--
Tentatively Suitable Timber	96%	96%	96%	96%	96%	96%
Modeled Suitable Timber	95%	--	--	--	--	--
Modeled Suitable Range	2%	2%	--	2%	2%	--
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

The non-Wilderness recommendation in all alternatives allows established and economic social uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

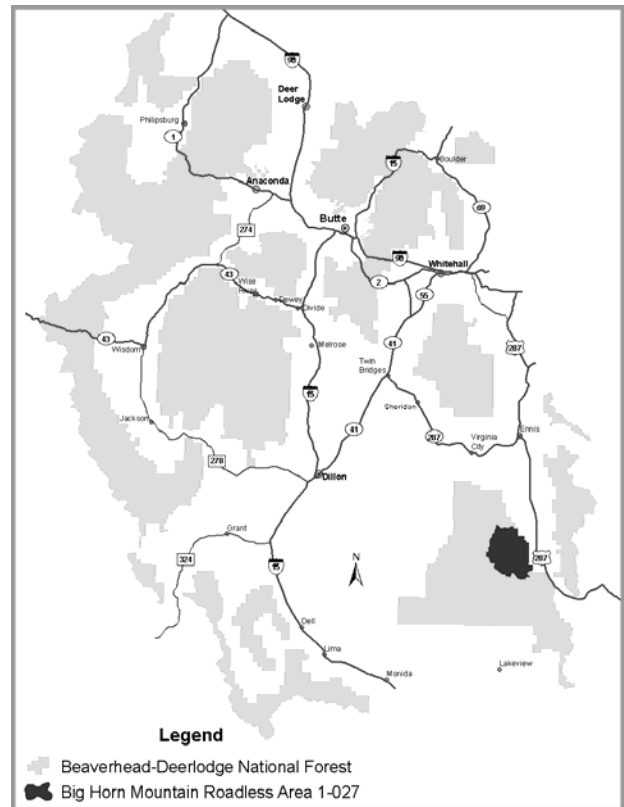
Big Horn Mountain (1-027)

53,494 Acres

Description

The Big Horn Roadless Area is located on the east slope of the Gravelly Range in Madison County, Montana. Access is available from the Standard Creek, Gravelly Range, and Wall Creek Guard Station roads.

Elevations range from 6,000 feet in the foothills to 10,200 feet at Big Horn Mountain summit. This is the most rugged part of the Gravelly Range, with high peaks, cliffs, deep canyons and bench lands. Large rumpled landslides are present in the southern part of the area. Lodgepole pine and Douglas-fir forests are the most common vegetation. Alpine grasslands are present at higher elevations, and there are many grassland parks throughout the area. Soils vary from moderately deep loams and clays in the northwest to shallow rocky loams and silt loams in the northeast.



Capability

Natural Integrity and Appearance: Scenic integrity is high; the area appears natural except where interrupted by division fences on the Wall Creek allotment. Natural integrity has been slightly reduced by grazing and small infestations of noxious weeds.

Opportunities for Solitude and Primitive Recreation: Rugged terrain and large size contribute to the opportunities for solitude and primitive recreation. The area offers unique spelunking, rock climbing, and ski touring, as well as more common activities.

Special Features: The included Cave Mountain Research Natural Area is a unique example of alpine grassland. The RNA is relatively undisturbed, and contains rough fescue at this southern limit to its range.

Manageability and Boundaries: Roads and the forest boundary form the boundaries and can be managed.

Availability

Recreation: The area receives most of its use during big game hunting seasons. The number of caves and unusual geology in the Cave Mountain RNA are attractions to visiting spelunkers and geology students. Snowmobiling is common in winter. The trail system provides a popular place for trail vehicle riders.

Wildlife: This roadless area contains a portion of the Wall Creek Winter Game Range and provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests beyond the BDNF. Canada lynx habitat and wolverine denning habitat is mapped. The IRA is part of occupied grizzly bear habitat. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function. Water from this area is also used for downstream irrigation. Increased demand for irrigation water is likely.

Livestock Grazing: Parts of four cattle and three sheep allotments are confined to the gentler terrain. In that portion there are numerous fences and water developments for the livestock use.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Two percent of the area is included in a high value known locatable mineral deposit area and five percent is included in a medium value known locatable mineral deposit area. Five percent of the area has a medium phosphate potential. Sixteen percent of the area has a moderate oil & gas potential, forty-four percent has a low potential, and the remainder has a very low potential.

Heritage: A Native American camp and artifacts have been discovered in the roadless area.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: There are 482 acres of private lands in the area.

Disturbances: Mountain pine beetle and spruce budworm are both present. Whitepine blister rust is causing mortality in whitebark pine stands.

Need

Ecological: Big Horn roadless area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub and grassland communities to designated Wilderness. Sensitive plant species not currently protected by Wilderness designation are found here as are wolves, grizzly bear and wolverine.

Social: Support for recommendation of this area for Wilderness has been received from those who have supported Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected slightly by livestock grazing, noxious weeds, and range improvements. There are many opportunities for solitude and challenging primitive recreation. The area is manageable as Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands and contribute underrepresented upland shrub and grassland communities to the NWPS. Wilderness recommendation for Big Horn Mountain received both public support and opposition.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Big Horn Mountain 1-027	53,494	High	High	Moderate	High

**Nonfederal lands are excluded from the acreage.*

Big Horn Mountain IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	50,390
Acres Added	3,205
Acres Dropped	-1,085
GIS Acreage Recalculated	984
2007 Total	53,494

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	93%	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	68%	69%	92%	67%	72%	72%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	27%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	31%	30%	7%	32%	27%	n/a
Winter Non-Motorized	29%	29%	92%	29%	95%	95%
Fisheries Key Watershed	n/a	n/a	57%	57%	57%	57%
Restoration Key Watershed	n/a	n/a	--	--	--	--
Tentatively Suitable Timber	36%	36%	36%	36%	36%	36%
Modeled Suitable Timber	8%	--	--	--	--	--
Modeled Suitable Range	43%	43%	32%	43%	32%	32%
Moderate Oil & Gas Potential	16%	16%	16%	16%	16%	16%

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

Wilderness recommendation in Alternative 3 protects high quality wildlife habitat and protects 16% of the IRA from the possibility of oil and gas development. While not currently popular for mountain biking, three trails would be closed to that use.

A non-Wilderness recommendation would have no effect because non-motorized allocations in Alternatives 1, 2, 4, 5, close a majority of the area to summer motorized while leaving popular low elevation loop trails from Hyde Creek to Wall Creek open to motorized use. All alternatives close the area in winter as well. They also maintain security for wolverine denning and elk

winter range in Alternatives 5 and 6. Up to 16% of the IRA may be available for oil and gas development but development potential is very low because of the road construction prohibitions of the RACR. Mountain biking would be allowed. .

Black Butte (No. 1-026)

39,252 Acres

Description

The Black Butte Roadless Area is located on the west side of the Gravelly Range in Madison County, Montana. Access is available from the Ruby River and Gravelly Range roads.

Elevations range from 6,450 to 10,546 feet at Black Butte summit. The area contains broad benches on the west which slope upward into broken ridges and a high subalpine ridge. Vegetation is a mix of sagebrush-grasslands and forests. Soils are derived from sedimentary rocks, mostly shale and sandstone. The geology and soils have resulted in many mass failure slumps in the area.

Capability

Integrity of the Natural Environment and Scenery: The area appears natural other than fences and water developments. Scenic integrity is high over most of the area. Livestock grazing, since the 1880s, has affected the natural integrity.

Opportunities for Solitude and Primitive Recreation: There are many opportunities for solitude and primitive recreation. The varied terrain offers vast scenic view and opportunities for challenging recreation experiences.

Special Features: Black Butte is a unique geological feature easy to identify in the Gravelly Range, because of its color.

Manageability and Boundaries: Roads surround the boundary making it manageable.

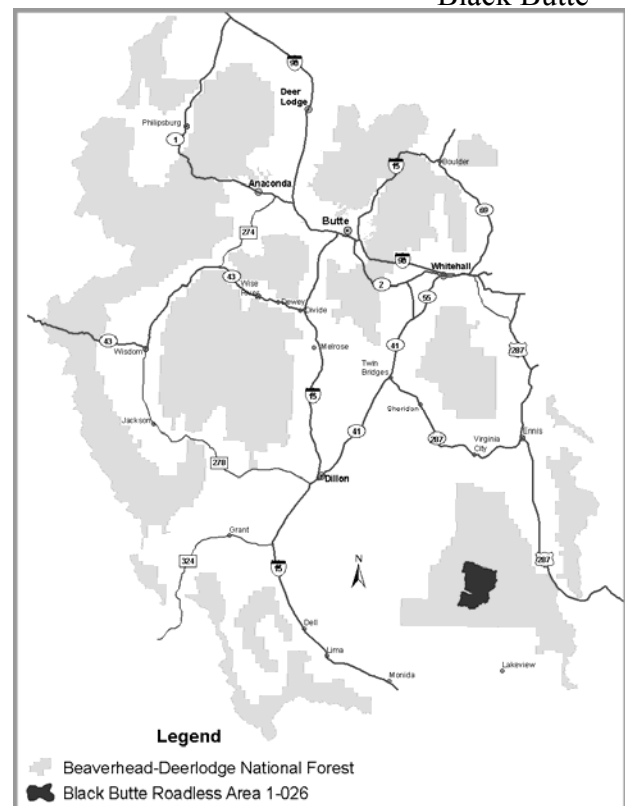
Availability

Recreation: Hunting is the most common recreational activity. The majority of visitors pursue non-motorized activities.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. The IRA contains occupied grizzly bear habitat and mapped habitat for Canada lynx and wolverine denning. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function. Water from this area is used for downstream irrigation. Increased demand for irrigation water is likely.

Livestock Grazing: One cattle and a few sheep allotments are permitted under intensive range management systems.



Timber: There is no suitable timber base in this area.

Minerals/Oil & Gas: Forty-seven percent of the area is included in a medium value known locatable mineral deposit area. Three percent of the area has medium phosphate potential. Ninety-five percent of the area has moderate oil & gas potential and the remaining five percent has low potential.

Heritage: The area has a high likelihood of additional historic and prehistoric resources based on known past occupation in the Gravelly range.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: Whitepine blister rust is causing mortality in whitebark pine stands.

Need

Ecological: Black Butte roadless area is part of the Beaverhead Mountains Ecological Section and would add upland shrub and grassland communities which are presently under-represented in designated Wilderness. Sensitive plant species not currently protected by Wilderness designation are found here. Wolves, grizzly bear and wolverine also inhabit the area.

Social: Support for recommendation of this area for Wilderness has been received from people who support Wilderness designation for all roadless areas. Opposition is from people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been slightly affected by livestock grazing and range improvements in the foothills. There are many opportunities for solitude and challenging primitive recreation. The area is manageable as Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add land and contribute underrepresented upland shrub and grassland communities to the NWPS. Wilderness recommendation for Black Butte has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Black Butte 1-026	39,252	High	High	Moderate	High

**Nonfederal lands are excluded from the acreage.*

Black Butte IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	39,787
Acres Added	0
Acres Dropped	0
GIS Acreage Recalculated	-535
2007 Total	39,252

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	100%	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	68%	68%	86%	68%	68%	68%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	32%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	32%	32%	14%	32%	32%	n/a
Winter Non-Motorized	--	--	85%	--	--	--
Fisheries Key Watershed	n/a	n/a	24%	24%	24%	24
Restoration Key Watershed	n/a	n/a	3%	--	--	--
Tentatively Suitable Timber	32%	32%	32%	32%	32%	32%
Modeled Suitable Timber	--	--	--	--	--	--
Modeled Suitable Range	77%	77%	77%	77%	77%	77%
Moderate Oil & Gas Potential	95%	95%	95%	95%	95%	95%

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

Wilderness recommendation in Alternative 3 preserves high quality wildlife habitat and protects the IRA from the possibility of oil and gas development in 95% of the area. Mountain biking and snowmobiling opportunities would be eliminated.

Discounting oil and gas development, non-Wilderness allocations in Alternatives 1, 2, 4, 5, and 6 would maintain most of the Wilderness characteristics. A majority of the area is protected from summer motorized use by non-motorized allocations or current travel plan restrictions. Up to 95% of the IRA has moderate potential for oil and gas development with a Controlled Surface Use stipulation but development potential is very low because of the road construction prohibitions of the RACR.

Call Mountain (No. 1-009)

9,548 Acres

Description

The Call Mountain Roadless Area lies in the East Pioneers about eight miles west of Glen in Beaverhead County, Montana. Access is provided along the western edge by the Willow Creek road. There are also trails from Browns Lake.

Call Mountain, the most prominent peak, rises to 9,010 feet. Below it are Agnes and Rainbow Lakes. The terrain is steep and rocky with lodgepole pine cover. Grassland valleys have deep loamy soils.

Capability

Integrity of the Natural Environment and

Scenery: Most of the area appears natural and scenic integrity is high. The natural integrity has been affected by livestock grazing and patches of noxious weeds. Low standard roads are evident in the lower elevations. Mining remnants and range improvements are visible in parts of the area.

Opportunities for Solitude and Primitive Recreation: The area offers some solitude, except along the roads and at the lakes, which have frequent visitation due to the proximity to Dillon, short travel distance from roads, and the fishing opportunities. The area offers some primitive recreation with challenge in the steep terrain. However, the heavy trail use, popularity of the lakes, and the cattle grazing limit primitive opportunities in summer.

Special Features: None.

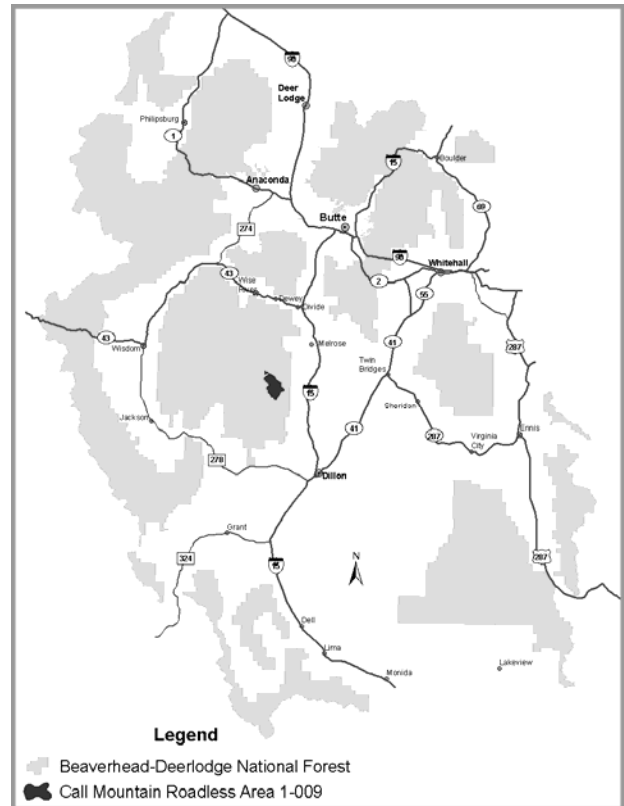
Manageability and Boundaries: The Willow Creek road on the west and developed forest lands along the perimeter define the boundaries of the unit. These boundaries could be managed, but Wilderness qualities would be affected by adjacent activities.

Availability

Recreation: Recreation is primarily hiking, hunting, and fishing in a nonmotorized setting. Snowmobiling is popular in the lower half of the area.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape between GYA and forests to the west and north. Canada lynx habitat and wolverine denning habitat are mapped.

Water: Streams maintain biological values, channel structure, and riparian function. There are several developed springs for livestock use and an increase in demand for water is unlikely.



Livestock Grazing: Area 1-009 lies in the Lost Willow Allotment and the East Pioneer Experimental Stewardship Area. The allotment is under an intensive grazing system, and there are a considerable number of range improvements.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals, and for molybdenum deposits. Seventeen percent is included in a medium value known locatable mineral deposit area. The entire area has very low oil and gas potential.

Heritage: The potential for prehistoric and historic sites is presently unknown.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: There are no known disturbances or threats of concern.

Need

Ecological: Call Mountain Roadless Area is part of the Beaverhead Mountains Ecological Section and may contribute vegetative cover types which are underrepresented in designated Wilderness.

Social: Support for Wilderness recommendation has been received from those who support Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been reduced by grazing, mining, and the presence of noxious weeds. There are a few opportunities for solitude and primitive recreation. The area is manageable as Wilderness; however, Wilderness qualities would be difficult to retain along the boundaries.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: Call Mountain roadless area would add land and may contribute underrepresented vegetative cover types to the NWPS. Wilderness recommendation for Call Mountain has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Call Mountain 1-009	9,548	Low	High	Low	Low

**Nonfederal lands are excluded from the acreage.*

Call Mountain IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	10,179
Acres Added	628
Acres Dropped	0
GIS Acreage Recalculated	-1,259
2007 Total	9,548

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences**IRA Disposition by Alternative**

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	1%	1%	1%	--	1%	1%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	--	69%	69%	69%	69%	--
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	100%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	100%	31%	31%	31%	31%	n/a
Winter Non-Motorized	--	1%	64%	--	55%	55%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	19%	--	--	64%
Tentatively Suitable Timber	32%	32%	32%	32%	32%	32%
Modeled Suitable Timber	7%	--	--	--	--	--
Modeled Suitable Range	11%	11%	11%	11%	11%	11%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked low for Wilderness suitability and because of a mapping change a few acres of the East Pioneer Recommended Wilderness were added. However 1% won't have a great impact on the rest of the IRA.

The non-Wilderness recommendation for 99% of the IRA in all alternatives allows established and economic social uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

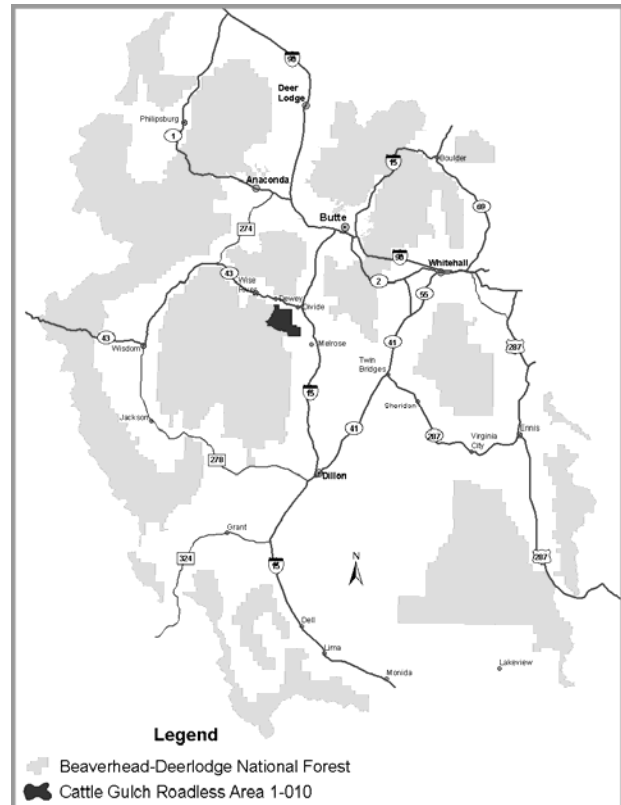
Cattle Gulch (No. 1-010)

18,865 Acres

Description

The Cattle Gulch Roadless Area lies on the eastern slopes of the Pioneer Mountains in Beaverhead County, Montana. Access is from Forest Road 187, low standard roads off of Highway 43, and the frontage road along Interstate 15.

Elevations range from about 6,500 to 8,700 feet. The topography is diverse, with gently sloping valleys separated by narrow, rocky ridges. Steep slopes and canyons drop abruptly to the Big Hole River along the north end. About half of the area is sagebrush-grasslands while the other half is forested, mostly with lodgepole pine and Douglas-fir. There are extensive stands of mountain mahogany on the lower slopes of Canyon Creek and Cattle Gulch. The geology is complex, with limestone as the dominant bedrock. Soils are generally shallow rocky silt loams. Limestone spires are visible landmarks, and there are many small cliffs with caves.



Capability

Integrity of the Natural Environment and Scenery: Scenic integrity is high to moderate. Jeep trails at lower elevations, fences, water troughs, historic mining remnants, and an abandoned power line are visible in this mostly natural appearing area. Natural integrity has been affected by noxious weeds, which are common throughout the area, and by livestock grazing.

Opportunities for Solitude and Primitive Recreation: Diverse topography and vegetative screening contribute to opportunities for solitude in the area. The lack of water features reduces the probability that the area would be chosen for primitive camping and longer duration activities.

Special Features: The area contains the proposed Cattle Gulch Research Natural Area, a historic Nez Perce trail, and pictographs.

Manageability and Boundaries: The area is surrounded on three sides by roads and the forest boundary on the east. Identification and enforcement of the existing boundary would be difficult in many places. Management would be difficult.

Availability

Recreation: Recreation includes mostly hunting, fishing, motorcycle and ATV trails, and snowmobiling in winter.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Wolverine denning and Canada lynx habitat is mapped.

Water: Streams maintain biological values, channel structure, and riparian function. There are several developed springs for livestock and increased demand for water is unlikely.

Livestock Grazing: Intensively managed for livestock grazing, this area is under rest and rotation, and is included in the Range Stewardship Program.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Six percent of the area is favorable for copper deposits. Twenty-eight percent of the area is included in a high value known locatable mineral deposit area and nineteen percent in a medium value known locatable mineral deposit area. Seventeen percent of the area has medium phosphate potential. Ninety percent has low oil & gas potential, while the remainder has very low potential.

Heritage: The Nez Perce Trail, pictographs, and old mining remnants are present.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: Two private parcels, totaling 864 acres, are located in this roadless area.

Disturbances: There is a moderate to high risk of mountain pine beetle infestations.

Need

Ecological: Cattle Gulch roadless area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub and grassland communities as well as sensitive plant species not currently protected by Wilderness designation.

Social: Support for recommendation of this area for Wilderness was received from people who have support Wilderness designation for all roadless areas. Opposition has been expressed by those who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been reduced by noxious weeds, livestock grazing, low standard roads, and historic mining. There is some potential for solitude and primitive recreation. The area would be difficult to manage due to boundary locations.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add land and contribute underrepresented upland shrub and grassland communities and sensitive plant communities to the NWPS. Wilderness recommendation for Cattle Gulch has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Cattle Gulch 1-010	18,865	Low	High	Moderate	Low

*Nonfederal lands are excluded from the acreage.

Cattle Gulch IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	18,891
Acres Added	0
Acres Dropped	0
GIS Acreage Recalculated	-26
2007 Total	18,865

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	16%	29%	42%	27%	27%	28%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	67%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	79%	67%	53%	68%	68%	n/a
Winter Non-Motorized	48%	48%	48%	48%	48%	48%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	--	--	--	--
Tentatively Suitable Timber	27%	27%	27%	27%	27%	27%
Modeled Suitable Timber	1%	--	--	--	--	--
Modeled Suitable Range	40%	40%	40%	40%	40%	40%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

The non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

Cherry Lakes (No. 1-023)

13,070 Acres

Description

The Cherry Lakes Roadless Area is located in the northeastern part of the Gravelly Range in Madison County, Montana. Access is by Johnny Gulch, Call, and Gravelly Range roads.

Elevations range from 6,500 to 8,500 feet. Broad ridges and deep canyons characterize the area. The area is open grasslands and sagebrush-grasslands with patches of forest. They contain mostly Douglas-fir or lodgepole pine and small patches of aspen. Soils are moderately deep on the west and shallow on the east and are composed of loams, silt loams, and clay loams of varied parent material.

Capability

Integrity of the Natural Environment and Scenery: The area appears natural except for the visible large water storage tanks and pipelines for stock water. Scenic integrity is high over the rest of the area. The natural integrity has been influenced by livestock grazing and patches of noxious weeds.

Opportunities for Solitude and Primitive Recreation: Even though the general topography of the area is relatively diverse and rough, opportunities for solitude are limited here. The shape, small size, location of roads encircling the area, the proximity of the Cyprus Talc Mine, and nearby developments in the Madison Valley all reduce opportunities for solitude and primitive recreation.

Special Features: None.

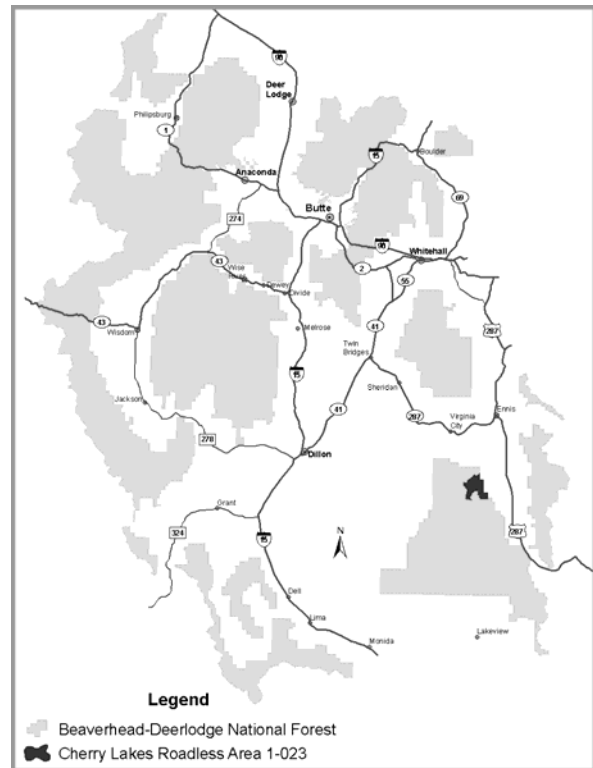
Manageability and Boundaries: The boundaries lie along roads and the forest boundary. The area would be manageable as Wilderness.

Availability

Recreation: The heaviest recreational use is during hunting season. In summer camping, OHV trails, scenic driving, and wood gathering make it a popular destination.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. The area is considered occupied grizzly bear habitat. Wolverine denning and Canada lynx habitat is mapped.

Water: This area has little surface water and few water developments. Increases in water demand are unlikely.



Livestock Grazing: The area contains parts of five cattle allotments with range investments including several stock water storage tanks and pipelines.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Thirty-four percent of the area is included in a high value known locatable mineral deposit area. Forty-nine percent has moderate oil & gas potential and the remaining fifty-one percent has low potential.

Heritage: The presence of prehistoric and historic sites is unknown.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: Mortality is high in lodgepole pine from mountain pine beetle infestations and in limber pine stands from whitepine blister rust.

Need

Ecological: This Roadless Area is a part of the Beaverhead Mountains Ecological Section and would contribute underrepresented upland shrub and grassland communities to the NWPS as well as sensitive plant species not currently protected by Wilderness designation.

Social: Support for recommendation of this area has been received from those who have supported Wilderness for all roadless areas. Opposition has been expressed by those who wish to retain the opportunities for motorized recreation and snowmobiling.

Suitability

Capability: Natural integrity is affected by livestock grazing and noxious weeds. There are few opportunities for solitude and challenging primitive recreation. The area is manageable as Wilderness.

Availability: The large investments in range structures (water storage tanks and others) reduce Wilderness availability.

Need: The area would add lands and contribute underrepresented plant communities to the NWPS. Recommendation for Cherry Lakes received public support and opposition.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Cherry Lakes 1-023	13,070	Moderate	Moderate	Moderate	Moderate

**Nonfederal lands are excluded from the acreage.*

Cherry Lakes IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	12,940
Acres Added	0
Acres Dropped	0
GIS Acreage Recalculated	130
2007 Total	13,070

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences**IRA Disposition by Alternative**

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	22%	22%	80%	22%	35%	34%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	66%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	78%	78%	20%	78%	65%	n/a
Winter Non-Motorized	--	--	83%	--	88%	88%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	1%	--	--	--
Tentatively Suitable Timber	28%	28%	28%	28%	28%	28%
Modeled Suitable Timber	7%	--	--	--	--	--
Modeled Suitable Range	73%	73%	73%	73%	73%	73%
Moderate Oil & Gas Potential	49%	49%	49%	49%	49%	49%

** Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.*

This IRA ranked moderate for Wilderness suitability and was not recommended for Wilderness under any alternative.

Discounting oil and gas development, a non-Wilderness recommendation will have a low risk of reducing existing Wilderness characteristics in Cherry Lakes. Summer and winter non-motorized allocations in Alternative 3, 5 and 6 would still preserve Wilderness characteristics by restricting motorized use. A non-Wilderness recommendation will allow continued management of activities such as grazing and motorized vehicle use,. Up to 49% of the IRA has moderate potential for oil and gas development under a Controlled Surface Use stipulation but development potential is very low because of the road construction prohibitions of the RACR.

Cowboy Heaven (No. 1-030)

6,916 Acres

Description

Cowboy Heaven Roadless Area is located in the northern end of the Madison Range in Madison County Montana. Access is from Bear Trap Trailhead.

Elevations average about 8,000 feet. The rolling upland is vegetated with a mosaic of meadows and extensive lodgepole pine forest. There are inclusions of spruce bogs, dry Douglas-fir forests and alpine areas of whitebark pine along ridges.

Capability

Integrity of the Natural Environment and Scenery: The area appears natural with the exception of a few range improvements, and scenic integrity is high. The natural integrity has been slightly reduced by livestock grazing.

Opportunities for Solitude and Primitive Recreation: There are opportunities for solitude and primitive recreation throughout the area. Solitude is more difficult to find during hunting season, when use increases.

Special Features: None.

Manageability and Boundaries: The Bear Trap and Spanish Peak portions of the Lee Metcalf Wilderness and the roadless areas are contiguous and it could be managed as an addition to the Lee Metcalf.

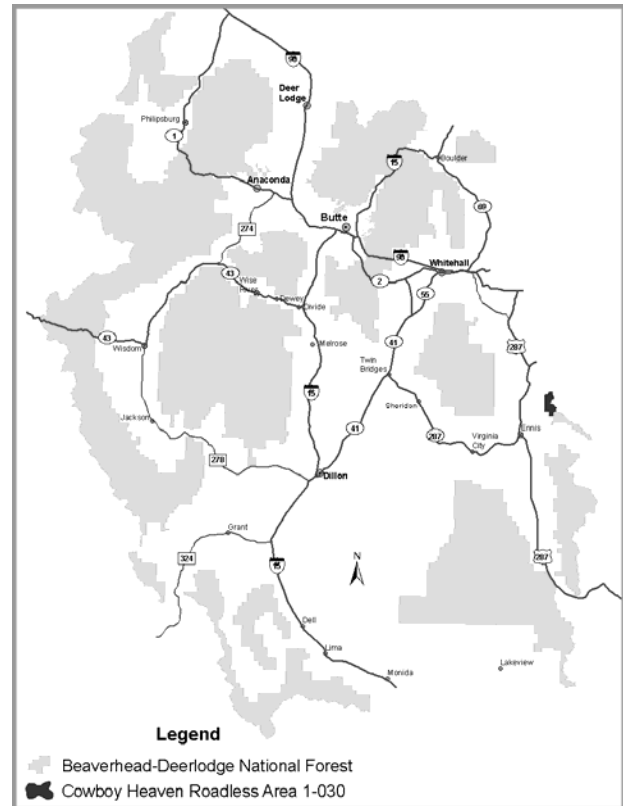
Availability

Recreation: The area is presently managed for non-motorized use. There are trail systems for hiking, backpacking, mountain biking, and stock travel, all of which are heavily used during big-game hunting season.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Wolverine denning and Canada lynx habitat are mapped. The area is considered occupied grizzly bear habitat.

Water: This area features little to no surface water and there is limited water development. An increase in demand for water from this area is unlikely.

Livestock Grazing: The area is part of an active grazing allotment. Investments in grazing improvements include some fence and a small rider's cabin on the edge of the area.



Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: One percent of the area has geothermal resource potential. The entire area has low oil & gas potential.

Heritage: There are no known historic or prehistoric sites in the area.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: There is one acre of private land included in this roadless area.

Disturbances: Lodgepole pine stands are at risk of mountain pine beetle infestation.

Need

Ecological: The Cowboy Heaven Roadless Area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub and grassland communities to designated Wilderness. The area offers refuge to wolverine, grizzly bear and wolves. Designation of Cowboy Heaven would also increase the size of the Lee Metcalf Wilderness.

Social: There is broad support for Wilderness recommendation for this area. Non-supporters wish to retain and protect mountain biking opportunities.

Suitability

Capability: Natural integrity has been affected slightly by livestock grazing and range improvements in the foothills. There are many opportunities for solitude and challenging primitive recreation. The area is manageable as Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add low elevation lands important to several wildlife species and contribute underrepresented upland shrub and grassland communities to the NWPS. Wilderness recommendation for Cowboy Heaven has received strong support and some opposition from the public.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Cowboy Heaven 1-030	6,916	High	High	High	High

**Nonfederal lands are excluded from the acreage.*

Cowboy Heaven IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	0
Acres Added	6,916
Acres Dropped	0
GIS Acreage Recalculated	0
2007 Total	6,916

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	100%	100%	--	100%	100%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	1%	100%	100%	1%	100%	1%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	--
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	100%	--	--	100%	--	n/a
Winter Non-Motorized	1%	100%	100%	1%	100%	--
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	--	--	--	--
Tentatively Suitable Timber	45%	45%	45%	45%	45%	45%
Modeled Suitable Timber	--	--	--	--	--	--
Modeled Suitable Range	25%	25%	25%	25%	25%	25%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

Wilderness recommendation in Alternatives 2, 3, 5, and 6 protects important secure habitat for wildlife for grizzly bears and wolverines. The IRA would add underrepresented shrubland and grassland communities to the NWPS, and connects the BLM Bear Trap Wilderness to the Lee-Metcalf Wilderness. Mountain biking would be eliminated.

A non-Wilderness recommendation for this area in Alternatives 1 and 4 would not positively respond to the Regional Needs Assessment, address general public support, or ensure long term protection of unique Wilderness resources and secure habitat. During this planning period Wilderness characteristics would not be affected because motorized access isn't available and no suitable timber base is allocated. A popular mountain biking trail would remain open.

Minerals/Oil & Gas: Thirty-six percent of the area is included in a medium value known locatable mineral deposit area. Four percent of the area has medium phosphate potential. Eighty-three percent of the area has moderate oil & gas potential and the remaining seventeen percent has low potential.

Heritage: Several old miners' cabins stand in the Wigwam Creek drainage. Prehistoric and historic cultural resources are undiscovered; however, past use by Native Americans in the general region suggests that sites may exist.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: Risk of spruce budworm and bark beetle infestation is high.

Need

Ecological: Crockett Lake roadless area is a part of the Beaverhead Mountains Ecological Section, and may contribute underrepresented upland shrub and grassland communities to designated Wilderness. Sensitive plant species not currently protected by Wilderness designation are found here as are wolves and grizzly bear.

Social: Support for recommendation of this area for Wilderness has been received from those who have supported Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected slightly by livestock grazing and noxious weeds. There are some opportunities for solitude and challenging primitive recreation. The area is manageable as Wilderness alone or with designation of adjacent BLM lands.

Availability: Large investments in range structures reduce the Wilderness availability.

Need: The area would add lands important to several wildlife species and contribute underrepresented upland shrub and grassland communities to the NWPS. Wilderness recommendation for Crockett Lake has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Crockett Lake 1-022	6,906	Moderate	Moderate	Moderate	Moderate

**Nonfederal lands are excluded from the acreage.*

Crockett Lake IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	6,830
Acres Added	0
Acres Dropped	0
GIS Acreage Recalculated	76
2007 Total	6,906

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	38%	38%	59%	38%	59%	59%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	41%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	62%	62%	41%	62%	41	n/a
Winter Non-Motorized	--	--	--	--	--	--
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	83%	--	--	--
Tentatively Suitable Timber	29%	29%	29%	29%	29%	29%
Modeled Suitable Timber	--	--	--	--	--	--
Modeled Suitable Range	65%	65%	65%	65%	65%	65%
Moderate Oil & Gas Potential	83%	83%	83%	83%	83%	83%

** Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.*

This IRA ranked moderate for Wilderness suitability and was not recommended for Wilderness under any alternative.

Discounting oil and gas development, a non-Wilderness recommendation will have a low risk of reducing existing Wilderness characteristics in Crockett Lake. The current travel plan (Alternative 1) and summer non-motorized allocations in Alternatives 3, 5 and 6 prevents motorized impacts on Wilderness characteristics. A non-Wilderness recommendation will allow management actions related to grazing and dispersed uses like motorized vehicles use to continue. Up to 83% of the IRA has potential for oil and gas development but development potential is very low because of the road construction prohibitions of the RACR.

008B and 1-008D host a variety of motorized pursuits in summer and in winter. Fishing is popular in high mountain lakes and streams in summer.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx and wolverine denning habitat are mapped. Westslope cutthroat trout inhabit some stream segments.

Water: Streams in this area are tributaries to the Big Hole and maintain biological values, channel structure, and riparian function. The area has several reservoirs and ditches which supply irrigation downstream. There are developed springs for livestock and the area contains the Rattlesnake Creek Municipal Watershed for Dillon. Increased demand for fishery requirements, irrigation, or municipal water, is likely.

Livestock Grazing: About one-half the area is in grazing allotments, under intensive grazing systems as part of the Range Stewardship Program.

1-008C has five allotments covering lower slopes, 1-008E contains portions of two grazing allotments, 1-008F has part of one allotment, and 1-008G has a few acres in two allotments. 1-008H is all in one allotment, 1-008I includes part of four grazing allotments, 1-008A has parts of three allotments, 1-008B is in five allotments, and about half of 1-008D is in two allotments.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Seventy-nine percent is favorable for molybdenum deposits. Significant attention was drawn to the northern part of the Eastern Pioneer Mountains after two U.S. Geological Survey Open-File reports were published describing the high mineral potential in the area (Berger and others, 1979 and Pearson and others, 1983. These two USGS reports, along with industry data, demonstrate that deposits in Subunit 1-008I, and to a lesser extent in 1-008B, are of substantial potential and priority as to affect availability of the subunit for wilderness.

Seventeen percent is favorable for replacement deposits of gold, silver and base metals. Seventeen percent of the area is included in a high value known locatable mineral deposit area and four percent is included in a medium value known locatable mineral deposit area. Less than one percent of the area has geothermal resource potential. One percent has high phosphate potential and less than one percent has medium phosphate potential. Thirty percent has low oil & gas potential, while the remainder has very low potential.

Heritage: Area 1-008 contains historical and scientific study areas with unique topography, culture and ecosystems.

Land Use Authorizations: There are dams for irrigation under permit in 1-008C, and irrigation ditches in 1-008F.

Non-Federal Lands: The area includes 813 acres of private lands. 1-008A has 103 acres of private lands south of Jacobsen Meadows. There are 557 acres of private land in 1-008B near Lion Mountain, Picketts Pasture and Brownes Creek. 1-008 D has 151 total acres of private land and just 1 acre in 1-008I.

Disturbances: Spruce budworm and mountain pine beetle are present.

Need

Ecological: The East Pioneer IRA is part of the Beaverhead Mountains Ecological Section and may contribute underrepresented riparian and wetland communities, upland shrubland, and grassland cover types. The IRA also contains sensitive plant communities not represented in designated Wilderness, wolverine denning and native fish habitat.

Social: Part of the roadless area was recommended Wilderness in the 1986 forest plan. Recommendation is supported by proponents of its scenic qualities, ruggedness, and opportunity primitive recreational activities. Opponents seek to retain mineral development, grazing, motorized access to the alpine lakes and snowmobiling.

Suitability

Capability: The highest natural integrity is found in the core, though historic mine remnants, low standard roads, and trails are scattered throughout. There are many opportunities for solitude and primitive recreation. With boundary adjustments to include only the areas of highest natural integrity and improve boundary location, the area would be manageable as Wilderness.

Availability: There is a clear need to retain developed recreation uses and potential along the Pioneer Mountain Scenic Byway. This potential would be affected by Wilderness recommendation of 1-008A. Mineral deposits in Subunit 1-008I and part of 1-008B are of substantial potential and priority as to affect availability of the subunit for wilderness.

Need: The East Pioneer roadless area would add lands and contribute underrepresented plant communities to the NWPS as well as refuge for wolverine and native fish. Wilderness recommendation has strong support on both sides.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
East Pioneer 1-008A	3,458	Low	Low	Moderate	Low
East Pioneer 1-008B	43,733	Moderate	High	High	Moderate
East Pioneer 1-008C	62,452	High	Moderate	High	High
East Pioneer 1-008D	11,159	Moderate	Moderate	Moderate	Moderate
East Pioneer 1-008E	6,866	Moderate	High	Moderate	Moderate
East Pioneer 1-008F	5,420	Moderate	Moderate	Moderate	Moderate
East Pioneer 1-008G	4,259	Moderate	High	Moderate	Moderate
East Pioneer 1-008H	1,486	Low	High	Moderate	Low
East Pioneer 1-008I	10,369	Moderate	Moderate	Moderate	Moderate
Total	149,203				

*Nonfederal lands are excluded from the acreage.

East Pioneer IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	144,543
Acres Added	5,502

Acres Dropped	-1,178
GIS Acreage Recalculated	336
2007 Total	149,203

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	53%	53%	59%	--	49%	56%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	42%	59%	80%	49%	60%	7%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	35%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	58	40	19	50	40	n/a
Winter Non-Motorized	3%	54%	70%	3%	66%	10%
Fisheries Key Watershed	n/a	n/a	--	--	--	6%
Restoration Key Watershed	n/a	n/a	3%	--	--	13%
Tentatively Suitable Timber	29%	29%	29%	29%	29%	29%
Modeled Suitable Timber	1%	--	--	--	--	--
Modeled Suitable Range	7%	7%	7%	7%	7%	7%
Moderate Oil & Gas Potential	--	--	--	--	--	--

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

Wilderness recommendation for over half of this IRA (subunits 008C, 008E, and 008) in Alternatives 1, 2, 3, 5, and 6 protect wildlife habitat in the Pioneer Mountains and add underrepresented plant communities to the national Wilderness system. In this planning period, Wilderness characteristics would largely be maintained through non-motorized allocations with existing motorized trails remaining open. Two popular mountain bike trails and snowmobile routes would be closed.

A non-Wilderness recommendation in subunits 008C, 008E, and 008I in Alternative 4 does not positively respond to the Regional Needs Assessment, some social values, and need for long term protection of unique Wilderness resources and secure habitat. Mountain biking trails would remain open.

The remaining subunits rate moderate or low for Wilderness suitability and don't lend themselves as additions to the recommended Wilderness. In these areas, a non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue, which facilitates management for grazing, irrigation and municipal water for Dillon. Activities allowed by Alternatives 2-6 have a low risk of reducing existing Wilderness characteristics in these areas.

Electric Peak (No. 1-609)

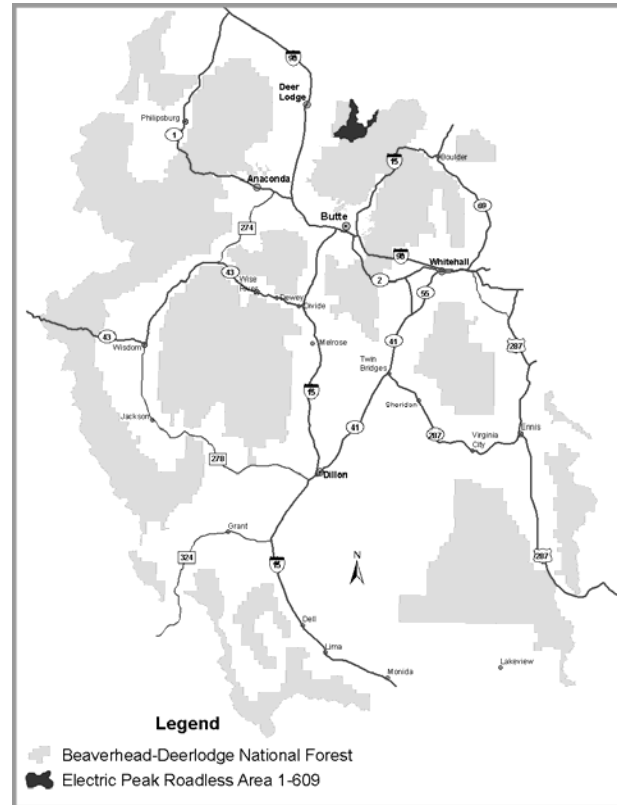
21,686 Acres

Description

Electric Peak Roadless Area is located along the Continental Divide north of Butte and southwest of Helena in Powell and Jefferson Counties, Montana. The IRA and Roadless Area 16-609 on the Helena National Forest are contiguous. Access is available from the south on Forest Roads #1509 and #5158 or trails from the adjacent roadless area on the Helena National Forest.

Elevations range from about 5,700 feet along the southern edge to 8600 feet at Thunderbolt Mountain summit. Bison Mountain, Cliff Mountain, and Electric Peak are additional peaks which rise above the timberline. Cottonwood Lake is a major waterhole for elk, deer, and moose.

Lodgepole pine is the dominant forest type, with Engelmann spruce present on wet sites. Douglas-fir is common on southern slopes, and subalpine fir common at higher elevations. Open meadows are scattered throughout the area.



Capability

Integrity of the Natural Environment and Scenery: The natural appearing scenery has been altered slightly by fences, roads, and abandoned mines. Cottonwood Lake (reservoir) and a dry canal channel, which served Leadville, are also visible remnants of earlier mining activities. Scenic integrity is moderate to high. Natural integrity has been affected by livestock grazing and mining.

Opportunities for Solitude and Primitive Recreation: The area has opportunities for solitude, especially where there is vegetative and topographic screening. However, motorized activities, timber harvest, and development on adjacent land on the south border reduce opportunities for solitude at the edge. Primitive recreation and solitude are available toward the center.

Special Features: Part of the Continental Divide National Scenic Trail and Thunderbolt Mountain Research Natural Area are included in this area.

Manageability and Boundaries: The boundary does not follow topographic features and would have to be realigned with physical features to be manageable. Such changes would result in a smaller but a more manageable area.

Availability

Recreation: Snowmobiling is popular in parts of the area. Camping, hiking, and mountain biking are common, especially during hunting season.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Wolverine denning and Canada lynx habitat is mapped. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function and is used for downstream irrigation. An increase in demand for irrigation water is likely.

Livestock Grazing: The area contains five grazing allotments. There are some spring developments and fencing.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Less than one percent is favorable for near-surface silver veins with low base metal concentrations. Less than one percent is included in a high value known locatable mineral deposit area, and twenty-three percent is included in a medium value known locatable mineral deposit area. Ninety-four percent has low oil & gas potential, and the remainder has very low potential.

Heritage: Historical sites associated with 1890 to 1920 mining and logging activities have been identified. Potential is moderate for prehistoric sites and travel routes.

Land Use Authorizations: The Black Mountain Snow Course, NRCS, has been in place since 1975.

Non-Federal Lands: None.

Disturbances: Mortality from bark beetles is increasing in lodgepole pine.

Need

Ecological: As part of the Beaverhead Mountains Ecological Section, this area may contribute underrepresented plant communities. The IRA provides refuge and denning habitat for a known wolverine population.

Social: The area was recommended for Wilderness in the previous forest plan. Opposition comes from people who wish to retain mountain bike and snowmobile opportunities.

Suitability

Capability: Natural integrity has been affected by mining, grazing, and other historic uses. There are opportunities for solitude and primitive recreation. With boundary modifications, the area could be managed as Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add land to an adjacent recommended Wilderness; contribute underrepresented plant communities and wolverine habitat to the NWPS. Support has been strong on both sides for and against Wilderness recommendation.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Electric Peak, BDNF 1-609	21,686	High	High	High	High
Helena National Forest 16-609	28,046	Not Rated	Not Rated	Not Rated	Not Rated
Total	49,732				

**Nonfederal lands are excluded from the acreage.*

Electric Peak IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	18,959
Acres Added	3,122
Acres Dropped	0
GIS Acreage Recalculated	-395
2007 Total	21,686

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences**IRA Disposition by Alternative**

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	44%	--	44%	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	60%	73%	91%	73%	80%	80%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	20%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	40%	27%	9%	27%	20%	n/a
Winter Non-Motorized	--	--	45%	--	44%	44%
Fisheries Key Watershed	n/a	n/a	38%	38%	38%	38%
Restoration Key Watershed	n/a	n/a	5%	--	--	--
Tentatively Suitable Timber	64%	64%	64%	64%	64%	64%
Modeled Suitable Timber	23%	--	--	--	--	--
Modeled Suitable Range	6%	6%	6%	6%	6%	6%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.*

Wilderness recommendation in Alternatives 3 and 5 add to the Blackfoot Recommended Wilderness on the Helena National Forest and add underrepresented plant communities and wolverine denning habitat to the NWPS. Mountain bike trails connected to the Helena National Forest would be closed.

A non-Wilderness recommendation for this area in Alternatives 1, 2, 4 and 6 does not positively respond to the Regional Needs Assessment and need for long term protection of unique Wilderness resources and secure habitat. In this planning period, however, Wilderness characteristics of the IRA would be maintained because a majority of the area is in non-motorized allocations or travel plan closures in all alternatives . Alternative 6 includes winter motorized closures with routes and play areas designated to protect wolverine habitat. Popular mountain biking trails would remain open.

Emerine (No. 1-423)

14,541 Acres

Description

Emerine Roadless Area is located in the Sapphire Mountains in Granite County. North access is from State Highway 38, west from Forest Road 5070 and south from Forest Road 70.

Elevations range from about 6,000 feet along the northern boundary to 8,639 feet at the summit of Mount Emerine. Topography in the center is steep; lower slopes are moderate. Other than scree slopes along Emerine Ridge, there is Douglas-fir forest at the lowest elevations, and lodgepole pine on mid-slope areas. Subalpine fir, Engelmann spruce, and whitebark pine grow at or below timberline.

Capability

Integrity of the Natural Environment and Scenery: The area is natural appearing and scenic integrity is moderate to high. Natural integrity has been affected by scattered remnants of early mining, one area of very limited timber harvest, and a fuel break built in 2000 anchored at the Skalkaho Highway 38. There are noxious weeds present.

Opportunities for Solitude and Primitive Recreation: The potential for solitude and primitive recreation is high because human uses have been limited by the dense forests and by the area's terrain. The area offers challenging terrain and outstanding views from the top of Emerine Ridge.

Special Features: None.

Manageability and Boundaries: The hour-glass shape of the area would limit manageability. Boundary adjustments would be needed in order to manage the area as Wilderness.

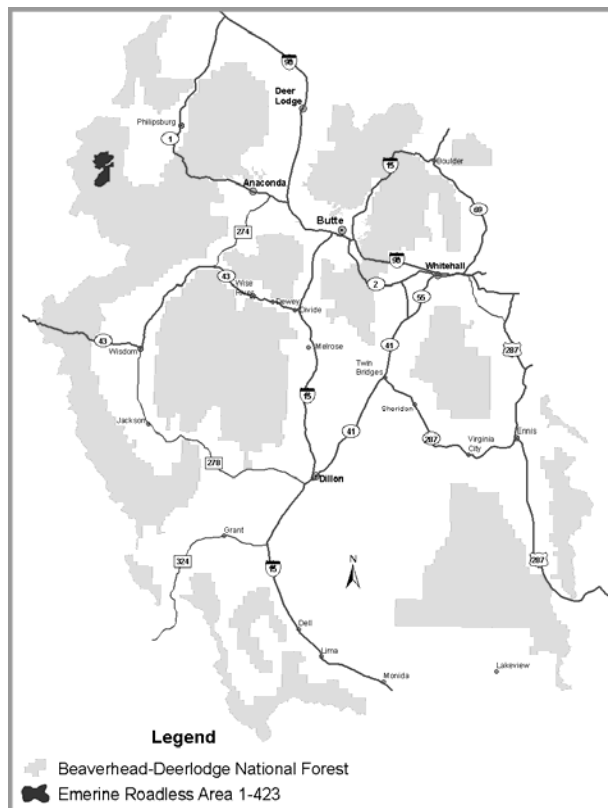
Availability

Recreation: The heaviest recreational use here occurs in fall hunting season. In summer most visitors hike to see the views from the ridge. In winter the area receives some snowmobile use.

Wildlife: The IRA provides secure habitat for wildlife and potential linkages between the Greater Yellowstone Area and forests to the west and north. Wolverine denning and Canada lynx habitat are mapped. Westslope cutthroat and bull trout inhabit some streams.

Water: Streams maintain biological values, channel structure, and riparian function. Water is used for downstream irrigation. Increased demand for irrigation water is likely.

Livestock Grazing: There is a small amount of livestock grazing on three allotments.



Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: One percent of this area is favorable for small vein deposits of gold, silver, and associated base metals. Less than one percent is included in a medium value known locatable mineral deposit area. The entirety has very low oil & gas potential.

Heritage: An inventory of a large portion of the area produced 5 recorded sites. Potential exists for historic mining, logging, trapping and transportation sites; and moderate potential for prehistoric travel routes and occupation sites.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: Insect and disease are present at endemic levels.

Need

Ecological: The Emerine roadless area may contribute sensitive plant communities not currently represented in the NWPS as well secure habitat for wildlife, i.e. wolverines.

Social: Support for recommendation for Wilderness has been received from those who support Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected by livestock grazing, noxious weeds and small mines. There are some opportunities for solitude and challenging primitive recreation. The area would need a new boundary to be manageable as Wilderness.

Availability: There are no contractual obligations or resource needs which would limit Wilderness availability.

Need: The area would add land and may contribute underrepresented rare or sensitive plant communities as well as undisturbed wildlife habitat to the NWPS. Wilderness recommendation for Emerine has received little public support.

Emerine IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	16,161
Acres Added	0
Acres Dropped	-2,089
GIS Acreage Recalculated	469
2007 Total	14,541

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Emerine 1-423	14,541	Moderate	High	Moderate	Moderate

**Nonfederal lands are excluded from the acreage.*

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	39%	60%	94%	60%	89%	91%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	9%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	61%	40%	6%	40%	11%	n/a
Winter Non-Motorized	--	--	3%	--	--	--
Fisheries Key Watershed	n/a	n/a	100%	100%	100%	100%
Restoration Key Watershed	n/a	n/a	--	--	--	--
Tentatively Suitable Timber	74%	74%	74%	74%	74%	74%
Modeled Suitable Timber	42%	--	--	--	--	--
Modeled Suitable Range	1%	1%	1%	1%	1%	1%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.*

This IRA ranked moderate for Wilderness suitability and was not recommended for Wilderness under any alternative. Not recommending Emerine for Wilderness will not affect Wilderness characteristics. Alternative 1 allocates 42% suitable timber base but harvest and road construction are unlikely. Effects in Alternatives 3, 5, and 6, are minimal because more than 90% of the area is allocated as non-motorized and is in a Fish Key Watershed. Alternatives 2 and 4 retain current travel plan restrictions and increase non-motorized areas.

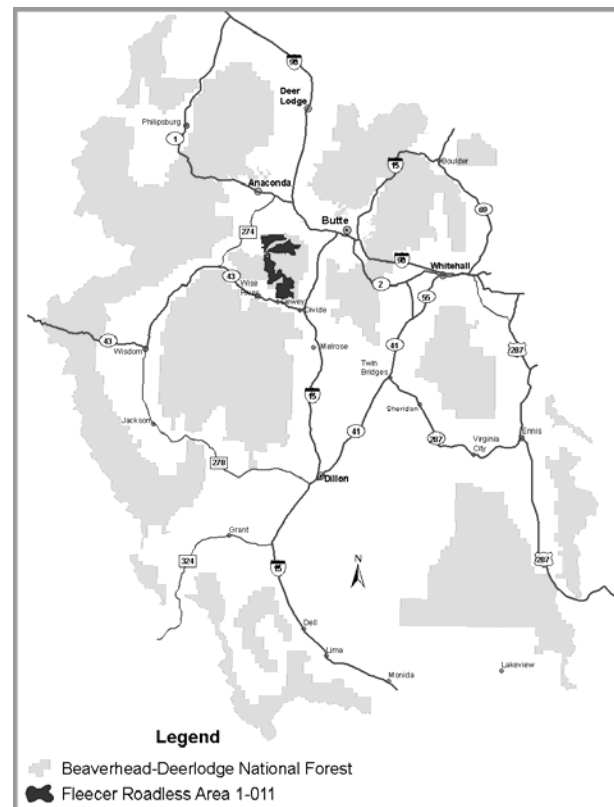
Fleecer (No. 1-011)

35,825 Acres

Description

The Fleecer Roadless Area stretches across the Fleecer Mountains in Silver Bow County, Montana. The unit is accessible from all directions and four-wheel drive roads provide some internal access. Highway 43 to the south is the closest major route.

Burnt Mountain, rising to 8,383 feet, is the most prominent feature along the Continental Divide. Mount Fleecer, at 9,436 feet, is the most prominent south of the divide. Though the Fleecers are one of the smaller ranges, in southwestern Montana, the terrain and vegetation is very diverse. Steep slopes are common north of the Continental Divide, and along the southern forest boundary, where outcroppings of granitic boulders are common. Upper Jerry Creek is one of the basins encircled by steep, dissected slopes. Smaller streams with beaver dams meander through willow-covered meadow. The north end is mostly forested while the south has large meadows of grassland and sagebrush along ridges and the lower boundary. Lodgepole pine is the most common tree species. Douglas-fir is the predominant species along Fleecer ridge and in lower Jerry Creek. Whitebark pine is present on the highest ridges and subalpine fir is present on north facing slopes. Soils are generally moderately deep, loamy, coarse sands.



Capability

Integrity of the Natural Environment and Scenery: A natural appearance dominates most of the landscape; however, human use is apparent throughout the area. Scenic integrity is generally moderate. The natural integrity has been affected by livestock grazing, timber harvest, noxious weeds, roads, historic mining, fences, and other range improvements. Wood harvest to fuel charcoal production near the turn of the 20th century is evident near Burnt Mountain. More recent harvest is visible west of Burnt Dam Ridge.

Opportunities for Solitude and Primitive Recreation: While there are some opportunities for solitude and primitive recreation, there are several limiting factors. The Fleecer Range is relatively small and surrounded by Highways. The IRA is narrow and offers few recreational challenges. Butte and Anaconda are visible from many points.

Special Features: The Continental Divide National Scenic Trail.

Manageability and Boundaries: The size of the area is ample for Wilderness; however, the shape includes areas less than one mile wide, and three miles north to south. The boundary is difficult to find on the ground, and would be very difficult to sign and enforce.

Availability

Recreation: The Fleecer range receives some of the highest hunter use in the state. The Fleecer roadless area is surrounded on all sides by roads. Much of the area is open to motorized travel yearlong. The area is managed for snowmobile, motorcycle, and ATV use.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat and wolverine denning habitat are mapped. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function. There are several developed springs for livestock. Increases in water demand are unlikely.

Livestock Grazing: This roadless area supports a substantial amount of livestock grazing.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Forty-nine percent is favorable for copper deposits. Thirty-two percent is favorable for replacement deposits of gold, silver and base metals. Ten percent of the area is included in a high value known locatable mineral deposit area and six percent is included in a medium value known locatable mineral deposit area. Eight percent of the area has medium phosphate potential. Forty-three percent has low oil & gas potential, while the remainder has very low potential.

Heritage: The potential for prehistoric and historic cultural resources on the Wise River Ranger District is unknown and some cultural resource work has been accomplished on the Butte Ranger District, but there are few recorded sites. The Butte side has moderate potential for old mining and logging sites throughout, and high potential for prehistoric sites in the southern portion.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: There are 148 acres of private land within this roadless area.

Disturbances: There is a moderate risk of mountain pine beetle infestations.

Need

Ecological: Fleecer roadless area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub and grassland communities. The area contributes habitat to refuge for wolf, lynx and wolverine.

Social: Support for recommendation for Wilderness has been received from those who support Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected by timber harvest, noxious weeds, livestock grazing, low standard roads, and historic mining. The area offers some potential for solitude and primitive recreation. The area would be difficult to manage due to its shape and boundary locations.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands and contribute underrepresented upland shrub and grassland communities to the NWPS. Wilderness recommendation has little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Fleecer 1-011	35,825	Low	High	Moderate	Low

**Nonfederal lands are excluded from the acreage.*

Fleecer IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	37,208
Acres Added	0
Acres Dropped	-131
GIS Acreage Recalculated	-1,252
2007 Total	35,825

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	2%	2%	68%	2%	14%	--
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	100%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	98%	97%	31%	98%	85%	n/a
Winter Non-Motorized	14%	14%	14%	14%	14%	14%
Fisheries Key Watershed	n/a	n/a	64%	64%	64%	64%
Restoration Key Watershed	n/a	n/a	--	--	--	--
Tentatively Suitable Timber	73%	73%	73%	73%	73%	73%
Modeled Suitable Timber	26%	--	--	--	--	--

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Modeled Suitable Range	22%	22%	22%	22%	22%	22%
Moderate Oil & Gas Potential	--	--	--	--	--	--

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

The non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

Flint Range (1-428) Dolus Lakes (1-429)

63,363 Acres

Description

The Flint Range and Dolus Lakes Roadless Areas are located in Flint Mountains in Granite and Powell Counties, Montana. Access is available from forest roads in the Flint Range.

Elevations range from about 6,200 feet in the northeastern corner to the 10,164 foot summit of Mount Powell. The terrain is quite diverse, with densely forested rolling hills along the perimeter rising to Pikes Peak, Racetrack Peak, Goat and East Goat mountains in the center. Large cirque basins or lakes are found below the peaks. Among these are nine reservoirs with maintained dams along the southern boundary. These lakes supply irrigation water to the Deerlodge and Flint Creek valleys.

Lodgepole pine is the dominant tree species. Bunchgrasses and dry Douglas-fir are present in lower elevations and on steep south-facing slopes. Subalpine fir and whitebark pine are found just below timberline.

Capability

Integrity of the Natural Environment and Scenery: The area is mostly natural appearing and scenic integrity is high. Exceptions include scattered historic mining, drill sites, exploration pits, low standard roads, and trails. Natural integrity has been slightly reduced by livestock grazing and fluctuating water levels affecting the vegetation and soils along reservoir shorelines.

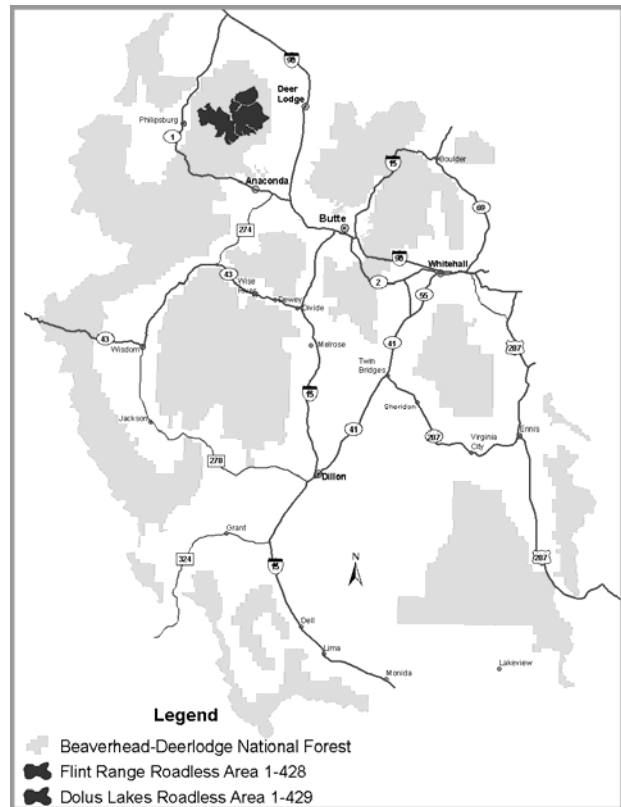
Opportunities for Solitude and Primitive Recreation: The core provides many opportunities for solitude, primitive recreation, and challenging hiking or climbing. Numerous small lakes, particularly on the north side, are surrounded by cool moist forests, and enhance opportunities for solitude. Some of the lakes are popular for family outings, and the influx of people reduces the opportunity for solitude.

Special Features: None.

Manageability and Boundaries: The area boundaries generally follow topographic features, and it is manageable as Wilderness.

Availability

Recreation: Several lakes are popular destinations. Hunting season brings many backcountry camps. Snowmobiling is popular in winter.



Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat and wolverine denning habitat are mapped. Westslope cutthroat and bull trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function and are used for downstream irrigation. Increased demand for irrigation water is likely.

Livestock Grazing: Grazing allotments support a very limited number of cattle.

Timber: There is no suitable timber base in these roadless areas.

Minerals/Oil & Gas: The entire Flint Range area is favorable for small vein deposits of gold, silver, and associated base metals. Forty-six percent of the area is favorable for gold-silver vein deposits, which may also contain associated base metals. Twenty-eight percent is favorable for molybdenum deposits. Twenty percent is favorable for replacement deposits of gold, silver and base metals. Forty percent is included in a high value known locatable mineral deposit area and twenty-two percent is included in a medium value known locatable mineral deposit area. Three percent of the area has moderate oil and gas potential, ten percent has low potential, and the rest has very low potential.

The entire Dolus Lakes area is favorable for gold-silver vein deposits, which may also contain associated base metals. Ninety-six percent of the area is favorable for small vein deposits of gold, silver, and associated base metals. Ninety percent is favorable for molybdenum deposits. Thirty percent is favorable for replacement deposits of gold, silver and base metals. The entire area is included in a high value known locatable mineral deposit area. Five percent has medium phosphate potential. Six percent of the area has low oil & gas potential, and the remainder has very low potential.

Heritage: Over 24 sites have been located with a limited amount of survey work. The potential for more sites is high.

Land Use Authorizations: There are nine special use dams on the southern boundary.

Non-Federal Lands: There are 154 acres of private lands inside these roadless areas.

Disturbances: Endemic levels of insects and disease are present. Some mortality is taking place.

Need

Ecological: This IRA may contribute to wolverine and other important wildlife species.

Social: Support for recommendation of this area for Wilderness come from those who support Wilderness designation for all roadless areas. People who wish to retain mining, snowmobiling, and other resource use opportunities oppose recommendation.

Suitability

Capability: Natural integrity has been reduced slightly by nine reservoirs. There are a few opportunities for solitude and primitive recreation, and the area is manageable.

Availability: Access is needed for operation and maintenance of the special use dams along the perimeter. There are no contractual obligations or resource needs to limit Wilderness availability.

Need: The area would add lands and may contribute undisturbed habitat for wildlife to the NWPS. Wilderness recommendation for the Flint Range and Dolus Lakes roadless areas received some public support. Opponents to recommendation wish to retain opportunities for mining and snowmobiles.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Flint Range 1-428	54,019	Moderate	Moderate	Moderate	Moderate
Dolus Lakes 1-429	9,344				
Total	63,363				

**Nonfederal lands are excluded from the acreage.*

Flint Range/Dolus Lakes IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
Flint Range 1987 Total	50,833
Dolus Lakes 1987 Total	9,344
Flint Range Acres Added	5,300
Dolus Lakes Acres Added	0
Flint Range Acres Dropped	-2,260
Dolus Lakes Acres Dropped	0
Flint Range GIS Acreage Recalculated	146
Dolus Lakes GIS Acreage Recalculated	0
Flint Range 2007 Total	54,019
Dolus Lakes 2007 Total	9,344
Combined Total	63,363

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation		Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	Flint	--	--	59%	--	--	--
Dolus		--	--	39%	--	--	--
Wilderness Study Area	Flint	--	--	--	--	--	--
Dolus		--	--	--	--	--	--
Summer Non-Motorized *	Flint	46%	59%	84%	59%	59%	74%
Dolus		81%	82%	93%	82%	82%	90%
Backcountry Recreation	Flint	n/a	n/a	n/a	n/a	n/a	26%
Dolus		n/a	n/a	n/a	n/a	n/a	9%
Road-based	Flint	n/a	n/a	n/a	n/a	n/a	--
Dolus		n/a	n/a	n/a	n/a		1%
Current Travel Plan Applies	Flint	54%	41%	16%	41%	41%	n/a
Dolus		19%	18%	6%	18%	18%	n/a
Winter Non-Motorized	Flint	1%	1%	61%	1%	21%	21%
Dolus		--	--	39%	--	81%	81%
Fisheries Key Watershed	Flint	n/a	n/a	56%	56%	56%	56%
Dolus		n/a	n/a	--	--	--	--
Restoration Key Watershed	Flint	n/a	n/a	9%	--	--	--
Dolus		n/a	n/a	33%	--	--	--
Tentatively Suitable Timber	Flint	26%	26%	26%	26%	26%	26%
Dolus		25%	25%	25%	25%	25%	25%
Modeled Suitable Timber	Flint	7%	--	--	--	--	--
Dolus		2%	--	--	--	--	--
Modeled Suitable Range	Flint	1%	1%	1%	1%	1%	1%
Dolus		2%	2%	2%	2%	2%	2%
Moderate Oil & Gas Potential	Flint	3%	3%	3%	3%	3%	3%
Dolus		--	--	--	--	--	--

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

This combined IRA ranked moderate for Wilderness suitability but was almost ranked high. The area was recommended for Wilderness in Alternative 3 because it offered high quality wildlife habitat linked to other secure areas and contained the headwaters for westslope cutthroat and bull trout streams.

Non-Wilderness recommendations in Alternatives 2, 4, 5, and 6 would still maintain most of the Wilderness characteristics. A majority of the area is allocated to non-motorized use in summer. Alternatives 5 and 6 also include winter non-motorized allocations in wolverine denning and

mountain goat habitat and fisheries key watersheds. A non-Wilderness recommendation facilitates management of special use dams in the area.

Four Eyes Canyon (1-020)

7,910 Acres

Description

The Four Eyes Canyon Roadless Area is about ten miles west of Lima in Beaverhead County, Montana. Access is by low standard roads from Big Sheep Creek Road.

Elevations range from 6,600 to 8,200 feet. Terrain includes both foothills and mountains vegetated with grasslands and sagebrush-grasslands with small stand of conifers. Shallow silt loams developed from limestone are the most common soils.

Capability

Integrity of the Natural Environment and

Scenery: The area appears natural with the exceptions of low standard roads and range improvements. Scenic integrity is moderate to high. Natural integrity has been slightly reduced by livestock grazing.

Opportunities for Solitude and Primitive Recreation: This small grassland area has little vegetative screening. Opportunities for solitude, primitive recreation, and a moderate level of challenge are available in the mountainous portion.

Special Features: None.

Manageability and Boundaries: The area is divided by a road corridor, and contains other short roads. There is little forest cover. Signing and enforcement would be difficult, particularly along adjacent boundaries. The area would be very difficult to manage as Wilderness.

Availability

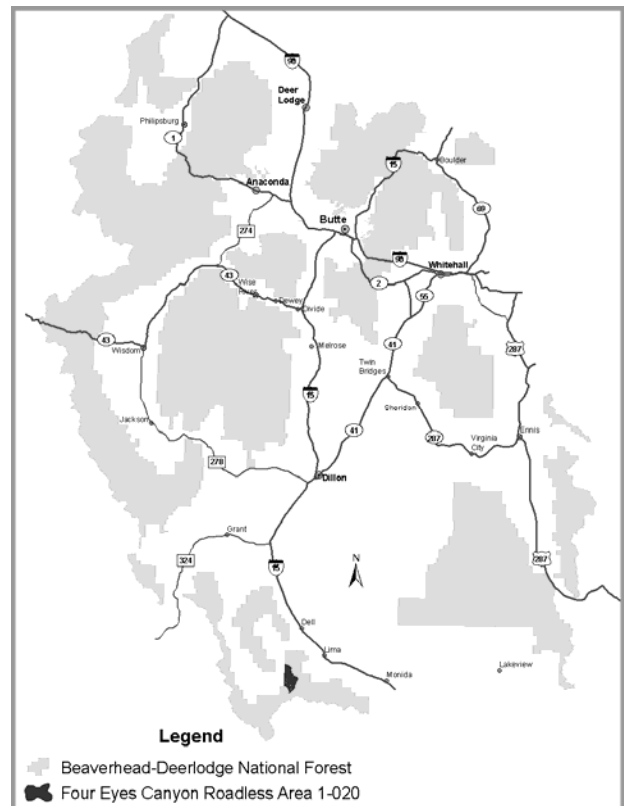
Recreation: This area contains both motorized and non-motorized roads and trails with the most use during hunting season.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Wolverine denning and Canada lynx habitat are mapped. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function. There are several developed springs for livestock. Increases in demand for water are unlikely.

Livestock Grazing: The area contains two grazing allotments. Both allotments are under intensive management and many range developments are present.

Timber: There is no suitable timber base in this roadless area.



Minerals/Oil & Gas: Seven percent of the area has medium phosphate potential. All of the area has a low oil & gas potential.

Heritage: The presence of prehistoric and historic resources is unknown; however, past use by Native Americans suggests they may exist.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: There are 37 acres of private land in this roadless area.

Disturbances: Insect and disease threats are low because there is little forest cover.

Need

Ecological: Four Eyes Canyon Roadless Area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub and grassland communities to designated Wilderness.

Social: Support for recommendation of this area for Wilderness has come from those who support Wilderness recommendation for all roadless areas. People who wish to retain motorized recreation and other resource use oppose it.

Suitability

Capability: Natural integrity has been affected by livestock grazing and noxious weeds. There are opportunities for solitude and primitive recreation with moderate challenge. **Boundary** locations and adjacent ownership patterns would make it difficult to manage.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands and contribute underrepresented upland shrub and grassland communities to the NWPS. Wilderness recommendation for Four Eyes Canyon has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Four Eyes Canyon 1-020	7,910	Low	High	Low	Low

**Nonfederal lands are excluded from the acreage.*

Four Eyes Canyon IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	8,237
Acres Added	830
Acres Dropped	0
GIS Acreage Recalculated	-1,157
2007 Total	7,910

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	1%	--	--	
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	12%	13%	13%	13%	13%	13%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	86%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	88%	86%	86%	86%	86%	n/a
Winter Non-Motorized	19%	19%	100%	19%	19%	19%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	66%	--	--	--
Tentatively Suitable Timber	9%	9%	9%	9%	9%	9%
Modeled Suitable Timber	--	--	--	--	--	--
Modeled Suitable Range	69%	69%	64%	69%	64%	64%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under all alternatives but 3 with 1% which has little effect.

The non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

Fred Burr (No. 1-435)

5,586 Acres

Description

Fred Burr Roadless Area is located in the southwestern corner of the Flint Mountain Range in Granite County, Montana. Access is available from the North Fork Flint Creek Road on the east, and low standard roads on the north.

Elevations range from 6,600 to 8,773 feet at Red Lion Mountain summit. The terrain is moderately steep, with highly dissected drainages. The hillsides are covered with dense forests, talus slopes, and avalanche chutes. Bunchgrass and dry Douglas-fir forests occupy south-facing slopes and lower elevations.

Capability

Integrity of the Natural Environment and Scenery: The area is natural appearing and scenic integrity is high. Exceptions include the fluctuating reservoir water table, old cabins, and small abandoned mines. Natural integrity has been reduced slightly by the reservoirs and mining.

Opportunities for Solitude and Primitive Recreation: Solitude and challenge are possible with rugged terrain and dense vegetation. Primitive experiences would be short duration because of the area's small size.

Special Features: None.

Manageability and Boundaries: The boundaries would be easy to manage because they follow topographic features and roads.

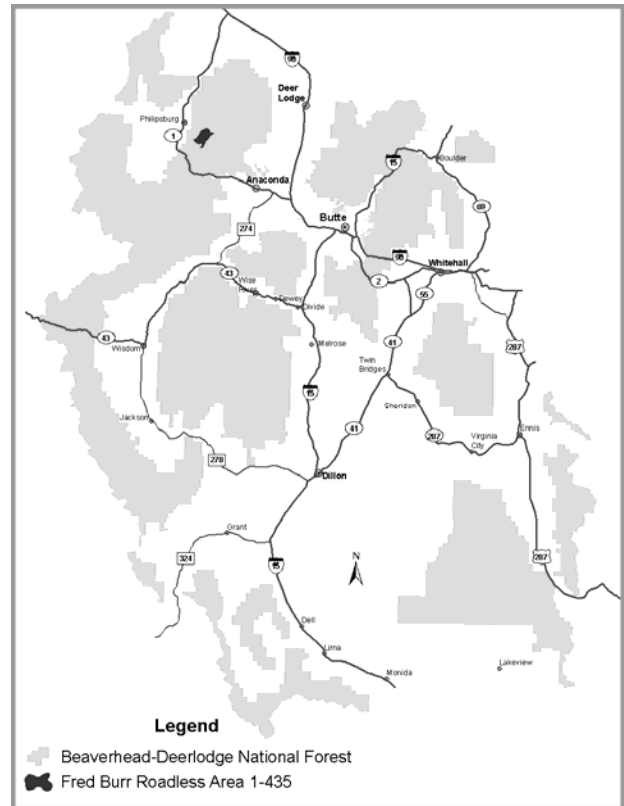
Availability

Recreation: The area is used by hikers, hunters, and cross-country skiers seeking a high level of challenge. The North Fork of Flint Creek Road, which serves as a boundary, is a heavily used snowmobile route.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Habitat for Canada lynx is mapped.

Water: Streams maintain biological values, channel structure, and riparian function and is used downstream for irrigation during the summer. A small portion lies within the Fred Burr Municipal Watershed. Increased demand for irrigation and domestic water is likely.

Livestock Grazing: The area supports little livestock grazing.



Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Ninety-three percent of the area is favorable for gold-silver vein deposits, which may also contain associated base metals. Four percent is favorable for replacement deposits of gold, silver and base metals. Forty-three percent of the area is included in a high value known locatable mineral deposit area, and fifty-seven percent is included in a medium value known locatable mineral deposit area. Five percent of the area has low oil and gas potential, and the remainder has very low potential.

Heritage: One site has been identified. The potential for historic mining sites is high because of proximity to the Georgetown-Southern Cross mining district.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: There are 37 acres of private land inside the northeastern boundary.

Disturbances: Insect and disease are present at endemic levels.

Need

Ecological: The Fred Burr roadless area may contribute habitat for Canada lynx.

Social: Support for Wilderness recommendation comes from those who support Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected slightly by reservoir fluctuations and mining. There are opportunities for solitude and primitive recreation. The area is manageable as Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add land, and may contribute underrepresented vegetative communities to the NWPS. Wilderness recommendation for Fred Burr has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Fred Burr 1-435	5,586	Moderate	High	Low	Moderate

**Nonfederal lands are excluded from the acreage.*

Fred Burr IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	6,603
Acres Added	0
Acres Dropped	-1,233
GIS Acreage Recalculated	216
2007 Total	5,586

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	47%	80%	89%	80%	78%	78%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	21%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	53%	19%	11%	19%	21%	n/a
Winter Non-Motorized	1%	1%	1%	1%	46%	51%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	100%	--	--	--
Tentatively Suitable Timber	34%	34%	34%	34%	34%	34%
Modeled Suitable Timber	7%	--	--	--	--	--
Modeled Suitable Range	--	--	--	--	--	--
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked moderate for Wilderness suitability and was not recommended for Wilderness under any alternative.

A non-Wilderness recommendation would have a low risk of reducing existing Wilderness characteristics in the Fred Burr IRA for all action alternatives. Summer non-motorized allocations in Alternative 2, 3, 4, 5 and 6 and winter non-motorized allocations in Alternatives 5 and 6 prevents further motorized impacts on Wilderness characteristics.

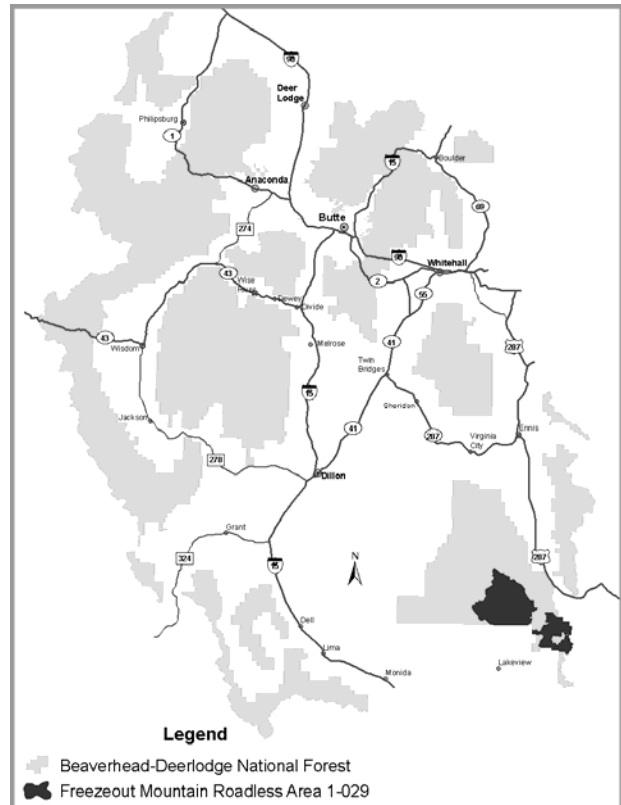
Freezeout Mountain (No. 1-029)

98,747 Acres

Description

The Freezeout Mountain Roadless Area lies in the southeastern corner of the Gravelly Range in Madison County, Montana. Access to area 1-029A is available from the Gravelly Range and Standard Creek roads. Access to 1-029B is available from the Wade Lake road and the Centennial Valley.

Elevations range from 6,800 to 10,170 feet. Lobo Mesa, a broad gently sloping upland, forms the center of Area 1-029A, and is surrounded by rolling foothills in the south and large deep canyons on the east along Elk River. Large blocks of lodgepole pine, Douglas-fir, and spruce forest cover the northwestern and south-central areas, and north-facing slopes of Elk River. Sagebrush-grasslands cover the rest of the area. Area 1-029B includes Cliff and Wade Lakes, and the bench lands to the south and west. About half of this area is forested and other half is grassland. Soils are predominantly volcanic rock, with deep, fine sandy loams with clay loam subsoil. An exception is the southeastern part of 1-029B, where loam soils are derived from metamorphic rock.



Capability

Integrity of the Natural Environment and Scenery: Area 1-029A is generally natural appearing with fences, water developments, and a few low standard roads present. Scenic integrity is high. Natural integrity has been slightly affected by livestock grazing.

Area 1-029B is mostly natural appearing and scenic integrity is moderate to high. Natural integrity in 1-029B has been affected by livestock grazing, and several range improvements. In the middle there are several miles of low standard roads, a reservoir, a residence, and utility buildings on private land. The area also includes a permitted cabin for grazing administration.

Opportunities for Solitude and Primitive Recreation: There are good opportunities for solitude and primitive recreation, near the center of these areas. Rugged cliffs provide the opportunity for challenging climbing and hiking.

Special Features: Cliff Lake Research Natural Area, sections of the West Fork of the Madison and Elk rivers, both eligible National Wild and Scenic Rivers.

Manageability and Boundaries: Area 1-029A and B each have identifiable boundaries, and could be managed as Wilderness. Signing and enforcement would be difficult in some locations.

Availability

Recreation: The area is heavily used for recreation, and offers opportunities from three resorts along the edges of 1-029B. Infrastructure for motorized trail travel has been developed in both areas. Motorized and nonmotorized travel on designated trails, camping, fishing, and hunting are popular. In winter parts of the area are popular for snowmobiling or cross-country skiing.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. The entire unit is considered occupied by grizzly bears. Wolverine denning and Canada lynx habitat has been mapped. The area also supports peregrine falcons, bald eagles, and trumpeter swans. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function and are used for irrigation. Increased demand for irrigation water is likely.

Livestock Grazing: Area 1-029 includes most of 4 sheep and 8 cattle allotments. There are several cow camps, many miles of fence, numerous stock watering systems, and several riders' cabins, particularly in 1-029B.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Three percent of the area is included in a medium value known locatable mineral deposit area. Eleven percent of the area has medium phosphate potential. Twenty percent of the area has moderate oil & gas potential, forty-five percent has low potential, and the remainder has very low potential.

Heritage: There is evidence of Native American campsites along the top of the Gravelly Range in area 1-029A. Historical use suggests additional sites may exist.

Land Use Authorizations: There is one special use permit in 1-029A for a grazing association cabin and pasture one-quarter mile inside the forest boundary north of Red Rock Lakes. There are approximately 25 special use permits in area 1-029B including part of a resort. There are also roads, experimental range plots, dams, reservoirs, and miscellaneous range improvements.

Non-Federal Lands: There are 404 acres of private land in this roadless area.

Disturbances: The risk of mortality from insects and diseases is low in 1-029A because of small isolated conifer stands. Lodgepole mortality is high in 1-029B from mountain pine beetle infestations.

Ecological: Freezeout Mountain Roadless Area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub and grassland communities to designated Wilderness. This roadless area contributes refuge for many wildlife species: grizzly bear, wolves, wolverine, peregrine falcon, and eagles.

Social: Support for recommendation for Wilderness has been received from those who have supported Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected slightly by livestock grazing and range improvements in 1-029 A and moderately in 1-029B. There are many opportunities for solitude and challenging primitive recreation. Both areas could be managed as Wilderness.

Availability: There are private recreation developments, dams, and private inholdings near the center of area 1-029B. Large investments in range structures also reduce Wilderness availability. There are no obligations which limit Wilderness availability in 1-029A.

Need: The area would add lands and contribute underrepresented upland shrub and grassland communities to the NWPS. Wilderness recommendation for Freezeout Mountain has received some support but opposition is stronger from the public. Wilderness recommendation for Antelope Basin has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Freezeout Mountain, 1-029A	29,242	High	High	Moderate	High
Antelope Basin 1-029B	69,505	Low	Low	Moderate	Low
Total	98,747				

*Nonfederal lands are excluded from the acreage.

Freezeout Mountain IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	95,098
Acres Added	2,690
Acres Dropped	-1,177
GIS Acreage Recalculated	2,135
2007 Total	98,746

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	67%	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	43%	43%	81%	43%	55%	55%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	45%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	57%	57%	18%	57%	44%	n/a
Winter Non-Motorized	14%	19%	78%	14%	25%	25%
Fisheries Key Watershed	n/a	n/a	1%	1%	1%	1%

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Restoration Key Watershed	n/a	n/a	36%	--	--	2%
Tentatively Suitable Timber	32%	32%	32%	32%	32%	32%
Modeled Suitable Timber	3%	--	--	--	--	--
Modeled Suitable Range	63%	63%	63%	63%	63%	63%
Moderate Oil & Gas Potential	20%	20%	20%	20%	20%	20%

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

Wilderness recommendation of Subunit 029A in Alternative 3 would contribute high quality wildlife habitat for a number of charismatic species, contribute upland shrub and grassland communities, and protect the IRA from the possibility of oil and gas development in 20% of the area. Mountain biking and snowmobiling opportunities would be eliminated from the portion recommended. Subunit 029B ranked low for Wilderness suitability and was not recommended for Wilderness in any alternative.

Discounting oil and gas development, non-Wilderness recommendations for Subunit 029A in Alternatives 2, 4, 5, and 6 would have little effect because allocations maintain most of the Wilderness characteristics. Activities allowed by Alternatives 2, 4, 5 and 6 have a low risk of reducing existing Wilderness characteristics because most of the area is allocated to non-motorized uses or closed through current travel plan restrictions. Snowmobiling could continue in a majority of the area. Alternative 6 additionally limits motorized use by adding a requirement to maintain semi-primitive settings in backcountry allocations. Twenty percent of the IRA has moderate potential for oil and gas development under a Controlled Surface Use stipulation but development potential is very low because of the road construction prohibitions of the RACR.

A non-Wilderness recommendation for Subunit 029B in all alternatives allows established uses and land use authorizations to continue such as range improvements, private land and recreation developments. The uses and activities allowed by alternative in this IRA will have a low risk of reducing existing Wilderness characteristics.

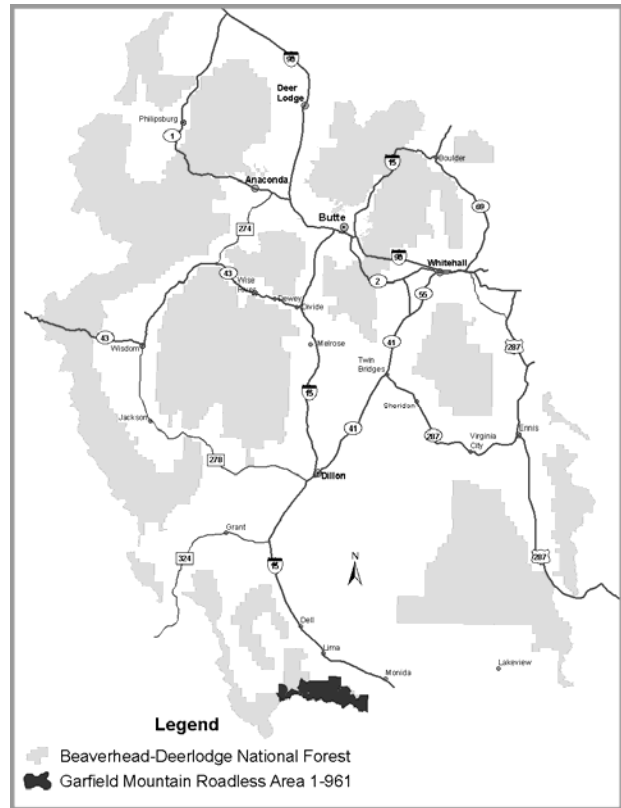
Garfield Mountain (No. 1-961)

48,935 Acres

Description

The Garfield Mountain Roadless Area is located west of Interstate 15 on the Continental Divide in Beaverhead County, Montana. The IRA and Caribou Targhee Roadless Area 4-961 are contiguous. Access is available from Sawmill Flats, Shineberger, East and Sheep Creek roads.

Elevations range from about 7,500 in the foothills to 10,100 feet at the peaks. The terrain is moderately rugged. Vegetation is sparse in the higher areas, where rock outcrops and rock slides are common. Sagebrush-grasslands with stringers of Douglas-fir and mountain mahogany in the canyons dominate the lower elevations. Lodgepole pine and limber pine fingers are found from mid-elevations to the timberline. Aspen is abundant in the Modoc-Pleasant Valley areas.



Capability

Integrity of the Natural Environment and Scenery: The appearance is nearly natural, with fences, stock developments, and wheel tracks visible in lower elevations. A power line corridor is visible from Pine Creek in the western-most portion of the IRA. Scenic integrity is mostly high. The natural integrity has been reduced slightly by cattle grazing and wheel tracks.

Opportunities for Solitude and Primitive Recreation: Although fairly open, many places have topographic and vegetative screening, and solitude can be found. The area's undeveloped character and remoteness contribute to opportunities for primitive recreation.

Special Features: The Continental Divide National Scenic Trail.

Manageability and Boundaries: The boundaries are well defined because they follow topographic features and administrative boundaries. The area could be managed as Wilderness.

Availability

Recreation: The most common recreation use is hunting. Both summer and fall are popular for stock use. Some places in the IRA are popular for snowmobiling.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat and wolverine denning habitat are mapped. Westslope cutthroat trout inhabit some stream segments.

Water: Water in this area maintains instream values of stream and riparian environments and is important for irrigation. There are also spring developments for livestock. Increased demand for irrigation water is likely.

Livestock Grazing: Most of the Garfield Mountain Area is grazed as part of an allotment.

Timber: There is no suitable timber in this roadless area.

Minerals/Oil & Gas: Forty-one percent of the area has a medium phosphate potential. Sixty percent of the area has moderate oil & gas potential, thirty-nine percent has low potential, and the remainder has very low potential. In 2006 the first oil and gas leases issued on the BDNF in some time were issued in the Garfield Mountain Roadless Area and vicinity. These leases were issued for 10 years under stipulations of the 1995 Oil and Gas Leasing Decision and the direction of the 1986 Beaverhead Forest Plan.

Heritage: The Middle Fork of Little Sheep Creek contains Indian pictographs.

Land Use Authorizations: There are no special uses which limit Wilderness potential. A designated power corridor lies outside the IRA in section 35 by Bannock Pass. The width of this corridor is not limited and may expand into the IRA in the future, which would limit availability of that portion for Wilderness.

Non-Federal Lands: There are 209 acres of private lands in 3 separate parcels.

Disturbances: The area has a low risk for insects and diseases because there is only a small percentage of conifer forest.

Need

Ecological: The Garfield Roadless Area is a part of the Beaverhead Mountains Ecological Section, and contains most of the shrub land, grassland, riparian and aspen communities underrepresented in the NWPS. Sensitive plant species not currently protected by Wilderness designation, and habitat for sage grouse, lynx and wolverine.

Social: Recommendation for Wilderness is supported by people who praise the remoteness and ruggedness, and who desire to see lower elevation grassland/shrubland additions to Wilderness. Support for recommendation of this area for Wilderness has also been received from those who support Wilderness recommendation for all roadless areas. Opposition comes from people interested in retaining mineral exploration and grazing.

Suitability

Capability: Natural integrity has been reduced by livestock grazing. There are opportunities for solitude and primitive recreation. The area could be managed as Wilderness if there were minor boundary adjustments.

Availability: Ten-year oil and gas leases were issued in 2006 which may limit availability. Existing leases are not revocable by recommendations of wilderness made after the leases are already issued.

Need: The area would add lands, and contribute underrepresented shrub land and grassland communities to the NWPS. Wilderness recommendation for Garfield Mountain has received both support and opposition from the public.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Garfield Mt., BDNF 1-961	48,935	High	Moderate	High	High
Caribou-Targhee NF 4-945	47,500	Not rated	Not rated	Not rated	Not Rated
Total	96,435				

**Nonfederal lands are excluded from the acreage.*

Garfield Mountain IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	42,701
Acres Added	6,747
Acres Dropped	-32
GIS Acreage Recalculated	-481
2007 Total	48,935

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences**IRA Disposition by Alternative**

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	92%	--	--	66%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	80%	83%	97%	83%	83%	18%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	16%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	20%	17%	3%	17%	17%	n/a
Winter Non-Motorized	23%	23%	100%	23%	23%	19%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	55%	--	43%	--
Tentatively Suitable Timber	15%	15%	15%	15%	15%	15%
Modeled Suitable Timber	--	--	--	--	--	--
Modeled Suitable Range	61%	61%	61%	61%	61%	61%
Moderate Oil & Gas Potential	60%	60%	60%	60%	60%	60%

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

Garfield Mountain IRA differs from other IRAs because 6,700 of the 49,000 acres are not protected by the RACR. The northeast corner of the IRA is an addition *since* the RACR was passed. The road construction and timber harvest prohibitions of RACR do not apply to that section.

Wilderness recommendation in Alternatives 3 and 6 protect secure wildlife along the Continental Divide, adds underrepresented shrubland and grassland communities to the NWPS, and protects the IRA from the possibility development in the area with moderate potential for oil and gas leasing not already leased. The current leases could be developed under a Controlled Use Stipulation but with the road construction prohibitions of the RACR development potential is very low. A no surface occupancy stipulation would apply to future leases. **No new oil and gas leases would be issued.** Mountain biking would be prohibited and snowmobiling more limited.

A non-Wilderness recommendation for this area in Alternatives 1, 2, 4 and 5 would not positively respond to the Regional Needs Assessment and need for long term protection of unique Wilderness resources and secure habitat. Outside of the possibility of oil and gas development, Wilderness characteristics would be maintained in this planning period because non-motorized allocations or travel plan closures in all alternatives close a majority of the area to motorized uses. Alternative 5 designates a restoration key watershed as well. Sixty percent of the IRA has moderate potential for oil and gas development and may or may not be protected from development by road construction prohibitions of the RACR. The newly inventoried northeast corner would not be. More area would be open for snowmobiling and trails would be open to mountain bikes.

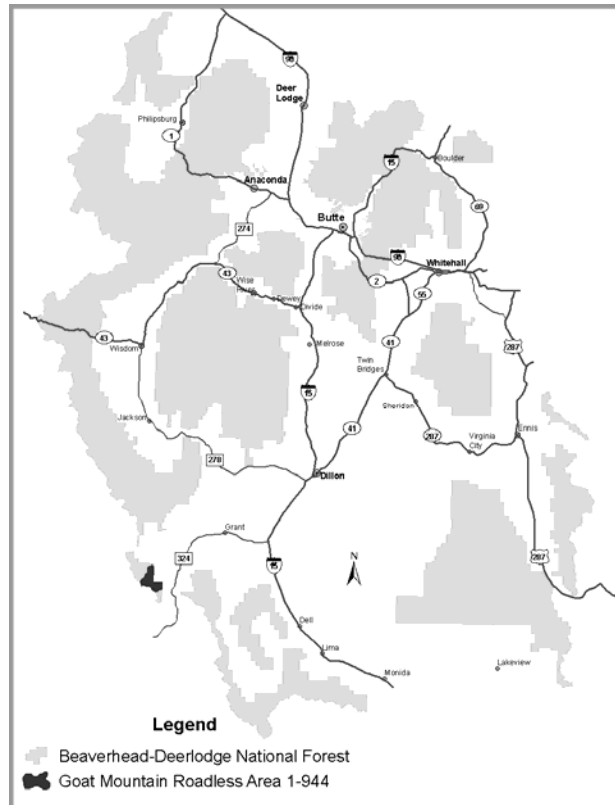
Goat Mountain (No. 1-944)

9,561 Acres

Description

The Goat Mountain Roadless Area is located in the Bitterroot Mountains in Beaverhead County, Montana contiguous with Salmon-Challis National Forest Roadless Area 13-944. Access is available from low standard roads which connect to county roads in Horse Prairie.

Elevations range from 7,400 to 9,400 feet. The topography includes deep narrow canyons and ridge tops. Whitebark pine and subalpine fir forest cover the highest elevations. Low elevation, south-facing slopes are covered with sagebrush-grasslands and patches of Douglas-fir. The remaining area is covered with conifer forests dominated by lodgepole pine. Soils are moderately deep rocky and sandy loams.



Capability

Integrity of the Natural Environment and Scenery: The area appears natural with the exception of many low standard roads and range developments in the area. Scenic integrity is high. Natural integrity has been reduced slightly by livestock grazing.

Opportunities for Solitude and Primitive Recreation: There are opportunities for solitude and primitive recreation; however, but there is little diversity and few features to attract visitors to the area.

Special Features: The Continental Divide National Scenic Trail crosses the area.

Manageability and Boundaries: The area would be difficult to manage as Wilderness. Extensive signing and enforcement would be needed along BLM and private land boundaries where many motorized routes cross onto the forest.

Availability

Recreation: Hunting is the most common recreational use. Summer motorized trail use is growing in popularity here.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Wolverine denning and Canada lynx habitat has been mapped. Westslope cutthroat trout inhabit some stream segments.

Water: This area supports little to no surface water and there is limited water development. Increases in demand are unlikely.

Livestock Grazing: The North Black Canyon and South Bear Canyon contain cattle allotments.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Less than one percent of the area is included in a high value known locatable mineral deposit area. The entire area has very low oil & gas potential.

Heritage: This area contains widely dispersed lithic scatter locations.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: The area has a low risk for insects and diseases in few stands of conifers.

Need

Ecological: Goat Mountain Roadless Area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub and grassland communities to designated Wilderness. The IRA may also contain wolverine denning habitat.

Social: Support for Wilderness recommendation comes from people who support Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been slightly reduced by cattle grazing. There are opportunities for solitude and primitive recreation. The area would be difficult to manage as Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands and may contribute underrepresented plant communities to the NWPS. Recommendation for Goat Mountain received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Goat Mountain, BDNF 1-944	9,561	Low	High	Moderate	Low
Salmon-Challis NF 13-944	35,468	Not Rated	Not Rated	Not Rated	Not Rated
Total	45,029				

**Nonfederal lands are excluded from the acreage.*

Goat Mountain IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	9,454
Acres Added	209
Acres Dropped	-24
GIS Acreage Recalculated	-78
2007 Total	9,561

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	72%	72%	82%	72%	72%	72%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	28%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	28%	28%	18%	28%	28%	n/a
Winter Non-Motorized	--	--	--	--	--	--
Fisheries Key Watershed	n/a	n/a	6%	6%	6%	6%
Restoration Key Watershed	n/a	n/a	21%	--	--	--
Tentatively Suitable Timber	52%	52%	52%	52%	52%	52%
Modeled Suitable Timber	13%	--	--	--	--	--
Modeled Suitable Range	55%	55%	55%	55%	55%	55%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

The non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

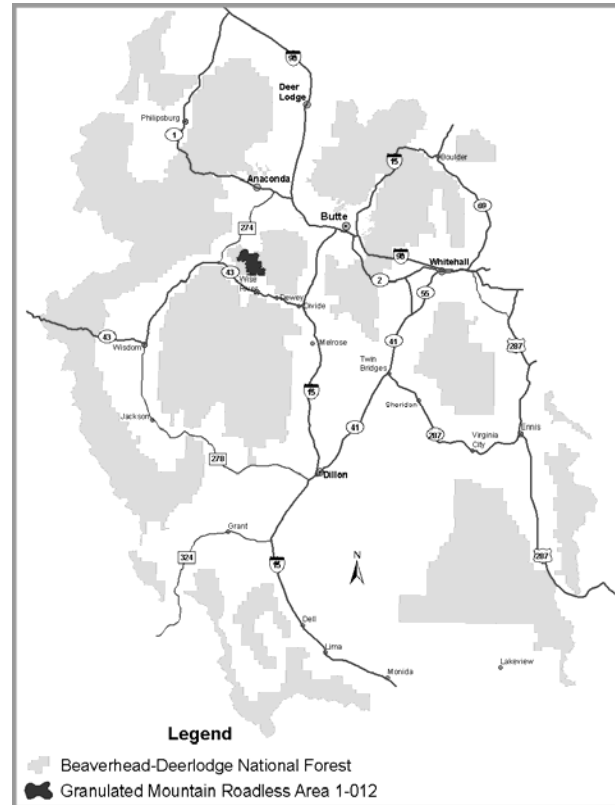
Granulated Mountain (No. 1-012)

14,295 Acres

Description

The Granulated Mountain Roadless Area is located in the western half of the Fleecer Mountain Range in Silver Bow County, Montana. Bear and Johnson Creek roads provide access from Highway 43.

Elevations range from about 7,000 feet at the forest boundary to 9,120 at Dickie Peak. The terrain is mountainous, with both steep and moderate slopes. Sagebrush grasslands cover the southern and western portion; lodgepole and mixed conifer forests cover most of the northern and eastern part of the area. Five acres of alpine larch are located on the north side of Granulated Mountain.



Capability

Integrity of the Natural Environment and Scenery: The area is mostly natural appearing and scenic integrity is moderate to high. The natural integrity has been affected by livestock grazing, patches of noxious weeds, and roads. Disturbance from roads, firewood gathering, range improvements, and remnants of historic mining are apparent and scattered across the area.

Opportunities for Solitude and Primitive Recreation: Roads surround the area; highways and other uses are evident from many views. Opportunities for solitude and primitive recreation are restricted to high peaks in the core area. Size limits opportunities for long hikes or extended trips.

Special Features: None.

Manageability and Boundaries: Some of the boundary does not follow known features; with adjustments the area could be managed as Wilderness.

Availability

Recreation: The area is heavily used during hunting season. ATV and motorcycle trails are popular as is snowmobiling in the winter.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Wolverine denning and Canada lynx habitat has been mapped. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function. There are several developed springs for livestock. Increased demand for water is unlikely.

Livestock Grazing: The entire area is inside existing livestock allotments, and includes many fence and water developments.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Three percent is included in a medium value known locatable mineral deposit area. Forty-seven percent has low oil & gas potential, while the remainder has very low potential.

Heritage: The potential for prehistoric and historic cultural resources is unknown.

Land Use: Authorizations: There are two water ditches in Bear Gulch; both are on the north side and provide water to the old Howard Johnson homestead.

Non-Federal Lands: There is a 41 acre parcel of private land in Section 17.

Disturbances: There is a moderate to high risk of mountain pine beetle infestations.

Need

Ecological: Granulated Mountain Roadless Area is a part of the Beaverhead Mountains Ecological Section, and may contribute underrepresented upland shrub and grassland communities, wolverine denning habitat, and native fish populations.

Social: Support for Wilderness recommendation has been received from those who support Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected by noxious weeds, livestock grazing, low standard roads, and historic mining. The area offers some potential for solitude and primitive recreation. The area would be manageable with adjustments to the boundary location.

Availability: There are water ditches in Bear Gulch. There are no other contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands and would contribute underrepresented upland shrub and grassland communities to the NWPS. Wilderness recommendation for Granulated Mountain has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Granulated Mountain, 1-012	14,295	Moderate	Moderate	Moderate	Moderate

**Nonfederal lands are excluded from the acreage.*

Granulated Mountain IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	14,960
Acres Added	0
Acres Dropped	-840
GIS Acreage Recalculated	175
2007 Total	14,295

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	--	20%	79%	20%	1%	--
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	100%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	100%	79%	21%	79%	100%	n/a
Winter Non-Motorized	--	--	--	--	--	--
Fisheries Key Watershed	n/a	n/a	16%	16%	16%	16%
Restoration Key Watershed	n/a	n/a	35%	--	15%	--
Tentatively Suitable Timber	54%	54%	54%	54%	54%	54%
Modeled Suitable Timber	29%	--	--	--	--	--
Modeled Suitable Range	20%	20%	20%	20%	20%	20%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked moderate for Wilderness suitability and was not recommended for Wilderness under any alternative.

A non-Wilderness recommendation under Alternative 1 may have affected Wilderness characteristics because it allocates 29% of the area to suitable timber base. The RACR prohibits the timber harvest and road construction activities that may have accompanied this allocation. Activities allowed by Alternatives 2-6 have a low risk of reducing existing Wilderness characteristics in this area. Alternative 3 allocates most of the area to summer non-motorized use or restoration key watersheds. Alternatives 1, 2, 4, 5 and 6 allow existing backcountry trail use to continue. Alternative 6 additionally limits motorized use by adding a requirement to maintain the entire area in semi-primitive backcountry allocations.

Highlands (No. 1-431)

21,055 Acres

Description

The Highland Roadless Area is located in the Highland Mountains in Madison and Silver Bow Counties, Montana. Access is available from Fish Creek Road on the northern boundary and Hells Canyon Road near the southern boundary.

Elevations range from 6,000 feet to more than 10,000 feet at the summits of Red and Table Mountains. Slopes are moderate with rounded ridges in the foothills and are steep in the northern drainages near the rock and talus peaks. Lower north slopes are forested and south slopes are generally grass covered.

Capability

Integrity of the Natural Environment and Scenery: The area is mostly natural appearing, with the exception of the Red Mountain lookout tower foundation, cattle allotment fences, low standard roads, and two-track trails near the forest boundary. Scenic integrity is moderate to high. Natural integrity has been reduced by grazing, and infestations of knapweed and leafy spurge.

Opportunities for Solitude and Primitive Recreation: The shape, size, topography, vegetation, and location all contribute to the high potential for solitude and primitive recreation. Emerald lake provides a backpacking destination. The area receives early snow and provides a long season of challenging backcountry skiing.

Special Features: None.

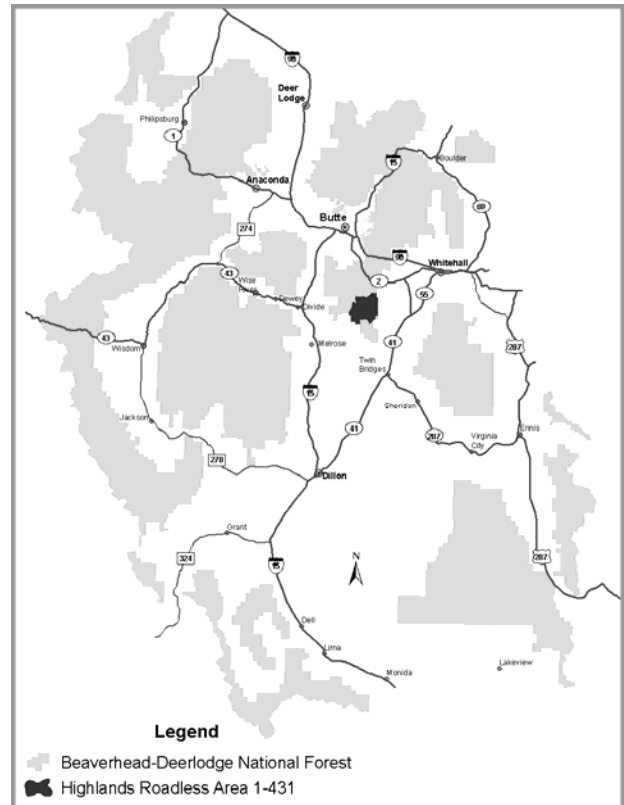
Manageability and Boundaries: The boundaries generally follow the forest boundary and topographic features, making the area manageable as Wilderness.

Availability

Recreation: Recreation is mostly non-motorized. Hunting season brings the most use.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Wolverine denning and Canada lynx habitat are mapped. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function and is used for irrigation downstream. Emerald Lake is a municipal water supply for the city of Butte. Increased demand for irrigation and municipal water is likely.



Livestock Grazing: The area currently provides important range for cattle allotments on the east and west sides.

Timber: There is no suitable base timber in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Seventy-five percent is favorable for copper deposits. Fifty-two percent is favorable for massive, strata-bound zinc-lead and copper-cobalt deposits. Less than one percent is favorable for replacement deposits of gold, silver and base metals.

Seven percent of the area is included in a high value known locatable mineral deposit area, and eleven percent in a medium value known locatable mineral deposit area. The entire area has very low oil & gas potential.

Heritage: The area has been extensively surveyed, and over 30 sites have been identified. Some are classed as significant.

Land Use Authorizations: There are authorizations for the Red Mountain communication relay and pipeline connecting Emerald Lake to the Butte water system.

Non-Federal Lands: There are 52 acres of private lands along the western boundary.

Disturbances: There are outbreaks of mountain pine beetle in lodgepole pine stands.

Need

Ecological: The IRA is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented shrub land and grassland communities and wolverine denning habitat to the NWPS.

Social: Support for recommendation came from Wilderness designation for all roadless areas supporters. Other people oppose it and wish to retain motorized recreation and uses.

Suitability

Capability: Natural integrity has been affected by mining, noxious weeds and water impoundment. There are a few opportunities for solitude and primitive recreation. The area would be manageable as Wilderness.

Availability: Water distribution and communication site obligations limit availability.

Need: The area would add lands to the NWPS, contribute underrepresented shrub land and grassland communities, and refuge for wildlife. Recommendation for the Highlands received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Highlands 1-431	21,055	Moderate	Moderate	Moderate	Moderate

**Nonfederal lands are excluded from the acreage.*

Highlands IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	20,861
Acres Added	953
Acres Dropped	-96
GIS Acreage Recalculated	-663
2007 Total	21,055

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences**IRA Disposition by Alternative**

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	93%	--	--	86%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	66%	95%	90%	78%	90%	8%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	6%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	33%	5%	10%	21%	9%	n/a
Winter Non-Motorized	--	84%	98%	--	93%	8%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	41%	--	68%	28%
Tentatively Suitable Timber	24%	24%	24%	24%	24%	24%
Modeled Suitable Timber	2%	--	--	--	--	--
Modeled Suitable Range	7%	7%	7%	7%	7%	7%
Moderate Oil & Gas Potential	--	--	--	--	--	--

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

Wilderness recommendation in Alternatives 3 and 6 protect secure wildlife habitat, add underrepresented shrubland and grassland communities to the NWPS, and improve distribution of recommended Wilderness on the north end of the forest.

Not recommending this area for Wilderness in Alternatives 1, 2, 4, and 5 does not positively respond to the Regional Needs Assessment, general public support for designated Wilderness in this area, or need for long term protection of unique Wilderness resources and secure habitat. Wilderness characteristics would not be affected because vehicle access isn't available except in one section.

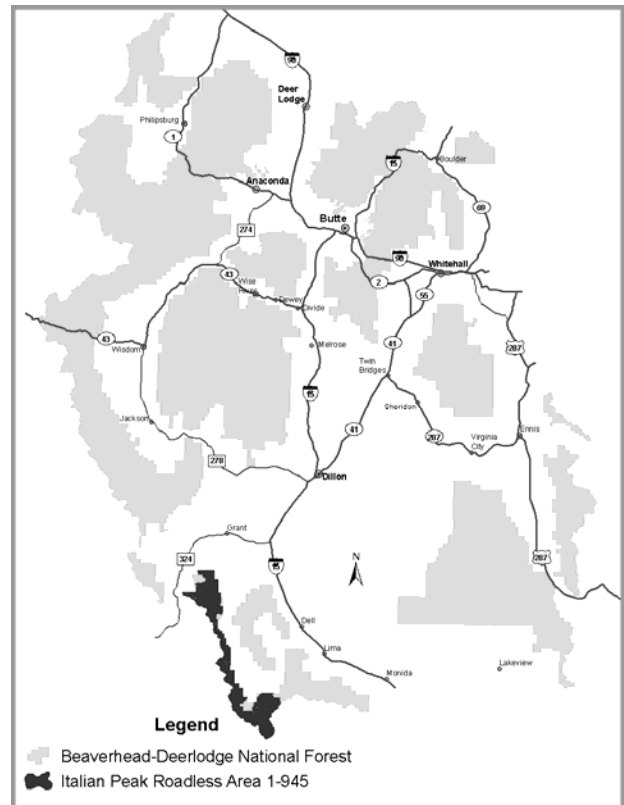
Italian Peak (No. 1-945)

91,260 Acres

Description

The Italian Peaks Roadless Areas is west of Lima, Montana in the Bitterroot Mountain Range contiguous to Caribou Targhee Roadless Area 4-945 and Salmon-Challis National Forest Roadless Area 13-945. Access is available to the Montana side on low standard roads which connect to the Medicine Lodge Backcountry Byway.

Elevations range from about 8,000 feet in the foothills to 11,125 feet on Eighteen Mile Peak. Small natural lakes are found in upland basins. Mid elevation slopes are quite steep. Moist grasslands and sagebrush-grasslands dominate the vegetation. Willow lined streams and large patches of aspen are found in the foothills. Most forested areas are small and found at mid-elevations. These are commonly open Douglas-fir on south slopes and lodgepole pine, spruce, subalpine fir, and whitebark pine on north slopes and higher elevations. Soils are deep dark silt loams in the valley basins, and stony clay loams along the foot slopes.



Capability

Integrity of the Natural Environment and Scenery: The appearance is nearly natural, with fences, stock developments, and wheel tracks apparent in the lower elevations. Scenic integrity is moderate to high in 1-945 and 1-945A, and high in 1-945B. The natural integrity has been slightly reduced by grazing and wheel tracks and a power line corridor in the northeast corner of 1-945, but less in 1-945B than in the rest of the area.

Opportunities for Solitude and Primitive Recreation: There are opportunities for solitude and primitive recreation, with vegetative and topographic screening in many areas. The areas undeveloped character and remoteness also contribute to opportunities, which are most common in 1-945B. Challenging hiking and climbing is possible in the rugged peaks.

Special Features: The Continental Divide National Scenic Trail crosses the area. The lower portion contains a segment of Deadman Creek, an eligible National Wild River.

Manageability and Boundaries: The boundaries follow topographic features on the south and west, and section lines on the north and east. The IRA would be difficult to manage 1-945 because of several low standard roads to the boundary. 1-945A and 1-945B are manageable as Wilderness. Manageability is higher for all sections when considered in conjunction with the roadless area on the Idaho side.

Availability

Recreation: Hunting is the most common recreational pursuit and motorized travel is common in all seasons in all areas except 1-945B. In 1-945B motorized activities are not allowed, and primary activities are fishing, hunting, and camping, with travel on horseback or on foot.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat and wolverine denning habitat are mapped. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function and are important for downstream irrigation. There are spring developments for livestock grazing and increased demand for irrigation water is likely.

Livestock Grazing: Most of the area is in a grazing allotment.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Five percent of the area is included in a high value known locatable mineral deposit area, and two percent is included in a medium value known locatable mineral deposit area. Thirteen percent of the area has low oil & gas potential, and the remainder has very low potential.

Heritage: The area has not been surveyed adequately to determine the existence of sites.

Land Use Authorizations: There is a designated power line corridor through Sections 34 and 35 over Bannock Pass, crossing a corner of the IRA. This limits Wilderness potential for the northeast portion of 1-945A.

Non-Federal Lands: There are 58 acres of private lands in 1-945A.

Disturbances: The area has a low risk for insects and diseases in conifer forests because forests cover a small percentage of the area.

Need

Ecological: The Italian Peaks Roadless Area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented shrub and grassland communities to designated Wilderness. Sensitive plant species not currently protected by Wilderness designation are found here as are wolves, wolverine denning habitat and native fish populations.

Social: 1-945B was recommended for Wilderness in the 1986 Beaverhead Forest Plan. Support for this recommendation has come from a broad range of interested constituents. Opposition has been expressed by those who oppose all Wilderness recommendations.

Suitability

Capability: Natural integrity has been slightly reduced by structures for managing livestock. There are opportunities for solitude and primitive recreation in 1-945B and 1-945. Areas 1-945A and 1-945B are manageable as Wilderness with a few boundary adjustments. The northeast corner of 1-945, which offers a view of the power line corridor, should be excluded. The south end of area 1-945 is a long narrow unit and would be more difficult to manage if not considered with the adjoining Idaho roadless area.

Availability: In general, there are no contractual obligations or resource needs which limit Wilderness availability. The designated power line corridor and Viewshed limits wilderness availability across several square miles in 1-945A.

Need: The area would add lands and contribute underrepresented upland shrub lands and grasslands communities to the NWPS. Wilderness recommendation for Italian Peaks has strong public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Italian Peaks, BDNF 1-945	49,459	Moderate	High	High	Moderate
Italian Peaks, BDNF 1-954A	29,022	Moderate	High	High	Moderate
Italian Peaks, BDNF 1-945B	12,779	High	High	High	High
Caribou-Targhee NF. 4-945	31,823	Not rated	Not rated	Not rated	Not rated
Salmon-Challis NF. 13-945	5,986	Not rated	Not rated	Not rated	Not rated
Total	128,809				

**Nonfederal lands are excluded from the acreage.*

Italian Peak IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	90,917
Acres Added	1,638
Acres Dropped	-1,039
GIS Acreage Recalculated	-256
2007 Total	91,260

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	28%	28%	45%	--	28%	28%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	27%	41%	85%	41%	59%	28%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	44%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	73%	59%	15%	59%	41%	n/a
Winter Non-Motorized	28%	28%	46%	28%	44%	17%
Fisheries Key Watershed	n/a	n/a	20%	20%	20%	7%
Restoration Key Watershed	n/a	n/a	8%	--	--	--
Tentatively Suitable Timber	9%	9%	9%	9%	9%	9%

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Modeled Suitable Timber	--	--	--	--	--	--
Modeled Suitable Range	51%	51%	47%	51%	47%	47%
Moderate Oil & Gas Potential	--	--	--	--	--	--

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

Wilderness recommendation for portions of this IRA (945A, 945B) in Alternatives 1, 2, 3, 5, and 6 protects wildlife habitat along the Continental Divide corridor, adds underrepresented plant communities to the national Wilderness system, and adds to the larger Italian Peaks area on the Caribou-Targhee National Forest. Mountain biking would be prohibited in the recommended portions.

A non-Wilderness recommendation in subunit B in Alternative 4 would not positively respond to the Regional Needs Assessment, address general public support and some social values, or need for long term protection of unique Wilderness resources and secure habitat. However, Wilderness characteristics will not likely change because much of the area is in a non-motorized allocation. Mountain bike trails would remain open.

Subunits 1-945 and 1-945A rated moderate for Wilderness suitability. Activities allowed by Alternatives 2, 4, 5 and 6 have a low risk of reducing existing Wilderness characteristics in these areas. Alternative 6 additionally limits motorized use by adding a requirement to maintain semi-primitive settings in backcountry allocations, motorized opportunities would not expand. Non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue, mountain biking trails would remain open.

Lone Butte (No. 1-028)

13,904 Acres

Description

The Lone Butte Roadless Area is located along the southern edge of the Gravelly Range in Beaverhead and Madison counties in Montana. Access is available from the Ruby-Centennial and Gravelly Range roads.

Elevations range from 6,900 to 8,200 feet. These sagebrush-grassland foothills include patches of aspen and Douglas-fir dominated forest. The deep soils are dark-colored loams and clay loams.

Capability

Integrity of the Natural Environment and Scenery: Scenic integrity is generally moderate to high. Range management has affected the natural integrity and appearance. There are boundary and interior fences, water developments, low standard roads, and past vegetation manipulation such as spraying and burning.

Opportunities for Solitude and Primitive Recreation: These opportunities are minimal due to the limited vegetative and topographic screening and variety. There is also little opportunity for challenge; travel over most of the area is easy regardless of the transport mode.

Special Features: None.

Manageability and Boundaries: The area would be difficult to manage as Wilderness due to the open terrain and absence of definable topographic boundaries.

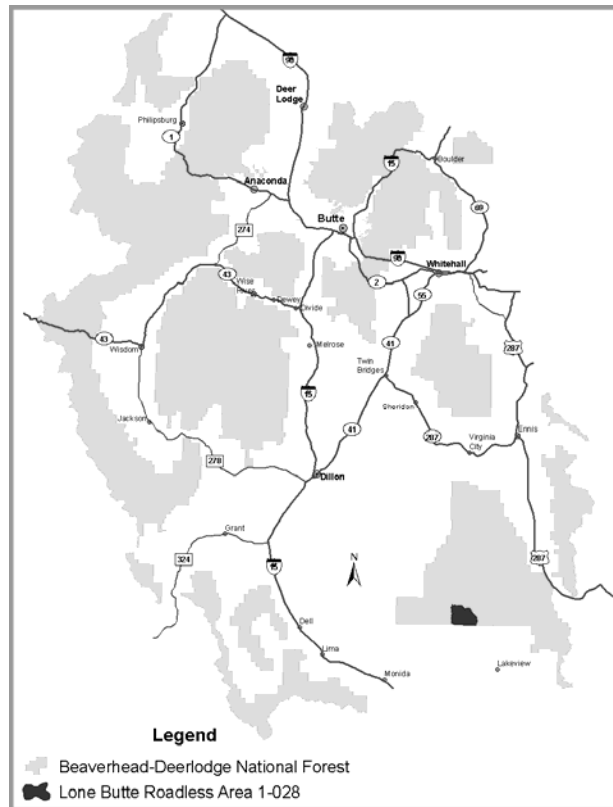
Availability

Recreation: The heaviest recreational use here occurs in fall hunting season, including some dispersed camping.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. The IRA contains occupied grizzly bear habitat, mapped Canada lynx habitat, and Westslope cutthroat trout in some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function and are important for irrigation in the summer months. Increased demand for irrigation water is likely.

Livestock Grazing: The entire area is included in allotments under intensive grazing management systems.



Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Twenty-one percent of the area has medium phosphate potential. Sixty-seven percent of the area has moderate oil & gas potential, while the remainder has low potential.

Heritage: Historical use of the Gravelly Range area by Native Americans suggests that historical sites may exist.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: Mountain pine beetle and spruce budworm are both present. Tree mortality is increasing and resulting in additional fuels.

Need

Ecological: Lone Butte Roadless Area is part of the Beaverhead Mountains Ecological Section and would add upland shrub and grassland communities which are presently under-represented in designated Wilderness. The IRA provides habitat for wolves, grizzly bear, sage grouse, and native fish populations.

Social: Support for Wilderness recommendation has been received from those who have supported Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity is slightly affected by livestock grazing and range improvements in the foothills. There are many opportunities for solitude and challenging primitive recreation. The area is manageable as Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands and contribute under-represented upland shrub and grassland communities to the NWPS and habitat important to several wildlife species. Wilderness recommendation for Lone Butte has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Lone Butte 1-028	13,904	Moderate	High	Moderate	Moderate

**Nonfederal lands are excluded from the acreage.*

Lone Butte IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	14,138
Acres Added	0
Acres Dropped	0
GIS Acreage Recalculated	-234

2007 Total	13,904
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Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	48%	48%	48%	48%	48%	48%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	52%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	52%	52%	52%	52%	52%	n/a
Winter Non-Motorized	--	--	--	--	--	--
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	91%	--	--	--
Tentatively Suitable Timber	4%	4%	4%	4%	4%	4%
Modeled Suitable Timber	--	--	--	--	--	--
Modeled Suitable Range	98%	98%	98%	98%	98%	98%
Moderate Oil & Gas Potential	67%	67%	67%	67%	67%	67%

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked moderate for Wilderness suitability and was not recommended for Wilderness under any alternative.

Discounting oil and gas development, not recommending the Lone Butte IRA for Wilderness has a low risk of reducing existing Wilderness characteristics in all alternatives. The current travel plan under Alternative 1, and summer non-motorized allocations in Alternatives 2 through 6 limit motorized use. Alternative 3 includes most of the IRA in a restoration key watershed. Alternative 6 limits motorized use by adding a requirement to maintain semi-primitive settings in backcountry allocations, therefore motorized opportunities would not expand.

Not recommending for Wilderness allows management of grazing and motorized uses to continue.

Up to 67% of the IRA has potential for oil and gas development but development potential is very low because of the road construction prohibitions under the RACR

Lost Creek (No. 1-436)

9,538 Acres

Description

Upper Lost Creek Roadless Area lies in the southeastern corner of the Flint Mountain Range in Deer Lodge and Granite Counties in Montana. Access is available from Lost Creek State Park and low standard roads along the southern boundary. The area was acquired in 1997 and was not included in previous inventories.

Elevations range from 6,600 feet at the edge of Lost Creek State Park to 8,800 feet highest point of the northern ridgeline. Rock cliff bands and rock outcrops rim this valley which includes the headwaters of Lost Creek. Slopes are covered with lodgepole pine forest and inclusions of Douglas fir on warm dry sites and limber pine in the limestone cliffs. Whitebark pine is present at the upper elevations.

Capability

Integrity of the Natural Environment and Scenery: The area is natural appearing and scenic integrity is high. The natural integrity has been affected by small historic mines and prospecting holes, and the primitive road, now used as a trail, which follows the creek through the area.

Opportunities for Solitude and Primitive Recreation: The area offers solitude and primitive recreation yearlong in its upper reaches away from the park. Challenging hiking and climbing can be found in the cliffs and rock outcrops.

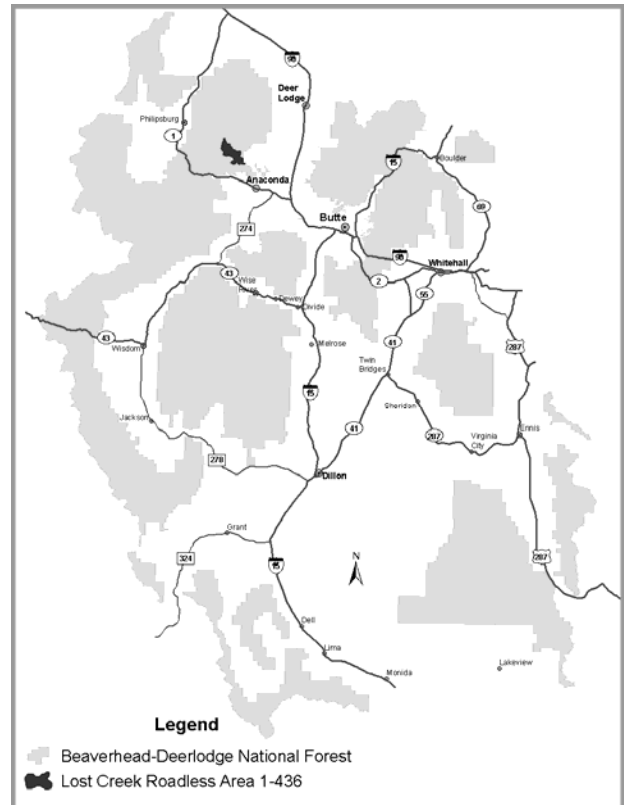
Special Features: None.

Manageability and Boundaries: The boundaries follow the ridgeline topographic features. Access is limited, making the area manageable as Wilderness.

Availability

Recreation: The heaviest recreational use here occurs in fall hunting season. Hiking from the State park along the trail is common in the summer. A few people cross-country ski or snowshoe in the area in winter.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Lost Creek supports a population of westslope cutthroat trout. Canada lynx habitat is mapped.



Water: Streams maintain biological values, channel structure, and riparian function and downstream irrigation. Increased demand for irrigation water is likely.

Livestock Grazing: None.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Five percent of the area is favorable for gold-silver vein deposits, which may also contain associated base metals. One percent is favorable for replacement deposits of gold, silver and base metals. Thirty-eight percent of the area is included in a high value known locatable mineral deposit area, and two percent is included in a medium value known locatable mineral deposit area. Twenty-one percent of the area has a low oil & gas potential, and the remainder has a very low potential.

Heritage: There are some scattered mine sites and deteriorated cabins. Evidence of occupation by Native Americans is not known, but considered likely.

Land Use Authorizations: There are no special uses to limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: Insect and disease are present at endemic levels.

Need

Ecological: Lost Creek roadless area may contribute low elevation wildlife habitat and native fish populations to designated Wilderness.

Social: This is a newly identified roadless area, not included in previous Wilderness discussions. Support for recommendation of this area for Wilderness during revision came from those who support Wilderness designation for all roadless areas. Opposition was expressed by people who oppose recommending additional Wilderness in general.

Suitability

Capability: Natural integrity has been affected by livestock grazing, noxious weeds and small mines. There are opportunities for solitude and primitive recreation, and the area is manageable as Wilderness.

Availability: There are no contractual obligations or resource needs which would limit Wilderness availability.

Need: The area would add lands and may contribute underrepresented plant communities to the NWPS. Wilderness recommendation for Lost Creek has received both support and opposition from the public. This small area is close to population centers - Butte and Anaconda.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Lost Creek 1-436	9,538	Moderate	High	Moderate	Moderate

**Nonfederal lands are excluded from the acreage.*

Lost Creek IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	0
Acres Added	9,538
Acres Dropped	0
GIS Acreage Recalculated	0
2007 Total	9,538

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	100%	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	--	81%	100%	81%	100%	100%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	1%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	100%	19%	1%	19%	1	n/a
Winter Non-Motorized	68%	68%	100%	68%	100%	100%
Fisheries Key Watershed	n/a	n/a	39%	39%	39%	39%
Restoration Key Watershed	n/a	n/a	--	--	--	--
Tentatively Suitable Timber	8%	8%	8%	8%	8%	8%
Modeled Suitable Timber	--	--	--	--	--	--
Modeled Suitable Range	--	--	--	--	--	--
Moderate Oil & Gas Potential	--	--	--	--	--	--

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

Wilderness recommendation in Alternatives 3 protects secure wildlife habitat that could enhance linkages across the landscape and improves distribution of recommended Wilderness on the north end of the forest.

A non-Wilderness recommendation would have no effects on Wilderness character under Alternatives 5 and 6. Alternatives 5 and 6 include the entire area in year around non-motorized allocations and 39% of the area in a fisheries key watershed. Mountain biking would still be allowed. Alternatives 1, 2, and 4 will have a low risk of reducing existing Wilderness characteristics in Lost Creek because motorized access is restricted by the current travel plan or a non-motorized allocation

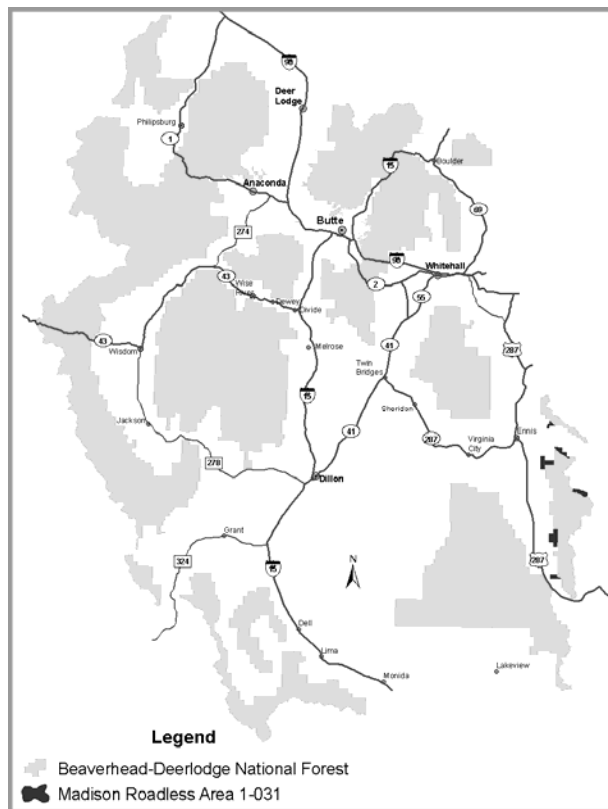
Madison (No. 1-031)

12,230 Acres

Description

The Madison Roadless Area includes six land parcels in Madison County, Montana. McAtee Basin, which is contiguous with the Lee Metcalf Wilderness and is bordered by the Gallatin National Forest on the east. The other parcels lie between the Lee Metcalf Wilderness and private lands in the upper Madison Valley. Access is limited because it is sandwiched between private land and the Lee Metcalf Wilderness.

Elevations range from 7500 feet along the western Madison face to over 11,000 feet at Lone Mountain. In 1-030A there is mostly steep terrain with mixed conifers in lower elevations and whitebark pine in rocks in the alpine area. The others, 1-030B, C, E, and F, lie along the grassland to forest transition zone. They are mostly forested, Papoose bench, 1-030F, has the largest amount of grassland. McAtee Basin, 1-030D, is a moist alpine basin with a mosaic of grasslands, conifers, and willows.



Capability

Integrity of the Natural Environment and Scenery: The area appears natural and scenic integrity is high. The areas have a high degree of natural integrity, except for minor affects of grazing and a fence on Papoose Bench.

Opportunities for Solitude and Primitive Recreation: These areas provide good opportunities for solitude and primitive recreation because of their high natural integrity and adjacency to the Lee Metcalf Wilderness. An exception is parcel C, Shell Creek, where activities in and appearance of nearby subdivisions detract from opportunities.

Special Features: None.

Manageability and Boundaries: These six parcels are adjacent to the Lee Metcalf Wilderness. If Congress designated this as Wilderness it would not complicate management of the existing Wilderness, and could improve the ease of management for the whole parcel.

Availability

Recreation: McAtee Basin, 1-031D, has existing and frequent snowmobile use. Much of this use is concentrated along the northwest edge in the upper end of the Middle Fork of Bear Creek Drainage. The area is managed and used for non-motorized summer recreation, but there are some issues with ATV trespass. The rest of the area is managed for non-motorized recreation.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. The area is considered occupied grizzly bear habitat. Canada lynx habitat and wolverine denning habitat are mapped.

Water: Streams maintain biological values, channel structure, and riparian function and are important for downstream irrigation. There are many developed springs for livestock use and increased demand for irrigation water is likely.

Livestock Grazing: The southwest corner of Shell Creek and all of Papoose Creek subunits are in grazing allotments.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Five percent of the area is included in a medium value known locatable mineral deposit area. Nine percent of the area has geothermal resource potential. Three percent of the area has moderate oil & gas potential, and the remainder has low potential.

Heritage: There are no known historic or prehistoric sites in the area.

Land Use Authorizations: There are no special uses which limit Wilderness potential. However, a commitment was made to retain a snowmobile route across McAtee Basin (1-031D) during the release of the Taylor Hillgard Wilderness Study Area and Lee Metcalf Wilderness designation process in 1983.

Non-Federal Lands: There are 630 acres of nonfederal lands included in this roadless area.

Disturbances: As of 2006, insect and disease infestations were at endemic levels.

Need

Ecological: Madison roadless area parcels are a part of the Beaverhead Mountains Ecological Section, and some of the parcels contribute underrepresented vegetative communities. Designation of these areas would also increase the size of the Lee Metcalf Wilderness. The area contributes to a large block of secure wildlife habitat for grizzly bear, wolves, and wolverines.

Social: There is broad support for Wilderness recommendation. Opponents of recommendation wish to retain and protect mountain biking opportunities.

Suitability

Capability: Natural integrity has been slightly affected by livestock grazing and range improvements in the foothills. There are many opportunities for solitude and challenging primitive recreation. The area is manageable as Wilderness.

Availability: There are obligations which limit the availability of McAtee Basin, 1-031D, for Wilderness. A commitment has been made to retain a snowmobile route through the area connecting two areas on the Gallatin National Forest. There are no obligations or resource needs which limit Wilderness availability in the other areas.

Need: The area would enlarge the existing Lee Metcalf Wilderness, add to existing wildlife habitat for many wide-ranging species and may contribute underrepresented vegetative communities to the NWPS. Wilderness recommendation for Madison has received strong support and some opposition from the public.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Madison (Bee Hive) 1-031A	834	High	High	High	High
Madison (Fan Mountain) 1-031B	1,775	High	High	High	High
Madison (Shell Creek) 1-031C	3,210	High	High	High	High
Madison (McAtee Basin) 1-031 D	2,067	High	Moderate	High	Moderate
Madison (Corral Creek) 1-031E	3,177	High	High	High	High
Madison (Papoose) 1-031F	1,168	High	High	High	High
Total	12,230	High	High	High	High

**Nonfederal lands are excluded from the acreage.*

Madison IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	0
Acres Added	12,230
Acres Dropped	0
GIS Acreage Recalculated	0
2007 Total	12,230

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	67%	83%	--	82%	67%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	72%	86%	95%	86%	95%	28%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	--
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	23%	9%	--	9%	--	n/a
Winter Non-Motorized	59%	79%	95%	59%	94%	12%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	--	--	--	--
Tentatively Suitable Timber	8%	8%	8%	8%	8%	8%
Modeled Suitable Timber	--	--	--	--	--	--
Modeled Suitable Range	15%	15%	11%	15%	11%	11%
Moderate Oil & Gas Potential	3%	3%	3%	3%	3%	3%

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

Wilderness recommendations in Alternatives 2, 3, 5, and 6 add secure wildlife habit and enlarge the existing Lee Metcalf Wilderness.

A non-Wilderness recommendation for this area in Alternatives 1 and 4 does not positively respond to the Regional Needs Assessment, address general public support, or provide long term protection of unique Wilderness resources and secure habitat. During this planning period, Wilderness characteristics would not be affected because motorized access is restricted by the current travel plan or a non-motorized allocation.

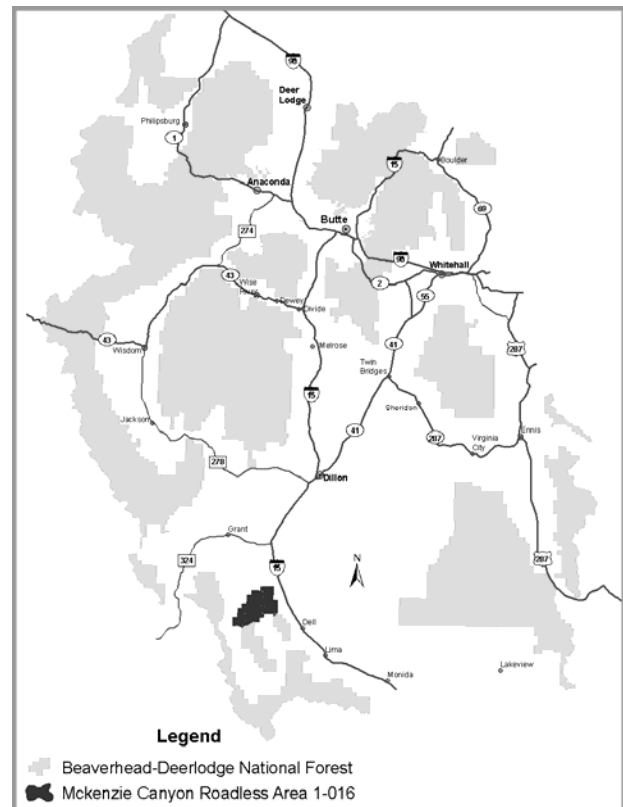
McKenzie Canyon (No. 1-016)

34,063 Acres

Description

The McKenzie Canyon roadless area is located on the northern end of the Tendoy Mountains in Beaverhead County, Montana. Access is available from county roads on the east and west sides of the area.

Elevations range from 6,400 to 8,600 feet. The terrain includes steep rocky canyons and dissected foothills on either side of a broad gently sloping ridge on the north. Lower elevations are primarily covered with sagebrush and grassland vegetation. Higher elevations are Douglas-fir and lodgepole forests with rocky open parks. Soils in the west are shallow loams derived from limestone; soils in the eastern alluvial fans are moderately deep, gravelly loams and clay loams.



Capability

Integrity of the Natural Environment and Scenery: Scenic integrity is moderate to high, with range improvements and low standard roads apparent. Natural integrity has been most affected by livestock grazing.

Opportunities for Solitude and Primitive Recreation: Opportunities for solitude and primitive recreation are present because the area is large, remote, and has minimal recreation use other than in hunting season. Steeper terrain provides some challenging opportunities.

Special Features: Sourdough Cave contains Native American pictographs.

Manageability and Boundaries: Boundaries are comprised of the forest boundary and county roads. Signing and enforcement of motorized restrictions would be difficult.

Availability

Recreation: Hunting is the most common recreational use with roads and trails for 4 wheel-drive vehicles, ATVs, and pack stock. A few hunt on foot.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat and wolverine denning habitat are mapped. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function. There are several developed springs for livestock and increased demand for water is unlikely.

Livestock Grazing: Cattle graze a small portion of the area for a short season dependent on water on adjacent private land.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Less than one percent of the area is included in a medium value known locatable mineral deposit area. Six percent has moderate oil & gas potential (and a previous drill site), eighty-one percent has low oil and gas potential, and the remainder has very low oil and gas potential.

Heritage: Sourdough Cave contains Native American pictographs.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: There are 218 acres of private land near Kate Creek.

Disturbances: The risk of forest insects and disease epidemic is low due to the small amount of conifer forest.

Need

Ecological: McKenzie Canyon roadless area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub and grassland communities to designated Wilderness. Sensitive plant species not currently protected by Wilderness designation are found here as is wolverine denning habitat.

Social: Support for recommendation of this area for Wilderness has been received from those who have supported Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected slightly by livestock grazing and roads. There are opportunities for solitude and primitive recreation with moderate challenge. The area would be difficult to manage due to boundary locations.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands and contribute underrepresented upland shrub land and grassland communities to the NWPS. Wilderness recommendation for McKenzie Canyon has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
McKenzie Canyon 1-016	34,063	Low	Moderate	Moderate	Low

**Nonfederal lands are excluded from the acreage.*

McKenzie Canyon IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	33,652
Acres Added	185

Acres Dropped	0
GIS Acreage Recalculated	226
2007 Total	34,063

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	--	--	27%	--	24%	20%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	79%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	99%	99%	72%	99%	75%	n/a
Winter Non-Motorized	--	--	71%	--	71%	71%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	62%	--	--	--
Tentatively Suitable Timber	21%	21%	21%	21%	21%	21%
Modeled Suitable Timber	--	--	--	--	--	--
Modeled Suitable Range	62%	62%	62%	62%	62%	62%
Moderate Oil & Gas Potential	6%	6%	6%	6%	6%	6%

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

The non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

Middle Mountain Tobacco Roots (No. 1-013)

96,822 Acres

Description

The Middle Mountain Tobacco Roots Roadless Area lies in the center of the Tobacco Root Mountain Range in Madison County, Montana. Access is available from roads leading into the range from all sides.

The rugged glaciated terrain contains high mountain peaks, including Mount Jackson (10,380 feet) and Branham Mountain (10,482 feet), steep rocky cirque headwalls and sidewalls. Vegetation includes grasslands, sagebrush, and juniper in the lowest elevations; lodgepole pine, Douglas-fir, spruce forests at mid elevations; and whitebark pine in alpine areas along the timberline. Wet meadows and alpine lakes are scattered throughout. Soils are sandy loams derived from metamorphic rocks, chiefly gneiss.

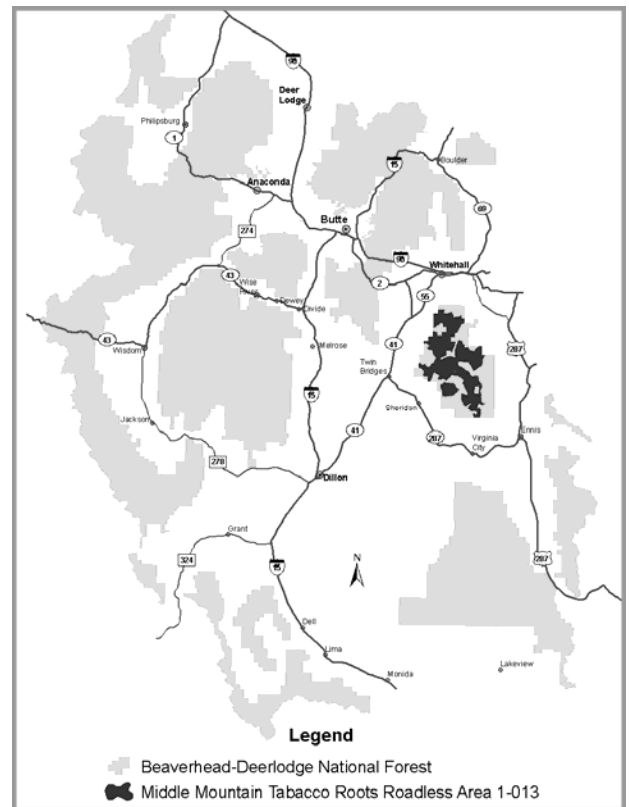
Capability

Integrity of the Natural Environment and Scenery: The area is mostly natural appearing and scenic integrity is moderate to high. Natural integrity is highest in the peaks. There are remnants of many historic mines and low standard roads leading to them. The shorelines of reservoirs have fluctuating waterlines with affected soils and vegetation. Livestock grazing, fencing, and a stock trail are present. Range improvements are most noticeable in the vicinity of the Boulder River. Branham, Twin, and South Meadow lake perimeters have been affected by recreational activities.

Opportunities for Solitude and Primitive Recreation: Area 1-013 provides many quality opportunities for solitude and primitive recreation. The topography is highly dissected and provides screening from other visitors. The terrain provides challenging backcountry adventure. There are clear streams, small lakes, rugged peaks, and alpine plants which enhance the setting. The popular Mill Creek, South Boulder, and South Willow Creek roads intrude and reduce the quality of primitive recreation.

Special Features: Lost Lake and Louise Lake national recreation trails.

Manageability and Boundaries: Boundary adjustments around intermingled private lands and mining claims would be difficult for some of the subunits. The eastern boundary of 1-013F does not follow topographic features and would need adjustment to improve manageability.



Availability

Recreation: Notable scenic qualities, historic mining sites, and easy access are attractions which make the area popular for a variety of backcountry recreational activities. Hunting use is less common in the highest elevations due to the difficulty of travel and game retrieval.

Area 1-013, 1-013A, 1-013C, and 1-013E have low standard roads, motorcycle trails, and horse-hiker trails. All are commonly used by people who enjoy the rugged terrain, and scenery. Cross-country skiing and snowmobiling are popular from Mammoth. Area 1-013B and 1-013F are rugged, and used only by a few visitors for hiking, climbing, and hunting.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat and wolverine denning habitat are mapped. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function. This area has several reservoirs and irrigation ditches. There are many developed springs for livestock use within the area. This area also contains a municipal watershed for Sheridan. Increases in water demand for irrigation or municipal uses are likely.

Livestock Grazing: Most of the suitable grassland is managed under intensive grazing systems in parts of eight grazing allotments.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Sixteen percent is favorable for copper deposits. Less than one percent is favorable for massive, strata-bound zinc-lead deposits. Fifty-seven percent of the area is included in a high value known locatable mineral deposit area and less than one percent is included in a medium value known locatable mineral deposit area. The Nicholson Mine Group has an approved plan of operations valid through 2009 for their private lands within the exterior roadless boundary. Four percent of the area has geothermal resource potential. Seven percent has low oil & gas potential, while the remainder has very low potential.

Heritage: The area contains abandoned historic mining sites. There are no other identified historic or prehistoric sites.

Land Use Authorizations: There are more than a dozen special use dams on high mountain lakes. Twin, Jackson, Sunrise, and Noble Lakes in 1-013C and Hill Reservoir in 1-013D are the largest reservoirs. The Nicholson Mine Group has an approved plan of operations valid through 2009 for their private lands within the roadless boundary, and exploratory permits for unpatented claims in the area. The plan includes the use of motorized equipment and motorized access to these lands.

Non-Federal Lands: There are 1,645 acres of private land in this roadless area. Area 1-013C contains the largest percent with 788 acres along the western edge. Area 1-013 has 483 acres, 1-013E has 183 acres, 1-013F has 141 along the western edge, and 1-013G contains 51 acres.

Disturbances: The area has infestations of mountain pine beetle and spruce budworm.

Need

Ecological: The Middle Mountain Tobacco Root roadless area is a part of the Beaverhead Mountains Ecological Section, and may contribute underrepresented plant communities. Sensitive plant species not currently protected by Wilderness designation are present along with native fish populations and wolverine denning habitat.

Social: The area is supported for Wilderness recommendation by proponents who praise the scenic qualities, ruggedness, and opportunities for primitive recreation. Opponents express an interest in retaining options for mineral development, grazing, motorized access to the alpine lakes, and snowmobile opportunities.

Suitability

Capability: Natural integrity has been affected by noxious weeds, livestock grazing, low standard roads, and historic mining. The area offers solitude and primitive recreation, particularly at the core. The area would be manageable with adjustments to the boundary.

Availability: Dams and irrigations ditches under special use permit and the need to retain access to private property which reduce Wilderness availability in 1-013A, 1-013C, 1-013E, 1-013F, and 1-013G. Mineral potential, exploratory permits, and existing plans of operations also limit the availability of some parts of the area.

Need: The area would add lands and may contribute additional underrepresented plant communities to the NWPS. Wilderness recommendation for Middle Mountain has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Middle Mountain Tobacco Roots 1-013	39,758	High	High	High	High
Middle Mountain Tobacco Roots 1-013A	5,287	High	Moderate	Moderate	Moderate
Middle Mountain Tobacco Roots 1-013B	1,871	High	High	Moderate	High
Middle Mountain Tobacco Roots 1-013C	10,295	Low	Moderate	Moderate	Low
Middle Mountain Tobacco Roots 1-013D	4,746	Moderate	Moderate	Moderate	Moderate
Middle Mountain Tobacco Roots 1-013E	5,712	Low	Moderate	Moderate	Low
Middle Mountain Tobacco Roots 1-013F	21,707	Moderate	Moderate	Moderate	Moderate
Middle Mountain Tobacco Roots 1-013G	7,442	Moderate	Moderate	Moderate	Moderate
Total	96,819				

**Nonfederal lands are excluded from the acreage.*

Middle Mountain Tobacco Roots IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	93,327
Acres Added	4,350
Acres Dropped	-909
GIS Acreage Recalculated	51
2007 Total	96,819

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	36%	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	32%	49%	84%	42%	45%	45%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	50%
Road-based	n/a	n/a	n/a	n/a	n/a	4%
Current Travel Plan Applies	67%	49%	15%	56%	54%	n/a
Winter Non-Motorized	6%	6%	77%	6%	68%	62%
Fisheries Key Watershed	n/a	n/a	6%	6%	6%	6%
Restoration Key Watershed	n/a	n/a	6%	--	20%	13%
Tentatively Suitable Timber	29%	29%	29%	29%	29%	29%
Modeled Suitable Timber	4%	--	--	--	--	--
Modeled Suitable Range	22%	20%	19%	20%	19%	19%
Moderate Oil & Gas Potential	--	--	--	--	--	--

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

Wilderness recommendation of subunit 1-013 and 1-013B in Alternative 3 preserves wildlife habitat and enhances linkages with other areas in the two subunits which ranked high for Wilderness suitability. Mountain biking would be prohibited.

A non-Wilderness recommendation for Middle Mountain under Alternatives 1, 2, 4, 5, and 6 may result in localized effects from mining. The natural appearance has already been affected by current and historic mining, especially in subunits which rank low or moderate Wilderness suitability. Because of the potential for minerals, it may be affected again.

Aside from mining, Alternative 6 would have little risk of effect on Wilderness characteristics under a non-Wilderness recommendation. Alternative 6 limits motorized use in backcountry allocations by adding a requirement to maintain semi-primitive settings so motorized opportunities would not expand. Alternative 5 and 6 include winter non-motorized allocations

for a good portion of the area and a key restoration watershed. Alternatives 1, 2, and 4 may have some effects on Wilderness characteristics because less than half of the area is in a non-motorized allocation. Non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Mountain biking trails would remain open.

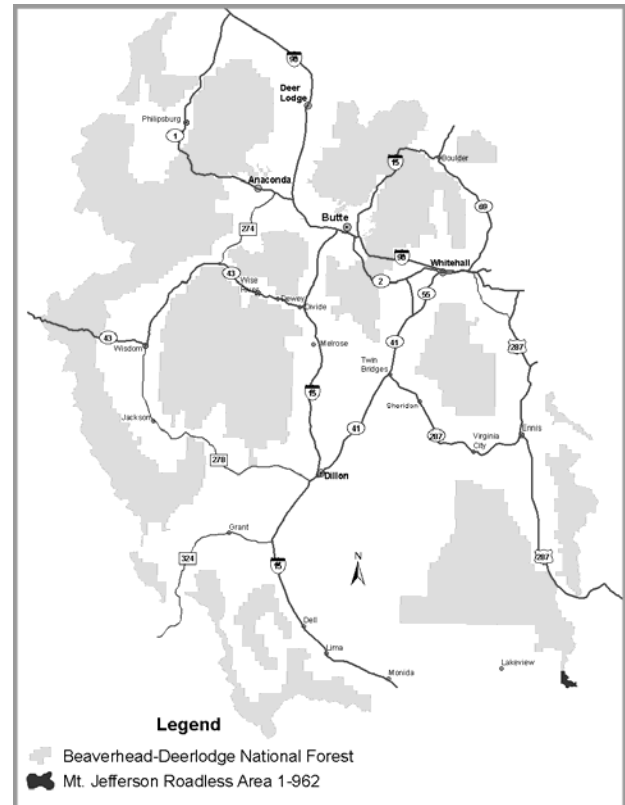
Mount Jefferson (No. 1-962)

4,448 Acres

Description

Mount Jefferson Roadless Area is located in the most southeastern corner of the forest in Beaverhead County. The area is contiguous with Caribou Targhee Roadless Area 4-961 and with the BLM Centennial Wilderness Study Area. The roadless area is accessible from the Centennial Valley road and BLM lands on the Montana side and roads and trails on the Targhee National Forest in Idaho.

Elevations range from about 7,200 in the valleys to over 10,000 feet. More than half of the area boundary lies on the Continental Divide, with rocky peaks and steep terrain. The area drains into Red Rock Creek in Montana. Sagebrush-grasslands are the dominate vegetation with patches of lodgepole pine, Douglas-fir, and aspen. Soils are generally silt loams.



Capability

Integrity of the Natural Environment and Scenery: Except for a small area on the east side, contoured for erosion control, this roadless area is quite natural appearing. Sawtell Peak Radar Station can be seen from one to three miles in many locations. The area is natural appearing and scenic integrity is high. The natural and scenic integrity have been reduced in a small area on the east side which has been contour furrowed for erosion control.

Opportunities for Solitude and Primitive Recreation: Though the area is small, the opportunities for solitude are high due to the adjacent Wilderness study areas. The area provides challenging high country adventure. Back-country skiing opportunities are enhanced by a commercial ski hut on adjacent BLM land.

Special Features: The Continental Divide National Scenic Trail and headwaters of Hellroaring Creek; the farthest extent of the Missouri River from the Mississippi.

Manageability and Boundaries: Over half of the area boundary lies along the Continental Divide, and is easily defined. The southern boundary is a road, and the western boundary follows administrative boundaries against the BLM Centennial Wilderness Study Area (recommended Wilderness). The Caribou Targhee National Forest roadless area 4-962, across the divide has also been recommended for Wilderness. The area is manageable alone or in conjunction with contiguous roadless areas.

Availability

Recreation: the most common activities are backpacking, camping, and big game hunting. Popular backcountry skiing is enhanced by the commercial ski hut near the forest boundary on BLM land. Snowmobiling has become popular over the last decade, because the area offers a high degree of challenge and adventure?

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Contiguous with the Henry's Lake Unit of the Greater Yellowstone Grizzly Bear Recovery Area, Mount Jefferson is considered occupied habitat. Wolverine denning and Canada lynx habitat has been mapped.

Water: Streams maintain biological values, channel structure, and riparian function and are used for downstream irrigation..

Livestock Grazing: None.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Forty-five percent of the area has low oil & gas potential, and the remainder has very low potential.

Heritage: An old, dilapidated mining hut in Section 31 T15S R2E has been surveyed. The existence of other historic and prehistoric resources is unknown.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: Insect and disease are present at endemic levels.

Need

Ecological: The Mount Jefferson IRA is part of the Beaverhead Mountains Ecological Section and may contribute underrepresented shrub land, grassland, riparian and aspen communities. Sensitive plant species not currently protected by Wilderness designation are found here as are wolves, grizzly bears, wolverine and peregrine falcons. The area is adjacent to the BLM Centennial Mountains WSA, making the overall size larger.

Social: The area was allocated as a "Further Planning Area" in the 1986 forest plan. In 1991 it was studied for its Wilderness potential in conjunction with the BLM lands in the Centennial Mountains. The BLM environmental impact study concluded that the areas should be recommended for Wilderness. Designation of the Centennial Wilderness Study Area completed the BLM Wilderness recommendation. The Forest Service did not complete their process for recommending Mount Jefferson for Wilderness. There is much support from BLM and segments of the public for a Mount Jefferson recommended Wilderness. There is also strong opposition to the recommendation from snowmobilers and the business community around Henry's Lake, Idaho. Management allocation for the area remains contentious with the public.

Suitability

Capability: Natural integrity has very few effects from human uses. There are opportunities for solitude and primitive recreation. The area could be managed as Wilderness if there were minor

adjustments to the boundary. Manageability would improve should the contiguous roadless lands be designated by Congress as Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands with refuge for several wide-ranging wildlife species and may contribute underrepresented shrub land and grassland communities to the NWPS. Support for Wilderness recommendation for Mount Jefferson is polarized between snowmobilers and Wilderness advocates.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Mt Jefferson, BDNF 1-962	4,448	High	High	High	High
Caribou-Targhee NF 4-962		Not rated	Not rated	Not rated	Not rated
BLM Centennial WSA		Not rated	Not rated	Not rated	Not rated
Total					

**Nonfederal lands are excluded from the acreage.*

Mount Jefferson IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	4,474
Acres Added	0
Acres Dropped	0
GIS Acreage Recalculated	-26
2007 Total	4,448

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	100%	100%	--	100%	47%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	100%	100%	100%	100%	100%	100%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	--
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	1%	1%	1%	1%	1%	n/a
Winter Non-Motorized	--	100%	100%	--	100%	47%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	--	--	--	--
Tentatively Suitable Timber	7%	7%	7%	7%	7%	7%

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Modeled Suitable Timber	1%	--	--	--	--	--
Modeled Suitable Range	28%	28%	3%	28%	3%	3%
Moderate Oil & Gas Potential	--	--	--	--	--	--

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

Wilderness recommendation in Alternatives 2, 3, and 5 protects important wildlife habitat in a potential linkage area along the Continental Divide, adds underrepresented plant communities to the NWPS, and connects the IRA to the BLM Centennial Mountains WSA, increasing the overall size. Wilderness recommendation in Alternative 6 protects wildlife habitat in lower Hellroaring drainage along more fragmented lower elevation portions of the Continental Divide on 47% of the IRA. Alternative 6 also contributes to the BLM Centennial Mountains WSA, increasing the overall size by 2,089 acres rather than the 4,442 acres contributed by Alternatives 2, 3, and 5.

Not recommending this area for Wilderness in Alternatives 1 and 4 does not positively respond to the Regional Needs Assessment or need for long term protection of unique Wilderness resources and secure habitat. However, in this planning period, Wilderness characteristics may only be affected in winter where motorized use is allowed on the southern end.

A non-Wilderness recommendation for half of the IRA in Alternative 6 does not positively respond to the need for long term protection of unique Wilderness resources and secure habitat for the southern 53% of the IRA. Wilderness characteristics may only be affected in winter. This alternative, along with Alternatives 1 and 4, retains snowmobiling opportunities accessed from the Island Park District on the Targhee National Forest in Idaho.

North Big Hole (No. 1-001)

50,808 Acres

Description

The North Big Hole Roadless Area lies within the Anaconda Range, and borders the southern edge of the Anaconda-Pintler Wilderness Area in Beaverhead County, Montana. Area 1-001 is divided into seven parts to improve the inventory. The area is contiguous with Bitterroot National Forest Roadless Area 3-001. Access is available from roads along the western and southern edges in Johnson, Mussigbrod, Pintler, Mudd, LaMarche, and Seymour creeks.

Elevations range from 6,300 to 8,800 feet.

These moderately sloped foothills are glaciated with rugged peaks, high rock cirque basins, and deep glacial troughs. Well defined terminal glacial moraines fan out at the mouths of valleys. Vegetation is mainly conifer forests common in southwestern Montana, with wet meadows and aspen patches. Soils are generally sandy loams derived from granite.

Capability

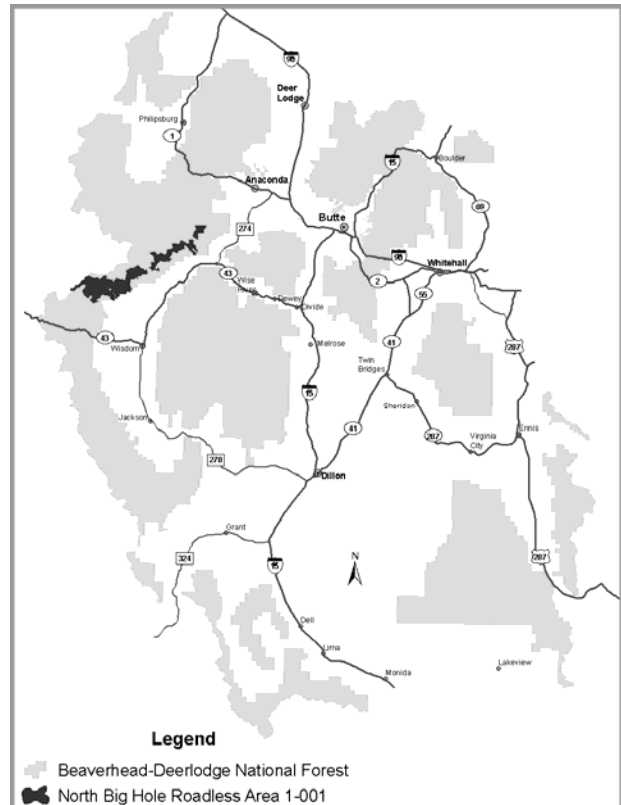
Integrity of the Natural Environment and Scenery: Scenic integrity is generally high, though fences and low standard roads slightly reduce the natural appearance in areas 1-001A, 1-001B, 1-001C, 1-001F, 1-001G, and 1-001H. Natural integrity has been affected by livestock grazing, range improvements, roads, and patches of noxious weeds (mostly knapweed).

Areas 1-001D and 1-001E appear natural and scenic integrity is high although natural integrity has been reduced slightly by livestock grazing.

Opportunities for Solitude and Primitive Recreation: The broken topography and infrequent human use contribute many opportunities for solitude. Areas 1-001D and 1-001E feature rugged terrain for challenge and primitive settings. In areas 1-001A, 1-001B, 1-001C, 1-001F, 1-001G, and 1-001H, other visitors are likely to reduce solitude and the primitive recreation opportunities close to campgrounds, trailheads, roads and motorized trails.

Special Features: The Continental Divide National Scenic Trail.

Manageability and Boundaries: The western part of 1-001D and all of 1-001E are manageable when considered as an addition to the adjacent Anaconda-Pintler Wilderness, because the outer boundary follows natural features identifiable on the ground.



Areas 1-001A, 1-001B, 1-001G, 1-001H, and 1-001F are in small separate pieces with roads, trailheads, and campgrounds between them. Their boundaries are generally not based on physical features. These areas collectively or separately would be difficult to manage as Wilderness or Wilderness additions.

Availability

Recreation: The area is used for backcountry recreation. There is some use by outfitter guides. These opportunities are enhanced by the adjoining Anaconda-Pintler Wilderness. People gather firewood, camp, and fish along roads in lower elevations.

Area 1-001B surrounds the terminus of Forest Road 934 at Seymour Lake campground and trailhead. Hiking, horseback riding, and fishing are popular pursuits and snowmobiling is common. Area 1-001C provides non-motorized summer opportunities consistent with management of the adjacent Anaconda-Pintler Wilderness. The area provides challenging undeveloped winter snowmobiling. Area 1-001G lies within the Bender & Johnson Creek drainages. People use the area for road and backcountry opportunities such as firewood gathering, dispersed camping, and OHV travel. Firewood gathering and dispersed recreation, especially hunting, are common in 1-001H. Area 1-001A includes Clam Valley West of Mussigbrod Lake and an area southeast of Mussigbrod Lake open to snowmobiling in winter and popular motorized roads and trails in summer.

Area 1-001D, on either side of the Mussigbrod drainage, provides hiking, horseback, and other non-motorized opportunities in summer and fall hunting season. In winter about twenty percent of the area is open to snowmobiling. Area 1-001E is available for non-motorized recreation only. The difficult terrain and vegetation provide a high level of challenge for the few visitors to the area.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat and wolverine denning habitat are mapped. Westslope cutthroat trout inhabit some stream segments.

Water: All streams in this area are tributaries of the Big Hole River. The water maintains biological values, channel structure, and riparian function and is used for downstream irrigation. There is a special use dam outside the roadless area at the outlet of Mussigbrod Lake. The reservoir operation is dependent upon a weir upstream in the roadless area, and mechanized equipment is needed to maintain the weir. There are several developed springs for livestock use and increased water demand for fisheries or irrigation is likely.

Livestock Grazing: A majority of the area contains grazing allotments except for Area 1-001E, with none.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Forty-six percent of the area is favorable for small vein deposits of gold, silver, and associated base metals. Nine percent of the area has low oil & gas potential, while the remainder of the area has very low oil & gas potential.

Heritage: Old rifle pits and mining remnants provide evidence of area history. Although past use of the entire Big Hole area by Native Americans suggests that undiscovered cultural resources may exist, none have specifically been identified.

Land Use Authorizations: Special uses include irrigation ditches, telephone line easements, and electrical power transmission easements in 1-001D. 1-001H has a permitted weir associated with Mussigbrod Lake and dam.

Non-Federal Lands: There are 56 acres of private land in 1-001C and 152 acres of private land in 1-001H.

Disturbances: The 2000 Mussigbrod fire burned over areas in 1-001D, 1-001E, 1-001G, and 1-001H. Mountain pine beetle infestations are increasing.

Need

Ecological: The North Big Hole roadless area is in the Beaverhead Mountains Ecological Section and may contribute underrepresented plant communities to the NWPS. The area may also contribute to lynx and wolverine denning habitat and would increase the size of the Anaconda Pintler Wilderness.

Social: Part of the roadless area was recommended for Wilderness in the 1986 Beaverhead Forest Plan. Support for designation of the entire area comes from those who support Wilderness recommendation for all roadless areas. Wilderness recommendation of areas west and north of Mussigbrod Lake (1-001E and part of 1-001D) received support from a much broader group of constituents. The undeveloped character and adjacent Anaconda-Pintler Wilderness were cited as reasons for supporting recommendation. Management of livestock grazing, water, and fuels, and noxious weed control were the basis to not recommend all or part of the area.

Suitability

Capability: In Area 1-001A, 1-001B, 1-001C, 1-001G, and 1-001H the natural integrity has been affected by livestock grazing and roads. There are opportunities for solitude and primitive recreation with limited challenge, and manageability would be difficult due to the location of boundaries.

In Area 1-001E and most of 1-001D the natural integrity has been affected minimally by a few two-track trails and grazing. There are opportunities for solitude and primitive recreation with challenge, and the area could be managed as a Wilderness addition if boundary adjustments were made.

Availability: There are special uses which may limit Wilderness availability in 1-001D and 1-001H. There are no contractual obligations or resource needs which limit Wilderness availability in 1-001A, 1-001B, 1-001C, 1-001E, and 1-001G.

Need: The area would increase the size of the Anaconda Pinter Wilderness, add lands to the NWPS, and may contribute underrepresented vegetative cover types. Wilderness recommendation for the North Big Hole received strong public support when limited to the areas north and west of Mussigbrod Lake.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
North Big Hole 1-001A	8,723	Moderate	Moderate	Moderate	Moderate
North Big Hole 1-001B	2,864	Low	High	Moderate	Low
North Big Hole 1-001C	13,560	Moderate	High	Moderate	Moderate

North Big Hole 1-001D	14,566	Moderate	Moderate	High	High
North Big Hole 1-001E	6,813	High	High	High	High
North Big Hole 1-001F	412	Moderate	High	Moderate	Moderate
North Big Hole 1-001G	1,134	Low	High	Moderate	Low
North Big Hole 1-001H	2,736	Low	Moderate	Moderate	Low
Bitterroot National Forest	3,691	Not rated	Not rated	Not Rated	
Total	54,808				

**Nonfederal lands are excluded from the acreage*

North Big Hole IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	53,098
Acres Added	0
Acres Dropped	-1,333
GIS Acreage Recalculated	-957
2007 Total	50,808

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	13%	13%	38%	--	38%	38%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	13%	17%	92%	41%	84%	49%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	13%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	86%	83%	7%	58%	16%	n/a
Winter Non-Motorized	1%	14%	63%	1%	38%	1%
Fisheries Key Watershed	n/a	n/a	20%	20%	20%	19%
Restoration Key Watershed	n/a	n/a	19%	--	19%	3%
Tentatively Suitable Timber	76%	76%	76%	76%	76%	76%
Modeled Suitable Timber	22%	--	--	--	--	--
Modeled Suitable Range	3%	3%	2%	3%	2%	2%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

Wilderness recommendation in Alternatives 1, 2, 3, 5, and 6 for subunits 001D and 001E preserve wildlife habitat contributing underrepresented plant communities to the NWPS in the two subunits which ranked High for Wilderness suitability. This increases the size and protection of Wilderness characteristics offered by the adjacent Anaconda-Pintler Wilderness.

A non-Wilderness recommendation for the highly ranked subunits in Alternatives 1, 2, 4 and 6 does not positively respond to the Regional Needs Assessment and public support for long term protection of unique Wilderness resources and secure habitat. In this planning period, Wilderness characteristics of the IRA would be maintained because non-motorized allocations or travel plan closures in all alternatives close these two units to motorized use.

The remaining subunits rate moderate or low for Wilderness suitability and don't lend themselves as additions to the recommended Wilderness. In these areas, a non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue, which facilitates management for grazing, irrigation, dams, and power easements. Activities allowed by Alternatives 2-6 have a low risk of reducing existing Wilderness characteristics in these areas. Alternative 6 limits expansion of motorized use by adding a requirement to maintain semi-primitive settings in the portion allocated to backcountry. Only one percent of the area remains in a road based allocation.

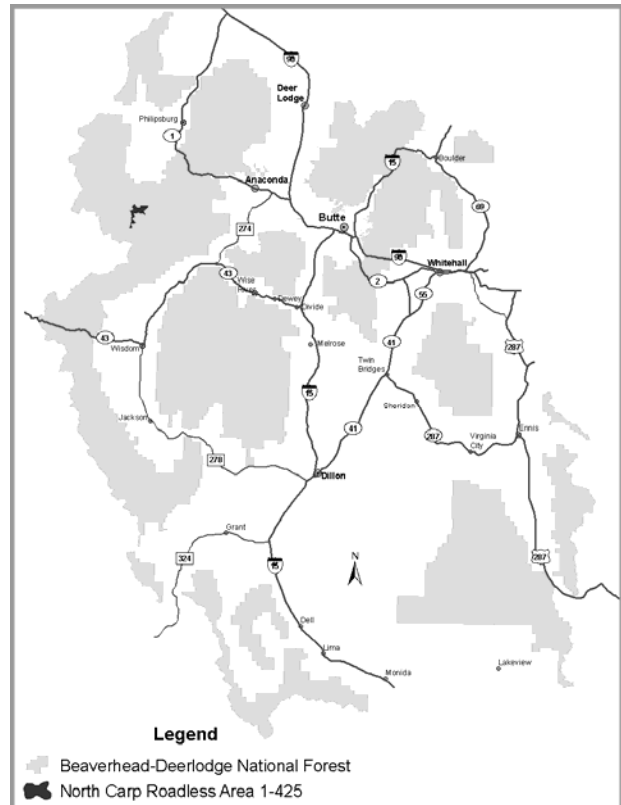
North Carpp (No. 1-425)

4,425 Acres

Description

The North Carpp Roadless Area is located along the northwestern boundary of the Anaconda Pintler Wilderness in Granite County, Montana. Access is available from the Meadow Creek Road along the eastern border, and from the Middle Fork of Rock Creek Road along the western edge.

Elevations vary from about 6,000 feet to 8,120 feet at Carpp Ridge summit. The area is steep and rocky with forested slopes dipping down to Carpp Creek. Open Douglas-fir forest and bunchgrasses are found on southern exposures. Other slopes are forested with Douglas-fir in the lower elevations and lodgepole below the timberline.



Capability

Integrity of the Natural Environment and Scenery: The area is natural appearing, and scenic integrity is high. Natural integrity has been slightly reduced by firewood cutting, isolated patches of knapweed, and minor amounts of livestock grazing.

Opportunities for Solitude and Primitive Recreation: Solitude is hard to find due to the absence of topographic screening and variety, and the presence of roads on three sides. Challenge and primitive recreation opportunities are few because all points within about one mile of a gravel road.

Special Features: None.

Manageability and Boundaries: There are identifiable boundaries which makes the area manageable as an addition to the Anaconda-Pintler Wilderness.

Availability

Recreation: The heaviest recreational use here occurs during hunting season. The area receives very few visitors in summer and winter.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Wolverine denning and Canada lynx habitat has been mapped. Westslope cutthroat and bull trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function and are used for downstream irrigation. Increased demand for irrigation water is likely.

Livestock Grazing: Minor amounts of grazing are associated with two allotments.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Fifty-five percent of the area is included in a medium value known locatable mineral deposit area. Ninety-five percent has low oil & gas potential, while the remainder has very low potential.

Heritage: A moderate amount of survey work has been done in the area and there are several recorded sites. There is low-moderate potential for historic mining and logging sites and low potential for prehistoric sites.

Land Use Authorizations: There are no special uses which would limit Wilderness potential.

Non-Federal Lands: There are 6 acres of private land in this roadless area.

Disturbances: Insects and disease are present in endemic levels.

Need

Ecological: North Carpp roadless area may contribute land and undisturbed habitat for wolverine and lynx to the Anaconda-Pintler Wilderness.

Social: Support for Wilderness recommendation came from people who support Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected by livestock grazing, noxious weeds and small mines. There are a few opportunities for solitude and primitive recreation. The area would need a new boundary to be manageable.

Availability: No contractual obligations or resource needs limit Wilderness availability.

Need: The area would add to the size of the Anaconda-Pintler Wilderness and may contribute undisturbed habitat for wildlife (wolverine) to the NWPS. Wilderness recommendation for North Carpp has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
North Carpp 1-425	4,425	Low	High	Moderate	Low

**Nonfederal lands are excluded from the acreage.*

North Carpp IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	12,022
Acres Added	0
Acres Dropped	-3,906
GIS Acreage Recalculated	-3,691
2007 Total	4,425

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	15%	47%	54%	47%	47%	47%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	53%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	84%	53%	46%	53%	53%	n/a
Winter Non-Motorized	1%	1%	1%	1%	1%	--
Fisheries Key Watershed	n/a	n/a	100%	100%	100%	100%
Restoration Key Watershed	n/a	n/a	--	--	--	--
Tentatively Suitable Timber	92%	92%	92%	92%	92%	92%
Modeled Suitable Timber	56%	--	--	--	--	--
Modeled Suitable Range	3%	3%	3%	3%	3%	3%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

The non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

O'Neil Creek (No. 1-432)

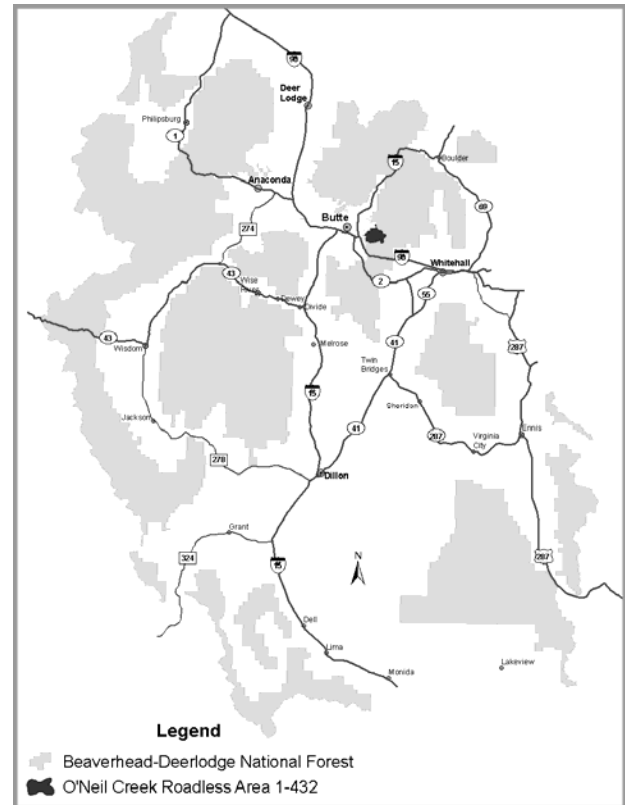
6,757 Acres

Description

O'Neil Creek Roadless Area straddles the Continental Divide east of Butte in Jefferson and Silver Bow Counties, Montana. Access is available from the Delmoe Lake road which forms part of its boundary or by hiking to the divide from Interstate Highway 90 or 15.

Elevations range from 6,400 to 8,000 feet. Slopes are quite steep west of the Continental Divide and much gentler and rolling to the East. Dense lodgepole pine and Douglas-fir forests cover the area, and are interspersed with the boulders and rounded rock outcrops of the Boulder Batholith.

Integrity of the Natural Environment and Scenery: The area is mostly natural appearing, with the exception



Capability

Integrity of the Natural Environment and Scenery: The area is mostly natural appearing, with the exceptions of mining prospect holes and mounds scattered through the area, the perimeter fence along private near the south edge, and OHV tracks. Scenic integrity is moderate to high. Natural integrity has been reduced by livestock grazing and patches of noxious weeds.

Opportunities for Solitude and Primitive Recreation: Interstates 15 and 90, and the Delmo Lake road are all nearby. The location and small size leaves very little opportunity for solitude and primitive recreation.

Special Features: The Continental Divide National Scenic Trail and Boulder Batholith.

Manageability and Boundaries: The western boundary follows a complex forest boundary next to private land. Defining and managing this boundary would be very difficult.

Availability

Recreation: The area is heavily used by hikers on the Continental Divide National Scenic Trail and visitors to the *Our Lady of the Rockies* statue nearby.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Habitat for Canada lynx is mapped.

Water: Streams maintain biological values, channel structure, and riparian function and are used for downstream irrigation during the summer. Increased demand for irrigation water is likely.

Livestock Grazing: Minor amounts of grazing takes place on one allotment.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Ninety-two percent is favorable for copper deposits. The entire area is included in a high value known locatable mineral deposit area. The entire area has very low oil & gas potential.

Heritage: No surveys have been conducted. There is moderate potential for historic logging and mining sites and for prehistoric occupation and travel sites.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: There are 644 acres of private lands in this roadless area.

Disturbances: There is a high risk of mortality in lodgepole from a mountain pine beetle epidemic.

Need

Ecological: O'Neil Creek is a part of the Beaverhead Mountain ecological subsection, and may contribute underrepresented plant communities. The IRA would provide representation of the Boulder Batholith, a unique geologic feature not presently represented in the Wilderness Preservation System.

Social: Support for recommendation of this area for Wilderness has been received from those who have supported Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected by mining and noxious weeds. There are very few opportunities for solitude and primitive recreation. The area would need many boundary adjustments to be manageable as Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands, may contribute underrepresented vegetative communities, and add the unique Boulder Batholith geology to the NWPS. Wilderness recommendation for O'Neil Creek has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
O'Neil Creek 1-432	6,757	Low	High	Moderate	Low

*Nonfederal lands are excluded from the acreage.

O'Neil Creek IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	6,311
Acres Added	728
Acres Dropped	-157
GIS Acreage Recalculated	-125
2007 Total	6,757

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences**IRA Disposition by Alternative**

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	--	--	77%	--	77%	77%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	14%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	91%	91%	14%	91%	14%	n/a
Winter Non-Motorized	--	--	22%	--	31%	31%
Fisheries Key Watershed	n/a	n/a	10%	10%	10%	10%
Restoration Key Watershed	n/a	n/a	82%	--	--	--
Tentatively Suitable Timber	80%	80%	80%	80%	80%	80%
Modeled Suitable Timber	9%	--	--	--	--	--
Modeled Suitable Range	2%	2%	2%	2%	2%	2%
Moderate Oil & Gas Potential	--	--	--	--	--	--

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

The non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

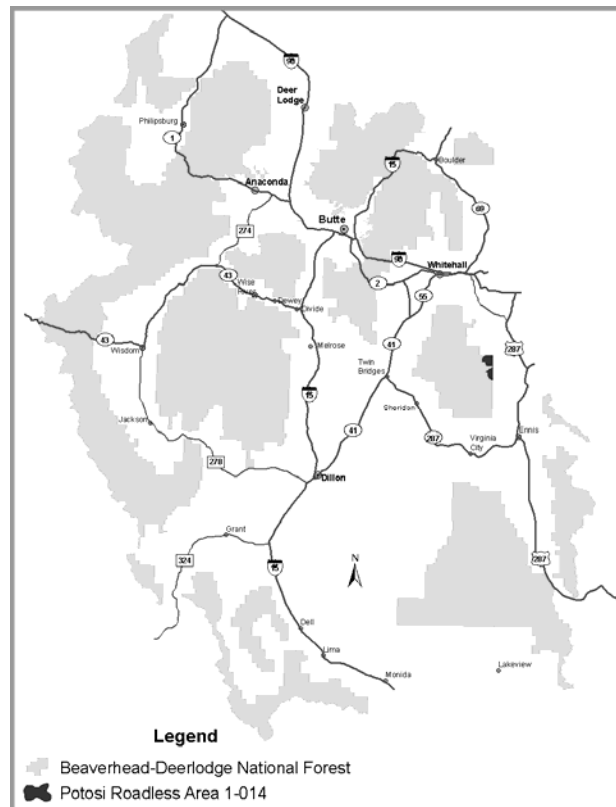
Potosi (No. 1-014)

5,296 Acres

Description

The Potosi Roadless Area lies on the eastern slopes of the Tobacco Root Mountains in Madison County, Montana. Access is found along the Meadow Creek Road, which forms its southern boundary, and from the South Willow Creek Road to the north.

Elevations range from 6,000 to 8,400 feet. The terrain is gentle compared to most of the Tobacco Root Mountains. The broad upland has strongly dissected foothills along the forest boundary. Small parks are scattered throughout lodgepole pine and Douglas-fir stands. Soils are very coarse sandy loams and loamy sands derived from granite.



Capability

Integrity of the Natural Environment and Scenery: The area appears natural and scenic integrity is moderate to high. Natural integrity has been affected by livestock grazing, infestations of noxious weeds, and small abandoned mine sites. Fences and water developments for livestock are also visible.

Opportunities for Solitude and Primitive Recreation: The figure-eight-shaped area limits opportunities for extensive travel or solitude, and provides little of the challenge found in steeper parts of the Tobacco Roots. However, day hikes and other opportunities are available.

Special Features: None.

Manageability and Boundaries: The area's figure-eight shape virtually divides this small area in half, and boundaries are not identifiable on the ground. The area would be difficult to manage as Wilderness.

Availability

Recreation: The area is most popular for hunting and motorized trails.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Habitat for Canada lynx is mapped.

Water: Streams maintain biological values, channel structure, and riparian function. There are several developed springs for livestock. Increases in demand for water are unlikely.

Livestock Grazing: The area includes two grazing allotments used by about 10 permittees.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Fifteen percent of the area has geothermal resource potential. The entire area has very low oil and gas potential.

Heritage: There are remnants of historic mining activities, including a very old cabin in the NE ¼ section 28, T3S, R2W.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: The area has infestations of mountain pine beetle in lodgepole pine and spruce budworm in Douglas-fir.

Need

Ecological: Potosi roadless area is a part of the Beaverhead Mountains Ecological Section, and may contribute underrepresented upland shrub, grassland, riparian, and aspen woodland communities as well as sensitive plants not currently represented in Wilderness designation.

Social: Support for Wilderness recommendation has been received from those who support Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected by noxious weeds, livestock grazing, low standard roads, and historic mining. The area offers limited short term solitude and primitive recreation. The area would be difficult to manage with its current boundaries.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would supply underrepresented upland shrub, grassland and sensitive plant communities to the NWPS. Wilderness recommendation for Potosi is both supported and opposed.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Potosi 1-013	5,296	Low	High	Moderate	Low

**Nonfederal lands are excluded from the acreage.*

Potosi IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	5,465
Acres Added	0
Acres Dropped	0
GIS Acreage Recalculated	-169
2007 Total	5,296

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	--	--	93%	--	--	--
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	93%
Road-based	n/a	n/a	n/a	n/a	n/a	7%
Current Travel Plan Applies	100%	100%	7%	100%	100%	n/a
Winter Non-Motorized	--	--	97%	--	97%	97%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	--	--	34%	34%
Tentatively Suitable Timber	33%	33%	33%	33%	33%	33%
Modeled Suitable Timber	14%	--	--	--	--	--
Modeled Suitable Range	50%	50%	50%	50%	50%	50%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

The non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

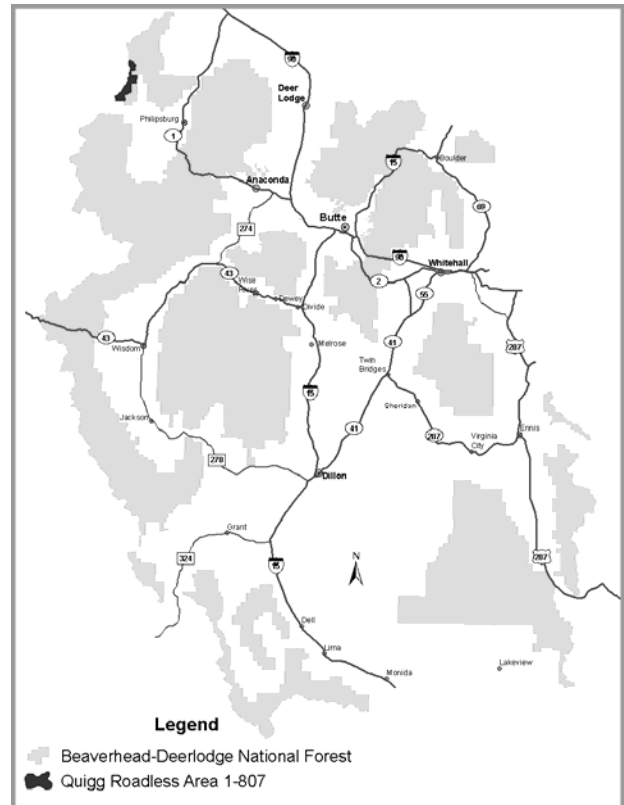
Quigg (No. 1-807)

10,223 Acres

Description

The Quigg Roadless Area is located in the Long John Mountains in Granite County, Montana, contiguous to Lolo National Forest Roadless Area 16-807 to the west. Access to 1-807 is available from Rock Creek and Willow Creek roads, and trails on the Lolo National Forest.

Elevations range from about 5,700 feet at the mid-slope boundary to 8,272 feet at the summit of Sandstone Ridge. The dissected east slope is steep, rocky and rugged. The area is mostly covered with lodgepole pine forest. Meadow and rock openings are found along the ridge and on Sand and Willow Peaks. Willows line the creeks in the lower elevations.



Capability

Integrity of the Natural Environment and Scenery: The area is natural appearing and scenic integrity is high. Exceptions are two visible cabins near the boundary. Vistas along the ridge include ranches, private developments, and roads. Natural integrity is reduced only by small patches of noxious weed.

Opportunities for Solitude and Primitive Recreation: The area offers solitude and primitive recreation. Opportunities improve when roadless lands from both forests are considered. Challenge is high in the BDNF portion, where even trails are absent except along Sandstone Ridge.

Special Features: None.

Manageability and Boundaries: The area is manageable as Wilderness with the boundaries presented in this inventory. The Lolo and Beaverhead areas together make a unit which would be easier to manage.

Availability

Recreation: Hunting is the most common recreational pursuit. A few people hike the Sandstone Ridge trail in summer.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Habitat for Canada lynx is mapped and westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function. Water is important for downstream irrigation during the summer. Increased demand for irrigation is likely.

Livestock Grazing: None.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Five percent is included in a medium value known locatable mineral deposit area. Eight percent of the area has low oil & gas potential, and the remainder has very low potential.

Heritage: The lookout tower foundation and the two old cabins are the only cultural sites inventoried in the Quigg Roadless Area.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: Lodgepole pine mortality from bark beetles is increasing.

Need

Ecological: Quigg roadless area contributes undisturbed habitat for wildlife.

Social: There is support for Wilderness recommendation from the Lolo National Forest managers and the public. Opposition is from people generally opposed to any recommended Wilderness.

Suitability

Capability: Natural integrity is high. There are opportunities for solitude and primitive recreation. The area is manageable as Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands, and may contribute underrepresented plant communities to the NWPS. Wilderness recommendation for Quigg has received both support and opposition from the public.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Quigg, BNDF 1-807	10,223	High	High	Moderate	High
Lolo NF 16-807	62,820	Not Rated	Not Rated	Not Rated	
Total	73,043				

**Nonfederal lands are excluded from the acreage.*

Quigg IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	12,165
Acres Added	0
Acres Dropped	-2,496
GIS Acreage Recalculated	554
2007 Total	10,223

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	93%	--	36%	83%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	28%	98%	98%	98%	98%	1%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	5%
Road-based	n/a	n/a	n/a	n/a	n/a	12%
Current Travel Plan Applies	72%	2%	2%	2%	2%	n/a
Winter Non-Motorized	--	--	--	--	95%	--
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	13%	--	--	--
Tentatively Suitable Timber	82%	82%	82%	82%	82%	82%
Modeled Suitable Timber	46%	--	--	--	--	--
Modeled Suitable Range	--	--	--	--	--	--
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

Wilderness recommendations in Alternative 3, 5, and 6 protect secure wildlife habitat would enhances linkages to the west and north, contribute underrepresented plant communities to the NWPS, and add to recommended Wilderness proposed on the Lolo National Forest. The alternatives vary from 36% to 93% of the IRA recommended.

A non-Wilderness recommendation may affect the IRA in Alternative 1 because it allocates only 1/3 of the area for non-motorized use.. Wilderness characteristics will be not be affected in Alternatives 2, 3, 4, and 5 because summer and winter non-motorized allocations exclude motorized use from most of the area.. Alternative 5 also allocates most of the IRA for winter non-motorized use. Alternative 6 leaves 12% of the area in a road based allocation where activities could take place that may affect Wilderness characteristics

Saginaw Creek (No. 1-004)

8,728 Acres

Description

Saginaw Creek Roadless Area is located in the Beaverhead Mountains in Beaverhead County, Montana. Access is available from Forest Road 181 along the western edge.

Elevations range from about 6200 feet in the foothills to 9200 feet at Black Mountain summit. Selway Mountain, at 8900 feet, is the only other prominent landform. Terrain near the peaks is rugged and steep. The rest of the area has more gentle rolling slopes. Grass and sagebrush occupy the lower elevations, and rise to lodgepole pine and Douglas-fir forests in the upper elevations. Soils are rocky and sandy loams, with clays present in the lowest elevations.

Capability

Integrity of the Natural Environment and Scenery: Scenic integrity is high. Roads, small mines, fences, and other range improvements interrupt the mostly natural appearing scenery. Natural integrity has been reduced by livestock grazing and low standard roads.

Opportunities for Solitude and Primitive Recreation: The area has opportunities for hiking hunting, fishing, and camping. Motorcycles and other vehicles may be heard from nearby roads and trails. The area is too small to provide a feeling of solitude and remoteness; however, it does offer some challenging terrain for hiking and climbing.

Special Features: None.

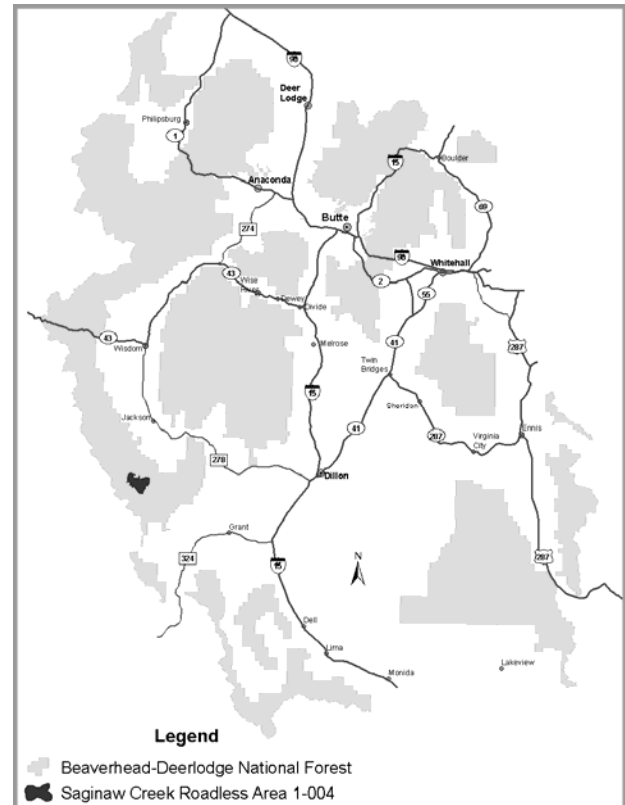
Manageability and Boundaries: The western boundary is road 181 and the eastern boundary lies mid-slope and is not related to any physical features. The IRA would be difficult to manage as Wilderness.

Availability

Recreation: The heaviest use is hunting, and then fishing, camping and motorized road and trail use. In winter the area is popular for snowmobiling.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat has been mapped and some stream segments contain westslope cutthroat trout.

Water: Streams maintain biological values, channel structure, and riparian function. There are several developed springs for livestock. Increased demand for water is unlikely.



Livestock Grazing: Livestock operations include four grazing allotments. The area has about 28 miles of range fence and several developed springs.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Two percent of the area is favorable for gold-silver vein deposits, which may also contain associated base metals. Six percent of the area is included in a medium value known locatable mineral deposit area. The entire area has very low oil & gas potential.

Heritage: There are no known sites in this roadless area; however, sites may be present because much of the area in the West Big Hole has a history of Native American use.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: There is a moderate to high risk of mountain pine beetle infestations.

Need

Ecological: Saginaw Creek roadless area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub and grassland communities as well as lynx habitat.

Social: Support for recommendation of this area for Wilderness has been received from those who support Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected by livestock grazing and roads. There are a few opportunities for solitude and primitive recreation with moderate challenge. The area would be difficult to manage as Wilderness.

Availability: No contractual obligations or resource needs limit Wilderness availability.

Need: The area would add lands and contribute underrepresented upland shrub and grassland communities to the NWPS. Wilderness recommendation for Saginaw Creek has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Saginaw Creek 1-004	8,728	Low	High	Moderate	Low

**Nonfederal lands are excluded from the acreage.*

Saginaw IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	8,493
Acres Added	952
Acres Dropped	-97
GIS Acreage Recalculated	-620
2007 Total	8,728

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	23%	61%	87%	61%	61%	61%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	39%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	77%	39%	13%	39%	39%	n/a
Winter Non-Motorized	--	--	--	--	--	--
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	42%	--	42%	3%
Tentatively Suitable Timber	70%	70%	70%	70%	70%	70%
Modeled Suitable Timber	32%	--	--	--	--	--
Modeled Suitable Range	8%	8%	8%	8%	8%	8%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

The non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

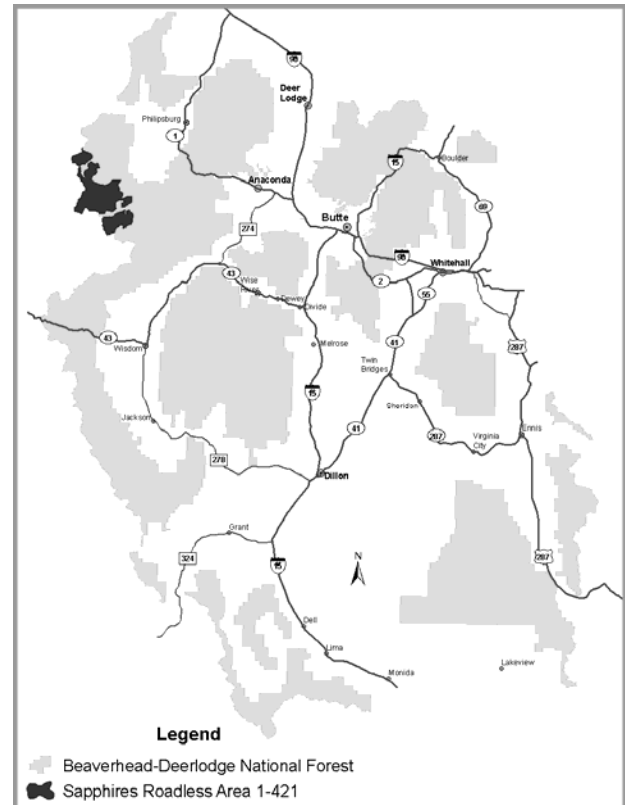
Sapphire (No. 1-421)

71,323 Acres

Description

The Sapphire Roadless Area is located along the east side of the Sapphire Mountains in Granite County, Montana. The area is contiguous to Bitterroot National Forest Roadless Area 3-423. Access is available from State Highway 38 and from forest roads in Rock and Copper creeks on the east, or from Bitterroot Forest roadless area 3-421.

Elevations range from 5000 to 9,000 feet at Kent Peak. The rugged peaks of the Sapphire Crest are prominent when viewed from the east side. The glaciated landscape includes exposed bedrock and rubble along the crest, steep rocky cirque basins and trough walls along the southern boundary, and rolling hills in the West and Ross Forks of Rock Creek. The majority of the area below the timberline is lodgepole pine and Douglas-fir dominated forests, with inclusions of streamside meadows. Douglas-fir savannas with bunchgrass are common on dry southern exposures. Subalpine fir and whitebark pine are present in alpine areas near the timberline.



Capability

Integrity of the Natural Environment and Scenery: The area appears mostly natural and scenic integrity is high. Fire suppression disturbance is visible in some locations. Historic mining prospects and developments are evident on the 248 acres of included private land. Natural integrity has been reduced along the crest, where past heavy grazing by domestic sheep has altered the vegetation. There are patches of noxious weeds.

Opportunities for Solitude and Primitive Recreation: The area is best described if IRA 3-421 is considered as a part of the whole. A core area along the crest at the headwaters of Copper Creek and in Ross Fork offers good opportunities for solitude and primitive recreation.

Special Features: In 1977 Congress designated most of roadless areas 1-421 and 3-421 as the Sapphire Wilderness Study Area.

Manageability and Boundaries: Manageability considerations include roadless area 3-421. The boundaries as drawn would be difficult to manage because they do not follow topographic or legal boundaries. Adjusting the boundaries to follow known features would reduce the area by forty to fifty-five percent. The residual area would be manageable.

Availability

Recreation: The heaviest recreational use here occurs during hunting season. In summer use is lighter, and includes backcountry experiences. Snowmobiling is a primary winter use in many parts of the area.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity between GYA and forests to the west and north. Wolverine denning and Canada lynx habitat are mapped. Westslope cutthroat and bull trout inhabit some streams.

Water: Streams maintain biological values, channel structure, and riparian function. Water from this area is used for downstream irrigation during the summer months. Increases in demand for irrigation water are likely.

Livestock Grazing: Three allotments are primarily located in the eastern portion of the area. Incidental grazing occurs west of the Sapphire Crest.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Twenty percent of the area is included in a medium value known locatable mineral deposit area. Seven percent of the area has a low oil & gas potential, and the remainder has a very low potential.

Heritage: Past mining activities and locations are known. Prehistoric sites may exist, but are not identified.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: There are 245 acres of private land in Frog Pond Basin and several isolated parcels of private land along the eastern boundary.

Disturbances: Wildfire burned across about 40 percent of the area in 2000.

Need

Ecological: The Sapphire roadless area may contribute sensitive plant communities to designated Wilderness as well as undisturbed habitat for wolverine and other wildlife.

Social: Although the Forest Service study recommended the area not be managed as Wilderness, Congress has not made a determination to designate or release the WSA. Management must comply with court direction to allow uses present in 1977.

Suitability

Capability: Natural integrity has been affected slightly by livestock grazing, noxious weeds, and small mines. There are many opportunities for solitude and challenging primitive recreation. The area would need a new boundary to be manageable.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would supply additional lands and may contribute underrepresented and sensitive plant communities to the NWPS. Wilderness recommendation for Sapphire has received strong support *and* strong opposition from the public.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Sapphire, BDNF 1-421	71,323	High	High	High	High
Bitterroot N. F. 3-421	44,116	Not Rated	Not Rated	Not Rated	Not Rated
Total	115,439				

**Nonfederal lands are excluded from the acreage.*

Sapphire IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	72,414
Acres Added	0
Acres Dropped	-568
GIS Acreage Recalculated	-523
2007 Total	71,323

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences**IRA Disposition by Alternative**

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	77%	77%	77%	77%	77%	77%
Summer Non-Motorized *	79%	85%	88%	85%	85%	14%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	9%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	20%	15%	12%	15%	15%	n/a
Winter Non-Motorized	1%	1%	4%	1%	1%	52%
Fisheries Key Watershed	n/a	n/a	100%	100%	100%	100%
Restoration Key Watershed	n/a	n/a	--	--	--	--
Tentatively Suitable Timber	21%	21%	21%	21%	21%	21%
Modeled Suitable Timber	8%	--	--	--	--	--
Modeled Suitable Range	1%	1%	1%	1%	1%	1%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

No alternative recommends the Sapphire Wilderness Study Area for Wilderness. The FEIS states under Chapter 2, “Elements Common to all Action Alternatives” that Wilderness Study Areas set aside in 1977 through the Montana Wilderness Study Act, P.L. 95-150 will be managed according to the Act and direction from Courts, regardless of alternative. Until Congress acts, the law requires the Forest Service to protect Wilderness character and allow continuation of uses in

place prior to 1977. This does not prevent the Forest Service from making site specific decisions to close areas or trails in the future based on need.

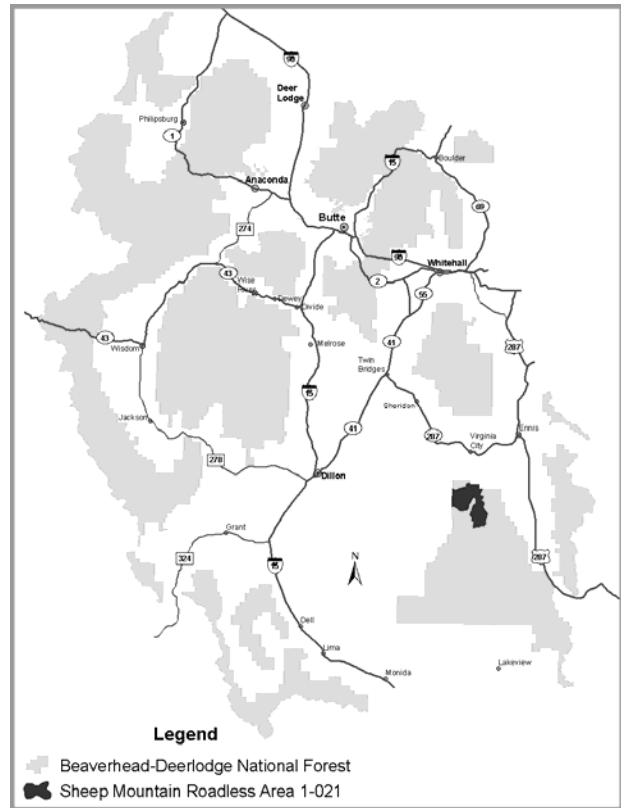
Sheep Mountain (No. 1-021)

29,395 Acres

Description

The Sheep Mountain roadless area is located north of the Ruby River in the Gravelly Mountain Range in Madison County, Montana. Access is available from the Call and Gravelly Range roads or from the Ruby River and Timber Creek roads.

Elevations range from 6,400 to 9,700 feet. The western part of the Greenhorn Range has steep, rugged, forested slopes. The rest of the area is covered with a mix of Douglas-fir and lodgepole pine dominated forests intermixed with open grasslands. Mountain mahogany is common on lower elevation south-facing slopes. Soils are mostly sandy loams derived from metamorphic rocks. The Warm Springs portion contains many areas of mass failure or soil slumps.



Capability

Integrity of the Natural Environment and Scenery: The area is natural appearing except for a few low standard roads and abandoned mines, and scenic integrity is high. Natural integrity has been affected by grazing, range improvements, and noxious weed infestations.

Opportunities for Solitude and Primitive Recreation: Solitude is easy to find except during hunting season, when the number of visitors is high. The area is large enough to provide many primitive recreation opportunities and varied terrain offers challenging hiking and climbing.

Special Features: None.

Manageability and Boundaries: The BLM administered lands provide the north and west boundaries. Roads on the east and south sides separate the area from other forest lands. The area could be managed as Wilderness, alone or in conjunction with the adjoining BLM Axelotl Lakes WSA.

Availability

Recreation: There is mix of recreation uses, including motorized trails, snowmobiling, and hiking. Hunting season brings the highest visitation.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. The entire IRA is

considered occupied habitat for grizzly bear. Wolverine denning and Canada lynx habitat has been mapped. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function. There are several developed springs for livestock. Increases in demand for water are unlikely.

Livestock Grazing: Most of the area is in an allotment.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Less than one percent of the area is favorable for small vein deposits of gold, silver, and associated base metals. Thirty-one percent of the area is included in a high value known locatable mineral deposit area and twenty-five percent is included in a medium value known locatable mineral deposit area. Seventeen percent of the area has medium phosphate potential. Forty-eight percent of the area has moderate oil & gas potential, twenty-two percent has low potential. The remainder has very low potential.

Heritage: The presence of prehistoric and historic resources is unknown; however, past use by Native Americans suggests sites may exist.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: There are 162 of private land within this roadless area.

Disturbances: Bark beetle infestations levels are endemic and pose a risk to lodgepole pine stands.

Need

Ecological: Sheep Mountain roadless area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub, grassland, riparian and aspen communities to designated Wilderness. In addition it would contribute sensitive plant populations, wolf, grizzly bear, and wolverine habitat and native fish.

Social: Support comes from those who support Wilderness designation for all roadless areas. People who want motorized recreation and other resource uses oppose it.

Suitability

Capability: Natural integrity has been affected by livestock grazing and noxious weeds. There are opportunities for solitude and challenging primitive recreation. The area is manageable as Wilderness alone or with designation of adjacent BLM lands.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands to the NWPS and make ecological contributions to the NWPS. However, Wilderness recommendation received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Sheep Mountain 1-021	29,395	High	High	Moderate	High

*Nonfederal lands are excluded from the acreage.

Sheep Mountain IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	32,115
Acres Added	0
Acres Dropped	-2,144
GIS Acreage Recalculated	-576
2007 Total	29,395

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences**IRA Disposition by Alternative**

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	99%	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	77%	75%	92%	73%	80%	80%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	19%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	22%	24%	8%	27%	20%	n/a
Winter Non-Motorized	36%	43%	92%	36%	42%	42%
Fisheries Key Watershed	n/a	n/a	34%	34%	34%	34%
Restoration Key Watershed	n/a	n/a	20%	--	--	--
Tentatively Suitable Timber	43%	43%	43%	43%	43%	43%
Modeled Suitable Timber	5%	--	--	--	--	--
Modeled Suitable Range	49%	49%	40%	49%	40%	40%
Moderate Oil & Gas Potential	48%	48%	48%	48%	48%	48%

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

This IRA ranked High for Wilderness suitability and was recommended for Wilderness under Alternative 3. Wilderness recommendation in Alternative 3 preserves high quality wildlife habitat and protects the area from the possibility of oil and gas development in about half of the area. Mountain biking opportunities would be eliminated.

A non-Wilderness recommendation under Alternative 1 would have affected Wilderness characteristics prior to RACR because it allocates 30% of the area to suitable timber base. Activities allowed by Alternatives 2-6 have a low risk of reducing existing Wilderness characteristics in this area. Alternative 3 and 6 allocate lands to summer non-motorized uses and

restoration key watersheds. Alternative 6 limits expansion of motorized use by adding a requirement to maintain semi-primitive settings in the portion allocated to backcountry. A non-Wilderness recommendation in all alternatives except 3 allow most of the established backcountry recreation uses and management activities tied to grazing, dams and ditches and private land to continue

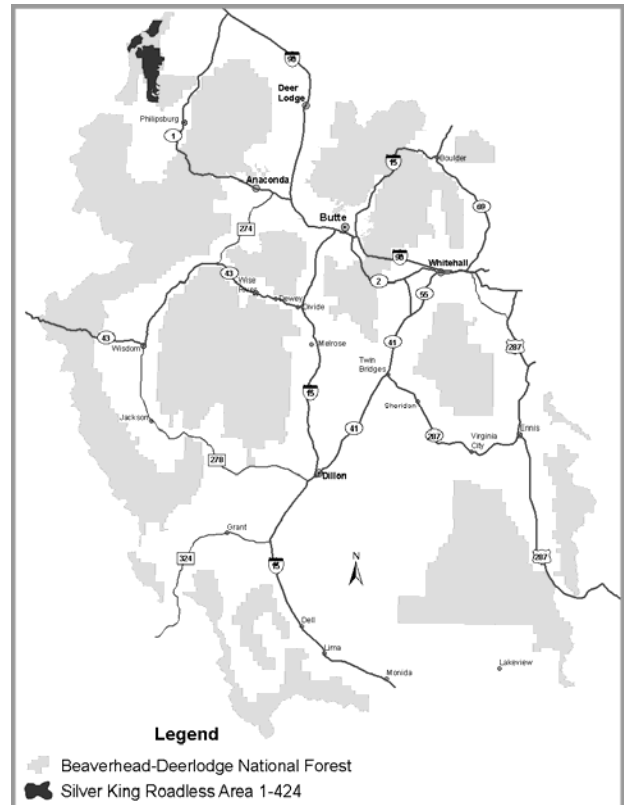
Silver King (No. 1-424)

36,696 Acres

Description

Silver King Roadless Area is located in the northern end of the John Long Mountain Range in Granite County, Montana, contiguous to Roadless Area 16-424 on the Lolo National Forest. Access is available from Upper Willow and Rock creek roads, and low standard roads along the boundary.

Elevations range from 4,000 to 7,851 feet at the Silver King Mountain summit. The long center ridge is surrounded by steep rounded slopes on the sides. The eastern face is covered with lodgepole pine and Douglas-fir, and large amounts of down trees. The western face has open groves of Douglas-fir and grassland parks. A mix of whitebark pine and other conifers grow along the ridge.



Capability

Integrity of the Natural Environment and Scenery: The area appears mostly natural, with the exceptions of a few old mineral prospects, deteriorating cabins, BPA transmission lines, and sections of road near the edges of the roadless area. Scenic integrity is moderate to high. Natural integrity has been affected by thinning along the eastern boundary.

Opportunities for Solitude and Primitive Recreation: The absence of development, vegetative cover, and the low level of use allows primitive experiences and solitude along the ridge.

Special Features: None.

Manageability and Boundaries: The IRA is divided into three parcels, two of which are adjacent to roadless lands on the Lolo National Forest, and BPA transmission lines. None have easily identifiable boundaries on the ground. Boundaries would need further adjustment. Signing and enforcement would be difficult.

Availability

Recreation: The single track ridge trail from Black Pine Lookout north to Snowdrift Park gets the most use by visitors because of dense vegetation in the rest of the area.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat is mapped. Westslope cutthroat and bull trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function and are also used for downstream irrigation. Increased demand for irrigation water is likely.

Livestock Grazing: There are portions of eight livestock grazing allotments in the IRA.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire area is favorable for small vein deposits of gold, silver, and associated base metals. Three percent is favorable for molybdenum deposits. Seventy-one percent of the area is included in a medium value known locatable mineral deposit area. Less than one percent of the area has medium oil shale potential. Seventy-nine percent has low oil & gas potential, while the remainder has very low potential.

Heritage: The area has received a very limited amount of survey work. Private surveys found a few prehistoric sites, and historic logging, mining, and homesteading sites.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: The area includes 62 acres of private land.

Disturbances: Wildfire burned across about 40 percent of the area in 2000.

Need

Ecological: The Silver King roadless area may contribute undisturbed habitat for wildlife (wolves) and native fish.

Social: Support for recommendation of this area for Wilderness has been received from those who have supported Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected by livestock grazing, noxious weeds and small mines. There are a few opportunities for solitude and primitive recreation. The area would need a new boundary to be manageable.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands and may contribute undisturbed habitat for wildlife and native fish to the NWPS. Wilderness recommendation received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Silver King, BDNF 1-424	36,696	Moderate	High	Moderate	Moderate
Lolo NF 16-424	13,150	Not rated	Not rated	Not Rated	Not Rated
Total	49,846				

**Nonfederal lands are excluded from the acreage.*

Silver King IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
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1987 Total	41,447
Acres Added	0
Acres Dropped	-1,129
GIS Acreage Recalculated	-3,622
2007 Total	36,696

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	6%	20%	94%	8%	25%	21%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	78%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	94%	80%	6%	92%	75%	n/a
Winter Non-Motorized	--	--	25%	--	24%	--
Fisheries Key Watershed	n/a	n/a	63%	63%	63%	63%
Restoration Key Watershed	n/a	n/a	--	--	--	--
Tentatively Suitable Timber	81%	81%	81%	81%	81%	81%
Modeled Suitable Timber	27%	--	--	--	--	--
Modeled Suitable Range	20%	20%	20%	20%	20%	20%
Moderate Oil & Gas Potential	--	--	--	--	--	--

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

This IRA ranked moderate for Wilderness suitability and was not recommended for Wilderness under any alternative.

A non-Wilderness recommendation would have a very low risk of reducing existing Wilderness characteristics in Silver King under Alternative 3. Alternative 3 protects most of the area with a summer non-motorized allocation. There may be some risk of effects on Wilderness characteristics on the west side of the southern unit under Alternatives 1, 2, 4, and 5. These alternatives allocate 25% or less of the area to non-motorized allocations, located in the two northern units.

Management in the southern unit is guided by the current travel plan which provides no direction for the planning period. Alternatives 3, 4, 5, and 6 designate the east side of the John Long Hills as a key fisheries watershed, which will offer some additional protection to roadless characteristics.. Alternative 6 limits expansion of motorized use with a requirement to maintain semi-primitive settings in the portion allocated to backcountry. A non-Wilderness recommendation would allow low levels of backcountry travel to continue.

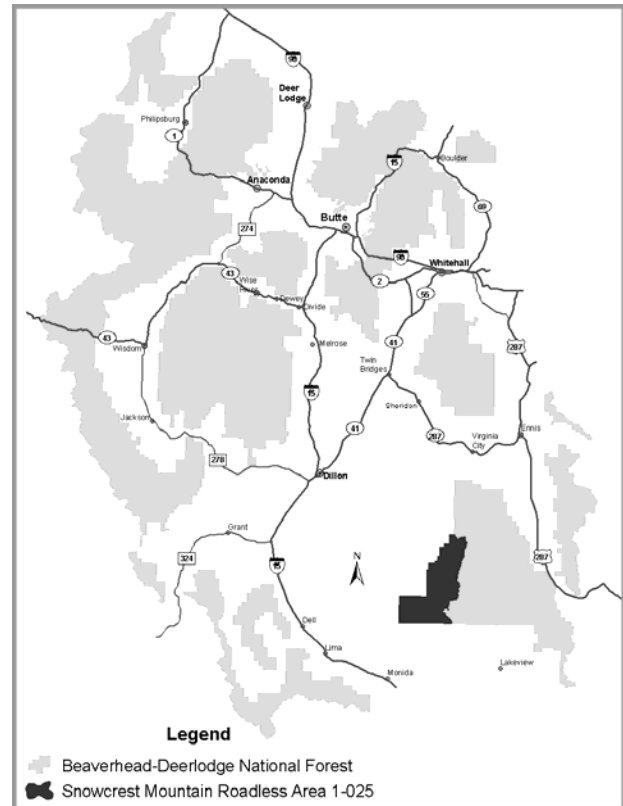
Snowcrest Mountain (No. 1-025)

97,985 Acres

Description

This roadless area includes all National Forest System lands in the Snowcrest Mountain Range in Beaverhead and Madison Counties, Montana. The Ruby River Road on the east provides the main access; low standard roads provide access from the other three sides of the range.

Elevations range from 6,500 to over 10,000 feet at the peaks of several mountains in the range. The lower elevations are sagebrush-grasslands on benches and rolling foothills. Lower slope rise into steeper slopes covered with a mix of meadows and Douglas-fir or lodgepole pine. Forests terminate in alpine vegetation along rugged rocky peaks. Clay loams and silt are the most common soils in the northwest corner, while granitic and shale derived soils are found in the rest of the area.



Capability

Integrity of the Natural Environment and Scenery: The landscape appears natural and scenic integrity is high. Natural integrity is nearly unaffected near the spine of the range. Natural and scenic integrity have been slightly reduced by livestock grazing, range developments, and low standard roads in the foothills and across the Notch.

Opportunities for Solitude and Primitive Recreation: The area provides good opportunities for solitude and primitive recreation except near the Antone and East Fork of Blacktail trailheads. The rugged terrain and rocky peaks provide challenging mountain adventure.

Special Features: The single row of peaks, most of which are more than 10,000 feet, is a unique geologic feature which forms the area and mountain range.

Manageability and Boundaries: The Ruby-Centennial Road forms the eastern boundary. The other boundaries are the same as the forest boundary, and could be managed because access by roads and trails is limited.

Availability

Recreation: Motorized use is restricted over most of the area and the area is popular for hiking, stock use, hunting, fishing, mountain biking, and camping. Winter use is rare.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Wolverine denning and

Canada lynx habitat has been mapped. Westslope cutthroat trout inhabit some stream segments. The IRA falls in the landscape considered occupied by grizzly bears.

Water: Streams maintain biological values, channel structure, and riparian function. Water from the area is used for downstream irrigation. Increases in demand for irrigation water are likely.

Livestock Grazing: The majority of the Snowcrest Range is under grazing permits. A few allotments have been closed to benefit wildlife or the watershed. Established livestock trailing through the Snowcrest Range has taken place since the late 1800s. The east side has structural improvements like fencing and water developments, and a pipeline.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Two percent of the area is included in a medium value known locatable mineral deposit area. Thirty-four percent of the area has a medium phosphate potential. Twenty-three percent of the area has a moderate oil & gas potential and the remaining seventy-seven percent has a low potential.

Heritage: Native American artifacts have been discovered in the Snowcrest Range.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: Spruce budworm is present in Douglas-fir stands. Lodgepole pine stands are at risk of high mortality rates from mountain pine beetle infestations which are spreading in the general area.

Need

Ecological: Snowcrest Mountain roadless area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub and grassland communities to designated Wilderness. The IRA also contributes refuge for known wolverine wolf and grizzly bear and native fish populations.

Social: Support for recommendation comes from people who emphasize the reasons it was included in past Wilderness bills, scenic beauty and remoteness, and others who support Wilderness for all roadless areas. Others desire maintenance of existing motorized roads and motorized trails, mountain biking opportunities, and roadless characteristics but do not support Wilderness recommendation.

Suitability

Capability: Natural integrity has been affected by livestock grazing and range improvements in the foothills. There are many opportunities for solitude and challenging primitive recreation. The area is manageable as Wilderness.

Availability: There are no contractual obligations or resource needs which would limit Wilderness availability.

Need: The area would add lands and underrepresented upland shrub and grassland communities to the NWPS as well as habitat security. Wilderness recommendation for Snowcrest Mountain is divided along has strong public support and opposition.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Snowcrest Mountain 1-025	97,985	High	High	High	High

*Nonfederal lands are excluded from the acreage.

Snowcrest Mountain IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	97,630
Acres Added	0
Acres Dropped	0
GIS Acreage Recalculated	355
2007 Total	97,985

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	88%	--	89%	94%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	77%	89%	90%	77%	89%	1%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	6%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	23%	11%	10%	23%	11%	n/a
Winter Non-Motorized	41%	41%	94%	41%	98%	5%
Fisheries Key Watershed	n/a	n/a	7%	7%	7%	1%
Restoration Key Watershed	n/a	n/a	33%	--	9%	--
Tentatively Suitable Timber	33%	33%	33%	33%	33%	33%
Modeled Suitable Timber	--	--	--	--	--	--
Modeled Suitable Range	63%	63%	58%	63%	58%	58%
Moderate Oil & Gas Potential	23%	23%	23%	23%	23%	23%

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

Wilderness recommendations in Alternatives 3, 5, and 6 protect important wildlife habitat, enhances linkages to other secure areas, adds underrepresented upland shrub and grassland communities to the NWPS, and protects the IRA from the possibility of oil and gas development in the 23% of the area with moderate potential for oil and gas. Trails would be closed to mountain biking.

Non-Wilderness recommendations for this area in Alternatives 1, 2 and 4 would not positively respond to the Regional Needs Assessment or ensure long term protection of unique Wilderness

resources and secure habitat. In this planning period, Wilderness characteristics may be affected by motorized use or oil and gas development.

Winter motorized use is allowed on the west side under Alternatives 1, 2, and 4. Summer motorized use would be confined by the current travel plan to a handful of existing primitive roads which provide access for horsemen, hikers, and mountain. Twenty-three percent of the IRA with moderate potential for oil and gas development with Controlled Surface Occupancy stipulations but development potential is very low because of the road construction prohibitions of the RACR. Trails would be open to mountain biking.

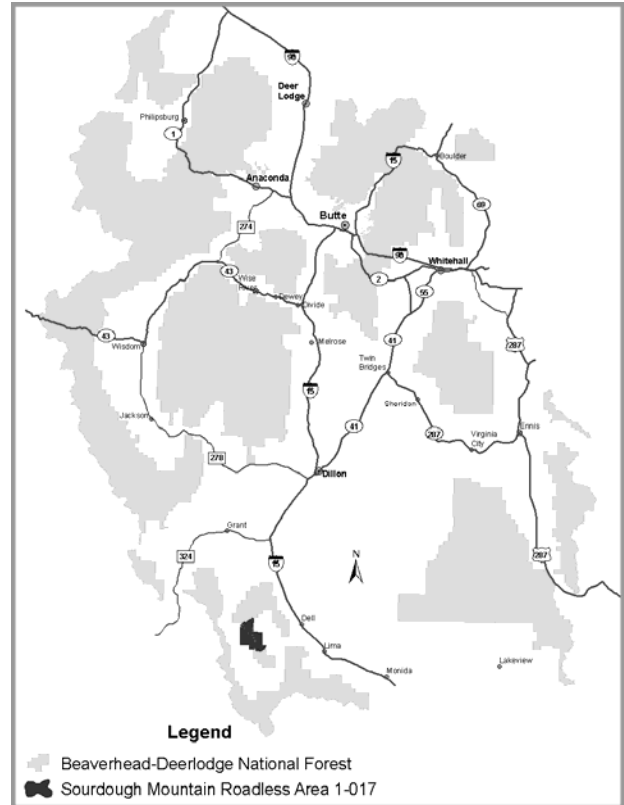
Sourdough Mountain (No. 1-017)

16,883 Acres

Description

The Sourdough Mountain roadless area is located on the western slopes of the Tendoy Mountains in Beaverhead County, Montana. Access is available on low standard roads from the BLM backcountry byway along Medicine Lodge Creek.

Elevations range from 6,500 to 9,600 feet at the summit of Sourdough Peak. The area includes mountains and foothills. The north and northeastern facing slopes are covered with Douglas-fir forests. Lodgepole pine and whitebark pine are present at higher elevations. Lower slopes are grassland and sagebrush-grasslands. Soils are mostly shallow silt loams derived from limestone.



Capability

Integrity of the Natural Environment and Scenery: Scenic integrity is high, with low standard roads visible in the otherwise natural appearing area. Natural integrity has been affected by livestock grazing and isolated patches of noxious weeds.

Opportunities for Solitude and Primitive Recreation: There are opportunities for solitude and primitive recreation; however, the area's small size and lack of diverse terrain and vegetation result in little opportunity for challenge.

Special Features: None.

Manageability and Boundaries: The area is bordered by private land on the west, BLM on the east, and forest roads on the north and south. Signing and enforcement would be very difficult unless a larger area was defined after closing roads and combining the area with adjacent BLM and Forest Service roadless areas. The area would be difficult to manage as Wilderness.

Availability

Recreation: Hunting is the only common recreational use of the area. Many types of motorized and nonmotorized transportation are used to access the area.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Wolverine denning and Canada lynx habitat has been mapped.

Water: Streams maintain biological values, channel structure, and riparian function. There are several developed springs for livestock. Increases in demand for water are unlikely.

Livestock Grazing: This area is comprised of portions of six grazing allotments. A portion of the area is vacant. There are several range developments.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Eighty-eight percent has low oil & gas potential, while the remainder has very low potential.

Heritage: The potential for prehistoric or historic cultural resources is unknown; however, known Indian use suggests that sites may exist.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: There is a moderate to high risk of mountain pine beetle infestations.

Need

Ecological: Sourdough Mountain roadless area is a part of the Beaverhead Mountains Ecological Section. The IRA would contribute underrepresented upland shrub and grassland communities and potential wolverine denning habitat to designated Wilderness.

Social: Support for recommendation for Wilderness was received from those who support Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity is affected by livestock grazing, noxious weeds, and roads. There are few opportunities for solitude, primitive recreation, or challenge. The area would be difficult to manage due to boundary locations and adjacent ownership patterns.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands and contribute underrepresented upland shrub and grassland communities to the NWPS. Wilderness recommendation for Sourdough Mountain has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Sourdough Mountain 1-017	16,883	Low	High	Moderate	Low

**Nonfederal lands are excluded from the acreage.*

Sourdough Mountain IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	14,838
Acres Added	1,955
Acres Dropped	0
GIS Acreage Recalculated	90
2007 Total	16,883

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	--	--	69%	--	61%	32%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	68%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	100%	100%	31%	100%	39%	n/a
Winter Non-Motorized	35%	35%	100%	35%	100%	100%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	32%	--	--	--
Tentatively Suitable Timber	8%	8%	8%	8%	8%	8%
Modeled Suitable Timber	--	--	--	--	--	--
Modeled Suitable Range	58%	58%	58%	58%	58%	58%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

The non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

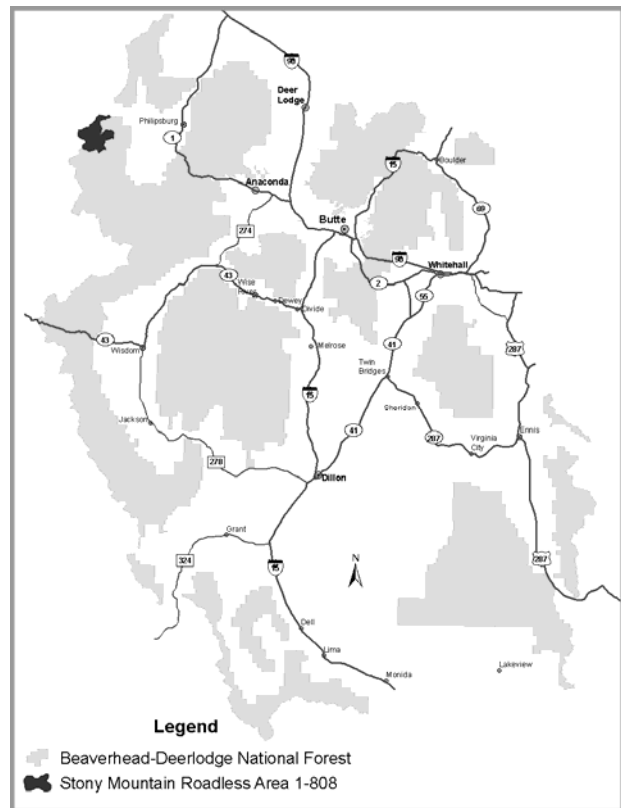
Stony Mountain (No. 1-808)

23,492 Acres

Description

The Stony Mountain Roadless Area is located in the Sapphire Mountains in Granite County, Montana. The area is contiguous with roadless area 16-808 on the Lolo National Forest and roadless area 3-808 on the Bitterroot National Forest. Access is available from the Rock Creek road and the Skalkaho highway.

Elevations range from about 5,000 feet along the boundary to 8,656 feet at Dome Mountain summit. Stony and Fuse lakes lie in cirque basins below the rocky Sapphire divide. The terrain is generally steep and highly dissected. Vegetative cover is predominantly lodgepole pine and Douglas-fir forests. Ridges are dominated by whitebark pine, and alpine larch is present. Geologic surveys indicate complex geology and soils, and numerous faults.



Capability

Integrity of the Natural Environment and Scenery: The area is natural appearing and scenic integrity is high. Natural integrity has been reduced slightly by isolated mining prospects and by isolated patches of noxious weeds.

Opportunities for Solitude and Primitive Recreation: The area offers solitude and primitive recreation. Activities are enhanced by the presence of alpine lakes and panoramic views from the ridges. Challenging hiking and climbing opportunities can be found here.

Special Features: None.

Manageability and Boundaries: The southern and eastern boundaries not follow topographic features or other identifiable boundaries. The area could be managed as Wilderness if the boundaries were adjusted.

Availability

Recreation: Hunting is the most common activity in the area. In fall most people travel by foot or on horseback. In summer motorcycle and ATV trail travel is becoming increasingly popular. The area receives heavy snowmobile use in winter.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Westslope cutthroat and bull trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function and is used for downstream irrigation. Increase demand for irrigation water is likely.

Livestock Grazing: The area contains four allotments.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Forty-four percent of the area is favorable for small vein deposits of gold, silver, and associated base metals. One percent is included in a medium value known locatable mineral deposit area. The entire area has very low oil & gas potential.

Heritage: There are ditches, a flume, and a cabin associated with placer operations in Stony Creek.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: There are 84 acres of private land along Stony Creek.

Disturbances: Mortality from bark beetles is increasing in lodgepole pine.

Need

Ecological: The Stony Mountain roadless area may contribute undisturbed habitat for wide-ranging wildlife species and native fish.

Social: Support for Wilderness recommendation was received from those who supported designation in the past or who support recommendation for all roadless areas. Recommendation is also supported by Lolo National Forest managers because they administer the adjacent IRA. Opposition is expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been slightly reduced by mining and patches of noxious weeds. There are opportunities for solitude and primitive recreation. The area could be managed as Wilderness if boundary adjustments were made.

Availability: There are no contractual obligations or resource needs which limit Wilderness suitability.

Need: The area would add land and may contribute undisturbed habitat for wildlife (wolves) and native fish to the NWPS. Wilderness recommendation for Stony Mountain has support from the public and the adjacent National Forest managers.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Stony Mountain, BDNF 1-808	23,492	Moderate	High	High	Moderate
Bitterroot N.F. 3-808	34,930	Not Rated	Not Rated	Not Rated	
Lolo N.F. 16-808	43,720	Not Rated	Not Rated	Not Rated	
Total	102,142				

**Nonfederal lands are excluded from the acreage.*

Stony Mountain IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	24,616
Acres Added	0
Acres Dropped	-299
GIS Acreage Recalculated	-825
2007 Total	23,492

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences**IRA Disposition by Alternative**

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	64%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	17%	55%	99%	55%	76%	32%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	3%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	82%	44%	1%	44%	24%	n/a
Winter Non-Motorized	4%	4%	5%	4%	5%	5%
Fisheries Key Watershed	n/a	n/a	98%	98%	98%	98%
Restoration Key Watershed	n/a	n/a	2%	--	--	--
Tentatively Suitable Timber	63%	63%	63%	63%	63%	63%
Modeled Suitable Timber	30%	--	--	--	--	--
Modeled Suitable Range	6%	6%	6%	6%	6%	6%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.*

Stony Mountain IRA is connected to large roadless areas, also recommended as Wilderness on the Lolo and Bitterroot National Forests. Even though it ranked on the high end of “moderate” for Wilderness suitability, only a portion of Stony Mountain was recommended Wilderness in

Alternative 6. Wilderness recommendation would contribute secure wildlife habitat and enhance the value and size of the adjacent recommended Wilderness.

A non-Wilderness recommendation has a low risk of reducing existing Wilderness characteristics in Stony under alternatives 3, 4, and 5. Between summer non-motorized allocations in Alternative 3, 4, and 5 and key fisheries watersheds, the area currently non-motorized will be protected from further impacts. There could be some risk of effects to Wilderness characteristics under Alternatives 1 and 2 because of suitable timber base in Alternative 1 and no key fisheries watersheds to supplement the non-motorized allocations in Alternative 2. Wilderness characteristics in the portion not recommended for Wilderness in Alternative 6 would be protected by non-motorized allocations. Winter motorized use is allowed in most of the area under all non-Wilderness alternatives.

Storm Lake (No. 1-427)

8,631 Acres

Description

Upper Storm Lake Roadless Area lies along the eastern boundary of the Anaconda-Pintler Wilderness in Deerlodge and Silverbow counties, Montana. Access is available from the Six-Mile Creek and Storm Lake roads.

Elevations range from 7,800 feet on the northern edge to 10,641 feet at the summit of Mount Evans. Landforms above treeline include rocky peaks and alpine meadows where formerly perennial snowfields are shrinking. Below treeline are stands of alpine larch, whitebark pine, subalpine fir, lodgepole pine, Douglas-fir, and Engelmann spruce. Mosaics of wet meadows and subalpine forest are found in the glacial cirque basins and small lakes.

Capability

Integrity of the Natural Environment and Scenery: The area is natural appearing, with the exception of a few historic mines and prospect holes. Scenic integrity is high. The natural integrity has been slightly reduced around Storm Lake by recreational activities.

Opportunities for Solitude and Primitive Recreation: The area offers varied terrain and vegetation, granite faces and rock chimneys, cirque lakes and streams. When considered in conjunction with the Anaconda-Pintler Wilderness, the opportunities for solitude and primitive recreation are good.

Special Features: The Continental Divide National Scenic Trail and Goat Flat Research Natural Area.

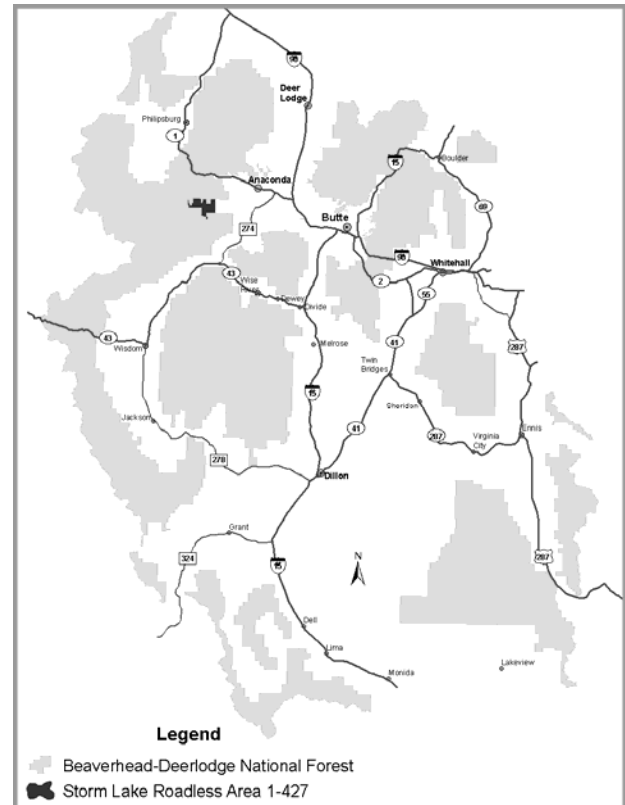
Manageability and Boundaries: The boundaries follow ownership patterns and the area is manageable as an addition to the Anaconda-Pintler Wilderness.

Availability

Recreation: The area features primitive recreation opportunities.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat and wolverine denning habitat are mapped. Westslope cutthroat and bull trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function. Water is used for downstream irrigation and increased in demand for irrigation is likely.



Livestock Grazing: None.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Thirty-two percent of the area is favorable for small vein deposits of gold, silver, and associated base metals. Eight percent has low oil & gas potential, while the remainder has very low potential.

Heritage: There are no identified historic or prehistoric sites.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: Insect and disease are present at endemic levels.

Need

Ecological: Storm Lake roadless area will contribute undisturbed habitat for wolverines and other wildlife and would also increase the size of the Anaconda-Pintler Wilderness.

Social: The area was recommended for Wilderness in previous forest plans and is supported by proponents of its scenic qualities, ruggedness, and opportunities for primitive recreation. Opposed are those who don't support more Wildernesses.

Suitability

Capability: Natural integrity has been minimally affected. There are a few opportunities for solitude and primitive recreation. The area would be manageable as an addition to the Anaconda-Pintler Wilderness.

Availability: There are no contractual obligations or resource needs which would limit Wilderness availability.

Need: The area would increase the size of the Anaconda-Pintler Wilderness and contribute undisturbed habitat for wildlife to the NWPS. Wilderness recommendation for Storm Lake has received strong public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Storm Lake 1-427	8,631	High	High	High	High

**Nonfederal lands are excluded from the acreage.*

Storm Lake IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	7,481
Acres Added	0
Acres Dropped	-914
GIS Acreage Recalculated	2,064
2007 Total	8,631

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	65%	66%	96%	--	68%	96%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	96%	98%	98%	97%	98%	3%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	--
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	4%	2%	2%	3%	2%	n/a
Winter Non-Motorized	1%	66%	85%	1%	68%	2%
Fisheries Key Watershed	n/a	n/a	63%	63%	63%	63%
Restoration Key Watershed	n/a	n/a	17%	--	17%	17%
Tentatively Suitable Timber	4%	4%	4%	4%	4%	4%
Modeled Suitable Timber	1%	--	--	--	--	--
Modeled Suitable Range	1%	1%	1%	1%	1%	1%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

Wilderness recommendations in Alternatives 3 and 6 contribute undisturbed high elevation habitat along the Continental Divide and enhance the size and protection offered by the Anaconda Pintler Wilderness. In Alternatives 1, 2, and 5 it would ensure protection over two thirds of the area.

Non-Wilderness recommendation in Alternative 4 would not positively respond to the Regional Needs Assessment, address general public support, or ensure long term protection of Wilderness characteristics. Alternatives 1, 2, 4 and 5 have a low risk of affecting Wilderness characteristics because of summer non-motorized allocations for the whole area in Alternative 4 and in areas not recommended in Alternatives 1, 2, and 5. The northwest corner is open to snowmobile use in winter under Alternatives 1, 2, and 5. The whole area would be open snowmobiling under Alternative 4.

Tash Peak (No. 1-005)

53,415 Acres

Description

Tash Peak Roadless Area is located in the Beaverhead Mountains in Beaverhead County, Montana. Several gravel and low standard roads provide access from State Highway 278 and County Highway 324.

Elevations range from 6,800 feet in Brown's Canyon to 9,800 feet at Bloody Dick Peak. A ridge of mountains forms the spine. There is grassland vegetation on the lower slopes, and lodgepole pine and subalpine fir dominate mid-elevations. Whitebark pine grows in higher elevations. Rock and sandy loams are the most common soils.

Capability

Integrity of the Natural Environment and

Scenery: The area appears mostly natural other than range improvements, and is surrounded by lands altered by timber harvest and private ranching. Natural integrity has been affected by livestock grazing and patches of noxious weeds.

Opportunities for Solitude and Primitive Recreation: Vegetative screening, broken topography, and minimal development here contribute to the few opportunities for solitude and primitive recreation. The varied terrain and high peaks offer challenging hiking.

Special Features: Brown's Creek is an eligible National Wild River.

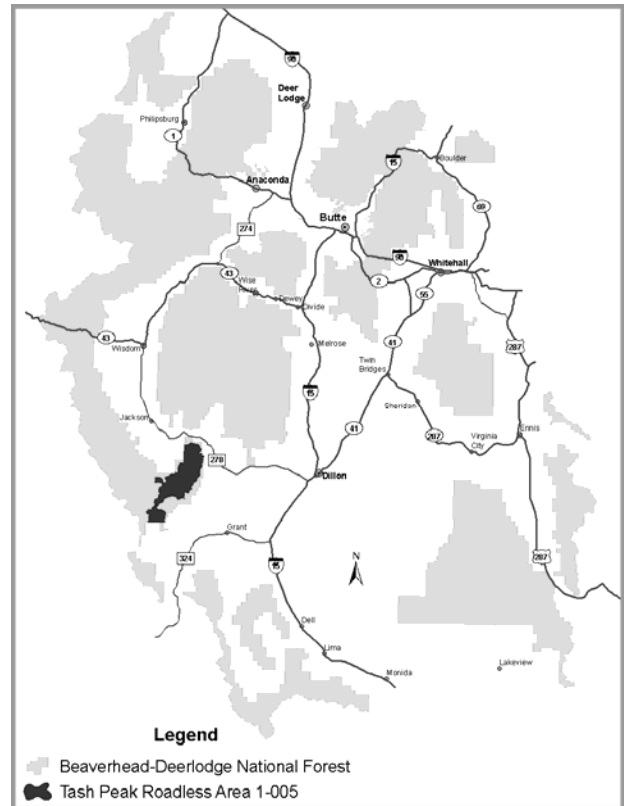
Manageability and Boundaries: The boundaries of the area are not based on physical features or administrative boundaries. Manageability would be difficult and would require extensive signage or a reduction in the area's size.

Availability

Recreation: Sightseeing, fishing, and hunting are popular activities. Summer brings motorized travel on primitive roads and trails and hiking. Winter brings snowmobiling back country skiing, and snowshoeing.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. **Wildlife:** Wolverine denning and Canada lynx habitat has been mapped. Westslope cutthroat trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function. There are several developed springs. Increases in demand for water are unlikely.



Livestock Grazing: The area has nine allotments under intensive grazing systems. Substantial range developments are present.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Twenty-four percent of the area is favorable for small vein deposits of gold, silver, and associated base metals. Less than one percent of the area is included in a medium value known locatable mineral deposit area. The entire area has very low oil & gas potential.

Heritage: The potential for prehistoric and historic resources is unknown; however, past use by Native Americans suggests sites may exist.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: There are areas of downfall due to wind and other mortality pose a high risk for fire and mountain pine beetle.

Need

Ecological: Tash Peak Roadless Area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub, grassland, riparian, and aspen communities, wolf habitat, wolverine denning, and native fish.

Social: Support for Wilderness recommendation was received from those who have support Wilderness designation for all roadless areas. Opposition comes from people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been reduced by livestock grazing and roads. There are opportunities for solitude and primitive recreation with moderate challenge; however, the area would be difficult to manage due to its boundary locations.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add land, underrepresented plant communities, and wildlife habitat to the NWPS. Wilderness recommendation for Tash Peak received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Tash Peak 1-005	53,415	Low	High	Moderate	Low

**Nonfederal lands are excluded from the acreage.*

Tash Peak IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	62,094
Acres Added	2,121
Acres Dropped	-11,450
GIS Acreage Recalculated	650
2007 Total	53,415

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	--	51%	79%	50%	53%	54%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	46%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	100%	49%	21%	50%	47%	n/a
Winter Non-Motorized	23%	23%	23%	23%	23%	23%
Fisheries Key Watershed	n/a	n/a	69%	69%	69%	53%
Restoration Key Watershed	n/a	n/a	14%	--	10%	--
Tentatively Suitable Timber	58%	58%	58%	58%	58%	58%
Modeled Suitable Timber	16%	--	--	--	--	--
Modeled Suitable Range	16%	16%	16%	16%	16%	16%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6*

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

The non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

Timber Butte (No. 1-018)

5,278 Acres

Description

The Timber Butte Roadless Area is located in the Tendoy Mountains in Beaverhead County, Montana. Access is available on low standard roads from Interstate 15.

Elevations range from 6,300 in the foothills to 9,470 at the summit of Timber Butte. North and northeastern facing mountain slopes are covered with Douglas-fir. Lodgepole pine and whitebark pine are present at higher elevations. The foothills are grassland and sagebrush-grasslands. Soils are mostly shallow silt loams derived from limestone.

Capability

Integrity of the Natural Environment and

Scenery: The area is natural appearing, other than range improvements, and scenic integrity is high.

Natural integrity is reduced slightly by livestock grazing and patches of noxious weeds.

Opportunities for Solitude and Primitive Recreation: Opportunities for solitude are available where there is screening from the valleys below. Opportunities for primitive recreation are limited by lack of size, variety, and challenge.

Special Features: None.

Manageability and Boundaries: The boundaries are roads and a forest boundary where access is difficult to control. The area would be difficult to manage as Wilderness.

Availability

Recreation: Hunting is the most common recreational use in the area. Motorized and nonmotorized travel is common in all seasons.

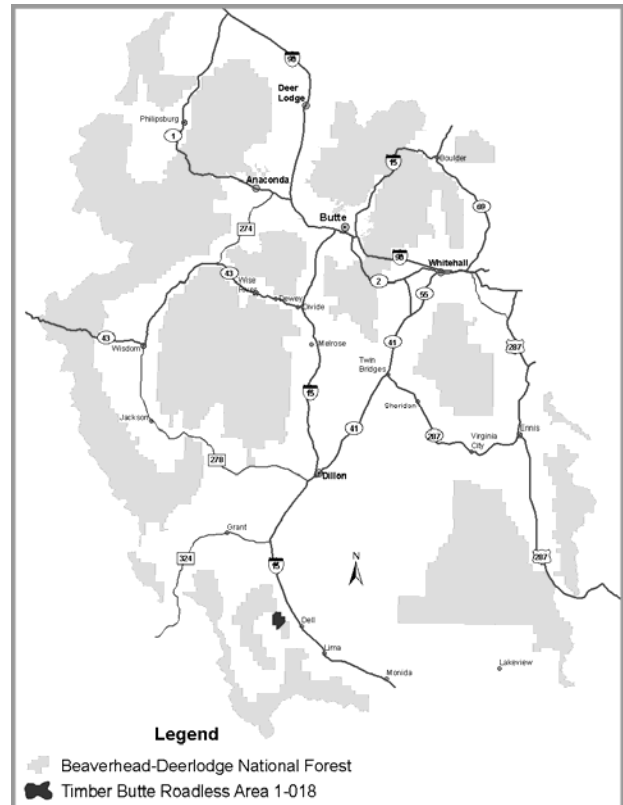
Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat and wolverine denning habitat are mapped.

Water: Streams maintain biological values, channel structure, and riparian function. There are several developed springs for livestock. Increased demand for water is unlikely.

Livestock Grazing: Grazing is limited to a portion of the area which contains three allotments.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Thirty-nine percent of the area has medium phosphate potential. Virtually all of the area has moderate oil & gas potential.



Heritage: The presence of prehistoric and historic cultural resources is unknown; however, past use by Native Americans suggests sites may exist.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: Insect and disease risk is low due to limited amount of forested area.

Need

Ecological: Timber Butte roadless area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub and grassland communities to designated Wilderness as well as potential wolverine denning habitat.

Social: Support for recommended Wilderness comes from those who have supported Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected by livestock grazing and noxious weeds. There are few opportunities for solitude and primitive recreation. The area would be difficult to manage due to boundary locations and adjacent ownership patterns.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands and contribute underrepresented upland shrub and grassland communities to the NWPS. Wilderness recommendation for Timber Lake has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Timber Butte 1-018	5,278	Low	High	Moderate	Low

**Nonfederal lands are excluded from the acreage.*

Timber Butte IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	5,018
Acres Added	0
Acres Dropped	0
GIS Acreage Recalculated	260
2007 Total	5,278

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	--	--	86%	--	86%	75%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	25%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	100%	100%	14%	100%	14%	n/a
Winter Non-Motorized	--	--	17%	--	17%	17%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	100%	--	--	--
Tentatively Suitable Timber	21%	21%	21%	21%	21%	21%
Modeled Suitable Timber	--	--	--	--	--	--
Modeled Suitable Range	51%	51%	51%	51%	51%	51%
Moderate Oil & Gas Potential	100%	100%	100%	100%	100%	100%

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

This IRA ranked low for Wilderness suitability and was not recommended for Wilderness under any alternative.

The non-Wilderness recommendation in all alternatives allows established social and economic uses and land use authorizations to continue. Use and activities allowed in each alternative have a low risk of reducing existing Wilderness characteristics.

Upper East Fork (No. 1-426)

7,980 Acres

Description

Upper East Fork Roadless Area lies along the northern boundary of the Anaconda-Pintler Wilderness in Granite County, Montana. Access is available from Dry Creek, East Fork Reservoir, Blodgett Gulch, and Meadow Creek roads.

Elevations range from 6,200 feet near East Fork Reservoir to 9,511 feet on Carpp Ridge. The terrain is diverse, and includes granitic cirque basins with tiny lakes and steep scree-filled avalanche chutes. Slopes are covered with thick lodgepole and whitebark pine trees. A few grassy parks and rock outcrops are included.

Capability

Integrity of the Natural Environment and Scenery: The area is natural appearing, with a few exceptions of historic mines and prospecting holes scattered throughout the area. Scenic integrity is high. Natural integrity has been reduced slightly by these activities.

Opportunities for Solitude and Primitive Recreation: The area offers varied terrain and vegetation as well as glacial cirques. When considered in conjunction with the Anaconda-Pintler Wilderness, the opportunities for solitude and primitive recreation are good.

Special Features: None.

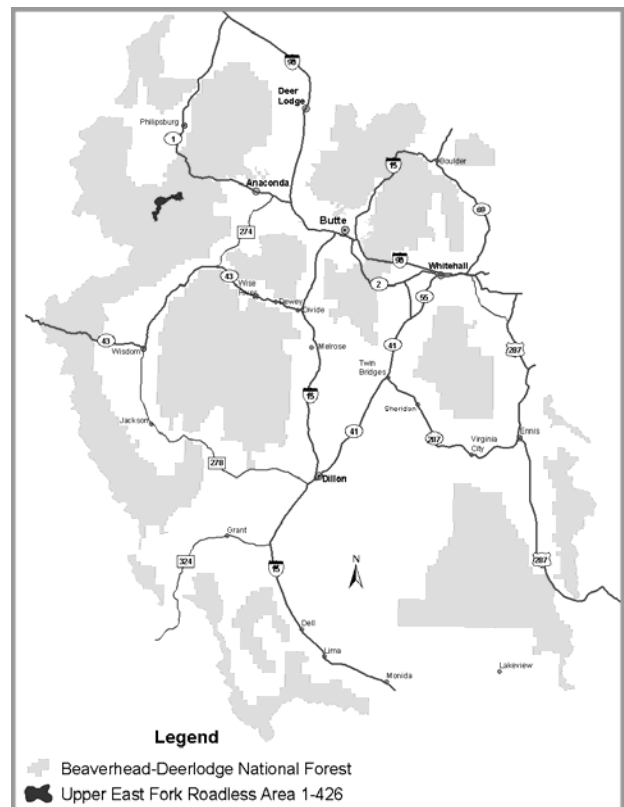
Manageability and Boundaries: The area is manageable as an addition to the Anaconda-Pintler Wilderness; most of the boundary follows roads which are easily located on the ground.

Availability

Recreation: The area is commonly used as a portal to the Anaconda-Pintler Wilderness by hikers, backpackers, and stock users. The heaviest recreational use here occurs during hunting season.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat and wolverine denning habitat are mapped. Westslope cutthroat and bull trout inhabit some stream segments.

Water: Streams maintain biological values, channel structure, and riparian function and is used for downstream irrigation during the summer. Increased demand for irrigation water is likely.



Livestock Grazing: The area contains two allotments.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Twenty-six percent of the area is included in a high value known locatable mineral deposit area and three percent is included in a medium value known locatable mineral deposit area. The entire area has low oil & gas potential.

Heritage: Survey work has not been conducted. Potential is moderate for historic logging and mining sites and low for prehistoric sites.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: None.

Disturbances: Insect and disease are present at endemic levels.

Need

Ecological: Upper East Fork roadless area may contribute undisturbed habitat for wolverine and other wildlife. The area could also increase the size of the Anaconda-Pintler Wilderness.

Social: Support for Wilderness recommendation has been received from those who support Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been minimally affected. There are a few opportunities for solitude and primitive recreation. The area would be manageable as an addition to the Anaconda-Pintler Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would increase the size of the Anaconda-Pintler Wilderness, and may contribute undisturbed habitat for wildlife to the NWPS. Wilderness recommendation for Upper East Fork has received little interest from the public.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Upper East Fork 1-426	7,980	High	High	Moderate	High

**Nonfederal lands are excluded from the acreage.*

Upper East Fork IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	7,361
Acres Added	0
Acres Dropped	-24
GIS Acreage Recalculated	643
2007 Total	7,980

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	89%	--	--	57%
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	60%	84%	92%	84%	84%	31%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	11%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	40%	16%	8%	16%	16%	n/a
Winter Non-Motorized	1%	1%	77%	1%	1%	--
Fisheries Key Watershed	n/a	n/a	53%	53%	53%	53%
Restoration Key Watershed	n/a	n/a	14%	--	--	--
Tentatively Suitable Timber	54%	54%	54%	54%	54%	54%
Modeled Suitable Timber	32%	--	--	--	--	--
Modeled Suitable Range	6%	6%	6%	6%	6%	6%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

Wilderness recommendations in Alternatives 3 and 6 contribute undisturbed high elevation habitat along the Continental Divide and enhance the size and protection offered by the Anaconda Pintler Wilderness. Alternative 6 recommends the west half and allocates most of the east half to non-motorized recreation. Alternative 6 increases assurances roads and harvest will not impact Wilderness characteristics by adding a requirement to maintain semi-primitive settings in the backcountry portion.

Alternative 1 does not recommend the area for Wilderness and risks effects to Wilderness character as only 60% is non-motorized. Not recommending the IRA for Wilderness in Alternatives 2, 4, and 5 has a low risk of reducing Wilderness characteristics through the combination of non-motorized allocations and fisheries key watersheds. However the area is open to winter non-motorized use in these alternatives.

Vigilante (No. 1-024)

15,754 Acres

Description

The Vigilante Roadless Area is located in the northwestern part of the Gravelly Range in Madison County, Montana. Access is from the Ruby River and Warm Springs roads.

The area contains a broken series of ridges, steep slopes, and benches rising to the divide between the Madison and Ruby rivers. The area is covered with sagebrush-grasslands, intermixed with forests of Douglas-fir, lodgepole pine, spruce, and whitebark pine. Wet meadows and aspen stands are included. Soils are a clay loam broken by natural slumps.

Capability

Integrity of the Natural Environment and

Scenery: The area appears natural except for fences and other range improvements; scenic integrity is high. Natural integrity has been slightly reduced by livestock grazing and noxious weeds.

Opportunities for Solitude and Primitive Recreation: The interior offers opportunities for solitude and primitive recreation through challenging terrain and vegetation. Hunting season brings a higher concentration of visitors and reduced opportunities for solitude.

Special Features: None.

Manageability and Boundaries: The boundaries are mostly on existing roads. The area could be managed as Wilderness.

Availability

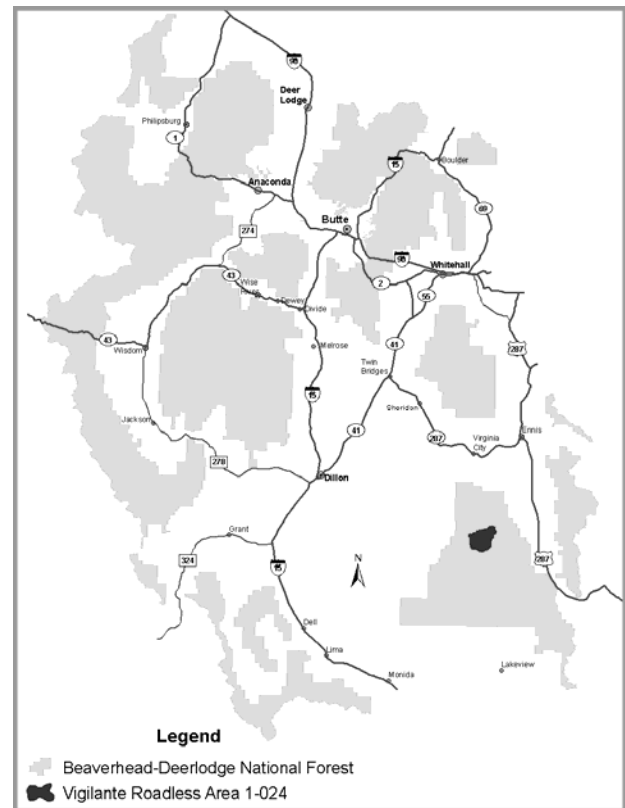
Recreation: The heaviest recreational use occurs during hunting season. In summer many visitors use the area's motorized trails for travel and recreation, while others hike or backpack.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. As a part of the Gravelly Range, the area is considered occupied by grizzly bears. Habitat for Canada lynx is mapped.

Water: Streams maintain biological values, channel structure, and riparian function and is used for downstream irrigation during the summer. Increased demand for irrigation water is likely.

Livestock Grazing: There are four allotments with several miles of fence.

Timber: There is no suitable timber base in this roadless area.



Minerals/Oil & Gas: Fifty-three percent of the area is included in a medium value known locatable mineral deposit area. The entire area has moderate oil & gas potential.

Heritage: The presence of prehistoric and historic sites is unknown.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: There are 266 acres of privately owned lands within this roadless area.

Disturbances: The area is at risk of mortality in lodgepole pine from bark beetle and spruce budworm in Douglas-fir.

Need

Ecological: Vigilante roadless area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented upland shrub and grassland communities to designated Wilderness.

Social: Support for recommendation of this area for Wilderness has been received from those who support Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to retain motorized recreation and other resource uses.

Suitability

Capability: Natural integrity has been affected slightly by livestock grazing and noxious weeds. There are opportunities for solitude and challenging primitive recreation. The area is manageable as Wilderness.

Availability: There are no contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands and contribute underrepresented upland shrub and grassland communities to the NWPS. Wilderness recommendation for Vigilante has received little public support.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Vigilante 1-024	15,754	Moderate	High	Low	Moderate

**Nonfederal lands are excluded from the acreage.*

Vigilante IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	16,458
Acres Added	0
Acres Dropped	0
GIS Acreage Recalculated	-704
2007 Total	15,754

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	--	--	--	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	45%	45%	59%	--	45%	45%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	54%
Road-based	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	54%	54%	40%	98%	54%	n/a
Winter Non-Motorized	--	--	--	--	--	--
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	--	--	--	--
Tentatively Suitable Timber	42%	42%	42%	42%	42%	42%
Modeled Suitable Timber	8%	--	--	--	--	--
Modeled Suitable Range	71%	71%	71%	71%	71%	71%
Moderate Oil & Gas Potential	100%	100%	100%	100%	100%	100%

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

This IRA ranked moderate for Wilderness suitability and was not recommended for Wilderness under any alternative.

Discounting oil and gas development, a non-Wilderness recommendation has a low risk of reducing existing Wilderness characteristics under Alternatives 3, 5 and 6. The combination of travel plan direction in Alternative 1 and summer non-motorized allocations preserve the area not currently designated motorized from change. Alternative 6 also limits expansion of motorized use by adding a requirement to maintain semi-primitive settings in the backcountry allocation portion.

Alternative 4 does not provide similar allocations and may affect Wilderness characteristics. Management in regard to grazing and backcountry motorized use without a Wilderness recommendation would continue.

The entire IRA has moderate potential for oil and gas development under a Controlled Surface Use stipulation but development potential is very low because of RACR road construction prohibitions.

West Big Hole (No. 1-943)

132,919 Acres

Description

The West Big Hole Roadless Area is located in the Bitterroot Mountains in Beaverhead County, Montana and is contiguous to the Salmon-Challis National Forest Roadless Area 13-943. Access is available from the east along the Twin Lakes, Miner Lake, Swamp Creek roads, Road 918, and numerous roads within the lower part of the roadless area.

Elevations range from about 7000 feet in the foothills to more than 10,627 at Homer Young's Peak. More than 30 percent of the area is above the tree line with little or no vegetation. Mid-elevation slopes are covered with conifers; lodgepole pine and Douglas-fir are the most common, with subalpine fir and Engelmann spruce occupying cool moist sites. Sagebrush parks and grassland meadows are also included.

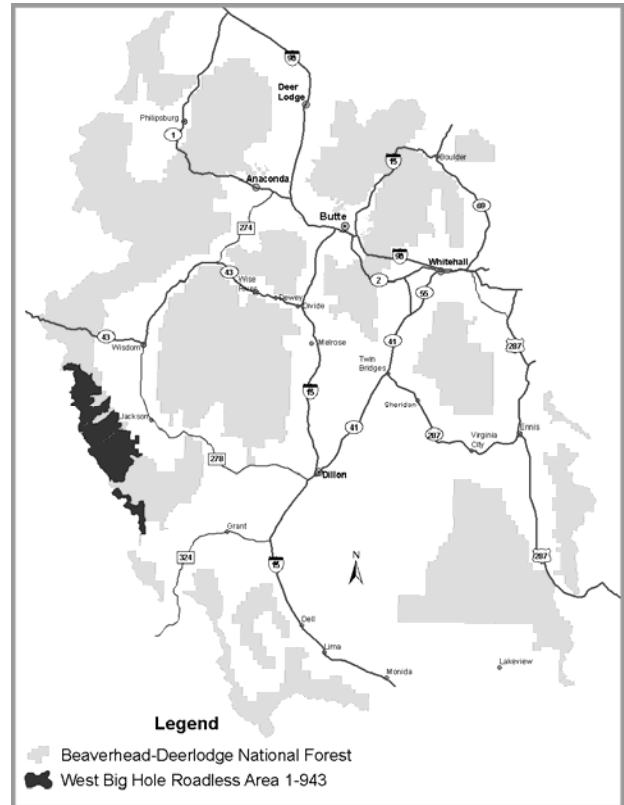
The area is one of the highest water producers on the forest, and water quality is very high. Several alpine lakes are present in basins just below the divide. Most of the lower elevation lakes are man-made. Soils on the ridges are deep loams and fine sandy loams from metamorphic rock, mainly quartzite. Soils on the glacial moraines are very stony, sandy loams.

Capability

Integrity of the Natural Environment and Scenery: The area appears natural with the exceptions of range improvements, low standard roads, and small areas of past timber harvest. Scenic Integrity is moderate to high. Natural integrity overall is high, with affects more common in lower elevations and on gentle terrain. Of note are the following disturbances:

Area 1-943A contains areas of post and pole harvest, jeep trails, and placer mining. Area 1-943B has visually evident post and pole harvest and round wood harvest in its lower elevations. Area 1-943D contains primitive jeep trails in Hamby, Pioneer, and Berry Creeks. Area 1-943C has been disturbed by exploration and mining for gold, silver, lead, and molybdenum in the Rock Creek drainage. Low standard roads are present in many parts of the area, as well as evident timber harvest. Livestock grazing is also common.

Area 1-943E is natural appearing other than the jeep trail to Jahnke Mine and the mining claims at Jahnke Lake. Area 1-943 appears natural and has high scenic integrity.



Opportunities for Solitude and Primitive Recreation: Area 1-943A is heavily forested. There is opportunity for solitude and primitive recreation for visitors who venture far enough from the sites and sounds of Ruby Creek road and nearby private lands.

Area 1-943B is heavily forested in some places. The sight and sound of other visitors are likely in much of the area due to the close proximity to the heavily used Bloody Dick Creek drainage, Lemhi Valley in Idaho, and areas with many roads.

Area 1-943C and 1-943D can provide opportunities for solitude and primitive recreation, though disturbed areas may detract from the overall experiences. Area 1-943E offers a high degree of solitude when considered with the adjacent area 1-943. Area 1-943 provides excellent opportunities for solitude. The area is large and remote.

Special Features: The Continental Divide National Scenic Trail.

Manageability and Boundaries: The eastern boundary of the whole area and internal boundaries of the units from north to south are hard to find on the ground. The integrity and historic uses in C, D, and E, and the numerous motorized routes which cross the outside boundaries would make signing and enforcement difficult. A boundary could be delineated which would be manageable.

Unit 1-943B is physically separated from the other areas. Its shape makes it difficult to manage even when combined with other roadless lands. With boundary adjustments 1-943 could be managed as Wilderness.

Availability

Recreation: Snowmobiling is common over much of the area where terrain allows this use. One constructed trail which crosses into Idaho is popular in 1-943B. Main roads in the lower area also support snowmobiling and ATV riding in winter. Cross-country skiing is also common. Big game hunting is very popular; hunters use a variety of travel modes and many people camp in the area.

Driving trail and full size vehicles on low-standard roads is common along the foothills in subunits 1-943C, 1-943D, and 1-943E for firewood gathering, hunting and fishing. Non-motorized use is common throughout, but is more likely in 1-943, 1-943A, and 1-943B.

All permanent streams contain brook trout and serve as spawning areas for the Big Hole River. Fish productivity is low in the upper reaches of all streams and medium at lower elevations. Fish species in the high mountain lakes include cutthroat, brook, and rainbow trout, and various hybrids. Twin Lakes is the only lake with fish; lake and brook trout, grayling and ling.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Canada lynx habitat and wolverine denning habitat are mapped. Westslope cutthroat trout inhabit some stream segments.

Water: All streams in this area are tributaries to the Big Hole River, and maintain instream values of stream and riparian environments. The water is used for downstream irrigation and spring developments for livestock grazing. Increased demand for irrigation water is likely.

Livestock Grazing: There are nine grazing allotments at the lower elevations with numerous fences and spring developments.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Thirty-one percent of the area is favorable for gold-silver vein deposits, which may also contain associated base metals. Five percent of the area is favorable for small vein deposits of gold, silver, and associated base metals. Thirty-six percent of the area is included in a high value known locatable mineral deposit area, and one percent is included in a medium value known locatable mineral deposit area. Twenty percent of the area has low oil & gas potential, and the remainder has very low potential.

Heritage: There are known historic resources scattered throughout the region but none have been evaluated for significance. Some old mines date back to the late 1800s and early 1900s. An old mining community at Jahnke Lake in 1-943E and 1-943 contains the historic Ajax Mill, built at the turn of the century. There are no known prehistoric sites; however, aboriginal use of the area suggests a high probability such sites are present.

Land Use Authorizations: Unit 1-943 contains a special use road to the Ajax Mine.

Non-Federal Lands: There are 2587 acres of private lands in this roadless area.

Disturbances: Mortality from bark beetles is increasing in lodgepole pine forests.

Need

Ecological: The West Big Hole is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented riparian and wet land communities to designated Wilderness. Sensitive plant species not currently protected by Wilderness designation are found here as well as denning habitat for wolverine.

Social: Various configurations have been supported for Wilderness by proponents who praise the scenic qualities, ruggedness, and opportunities for primitive recreation. There is also strong opposition to the recommendation from snowmobilers and some of the business community in Big Hole valley. Management allocation for the area remains contentious.

Suitability

Capability: Natural integrity is highest in unit 1-943. Natural integrity in the other areas has been reduced by isolated timber harvest, livestock grazing, and numerous low standard roads. There are opportunities for solitude and primitive recreation. Parts of the area could be managed as Wilderness with some boundary adjustments.

Availability: Permitted irrigations ditches are an obligation which may limit Wilderness availability.

Need: The area would add lands, and would contribute underrepresented wet land and sensitive plant communities to the NWPS as well as wolverine denning habitat. Wilderness recommendation for the West Big Hole has received strong support *and* strong opposition from the public.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
West Big Hole, BDNF 1-943	56,857	High	High	High	High
West Big Hole, BDNF 1-943A	6,755	Low	Moderate	High	Low

West Big Hole, BDNF 1-943B	14,766	Moderate	High	High	Moderate
West Big Hole, BDNF 1-943C	16,744	Moderate	Moderate	High	Moderate
West Big Hole, BDNF 1-943D	31,819	Low	Moderate	High	Low
West Big Hole, BDNF 1-943E	5,978	Low	Moderate	High	Low
Salmon-Challis N.F. 13-943	81,068	Not rated	Not rated	Not rated	Not rated
Total	213,987				

**Nonfederal lands are excluded from the acreage.*

West Big Hole IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	130,783
Acres Added	1,999
Acres Dropped	-1,086
GIS Acreage Recalculated	1,223
2007 Total	132,919

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	41%	42%	50%	--	--	--
Wilderness Study Area	--	--	--	--	--	--
Summer Non-Motorized *	37%	51%	77%	48%	63%	58%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	40%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	61%	47%	21%	50%	35%	n/a
Winter Non-Motorized	--	42%	63%	--	33%	28%
Fisheries Key Watershed	n/a	n/a	--	--	--	--
Restoration Key Watershed	n/a	n/a	1%	--	--	4%
Tentatively Suitable Timber	61%	61%	61%	61%	61%	61%
Modeled Suitable Timber	13%	--	--	--	--	--
Modeled Suitable Range	8%	8%	5%	8%	5%	5%
Moderate Oil & Gas Potential	--	--	--	--	--	--

** Summer Non-motorized includes Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are mutually exclusive in Alternative 6.*

Portions of this IRA rated “High” for Wilderness suitability (Subunit 1-943) and were recommended for Wilderness in Alternatives 1, 2, and 3. Recommendation of this subunit protects high elevation secure wildlife habitat along the Continental Divide, adds

underrepresented riparian and wetland communities to the national Wilderness system, and adds to adjacent roadless area on the Salmon National Forest.

The non-Wilderness recommendation for Subunit 1-943 in Alternatives 4, 5, and 6 and the portions excluded under Alternatives 1 and 2 does not positively respond to the Regional Needs Assessment or ensure long term protection of unique Wilderness resources and secure habitat. During this planning period, non-motorized allocations protect Wilderness characteristics in all parts but Ajax Lake Corridor. Winter motorized uses would continue in the central portion of the Subunit (Big Lake, Little Lake and Swamp Creek areas) in Alternatives 1, 2, 4, 5, and 6. This retains an area of established snowmobile use while preventing expansion into adjacent portions of the Subunit. Only Alternative 3 has no risk of effects on Wilderness characteristics.

The remaining Subunits rated “Moderate” or “Low” for Wilderness suitability. In these subunits, activities allowed by Alternatives 2-6 have a low risk of reducing existing Wilderness characteristics in this area. Between the non-motorized and backcountry allocations in Alternative 6, however, there are increased assurances that motorized use will be expanded. Alternative 6 adds a requirement to maintain semi-primitive settings in the portion allocated to backcountry. Non-Wilderness recommendations in all alternatives allow established recreation uses and land use authorizations, like the road to Ajax Mine.

West Pioneer (No. 1-006)

229,710 Acres

Description

The West Pioneer Roadless Area is located in the Pioneer Mountains in Beaverhead County, Montana. Several gravel access roads are available from the Pioneer Mountain Scenic Byway on the east, State Highway 278 on the south and west, and State Highway 37 on the north. In some areas the scenic byway is the roadless area boundary, with access available at turnouts along the road.

Elevations range from 6,500 feet in the gentle lower terrain to 9,500 feet at the peaks of Odell, Shaw, and Stine Mountain. Ten cirque lakes lie near the crest of the range. Sagebrush and mountain grasslands dominate the vegetation along the perimeter. Sedges occupy meadows and stream courses in the higher elevations.

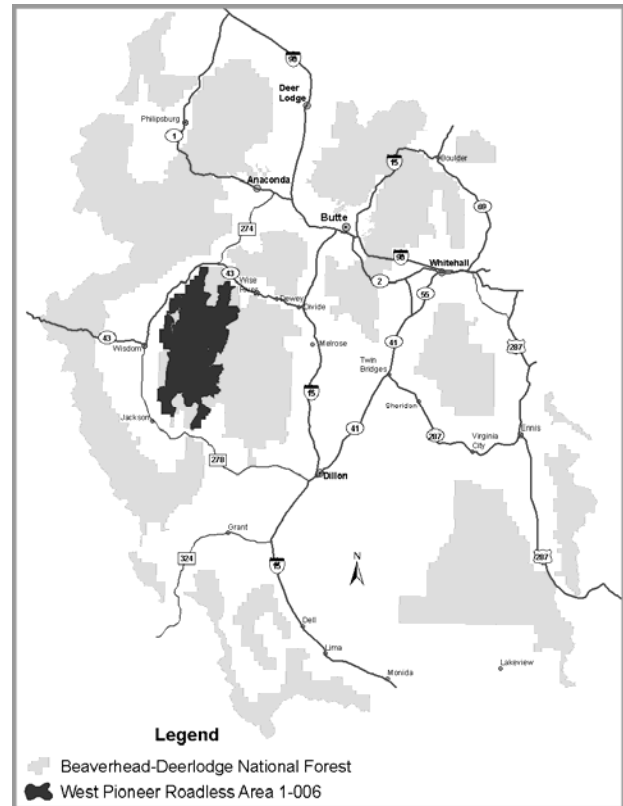
Lodgepole pine is the dominate tree species, blanketing most of the remaining area, with whitebark pine present along ridges at the tree line. A stand of alpine larch, rare east of the continental divide in Montana, is located on Stine Mountain. Soils are shallow, rocky, loamy coarse sands in the uplands; and deep, poorly-drained sands and loams in the lower stringer meadows.

Capability

Integrity of the Natural Environment and Scenery: The area is mostly natural appearing and scenic integrity is high. Natural integrity has been affected by low standard roads, livestock grazing, and isolated patches of noxious weeds. The effects of fire exclusion throughout the forest are very apparent here, with dense or old and overgrown lodgepole pine a prominent feature of the landscape. Outside of the area are timber harvest, roads, and private ranching developments. The Pioneer Mountains Scenic Byway, on the eastern edge, has several recreation developments, including campgrounds, trailheads, Elkhorn Hot Springs Resort, and Maverick Mountain Ski Area. These developments affect natural and scenic integrity on the perimeter.

Opportunities for Solitude and Primitive Recreation: Opportunities for solitude are best within the WPWSA (Area 1-006), and particularly in the southern half of the area in summer. Opportunities for solitude are less in 1-006 D, E, and F because of the sight and sounds of traffic from nearby highways and roads, including the Pioneer Mountains Scenic Byway in summer and its use as a national snowmobile trail in winter.

Opportunities for primitive recreation are highest in the southern half in summer. Highways surround the area and further reduce primitive opportunities along the edges of the roadless area.



Area 1-006 E, a narrow strip, is too close to developments and the Byway to provide solitude or primitive recreation.

Special Features: The West Pioneer Wilderness Study Area, Skull O'Dell Research Natural Area, and most of the Pioneer Loop National Recreation Trail.

Manageability and Boundaries: 1-006, the West Pioneer Wilderness Study Area, has boundaries which are difficult to locate and manage. 1-006E is close to the Pioneer Mountain Scenic Byway, and would be difficult to manage as Wilderness due to the nearness of activities or sites and sounds. Area 1-006B has an excluded area near its center. The excluded area and Doolittle road system would make managing the area difficult. Areas 1-006 A and F would be difficult to manage due to their boundary locations. A manageable area could be made within the larger area, with boundaries located on identifiable features.

Availability

Recreation: The Pioneer Loop National Recreation Trail and other trails in the northern half of the area are used by backcountry enthusiasts using motorcycles and ATVs in summer. The southern half has nonmotorized summer trails. Horseback travel, hiking, and other nonmotorized activities are common throughout the area, especially during big game hunting season. The area is used for un-crowded backcountry snowmobiling in winter.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Wolverine denning and Canada lynx habitat are mapped and sightings of both species are documented. Westslope cutthroat trout inhabit some stream segments.

Water: All streams in this area are tributary to the Big Hole River. Streams maintain biological values, channel structure, and riparian function. Water from this area is used downstream for irrigation, and is distributed by ditches. There are many developed springs for livestock use within the area. Increases in water demand for fisheries requirements or for irrigation are likely.

Livestock Grazing: There are several grazing allotments in the roadless area, including two in 1-006A, three in 1-006B, five in 1-006C, four in 1-006D, three in 1-006E, and one in 1-006.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: Ninety-four percent of the area is favorable for small vein deposits of gold, silver, and associated base metals. Forty-two percent is favorable for molybdenum deposits. Less than one percent of the area is included in a high value known locatable mineral deposit area and eight percent is included in a medium value known locatable mineral deposit area. One percent of the area has geothermal resource potential. Forty-six percent has low oil & gas potential, while the remainder has very low potential.

Heritage: The potential for prehistoric and historic cultural resources is unknown. Native American occupation in the past suggests sites may exist.

Land Use Authorizations: There are no special uses which limit Wilderness potential.

Non-Federal Lands: There are 573 acres of private lands in 1-006, 1-006B, C, and D.

Disturbances: There are infestations of spruce budworm at lower elevations and of mountain pine beetle in areas of dense lodgepole.

Need

Ecological: The West Pioneer roadless area is a part of the Beaverhead Mountains Ecological Section, and would contribute underrepresented riparian and wetland communities, and upland shrub land and grassland cover types. The area would also contribute refuge for wolves, wolverine, lynx and native fish populations.

Social: The West Pioneer Wilderness Study Area has about the same boundary as 1-006. Areas 1-006A through 1-006F are outside of the WSA. The 1979 study by the Forest Service determined the West Pioneers Wilderness Study Area was not a good candidate for Wilderness. Congressional action is required in order to designate 1-006 as Wilderness, or to release it from WSA status. Some people asked that the West Pioneers WSA be recommended. Others strongly opposed recommendation because they seek to protect existing backcountry motorized recreation.

Suitability

Capability: Natural integrity has been affected by a few roads and two track trails, grazing, and fire exclusion. The area can provide opportunities for solitude and primitive recreation, and includes the congressionally designated West Pioneer Wilderness Study Area. The existing boundaries include areas which would be difficult to manage. A new boundary could be drawn which would reduce the area's size but would be more manageable.

Availability: The area includes private lands where road access is established and there are concerns with availability. There are no other contractual obligations or resource needs which limit Wilderness availability.

Need: The area would add lands and contribute underrepresented vegetation cover types to the NWPS. Wilderness recommendation for the West Pioneers has received both strong support and strong opposition from the public.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
West Pioneer 1-006	151,092	Moderate	High	High	Moderate
West Pioneer 1-006A	12,297	Moderate	High	Moderate	Moderate
West Pioneer 1-006B	24,686	Low	Moderate	Moderate	Low
West Pioneer 1-006C	12,114	Low	High	Moderate	Low
West Pioneer 1-006D	9,553	Moderate	Moderate	Moderate	Moderate
West Pioneer 1-006E	10,603	Low	Low	Moderate	Low
West Pioneer 1-006F	9,364	Low	High	Low	Low
West Pioneer 1-006 Total	229,710				

**Nonfederal lands are excluded from the acreage.*

West Pioneer IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
1987 Total	251,864
Acres Added	1,332
Acres Dropped	-19,892
GIS Acreage Recalculated	-3,594
2007 Total	229,710

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences***IRA Disposition by Alternative***

Roadless Acres in Allocation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	1%	--	--	--	--	--
Wilderness Study Area	65%	65%	65%	65%	65%	65%
Summer Non-Motorized *	49%	46%	69%	46%	58%	13%
Backcountry Recreation	n/a	n/a	n/a	n/a	n/a	20%
Road-based	n/a	n/a	n/a	n/a	n/a	1%
Current Travel Plan Applies	51%	53%	31%	53%	42%	n/a
Winter Non-Motorized	8%	8%	15%	8%	8%	8%
Fisheries Key Watershed	n/a	n/a	10%	10%	10%	10%
Restoration Key Watershed	n/a	n/a	8%	--	1%	--
Tentatively Suitable Timber	22%	22%	22%	22%	22%	22%
Modeled Suitable Timber	9%	--	--	--	--	--
Modeled Suitable Range	9%	9%	9%	9%	9%	9%
Moderate Oil & Gas Potential	--	--	--	--	--	--

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

None of the alternatives recommends the West Pioneer Wilderness Study Area (Subunit 1-006), for Wilderness. The FEIS states under Chapter 2, “Elements Common to all Action Alternatives” that Wilderness Study Areas set aside in 1977 through the Montana Wilderness Study Act, P.L. 95-150 will be managed according to the Act and direction from Courts, regardless of alternative. Until Congress acts, the law requires the Forest Service to protect Wilderness character and allow continuation of uses in place prior to 1977. This does not prevent the Forest Service from making site specific decisions to close areas or trails in the future based on need.

Subunits outside of the WSA (A, B, C, D, E and F) ranked “Moderate” or “Low” for Wilderness suitability and are not recommended for Wilderness in any alternative. Wilderness characteristics in these units are affected by adjacent development like surrounding highways, scenic byway activities, ski area, and other private developments.

Activities allowed by Alternatives 2-6 have a low risk of reducing existing Wilderness characteristics in this area. The non-motorized and backcountry allocations in Alternative 6, however, limit expansion of motorized use. Non-Wilderness recommendations in all alternatives allow established backcountry recreation uses and grazing management activities to continue.

Whitetail (No. 1-433) Haystack (No. 1-434)

73,474 Acres

Description

Whitetail and Haystack roadless areas are located northwest and southeast of the Little Boulder River respectively in Jefferson County, Montana. Access is available on the Little Boulder and Whitetail Reservoir roads.

Elevations range from about 5,100 feet along the northeastern corner to 8,862 feet at Haystack Peak. Whitetail Reservoir occupies the center of the large basin. Marsh flora in the basin is varied, with visible differences in six inch elevation increments. Overall the vegetation is a mosaic of forest and wet meadows interspersed with grasslands.

Capability

Integrity of the Natural Environment and

Scenery: The natural appearance has been reduced by historic mining, tailing dumps, fencing, other range improvements, and heavy use by motorized recreational vehicles. Scenic integrity varies from moderate to high. Natural integrity has been affected by fluctuating water tables, and by livestock.

Opportunities for Solitude and Primitive Recreation: Solitude is possible in numerous outcrops and dense timber. Challenging cross-country skiing is available.

Special Features: None.

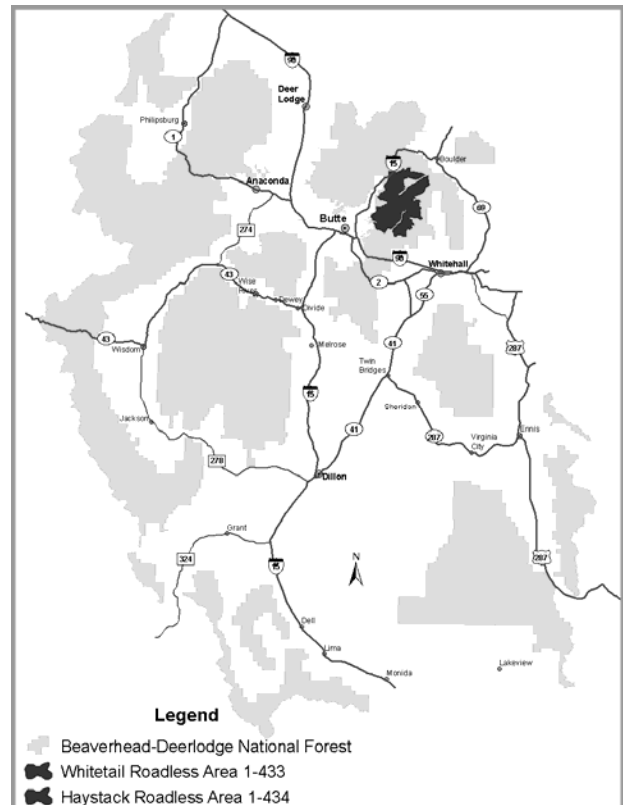
Manageability and Boundaries: The boundaries are irregular and do not follow topographic features. The areas would likely need many boundary adjustments, signing and enforcement would be very difficult to manage as Wilderness.

Availability

Recreation: The area is hugely popular for ATV use in all seasons and snowmobiling in the winter. Visitors also use it for hiking and cross-country skiing.

Wildlife: The IRA provides secure habitat for wildlife enhancing linkages and connectivity across the landscape in between GYA and forests to the west and north. Habitat for Canada lynx is mapped in both areas and wolverine denning habitat is mapped in Haystack. Westslope cutthroat trout inhabit some stream segments in both areas.

Water: Streams maintain biological values, channel structure, and riparian function and is used for downstream irrigation during the summer. Increased demand for irrigation water is likely.



Livestock Grazing: The area supports a substantial amount of grazing around Whitetail Reservoir.

Timber: There is no suitable timber base in this roadless area.

Minerals/Oil & Gas: The entire Whitetail area is favorable for small vein deposits of gold, silver, and associated base metals. Six percent is favorable for copper deposits. Sixty-four percent of the area is included in a high value known locatable mineral deposit area, and thirty percent is included in a medium value known locatable mineral deposit area. The entire area has very low oil & gas potential.

The entire Haystack area is favorable for small vein deposits of gold, silver, and associated base metals. Less than one percent of the area is included in a high value known locatable mineral deposit area, and ninety-eight percent is included in a medium value known locatable mineral deposit area. The entire area has very low oil & gas potential.

Heritage: Some surveys have been done and there are few recorded sites. There is a moderate potential for historic mining and logging sites and homesteads, and prehistoric occupation sites.

Land Use Authorizations: Whitetail dam and some irrigation ditches are permitted.

Non-Federal Lands: There are 522 acres of private lands in the Whitetail roadless area and 52 acres of private lands in the Haystack roadless area.

Disturbances: There has been a high mortality rate in lodgepole from mountain pine beetle since 2000.

Need

Ecological: These areas are a part of the Beaverhead Mountains Ecological Section, and may contribute underrepresented plant communities. The IRA would provide representation of the Boulder Batholith, a unique geologic feature not presently represented in the Wilderness Preservation System. The Whitetail Haystack area would also contribute refuge for wolverine denning, lynx and native fish populations.

Social: Support for recommendation of this area for Wilderness has been received from those who have supported Wilderness designation for all roadless areas. Opposition has been expressed by people who wish to maintain infrastructure and opportunities for motorized recreation.

Suitability

Capability: Natural integrity has been affected by mining, grazing, noxious weeds, and water impoundment. There are a few opportunities for solitude and primitive recreation. The area would need many boundary adjustments to be manageable as Wilderness.

Availability: There are contractual obligations to allow maintenance of Whitetail Reservoir. These obligations are of concern for Wilderness availability in 1-433. There are no contractual obligations or resource needs which limit Wilderness availability in 1-434.

Need: The area would add lands, may contribute underrepresented vegetative communities, and would add the unique geologic features of the Boulder Batholith to the NWPS. Wilderness recommendation for Whitetail and Haystack has received some support and strong opposition from the public.

Wilderness Evaluation Summary

IRA	Acres*	Capability	Availability	Need	Suitability
Whitetail 1-433	52,419	Moderate	Moderate	Moderate	Moderate
Haystack 1-434	21,055	Moderate	High	Moderate	Moderate
Total	73,474				

**Nonfederal lands are excluded from the acreage.*

Whitetail/Haystack IRA Changes from 1987 to 2007

Updated Acres by Map Categories	BDNF Acres Only
Whitetail 1987 Total	52,088
Haystack 1987 Total	24,512
Whitetail Acres Added	0
Haystack Acres Added	547
Whitetail Acres Dropped	-1,083
Haystack Acres Dropped	-4,605
Whitetail GIS Acreage Recalculated	1,414
Haystack GIS Acreage Recalculated	634
Whitetail 2007 Total	52,419
Haystack 2007 Total	21,085
Combined Total	73,504

Note: Recalculated acreage using GIS include changes to one or more of the following categories: land exchanges, refined mapping scales, updated acre calculation techniques, and/or mapping error corrections.

Alternatives and Environmental Consequences

IRA Disposition by Alternative

Roadless Acres in Allocation		Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Recommended Wilderness	Whitetail	--	--	--	--	--	--
	Haystack	--	--	--	--	--	--
Wilderness Study Area	Whitetail	--	--	--	--	--	--
	Haystack	--	--	--	--	--	--
Summer Non-Motorized *	Whitetail	--	75 %	89 %	69 %	74 %	82 %
	Haystack	--	72 %	83 %	72 %	72 %	65 %
Backcountry Recreation	Whitetail	n/a	n/a	n/a	n/a		17%
	Haystack	n/a	n/a	n/a	n/a	n/a	34 %
Road-based	Whitetail	n/a	n/a	n/a	n/a	n/a	1 %
	Haystack	n/a	n/a	n/a	n/a	n/a	--
Current Travel Plan Applies	Whitetail	99 %	24 %	10 %	30 %	25 %	n/a
	Haystack	99 %	27 %	16 %	27 %	27 %	n/a
Winter Non-Motorized	Whitetail	--	--	72 %	--	74 %	74 %
	Haystack	--	--	59 %	--	59 %	59 %
Fisheries Key Watershed	Whitetail	n/a	n/a	16 %	16 %	16 %	46 %
	Haystack	n/a	n/a	26 %	26 %	26 %	26 %
Restoration Key Watershed	Whitetail	n/a	n/a	18 %	--	--	5 %
	Haystack	n/a	n/a	63 %	--	23 %	34 %
Tentatively Suitable Timber	Whitetail	73 %	73 %	73 %	73 %	73 %	73 %
	Haystack	71%	71%	71%	71%	71%	71%
Modeled Suitable Timber	Whitetail	16%	--	--	--	--	--
	Haystack	14%	--	--	--	--	--
Modeled Suitable Range	Whitetail	11%	11%	11%	11%	11%	11%
	Haystack	5%	5%	5%	5%	5%	5%
Moderate Oil & Gas Potential	Whitetail	--	--	--	--	--	--
	Haystack	--	--	--	--	--	--

* Summer Non-motorized **includes** Recommended Wilderness and Some Wilderness Study Area allocations for Alternatives 1 through 5. Summer Non-motorized, Recommended Wilderness, and Wilderness Study Area allocations are **mutually exclusive** in Alternative 6.

This IRA ranked moderate for Wilderness suitability and was not recommended for Wilderness under any alternative.

A non-Wilderness recommendation under Alternative 1, prior to RACR may have affected Wilderness characteristics because it allocates 30% of the area to suitable timber base. Activities allowed by Alternatives 2-6 have a low risk of reducing existing Wilderness characteristics in this area. Alternative 3 and 6 protect the majority of the area with summer non-motorized

allocations and restoration key watersheds. Alternative 6 also limits expansion of motorized use by adding a requirement to maintain semi-primitive settings in the portion allocated to backcountry. A non-Wilderness recommendation in all alternatives except 3 allow most of the established backcountry recreation uses and management activities tied to grazing, dams and ditches and private land to continue.

APPENDIX D - REVISED

BIOLOGICAL EVALUATION OF THREATENED, ENDANGERED, AND SENSITIVE AQUATIC SPECIES

Bull trout is the only federally listed aquatic species that occurs on the BDNF. Effects from the Revised Plan are presented in a Biological Assessment, as part of the consultation process with the USFWS, required by the Endangered Species Act.

The Regional Forester identified arctic grayling, westslope cutthroat trout, northern leopard frog and western toad for Region 1 of the USDA Forest Service, as sensitive on the BDNF. Sensitive species, as defined by the Forest Service, are species known to occur on National Forests, for which population viability is a concern, as evidenced by significant current or predicted declines in population numbers or density, or significant current or predicted declines in habitat capability that would reduce a species existing distribution. These species also meet the criteria (ABI/Heritage G ranks of 1-3) suggested by Andelman et al. (2001). They recommended the ABI/Heritage rankings, because they explicitly deal with the severity, scope, and imminence of threats, and because they already exist for almost all species on Forest Service lands.

If determinations within this Biological Evaluation indicate there is no threat to viability for these species, it is assumed there should be no imminent viability threat to other aquatic species on the Forest. Habitat for other aquatic species will be adequately provided because, needs of the species analyzed, broadly encompass the primary habitat attributes necessary for persistence of other aquatic species.

This analysis considers how the Revised Forest Plan influences the primary threats to viability for the species listed above. Each threat is evaluated relative to the influence it currently has on risk and the influence it is projected to have once the Revised Plan is implemented. Expected changes in risk are then related to viability.

The Aquatic Resources Management Strategy in Preferred Alternative 6 consists of four primary elements developed to help maintain species viability across the planning unit.

- Designation of 57 fish key watersheds, allocated specifically for protection and conservation of some of the strongest WCT and Bull trout populations distributed forestwide;
- Designation of 15 restoration key watersheds to emphasize an aggressive program for aquatic restoration at watershed scales;
- Implementation of a riparian conservation strategy (INFISH modified), incorporated as a base level of protection for all aquatic resources forestwide. Modifications help clarify the intent of INFISH, facilitate consistent application, reduce conflicts with recent policy and regulation decisions, and customize resource management objectives to improve applicability to stream systems east of the continental divide and,

- Requirement for the reduction of the risk of aquatic nuisance species (ANS) introduction from new management actions.

These four elements are supplemented with additional direction for managing aquatic resources that are fundamental to broader aquatic objectives. These also will contribute to conservation of species on the Forest.

POPULATION CHARACTERISTICS IMPORTANT TO VIABILITY

Rieman et al. (1993) listed 4 primary population characteristics that are influential in a population's viability. They are: Temporal variability in recruitment or survival; Growth and Survival; Population size; and Isolation.

Temporal variability in recruitment or survival refers to annual fluctuations in population numbers. When recruitment and survival rates fluctuate broadly from year to year it often suggests a population has little ability to buffer effects of annual environmental variations. High temporal variability can result from; and be reflected in "year class failures" (Rieman et al. 1993), when spawning and reproduction, fail to supplement the population.

For many populations we don't have the data to determine if temporal variability represents a risk, so surrogate indicators are used. If a population is restricted to a small area, the survival of young individuals is more likely to reflect annual environmental differences or localized disturbances. Shepard et al. (2005) used the length of stream occupied by individual populations of WCT to display confinement and connectedness of habitat (ability to migrate) as an indicator of temporal variability risk. Loss of habitat complexity is also influences temporal variability because the habitat is less capable of buffering effects of environmental perturbations. Habitat complexity can and should be considered at the watershed and occupied reach scales.

Growth and survival is another important population characteristic. Since, determining population growth and survival rates can be cost-, or time-prohibitive, they have been described relative to habitat condition and population trend (Rieman et al. 1993, Shepard et al. 2005). Declines in growth and survival often occur because the capacity of the habitat is changing in a way that is counter-productive for the species, preventing it from supporting as many individuals. Non-native species influences (predation, hybridization and competition) can be detrimental. Also mortality to individuals from management actions (harvest), natural environmental disturbances (prolonged drought) or disease, sometimes cause problems. If growth and survival are significantly impaired, the population trend will be negative. If a negative trend is maintained over a long time frame the risk of extinction increases.

Rieman et al. (1993) considers population size separately from other population characteristics. This analysis does the same. Population size is most often controlled by the amount of habitat available and the quality of the habitat. Population size, when considered in the context of viability, often refers to the number of breeding adults in a population. If population numbers become very low, the value of each individual (and its capacity to

reproduce) increases. If reproduction and recruitment fail to compensate for mortality rates that commonly occur, extinction becomes more probable. In very small populations, there can also be genetic consequences which can threaten viability.

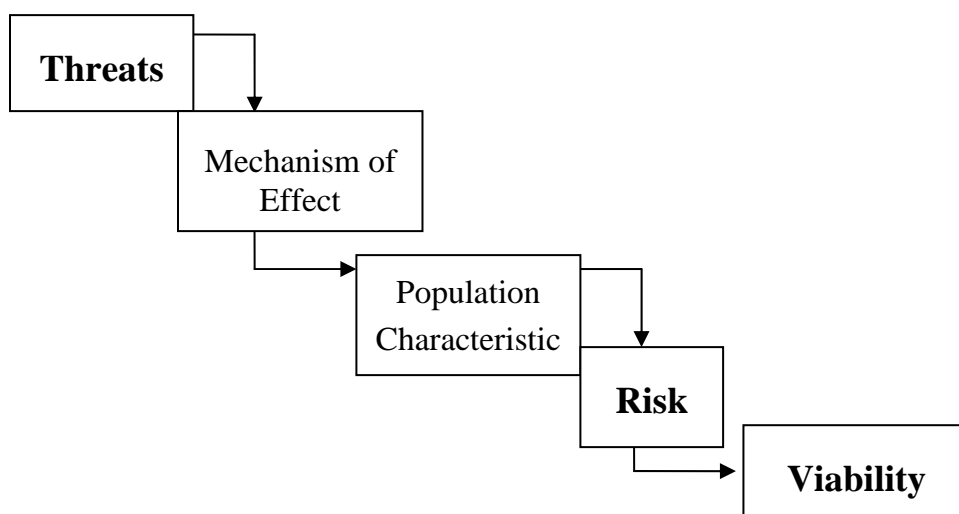
Isolation refers to a lack of capability for populations to interact and exchange individuals. It increases the risk of extinction through deleterious genetic influences or localized environmental disturbances. Connectivity, the opposite of isolation, helps maintain genetic variability through the exchange of individuals. It also allows populations that become decimated from catastrophic events to naturally reestablish themselves. Rieman et al. (1993) assessed isolation based on the proximity of neighboring populations; whether migratory corridors are available; and/or whether migratory life histories are present.

RISKS AND THREATS TO POPULATIONS

Risks are changes in the population characteristics, which could threaten a population's persistence. This biological evaluation considers the Revised Forest Plan's influence on the following risks:

- High temporal variability in recruitment and survival
- Declining population trend
- Small population size.
- Population Isolation

Threats include management actions or events that cause and/or exacerbate risks. "Mechanisms of affect" are the avenues through which threats influence risks. The diagram below displays the relationship of threats, risks, and population viability.



Determinations regarding viability in this analysis are based on the extent to which direction in preferred Alternative 6 in the Revised Plan influences risks for the species analyzed. The relationships presented in Table 1 are fundamental to this analysis because threats (i.e. management actions) tend to work through the "mechanisms of affect" to influence risk. If the Revised Plan adequately prevents significant occurrence of the "mechanisms of affect," it

is assumed requirements for viability will be met. If not, the level of risk to populations and the Forest's management contributions to those risks, will be discussed relative to maintaining viability across the planning unit.

Table 1. The relationships between population characteristics described above, mechanisms that negatively affect them, and the resulting risks.

POPULATION CHARACTERISTIC	MECHANISM OF AFFECT	RISK
Temporal Variability	Decrease in habitat complexity; Decrease in the habitat occupied	Highly Variable Recruitment or Survival
Growth and Survival	Decrease in habitat condition; mortality/loss of individuals	Declining Population Trend
Population Size	Decrease in available habitat; Decrease in habitat condition;	Depressed or Small Population Size
Isolation	Decrease in distribution; Loss of connected habitats, resulting in fragmentation	Population is Isolated

SPECIES INFORMATION

Northern Leopard Frog

Habitat Requirements of the Leopard Frog

Northern leopard frogs tend to use low elevation, permanent, slow-moving or standing water bodies with considerable vegetation, wet sedge-meadows, cattail meadows, springs, and beaver ponds in streams as habitat (Reichel & Flath 1995, Maxell 2000). They usually breed in ponds or lake edges with dense aquatic vegetation. Adults are usually found in riparian habitats or on prairies near permanent waters (summarized by Maxell 2000). Adults feed on invertebrates, but may cannibalize smaller individuals. Northern leopard frogs over-winter burrowed into lake or pond bottoms, beneath substrate in streams, or in underground crevices that do not freeze (Maxell 2000).

Life History of the Leopard Frog

Northern leopard frogs breed in April and May when rain and day-time air temperatures are in the 60's. Cooler temperatures or a lack of rain may delay breeding by a few weeks. Eggs hatch in 5 to 20 days and tadpoles metamorphose 8 -15 weeks after hatching. Sexual maturity

is reached 2 to 4 years after metamorphosis. Adults will live up to 4 years after achieving maturity (Werner et al. 2004)

Leopard Frog Status

The northern leopard frog historically ranged from Newfoundland and northern Alberta in the north to the Great Lakes region, the desert Southwest and the Great Basin in the south (Maxell 2000). In Montana they have been documented across the eastern plains and in many of the mountain valleys on both sides of the Continental Divide at elevations up to 6,000 feet. Over the last few decades the leopard frog has undergone declines across much of the western portion of their range (Stebbins & Cohen 1995 as cited by Maxell 2000). Most northern leopard frogs in western Montana disappeared in the 1970s or early 1980s. The only 2 population centers known to exist in western Montana are near Kalispell and Eureka (Maxell 2000). Its disappearance may be related to a disease such as chytrid fungus or to a combination of disease and undetermined environmental factors.

Leopard Frog Status Forestwide

The northern leopard does not currently exist on BDNF lands. The Montana Natural Heritage Program does not list any portion of the Forest as currently within its “range of distribution”. Higher elevations common to BDNF lands naturally limit this species occurrence. None-the-less, the structural components of habitats suitable for all life stages are broadly distributed forest-wide and aquatic management direction in the revised Plan should ensure riparian areas are maintained in – and restored to conditions that favor leopard frogs and other amphibian species. Thus, management on BDNF lands should not restrict expansion of this species should recent trends in populations become reversed.

First and foremost, since leopard frogs do not exist on or around BDNF lands, coupled with the fact that higher elevations common to BDNF lands - has always - and will continue to limit this species occurrence; and because habitat is currently available and in good condition, and all riparian areas will be managed for favorable conditions under the revised Plan,

My determination for the leopard frog, relative to management direction in Alternative 6 of the Revised Forest Plan is: No Impact

Western Toad

Habitat Requirements of the Western Toad

Adult boreal toads reside in a wide range of habitats including wetlands, forests, woodlands, sagebrush, meadows, and floodplains (Maxell 2000). Adults feed on a variety of ground dwelling invertebrates and are known to eat smaller individuals of their own species.

Life History of Western Toad

Breeding typically occurs from May to July in shallow areas of large and small lakes, ponds, slow moving streams, backwater channels of rivers, and roadside ditches (Black 1970a , Metter 1961; as cited by Maxell 2000).

Tadpoles metamorphose in mass in 40 to 70 days and can be found in dense aggregations of hundreds of individuals adjacent to breeding grounds upon emergence during summer (Maxell 2000). Young toads are limited in distribution and movement by available moist habitat but adults can move several miles to reach their habitats (Loeffler 1998). Adult and juvenile toads are freeze-intolerant. During winter they hibernate in subterranean chambers under-laid by flowing groundwater to prevent freezing (Campbell 1970) or in small mammal burrows below the frost line (Loeffler 1998, Maxell 2000).

Western Toad Status

The western toad, is currently recognized as two subspecies ranging from the Rocky Mountains to the Pacific Coast and from Baja Mexico to southeast Alaska and the Yukon Territory (Stebbins 1985 as cited by Maxell 2000). One subspecies, the boreal toad, is recognized in Montana.

Within the last 25 years, populations of boreal toads have undergone population crashes in Colorado, Utah, southeast Wyoming and New Mexico (Loeffler 1998). In the northern Rocky Mountains boreal toads have also undergone declines. Surveys in the late 1990s revealed they were absent from a number of areas they historically occupied. While they remain widespread across the landscape, they appear to be occupying only 5 to 10 percent or less of the suitable habitat (Maxell 2000).

Based on these findings the USFS listed the boreal toad as sensitive in all of Region 1's National Forests, and initiated a regional inventory in Montana. As a result, a systematic inventory of standing water bodies in 40 randomly chosen 6th level hydrologic unit code (HUC) watersheds was completed across western Montana during the summer of 2000. Results indicated they were widespread, but extremely rare.

Western Toad Status Forestwide

Boreal toads in the Big Hole drainage are well distributed, but rare. Similarly, boreal toads seem broadly distributed forestwide. Apparent "holes" of absence in places like the central portion of the Pioneer Mountains, are likely artifacts of limited surveys

Across 78 randomly selected watersheds, Maxell (2004b) determined frequency of occurrence of toads and their breeding habitats. Western toads likely occur in slightly more than 1/3 of the watersheds and 7% of suitable sites within watersheds. This is nearly identical to what Enriquez (2003) found in the Big Hole, where toads were found in 34% of the watersheds and 7.6% of the sites inventoried. Consistency between these data sets seems to support the results of both studies.

The survey and sample design used by Maxell (2004b) allow his data to be extrapolated across the study area. His results suggest we can be 95% certain toads are present in 178 to 329 HUCs in and around the Forest. We also expect they inhabit between 411 and 675 lentic sites (of an estimated total of 7766 locations with suitable habitat) across the study area.

Risks and Threats to Western Toad

The ratings of risk for western toad on the BDNF suggest the species has probably undergone significant decline. Maxell (2004b) stated western toad was widespread but rare in and around the BDNF. This species probably exhibits highly variable recruitment and survival, depressed population levels, which also may be declining (Table 2).

Table 2 Risk ratings and the reasoning behind them for western toad (WT) on the BDNF.

RISK	RISK RATING FOR WT ON BDNF	REASONS FOR RISK RATING
Highly Variable Recruitment or Survival	High	Although toads are fairly broadly distributed, they were detected in only 7% of the lentic sites surveyed in southwestern Montana; and breeding in only 4%. This situation lends itself to reasonably high potential for strong fluctuations in recruitment and the potential for year-class failures
Declining Trend in Population	High?	While habitats are not as abundant as they once were, due to irrigation diversions and other actions, Maxell (2004b) found over 90% of the available habitat was not being used. This indicates that populations are probably depressed. Based on downward trends in other western states, it seems likely toad populations are probably declining
Depressed or Small Population Size	High	The incidence of habitat use indicates populations are depressed.
Population is Isolated	Moderate	While studies have shown that toads can and do move a fair distance, the low percentage of breeding habitats used suggests at least some populations are probably isolated

Revised Forest Plan Influence on Risks and Threats to Western Toad

The Aquatic Resources Management Strategy in the Preferred Alternative consists of 3 primary elements that should help western toad persist across the planning unit:

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- 1) **Standard 2:** Evaluate the risks of aquatic nuisance /exotic species introduction as part of project analysis (Scale – Project area).
- 2) **Standard 5:** New activities within known sensitive amphibian breeding sites and natal areas during breeding and juvenile rearing periods will not cause a threat to viability or a trend toward federal listing (Scale - Breeding sites and natal areas identified at the project level). Effects from ongoing activities, including livestock grazing and recreation and travel management are addressed in Table 3 below.
- 3) **Standard 24:** Chemical pesticides and toxicants will be applied in a manner consistent with desired stream function and avoids adverse biological effects.
- 4) **Other mitigations** designed for aquatic species protection when doing herbicide treatments were established in the Beaverhead-Deerlodge National Forest Noxious Weed Control FEIS and Record of Decision (2002). These continue to be requirements. Some of mitigations in the FEIS are as follows:
 - A) Herbicides will not be applied to open water. Mitigation will apply on sites where leaching to ground water is possible. See decision table on page 2-4. Manual, Biological or Cultural methods will be employed where herbicide use is inappropriate.
 - B) Aerial application will maintain a 300-foot buffer from open water in response to concerns about amphibians Field inspectors will provide on-site monitoring for drift and label compliance.
 - C) All herbicide storage, mixing, and post-application equipment cleaning is completed in such a manner as to prevent the potential contamination of any Riparian Habitat Conservation Area, perennial or intermittent waterway, unprotected ephemeral waterway, or wetland.
 - D) Herbicide applicators shall carry spill containment equipment, be familiar with and carry an Herbicide Emergency Spill Plan.
 - E) When ground application of appropriate herbicide is immediately adjacent to a water body, surveys of the treatment area will be required. If leopard frogs; mature adult western toads or concentrations of recently metamorphosed immature adult western toads are identified, the extent of distribution within the proposed treatment area will be marked on the ground and reported to the district fisheries biologist and weed coordinator and within 2 days. If treatment is not possible without directly spraying individuals then hand pulling or wick application could be applied. Otherwise, ground application of herbicides within the marked area will be delayed until individuals disperse,

- 5) Implementation of a riparian conservation strategy (INFISH modified) for all streams forestwide. Modifications to INFISH were done to help clarify its intent, facilitate consistency in its application, reduce conflicts with recent policy and regulation decisions, and customize resource management objectives to improve its applicability to stream systems east of the continental divide

These 5 elements are supplemented with additional direction fundamental to other aquatic objectives, which will also contribute to conservation of western toad on the Forest. These include designation of 57 fish key watersheds forestwide; and designation of 15 restoration key watersheds, to emphasize aquatic restoration at the watershed scale.

Table 3 displays management direction present in preferred Alternative 6 and its effectiveness in mitigating land management actions on the BDNF. Mortality to individuals is possible with vegetation and timber management, appropriate management response (wildfire), recreation and travel management, fire management, livestock grazing, oil and gas, and from non-native aquatic species. Each planned management activity could cause limited loss. Wildfire effects are more difficult to predict, however it is presumed in most instances, toads have natural tendencies and abilities to limit direct effects from wildfire.

Table 3 Provides an evaluation of preferred Alternative 6's effectiveness in mitigating BDNF's land management actions (threats) on western toad; and the estimated level of impact to the species.

MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATIONS IN ALTERNATIVE 6	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
Vegetation and Timber Management	Sedimentation; Loss of stream-side vegetation; loss of woody debris on the ground that makes hiding cover and shade; potential mortality to individuals from equipment and/or vehicles	Riparian Management Objectives The RMOs in the Revised Plan apply by stream reach until new RMOs are developed through watershed or other site specific analysis, Standard #1 Any activity in RCAs shall be designed to enhance, restore, or maintain the physical and biological characteristics of the RCA Standard #5: New activities within known sensitive amphibian breeding sites and natal areas during breeding and juvenile rearing periods will not cause a threat to viability or a trend toward federal listing; Standard # 25: Project related storage of fuels and toxicants within Riparian Conservation Areas is prohibited. Standard #26; Fuel-wood cutting and salvage in RCAs will not prevent or retard attainment of desired stream function Standard #27; Vegetation and/or fuel management prescriptions in RCAs will be for the purpose of restoring, enhancing, or protecting	No measurable sedimentation or loss of stream side vegetation if it is determined to be detrimental. Possible mortality to individuals. Incidences should be rare and mortality rates should not be substantial because actions will be occurring outside riparian areas in most cases and will not be in a location where individuals are concentrated. If activity is in riparian the risks for high levels mortality will be mitigated by adjusting the timing of the management action.

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MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATIONS IN ALTERNATIVE 6	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
		the physical and biological characteristics of the RCA	
Wildlife Habitat Management	Maybe some benefit through reductions in roads	None	Benefit; but probably not measurable
Appropriate Management Response (Fire)	In any wildfire there is a risk of mortality to individuals	None , but opportunity to provide input into development of Fire Management Plan	Possible loss of individuals. Presume amphibians have natural escape mechanisms that typically prevent catastrophic level mortalities from most natural disturbances.
Recreation and Travel Management	Introduction of ANS; degradation of habitat through sedimentation; Mortality to individuals from impacts to motorized vehicles (road kill)	Objective: RMOs guide management actions to achieve quantitative objectives; Objective: Road drainage: Reconstruct road and drainage features that are proven less effective than designed for controlling sediment delivery, or retard attainment of desired stream function, or increase sedimentation in Fish or Restoration Key Watersheds Objective Roads: Close and stabilize or obliterate and stabilize roads not needed for future management activities Objective Recreation sites: Recreation sites are adjusted if not meeting desired conditions; Standard #1 New activities in RCAs maintain or improve the physical and biological characteristics; Standard #2; Evaluate risks of ANS introduction as part of project analysis; Standard #18: Where no alternative to placing facilities exists outside RCA avoid impacts to RCA and Negative effects on fish. Standard #19; Solid and sanitary waste facilities in RCAs are prohibited; Standard #23: Terminate recreation activities that cannot be adjusted to be consistent with achieving desired stream	Reduced risk of ANS introduction, but no way to completely remove risk. Mortality to individuals will occur from impacts with vehicles. It has been documented on the Forest but only at very low incidences, except at one location near a breeding site. An amphibian crossing is expected to be installed there in FY2009. Other site specific issues will be dealt with as we become aware of them.. Sedimentation will continue to occur with some impact to habitat, but probably not to a substantial effect on the species.

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MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATIONS IN ALTERNATIVE 6	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
		function. Standard #28; Complete evaluations of ongoing activities in Fish key watersheds. Those inconsistent with goals and objectives will be identified within 3 years and timeframes for implementation of mitigation will be identified.	
Fire Management	Prescribed burns in areas being colonized by conifers could result in mortality to individuals; sedimentation and an increase in water temperature.	Standard #11 Any activity in RCAs shall be designed to enhance, restore, or maintain the physical and biological characteristics of the RCA	Mortality may occur to individuals outside of RCA, but at levels that are unlikely to substantially influence population viability, because they disperse as they migrate away from breeding sites
Livestock Grazing	alteration and degradation of habitat Potential to kill large numbers of juveniles through trampling;	Standard #1 Any activity in RCAs shall be designed to enhance, restore, or maintain the physical and biological characteristics of the RCA; Standard 14: Grazing practices that prevent attainment of desired stream function, or are likely to adversely affect threatened or endangered species, or adversely impact sensitive species, are modified to attain desired stream function or population objectives; Standard 15: Locate new livestock handling and/or management facilities outside of Riparian Conservation Areas. Standard 16: Limit livestock trailing, bedding, watering, salting, loading, and other handling efforts to those areas and times that would not retard or prevent attainment of desired stream function or adversely affect native fish and sensitive aquatic species	Maxell (2004) identified lentic sites (lakes, ponds and wetlands) that appear to have been sufficiently altered by livestock grazing to negatively impact amphibians. The frequency that this is occurring within the analysis area, under existing grazing management, appears to average about 3% of the available sites; Observations suggest toads often seek areas of disturbance, indicating some level of grazing disturbance is probably preferred, so long as it isn't excessive enough to alter water tables or important vegetative characteristics. A "managed level of disturbance" achieved through livestock grazing may be desirable Mortality to toads may occur, but should not happen on a substantial scale. When concentrations of individuals are identified to be at risk, effects will be mitigated in accordance with standards 14 and 16.

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MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATIONS IN ALTERNATIVE 6	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
Oil and Gas Leasing	Potential sedimentation; potential mortality to individuals from vehicles	CSU stipulations across most of the Forest; NSO stipulations in fish key watersheds.	Limited amount of sedimentation, probably un-measurable; Some mortality to individuals, but this should largely be incidental.
Non-Native Influence	Exclusion from certain habitats; predation on larvae	None Other Considerations: There are fish removal projects occurring forestwide at a limited scale	Impacts to toads from non-native fish will continue at a rate that is occurring today
Aquatic Resource Management	Improvement in habitat through watershed improvement projects	None - Beneficial	Habitat conditions will improve for some populations, due to the Aquatic focus on restoration.

Table 4. An assessment of the effects of BDNF land management actions on western toad, after implementing mitigations in preferred Alternative 6. Listed are the scope and duration of effects and whether they are likely to contribute to species risks or to population level extinction.

MANAGEMENT ACTION OR THREAT	ESTIMATED SCOPE OF EFFECT	ESTIMATED DURATION OF EFFECT	DETERMINATION AS TO WHETHER ACTION CONTRIBUTES TO RISKS OR TO POPULATION LEVEL EXTINCTION
Vegetation and Timber Management	Scope be across several populations but limited in its effects. These management actions could have minor influences on upland habitat or to a limited number of individuals in different populations forestwide.	Sedimentation or loss of habitat is negligible. Mortality to individuals will be limited, but could occur throughout the planning period, thus will probably be for 2 to 3 generations.	The risks to western toad are high for all 4 of the risks evaluated in this analysis. Loss of individuals could be significant if it occurs to a large number of members of a single population. The management direction in Alternative 6, protects against this by strongly limiting management in riparian areas, where toads concentrate. When they disperse, there is low likelihood that management projects would cause mortality to a substantial number of individuals. For this reason there should be: No substantial contribution to risks or to population level extinctions.
Wildlife Habitat Management	May have a positive effect on boreal toads through closing roads. Scope of effect is limited; 0-5 populations. Since the number of closures are relatively few and populations are so dispersed there is a relatively low likelihood that a large number of populations will be affected.	Long term 10 – 40 years	Effects are beneficial No substantial contribution to risks or to population level extinctions.
Appropriate Management Response (Fire)	Scope is limited, possibly mortalities to individuals from 5-10 populations because populations are not abundant and are scattered forestwide. Mortality to individuals should be limited, but wild fire could have substantial impacts on a population if individuals are congregated in a riparian area. It is likely the stream or	In most instances 1 generation. If a large part of a population is lost, the effects could ripple through 2-3 generations.	It is most likely that a few individuals from populations will be lost because there are probably opportunities for escape into water-bodies or burrows. There is some potential for a large portion of a population to be lost if they were congregated around a breeding site. This seems as though it would be a very rare occurrence. In general, appropriate management response should not increase risk or the potential for population level extinction.

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MANAGEMENT ACTION OR THREAT	ESTIMATED SCOPE OF EFFECT	ESTIMATED DURATION OF EFFECT	DETERMINATION AS TO WHETHER ACTION CONTRIBUTES TO RISKS OR TO POPULATION LEVEL EXTINCTION
	pond could provide escape from the fire in many instances.,		
Recreation and Travel Management	Scope of effect is limited, occasional individuals from a population.	In most instances 1 generation	Traffic rates on most roads in the BDNF are very light relative to areas where substantial mortalities can occur from road-kill. We estimate the average rate of traffic on roads forestwide is less than 10 vehicles per day. On one of our most heavily used Level 3 roads on the Forest the average use during July was about 7 cars per hour. Many of the studies that talk about significant levels of road kill are from heavily populated areas and on paved roads. Does not contribute substantially to risk and to population level extinction
Fire Management	Very limited scope; effects should be discountable	NA	Does not contribute substantially to risk and to population level extinction
Livestock Grazing	Degradation of habitat; Scope is limited 3% of available habitats. Mortality of individuals	Habitat effects 5-15 years Mortality effects 1 -2 generations	Habitat effects are limited enough as to not substantially increase risk. Mortality to individuals is addressed through standard 14 and 16 and can be addressed rather easily, by using temporary or permanent fence. Livestock grazing should not contribute substantially to risk or to population level extinctions.
Oil and Gas Leasing	Scope is very limited, probably unlikely to occur where grayling persist	Mortality to individuals 1 generation	Effects on habitat are insignificant. Mortality to individuals will be largely incidental. Does not contribute to risk and to population level extinction
Non-Native Influence	Scope is limited to the Ruby River drainage. Some competition for space may be occurring, but hasn't been documented.	Could be rather long term > 40 years	Impacts will continue at current rate. It is unknown whether it contributes to risk. We do not manage non-native species.
Aquatic Resource Management	There are fair opportunities for watershed improvements and available funds associated with the TMDL program. The	Long term > 40 years	Effect is beneficial.

MANAGEMENT ACTION OR THREAT	ESTIMATED SCOPE OF EFFECT	ESTIMATED DURATION OF EFFECT	DETERMINATION AS TO WHETHER ACTION CONTRIBUTES TO RISKS OR TO POPULATION LEVEL EXTINCTION
	scope of effect is probably moderate		

Effects on sensitive amphibians from herbicide application are addressed in the Biological Evaluation in Appendix M of the Beaverhead-Deerlodge National Forest Noxious Weed Control FEIS and Record of Decision (2002).

Western Toad Viability Conclusions

Table 4 provides determinations regarding effects of Forest management actions on western toad, under the direction of preferred Alternative 6. No actions appeared likely to substantially contribute to risks or to population level extinctions, even though most had some probability of causing mortality to individuals.

This may seem odd in the face of the high risk ratings given toads (Table 2). However, the favorable determinations for toads were primarily based on 4 premises: First, there is substantial guidance in the Revised Plan that limits management actions in riparian areas; the areas where toads tend to congregate and actions could affect toads in larger numbers. Second, while it seems plausible mortality to individuals will occur, it will likely happen sporadically and at very low levels. Since toads are sparsely distributed across the Forest, there is a low likelihood management projects would occur in the same space and time that toads are present. Third, if occasional mortalities occur, it is likely that a very few individuals would be lost, since they would be in uplands where the toads tend not to be congregated in high densities; and fourth, spatial and temporal distribution of most new management actions that can cause direct mortality (like equipment related mortality from timber sales), coupled with toads ability to move away from areas with a lot of activity, lead me to believe there is low likelihood substantial mortality would occur within single populations.

Based on the determinations provided in Table 4, my determination for western toad relative to management direction in Alternative 6 of the Revised Forest Plan is:

May impact individuals, but will not likely contribute to a trend towards federal listing or reduced viability for the species;

Fluvial Arctic Grayling

Due to this decline, the Service was petitioned in 1991 to list the fluvial Arctic grayling under the Endangered Species Act. In 1994 the Service determined that listing the grayling of the upper Missouri River was "warranted but precluded." From 1994 to 2004 the fluvial Arctic grayling of the upper Missouri River remained a candidate species with a listing priority of 9, indicating threats were moderate-to-low in magnitude and imminent. In May 2004, the listing priority was upgraded to 3, indicating threats were of high magnitude and imminent. During 2003 to 2005, the Service was involved in litigation with the Center for Biological Diversity and the Western Watershed Project over the continuing "warranted but

precluded" determination. The Service settled a lawsuit over the legal status of the grayling on August 9, 2005, and agreed to make a final listing determination by April 16, 2007.

Montana Fish, Wildlife and Parks received an enhancement of survival permit under the Service's Candidate Conservation Agreement with Assurances (CCAA) program to conserve and enhance the grayling in the upper Big Hole River. The Natural Resources Conservation Service and Montana Department of Natural Resources are also signatories to the CCAA

Habitat Requirements Grayling

Fluvial grayling in the Big Hole River tend to be found where the gradient approaches 3%. They spend most of their time in pools and have been found to have greatest densities where pools are the most abundant. Pools appear to be especially important as over-winter habitat. Areas with low current velocity appear to be important for young fry (Kaya 1990).

Life History of Grayling

Spawning in the Big Hole River occurs in late April. Although there has only been limited reproduction in the Ruby, biologists estimate it is probably occurring around the middle of April. Ruby river fry have probably emerged by 1st of June (Magee 2007, Personal Communication).

Arctic grayling rarely live beyond five years in the Big Hole River. Fast growth rates and short life spans result in combination of spawning by fish aged 3 and 4 years. Thus, poor recruitment in a given year may substantially affect recruitment to the population for several years (AFS 2007).

Grayling Status and Distribution

Arctic grayling are native to drainages of the Arctic Ocean, Hudson Bay and northern Pacific Ocean in North America and Asia. Two distinct populations historically inhabited waters in Michigan and Montana. The Michigan population is now extinct. The *fluvial* (river-dwelling) arctic grayling population which was widespread in the Missouri River basin above Great Falls, Montana has declined significantly in range and abundance. The remaining confirmed, viable population resides in the Big Hole River, upstream from Divide, representing 4% of grayling's native, historic range

Grayling Status and Distribution Forestwide

Because grayling require long reaches of uninterrupted stream course and are usually found in streams larger than head-water tributaries common to the BDNF, suitable habitat primarily occurs downstream of the Forest Boundary. Where this is so, the benefit of BDNF management occurs when cold, clean water from our streams supplements flows in the larger streams below.

Grayling currently occupy about 550 stream miles within the BDNF analysis area. Most of these miles (430) are off forest in the Big Hole River drainage and are focused in the Big Hole River. Although fluvial Arctic grayling inhabit the entire Big Hole, highest densities

occur in the Wisdom vicinity. The majority of spawning occurs near Wisdom in the mainstem and several tributaries. Fluvial Arctic grayling are reared in the vicinity where they hatched, thus, the Wisdom area provides the majority of rearing habitat as well.

About 55 of the 80 stream miles where grayling are present on NF lands consist of short segments of streams extending a short distance above the Forest boundary and are typically occupied intermittently. About twenty five of the stream miles are in the Upper Ruby River drainage, where Montana Fish, Wildlife and Parks has been trying to reestablish a self-sustaining wild population through re-introductions. The Ruby River, then, probably constitutes the most significant habitat on BDNF lands relative to grayling conservation and restoration.

VIABILITY ANALYSIS for GRAYLING

Risks and Threats

The risk ratings for grayling on the BDNF are consistent with a species that remains in only a small portion of its range in Montana. This species exhibits highly variable recruitment and survival, depressed population levels, which have been declining (Table 5). The Big Hole and Ruby Populations are isolated from each other, but have substantial lengths of river, they can move within. This is in contrast to isolated WCT populations, which often tend to be restricted in stream of only a couple of miles.

Table 5. Risk ratings and the reasoning behind them for grayling in the analysis area.

RISK	RISK RATING FOR GRAYLING ON BDNF	REASONS FOR RISK RATING
Highly Variable Recruitment or Survival	High	MFWP data on the Big Hole indicates recruitment and survival are strongly influenced by reduced summer flows, which have been common over the last 15 years
Declining Trend in Population	High	Documented by MFWP
Depressed or Small Population Size	High	Documented by MFWP
Population is Isolated	High	Restricted to Upper Big Hole and Upper Ruby Drainages

Revised Forest Plan Influences on Risks and Threats to Grayling

The Aquatic Resources Management Strategy in the Preferred Alternative, consists of 2 primary elements that should help maintain grayling viability across the planning unit:

- Implementation of a riparian conservation strategy (INFISH modified) for all streams forestwide. Modifications to INFISH were done to help clarify its intent, facilitate

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consistency in its application, reduce conflicts with recent policy and regulation decisions, and customize resource management objectives to improve its applicability to stream systems east of the continental divide

- A requirement designed to reduce the risk of aquatic nuisance species (ANS) introductions from new management actions.

These elements are supplemented with additional direction fundamental to other aquatic objectives, which will also contribute to conservation of sensitive species on the Forest.

Table 6 displays management direction present in preferred Alternative 6 and its effectiveness in mitigating land management actions on the BDNF with regard to grayling. The most likely occurrences for management impacts on grayling would be in the Ruby River drainage. In most of the other stream miles where grayling occur on the Forest, they are only intermittently or seasonally present. For that reason this analysis primarily focuses on likely effects of management on the Ruby's reintroduced population.

Recreation and travel management, and livestock grazing are the management actions with the greatest potential to impact grayling. Based on mitigations in preferred alternative 6, both actions are likely to cause or maintain some level of habitat degradation; however they probably won't be limiting grayling. This is primarily because the primary limitations in the Ruby drainage are related to natural geologic instability in the watershed. The bed-load derived from common hill-slope failures exceeds the capacity of the system to transport it. This promotes substantial channel instability and instream habitats that are limited in quality. The 2 most fundamental limitations for grayling are the availability of pools and the availability of spawning habitat (Jim Magee MFWP, personal communication) Thus, natural processes in the system are essentially de-emphasizing the significance of some of our land management effects.

Grayling Viability Conclusions

Table 7 below provides determinations regarding effects of Forest management actions on grayling, under the direction of preferred Alternative 6. The determinations were based on the estimated scope and effect of management actions on grayling.

No actions appeared likely to contribute to risks or to population level extinctions. Even though recreation and travel and grazing had the potential to have an influence on risk, the magnitude of influence natural processes are having on habitat conditions in the Ruby drainage, the significance of management influence estimated to occur on grayling, even from a cumulative standpoint, is likely discountable.

Based on the determinations provided in Table 7, my determination for western toad relative to management direction in Alternative 6 of the Revised Forest Plan is:

May impact individuals, but will not likely contribute to a trend towards federal listing or reduced viability for the species.

Table 6 Provides an evaluation of preferred Alternative 6's effectiveness in mitigating BDNF's land management actions (threats) on grayling; and the estimated level of impact to the species

MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATIONS IN ALTERNATIVE 6	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
Vegetation and Timber Management	Decrease in habitat complexity through sedimentation and loss of large woody debris; decrease in habitat quality through change in water temperatures; sedimentation and loss of large woody debris and potential change in hydrograph; possibility of fuel spills	Riparian Management Objectives The RMOs in the Revised Plan apply by stream reach until new RMOs are developed through watershed or other site specific analysis, Standard #1 Any activity in RCAs shall be designed to enhance, restore, or maintain the physical and biological characteristics of the RCA; Standard # 25: Project related storage of fuels and toxicants within Riparian Conservation Areas is prohibited. Standard #26; Fuel-wood cutting and salvage in RCAs will not prevent or retard attainment of desired stream function Standard #27; Vegetation and/or fuel management prescriptions in RCAs will be for the purpose of restoring, enhancing, or protecting the physical and biological characteristics of the RCA	No reduction in large woody debris or increases in temperature, due to RCA management direction, RMOs and stream-side buffers; no measurable sedimentation due to RCA management direction, RMOs and stream-side buffers; no negative changes in hydrograph; No contamination from fuel spills No measurable effects
Wildlife Habitat Management	Positive influence on Habitat Quality; by reducing sedimentation; reduction in roads and trails	Objective Roads; Close and stabilize or obliterate and stabilize roads not needed for future management activities. beneficial if it occurs near WCT occupied stream	Would not occur within presently occupied Grayling Habitat; No Effect
Appropriate Management Response (Fire)	Decrease in habitat complexity Decrease habitat quality Sedimentation and changes in the temperature regime from fire and suppression activities. direct mortality from retardant Direct mortality	Objective appropriate management response. Suppression activities are designed and implemented so as not to prevent attainment of desired stream function, and to minimize disturbance of riparian ground cover and vegetation. Objective: Temporary Fire Facilities : Incident bases, camps, helibases, staging areas, heli-spots and other centers for incident activities are located outside of RCAs; Objective Fire Suppression: Chemical retardant, foam, or additives are not delivered to surface waters. Standard 10: If the only suitable location for incident	Fire is unlikely to occur near grayling inhabited waters on the Forest because their distribution is so limited and they no longer persist in forested systems. Impacts to habitat from sedimentation and temperature elevation could happen if fire burns in a drainage occupied by grayling. . Impacts should be relatively small and short in duration; Mortality to individuals from retardant drops, seem highly unlikely

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MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATIONS IN ALTERNATIVE 6	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
	from wildfire;. Possible ANS introductions	<p>bases, camps, helibases, staging areas, helispots and other centers for incident activities are within the RCA, an exemption may be granted following a review and recommendation by a resource advisor. Standard #11 Monitor water quality and aquatic resources in fish key watersheds where chemical retardant, foam, or additives are delivered to surface waters. Monitoring should take place as soon as conditions allow for safe access. Other considerations: The Beaverhead-Deerlodge NF Aviation in Briefing Booklet contains the BDNF Aquatic Nuisance Species Prevention Strategy (ANSPPS);</p> <p>Appropriate management response will often be guided by direction in a Fire Management Plan for that area. Issues specific to TES species will likely be considered in developing the plans.</p>	<p>Introduction of ANS can still occur, but direction to minimize risk is accepted and the procedures directed in the ANSPS are being implemented.</p> <p>In summary, habitat impacts could occur, but they should be minor and short in duration</p>
Recreation and Travel Management	.Potential Introduction of Aquatic Nuisance Species; Sedimentation to streams. Sanitary wastes into streams	<p>Objective: RMOs guide management actions to achieve quantitative objectives; Objective: Road drainage; Reconstruct road and drainage features that are proven less effective than designed for controlling sediment delivery, or retard attainment of desired stream function, or increase sedimentation in Fish or Restoration Key Watersheds Objective Roads; Close and stabilize or obliterate and stabilize roads not needed for future management activities Objective Recreation sites: Recreation sites are adjusted if not meeting desired conditions; Standard #1 New activities in RCAs maintain or improve the physical and biological characteristics; Standard #2; Evaluate risks of ANS introduction as part of project analysis; Standard #18: Where no alternative to placing facilities exists outside RCA avoid impacts to RCA and Negative effects on fish.</p>	<p>Reduced risk of ANS introduction, but not eliminated. Sedimentation impacts from roads will continue to result in impacts</p> <p>Recreation sites will be substantially mitigated probably within the life of the plan</p> <p>With regard to some of the hurdles grayling face in becoming established in the Ruby system. The primary limitations are related to natural functioning processes in the watershed. The 2 most fundamental limitations are the availability of pools and the availability of spawning habitat (Jim Magee MFWP, personal communication)</p> <p>Because the system is naturally so dynamic because</p>

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MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATIONS IN ALTERNATIVE 6	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
		<p>Standard #19; Solid and sanitary waste facilities in RCAs are prohibited; Standard #23: Terminate recreation activities that cannot be adjusted to be consistent with achieving desired stream function.</p> <p>Standard #28; Complete evaluations of ongoing activities in Fish key watersheds. Those inconsistent with goals and objectives will be identified within 3 years and timeframes for implementation of mitigation will be identified.</p>	<p>of the high geologic instability there, sediment introduction does not have the same significance it would in other systems.</p> <p>Some impacts from degraded habitat but not a significant influence</p>
Fire Management	Prescribed fire is done under a prescription which minimizes risk of escape and allows the placement of treatment to be fairly precise. There is some potential for escape but it is uncommon. Effects could be sedimentation and an increase in water temperature.	Standard #1 Any activity in RCAs shall be designed to enhance, restore, or maintain the physical and biological characteristics of the RCA	Effects from Prescribed fire should be discountable
Livestock Grazing	Decrease in habitat quality; Grazing will maintain or increase amount of degraded habitat in some WCT streams; mortality of eggs and fry will occur in some streams.	<p>Objective: Spawning areas; Reduce impacts from grazing practices in known or suspected threatened, endangered or sensitive fish spawning areas.; Standard 14; Grazing practices that prevent attainment of desired stream function, or are likely to adversely affect threatened or endangered species, or adversely impact sensitive species, are modified; Standard #15; : Locate new livestock handling and/or management facilities outside of Riparian Conservation Areas; Standard #16 Limit livestock trailing, bedding, watering, salting,</p>	<p>There is no over-lap in time between grazing and the period of egg development to emergence on the National Forest. Thus there are no effects</p> <p>Effective implementation of grazing practices will occur at a rate that is consistent with what has occurred over the last 10 years. Effects on grayling are limited</p>

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MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATIONS IN ALTERNATIVE 6	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
		loading, and other handling efforts to those areas and times that would not retard or prevent attainment of desired stream function;	
Oil and Gas Leasing	Decrease in habitat quality primarily through sedimentation	CSU stipulations apply	Minor to no effect on grayling
Non-Native Influence	Decrease in habitat occupied; Decrease in available habitat; Decrease in distribution; loss of connected habitats; Mortality, loss of individuals;	<p>None – The USFS does not manage populations, this is the State of Montana’s responsibility</p> <p>Other Considerations: <u>Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat trout and Yellowstone Cutthroat Trout in Montana 2007</u>; under objective 1: Securing and enhancing populations will most frequently involve either limiting or removing nonnative species, conserving or restoring habitat. MFWP is conducting Non-native removals a limited level, due to limitations in funding and man-power. They are initiated and directed by Montana Fish, wildlife and parks. BDNF will assist in setting priorities and doing removal projects</p>	<p>Some competition may be occurring in the Ruby River where MFWP is trying to re-establish grayling</p> <p>BDNF doesn’t manage non-natives that is responsibility of State of Montana</p>
Aquatic Resource Management	Increase habitat quality; Increase Watershed Condition	None - beneficial	Habitat conditions should improve

Table 7. An assessment of the effects of BDNF land management actions on grayling, after implementing mitigations in preferred Alternative 6. Listed are the scope and duration of effects and whether they are likely to contribute to species risks or to population level extinction.

MANAGEMENT ACTION OR THREAT	ESTIMATED SCOPE OF EFFECT	ESTIMATED DURATION OF EFFECT	DETERMINATION AS TO WHETHER ACTION CONTRIBUTES TO RISKS OR TO POPULATION LEVEL EXTINCTION
Vegetation and Timber Management	Very limited scope; Insignificant based on Mitigations in plan	Not applicable	There should be no contribution to risks or to population level extinction
Wildlife Habitat Management	Will not influence grayling	NA	There is No Effect
Appropriate Management Response (Fire)	Scope is extremely limited (0-3 streams) because there are only a few streams on Forest that can be affected	Likely that severity would be limited	Habitat effects would probably be small and short in duration. Some risk of ANS introduction, but again small because of the limited distribution of the species There should be no substantial contribution to risks or to population level extinction.
Recreation and Travel Management	Scope of effect is limited,	Minor impacts which do not substantially influence the species, so short term.	Some risk of ANS introduction, but probably would most likely occur in the Ruby where anglers have a reasonable chance of being the source of introduction. This risk will not change based on management direction in Alternative 6. There should be no contribution to risks or to population level extinction
Fire Management	Very limited scope; effects should be discountable	NA	Fire Management will not contribute to risks or to population level extinction.
Livestock Grazing	Scope is limited but and possibly most important in the Upper Ruby river drainage. Some areas of habitat disturbance, in tributaries, but effects in mainstem where grayling occur are somewhat overwhelmed by the natural instability of the	Limited effects with duration of 5-15 years.	Livestock trampling is not a factor with grayling eggs and larvae. Because there is no over-lap between the time of egg and larval development and when livestock are grazing. Effects from impacted habitat on grayling are limited. Will not contribute to Risks or to population level extinction.

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MANAGEMENT ACTION OR THREAT	ESTIMATED SCOPE OF EFFECT	ESTIMATED DURATION OF EFFECT	DETERMINATION AS TO WHETHER ACTION CONTRIBUTES TO RISKS OR TO POPULATION LEVEL EXTINCTION
	system.		
Oil and Gas Leasing	Scope is very limited, probably unlikely to occur where grayling persist	Limited effects with short duration	Will not contribute to Risks or to population level extinction.
Non-Native Influence	Scope is limited to the Ruby River drainage. Some competition for space may occur, but has not been documented.	If it is occurring, the duration will be long-term 40 – 100 years	May contribute to risks or to population level extinction but habitat is probably the more limiting factor.
Aquatic Resource Management	There are fair opportunities for watershed improvements and available funds associated with the TMDL program. The scope of effect is probably moderate	Improvements should be very long term 40-100 years.	Does not contribute to risks or to population level extinction. Effects will be beneficial to grayling populations.

WESTSLOPE CUTTHROAT TROUT

Habitat Requirements of Westslope Cutthroat Trout

Optimal stream habitat for westslope cutthroat trout has been described as being clear, cold streams with un-embedded substrate, with relatively abundant slow deep pools, well vegetated and stable stream banks and abundant in-stream cover (Hickman & Raleigh 1982). On the BDNF, most populations occur in 1st through 3rd order streams. This is consistent with what Ireland (1993) found on the Gallatin National Forest in upper Cache and Wapiti Creek drainages. She found densities declined as stream size increased. Rieman and Apperson (1989) also describe WCT occurrence as being focused in higher elevation headwater streams, but acknowledge some populations use entire drainages.

Seasonal movements are probably tied to the availability of spawning, rearing and over-winter habitats (Rieman & Apperson 1989). Spawning habitat was described by Shepard et al. (1984) as gravels ranging from 2 to 75 mm in diameter, with water depths from 17 to 20 cm and velocities between 0.3 and 0.4 m/sec. Cover and complex habitats are important.

Woody debris associated with lateral stream margins and within pools increases habitat complexity and the potential to support higher trout densities.

Gravel substrates are important cover for juveniles. Jakober (1995) found that small WCT hid in the substrate interstices of larger substrate during the day, while larger fish congregated in deep low velocity pools.

The habitats preferred by WCT are not limiting on the BDNF. The Forest sits in the headwaters of the Missouri and Clark Fork River drainages. Clear, cold streams with high quality pools and spawning, rearing and over-winter habitats are abundant and well distributed forestwide. Non-the-less, there are stream segments that fail to meet desired conditions. Of 675 stream reaches surveyed, in the last 16 years, to assess stream function, 166 (25%) were non-functioning and 129 (19%) were functioning at risk. Recent monitoring indicates these numbers have not substantially changed.

This data should not be interpreted to mean 25% of stream miles on the BDNF are non-functioning. Survey location selection was not random, so the data cannot be extrapolated forestwide. Selection of sites was guided by the need to help describe conditions and address grazing issues in heavily used pastures and allotments. For this reason, the results are appropriately skewed and highlight areas where management needs to be more purposeful in meeting aquatic resource goals and objectives.

In considering the importance of this data regarding WCT viability requirements under NFMA, a couple of points should be made:

- It is assumed if a stream is functioning properly, the quantity and quality of the habitat it provides is adequate to provide healthy robust aquatic populations. This is assumed because the method used to assess proper function evaluates channel morphologies against those that form naturally in response to local hydrographs, valley widths, gradients and geologies. Hydrologic processes in functioning streams are working efficiently enough that sediment and bedload transport are not inducing excessive channel instability. Thus, in-stream habitat features are relatively stable in abundance and quality and reflect the capability of natural processes, in that setting.
- “Functioning at Risk” is a term used to describe stream reaches where conditions are somewhat degraded, but hydro-geomorphic processes are still working adequately. There is some risk function might be lost. Because the processes are still adequate the system has drifted away from its potential. As such, it provides habitat in abundance and quality that is reduced, but still adequate to support populations, because the hydro-geomorphic processes are still intact, but not impaired enough to cause substantial instability in the channel.
- If a stream is non-functioning, there is substantial instability because hydrologic processes are out of balance with the geomorphic setting. This usually results in substantial reductions in habitat quality and quantity and in the capacity of the stream to support a healthy population. Thus, densities are usually substantially reduced from what the stream is capable of supporting if it is functioning properly. The fact that a stream segment is non-functioning, however, cannot be translated to

While some stream reaches on the Forest are not at desired conditions, the availability of suitable WCT habitat is abundant and broadly distributed such that it is capable of sustaining healthy, well connected populations of WCT across the BDNF.

Life History of Westslope Cutthroat Trout

Westslope cutthroat trout commonly express 3 different life history patterns, which differ based on migration patterns and rearing tendencies. 1) Resident fish spend their entire life within a tributary stream; 2) Fluvial fish rear for a period of years in tributary streams, then migrate downstream to a river to grow and mature; then return to their natal stream to spawn; 3) Adfluvial fish spawn and rear in tributary streams, but move into lakes to mature.

Data collected on the BDNF have not differentiated between fluvial and adfluvial WCT life histories. Populations are simply considered migratory or resident. While adfluvial populations may be present, the preponderance of migratory cutthroat is undoubtedly fluvial. This likely reflects the fact that few mid to low elevation lakes are present within the analysis area; and they lack suitable migratory corridors linking spawning and rearing habitats.

Resident life histories are present in 1,223 miles of stream occupied by conservation populations. Migratory life histories are present in 413 miles. Only 10% of the stream miles supporting migratory populations occur east of the continental divide (Chapter 3, FEIS).

Westslope Cutthroat Trout Status

WCT historically occupied about 56,500 miles of stream in the United States and now occupy about 33,500 (59 percent) of those stream miles. About 33,000 of the historically occupied stream miles were in Montana, 19,000 in Idaho, 1,000 in Oregon, 3,000 in Washington, and 100 miles in Wyoming (Shepard et al. 2005).

Currently, 563 populations are considered to have conservation value and occupy 24,450 miles of stream (43% of the historically occupied habitat). Eighty-one percent (457) of the conservation populations (hereafter referred to simply as populations) are believed to be isolated and so have lost the benefit of exchanging individuals with other populations. These “isolates” however, only occupy 12 percent of the habitat. Meta-populations exist in about 21,600 miles of stream (88% of currently occupied), but only represent 19 percent of the total number of populations. Populations are spread throughout the historical range, occurring in 67 of the 70 HUCs historically occupied by WCT.

Tested and genetically pure occupy 3,470 miles (6.2% of historic distribution). Populations that occupy 9,108 miles (16% of historical habitats) are suspected of being genetically unaltered, based on the absence of introduced hybridizing species. Shepard et al. (2003) contend a minimum of 8% of historically occupied habitats are genetically unaltered.

Westslope Cutthroat Trout Status Forestwide

Based on data collected by Shepard et al. (2003), about 9,300 miles (28%) of WCT historic distribution in Montana, occurred in the BDNF analysis area. WCT were broadly distributed across the Beaverhead, Big Hole, Redrock, Madison, Ruby, Boulder, Jefferson, and Upper Clark Fork Rivers and Rock Creek drainages. Their best information suggests only 10 of 433 sub-watersheds (6th field HUCs) did not historically host westslope cutthroat trout.

Currently an estimated 173 populations are found in 172 6th field HUCs and about 1280 miles of stream within the analysis area, on and off forest (Table 8). They are broadly distributed across all 4th field HUCs (river drainages) containing BDNF lands, but their occurrence is much patchier east of the Continental Divide. In the five east-side river drainages, WCT occupy between 3 and 12% of their historic range. In two west-side drainages, they persist in 24 and 53 percent of the historic stream miles (Table 8).

Table 8. Status and distribution of westslope cutthroat trout conservation populations summarized across the analysis area, by river drainage. Data is presented as: the total number (#) of sub-watersheds (6th HUCs); the number of sub-watersheds with conservation populations (WCT Con-Pops); the miles of stream currently supporting conservation populations, and the proportion of stream miles that historically supported WCT populations that currently have conservation populations.

River Drainage	Total # 6 th HUCs	# 6 th HUCs With WCT Con-Pops	# WCT Con-Pops	# WCT Non-Con-Pops	Miles of Stream With Con-Pops	Proportion of Stream Miles Historically supporting WCT
Beaverhead	39	13	18	7	89	11 %
Big Hole	94	35	48	27	180	8 %
Boulder	24	8	6	1	30	6 %
Jefferson	31	4	7	2	21	3 %
Madison	51	7	9	20	32	4 %
Red Rock	82	32	40	22	179	11 %
Ruby	29	13	16	19	105	12 %
Flint-Rock	49	40	8	5	402	53 %
Upper Clark Fork	34	19	21	25	243	24 %
Total	433	172	173	128	1281	Ave =14 %

Total stream miles occupied by conservation populations are nearly balanced east versus west of the continental divide, however fewer populations are found on the west side. Twenty-nine populations occupy 646 stream miles west of the divide, while 144 populations east of the divide persist in 636 miles (Table 9). These data point to notable differences between populations separated by this geographic boundary. Conservation Populations persist in 36% of the historically occupied stream miles west of the divide. They persist in

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only 8% of the historic habitats east of the divide. The average length of stream occupied by populations on the west side is 22.3 miles, while it is only 4.4 miles for those on the east side.

Table 9. Comparisons of range-wide miles of stream historically and currently occupied by WCT along with core and hybridized populations with those inside the BDNF analysis area, east and west of the Continental Divide.

Criteria	Range-Wide in United States	Beaverhead-Deerlodge Analysis Area		
		East of Continental Divide	West of Continental Divide	Total
Miles Historically Occupied	56,420	7520	1772	9292
Miles Currently Occupied *	24,454	636	645	1281
Proportion of Historic Range Currently Occupied *	43 %	8 %	36%	14%
Number of Populations *	563	144	29	173
Number of Core Populations **	172	60	27	87
Number of hybridized populations*	391	84	2	86
Proportion of Populations that are hybridized*	69%	58 %	7 %	50 %

* *Conservation populations*

** *Genetically tested and found to be pure; or no evidence of hybridizing species present*

Based on the above information, cutthroat of the divide persist in substantially less of its historic range (8%) than what is observed range-wide (43%). There is less disparity when comparing the percent occupied range-wide with west of the divide. Approximately 31% (173 of 563) of existing populations occur within this analysis area. One quarter of the remaining populations are east of the continental divide.

Leary et al. (1997) found that 65 percent of the total measured genetic variation in the WCT genome is within WCT populations, 34 percent is among the populations themselves, and about 1 percent is between the aggregates of populations in the Columbia and Missouri River basins. Based on these and numbers in the table above, an estimated 11% of the genetic variation in the sub-species is found within this analysis area and about 8.5% is east of the continental divide.

Shepard et al. (1997) assessed extinction risk for 144 known populations, on federally managed lands, east of the Continental Divide, using a 'customized' Bayesian viability

assessment procedure. Results indicated 90% of the populations were at a high, to very high risk of extinction over the next 100 years. The viability analysis indicated the presence of non-native fish, livestock grazing, mineral development, and angling had the greatest relationship to the probability of WCT population persistence.

VIABILITY ANALYSIS

Risks and Threats to WCT

The risk ratings for WCT on the BDNF (Table 10) reflect significant differences between populations east and west of the continental divide. East of the divide, WCT exhibit highly variable recruitment and survival, declining population trends, depressed population levels, and extreme isolation. On the west side, most populations exhibit a migratory life history, are not nearly so depressed and occupy substantially more habitat. As such, the risks are substantially lower. On both sides of the Divide non-native trout have had substantial influences on WCT populations and are the primary reason for the high risk ratings east of the continental divide.

Table 10 Provides risk ratings and the reasoning behind them for WCT on the BDNF. The influence of non-natives is probably the most significant factor in every risk category and has played the most substantial role – by far- in defining the limited distribution of WCT and commonly depressed population levels.

RISK	GEOGRAPHIC AREA RELATIVE TO CONTINENTAL DIVIDE	RISK RATING FOR WCT ON BDNF	REASONS FOR RISK RATING
Highly Variable Recruitment or Survival	East	High	High degree of non-native influence resulting in extreme confinement of populations;
	West	Mod-Low	Moderate influence from non-native trout resulting in limited confinement of populations;
Declining Trend in Population	East	High	High degree of Non-native competition and hybridization; Potentially substantial effects from prolonged drought; Trampling of redds by livestock; some degraded habitats
	West	Mod-Low	Moderate degree of non-native competition and hybridization; Some effects from prolonged drought; Trampling of redds by livestock; some degraded habitats

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RISK	GEOGRAPHIC AREA RELATIVE TO CONTINENTAL DIVIDE	RISK RATING FOR WCT ON BDNF	REASONS FOR RISK RATING
Depressed or Small Population Size	East	High	High degree of non-native influence resulting in extreme confinement in headwater reaches that have marginal habitats and growing seasons; Ongoing competition with brook trout; some degraded habitats
	West	Mod-Low	Non-native influence resulting in fewer instances of extreme confinement in headwater reaches with marginal habitats and growing seasons; Fewer instances of ongoing competition with brook trout; some degraded habitats
Population is Isolated	East	High	High degree of Non-native influence has resulted in loss of migratory life histories and the ability to exchange individuals in nearly all populations
	West	Mod-Low	Non-native influence has resulted in loss of migratory life histories and the ability to exchange individuals in some populations

Forest Plan Influences on Risks and Threats for WCT

The Aquatic Resources Management Strategy in the Preferred Alternative consists of four primary elements developed to help maintain species viability across the planning unit:

- Designation of 57 fish key watersheds for the purpose of ensuring conservation of our stronger WCT and bull trout populations, distributed forestwide;
- Designation of 15 restoration key watersheds, to emphasize aquatic restoration at the watershed scale.
- Implementation of a riparian conservation strategy (INFISH modified) for all streams forestwide. Modifications to INFISH were done to help clarify its intent, facilitate consistency in its application, reduce conflicts with recent policy and regulation decisions, and customize resource management objectives to improve its applicability to stream systems east of the continental divide
- A requirement designed to reduce the risk of aquatic nuisance species (ANS) introductions from new management actions.

These four elements are supplemented with additional direction fundamental to broader aquatic objectives, which will also contribute to conservation of sensitive species on the Forest.

Fisheries key watersheds are distributed across the BDNF, but are clumped in the Rock Creek Drainage. This aggregate is consistent with Rieman and Apperson (1989) who stated habitat management and protection should emphasize a system or drainage-wide approach, especially where migratory life histories are present. Our strongest populations remain in the Rock Creek drainage, where migratory life histories are prevalent and populations and habitats remain mostly connected.

In other areas, populations are primarily resident and isolated. There, single 6th field HUCs are large enough to ensure the maintenance of suitable conditions, while allowing for population expansion and recovery.

Table 11 displays management direction in preferred Alternative 6 and its effectiveness in mitigating land management actions on the BDNF with regard to westslope cutthroat trout. Non-native influences –hybridization and –competition are a significant threat for a large portion of the remaining WCT populations. Many of the remaining isolated populations are not threatened by hybridization, because they are above barriers to non-native fish movement. Many isolated populations, however, continue to be substantially impacted by brook trout competition, which is significantly influencing all four risks.

Brook trout are currently present and directly competing with about 2/3 of our populations. Thus, where land management actions have anything more than small impacts with relatively short duration, they risk contributing cumulatively to population risks and possibly to population level extinction.

Table 11. An evaluation of preferred Alternative 6's effectiveness in mitigating BDNF land management actions (threats) on westslope cutthroat trout; and the estimated level of impact to the species

MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATION	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
Vegetation and Timber Management	Decrease in habitat complexity through sedimentation and loss of large woody debris; decrease in habitat quality through change in water temperatures; potential change in hydrograph; Possible contamination from spilling fuels	Riparian Management Objectives The RMOs in the Revised Plan apply by stream reach until new RMOs are developed through watershed or other site specific analysis, Standard #1 Any activity in RCAs shall be designed to enhance, restore, or maintain the physical and biological characteristics of the RCA; Standard #8 New projects will have a beneficial effect or no measurable negative effect on westslope cutthroat or bull trout in Fish Key Watersheds. Standard # 25: Project related storage of fuels and toxicants within Riparian Conservation Areas is prohibited. Standard #26;	No negative effect in fish key watersheds; no reduction in large woody debris or increases in temperature, due to RCA management direction, RMOs and stream-side buffers; no measurable sedimentation due to RCA management direction, RMOs and stream-side buffers; no negative changes in hydrograph; No contamination from fuel spills

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MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATION	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
		Fuelwood cutting and salvage in RCAs will not prevent or retard attainment of desired stream function Standard #27 ; Vegetation and/or fuel management prescriptions in RCAs will be for the purpose of restoring, enhancing, or protecting the physical and biological characteristics of the RCA	
Wildlife Habitat Management	Positive influence on Habitat Quality; by reducing sedimentation; reduction in roads and trails	Objective Roads ; Close and stabilize or obliterate and stabilize roads not needed for future management activities. beneficial if it occurs near WCT occupied stream	Beneficial, but limited in scope
Appropriate Management Response (Fire)	<p>Decrease in habitat complexity</p> <p>Decrease habitat quality</p> <p>Sedimentation and changes in the temperature regime from fire and suppression activities. Direct mortality from retardant</p> <p>Direct mortality from wildfire;</p> <p>Possible ANS introductions</p>	<p>Objective: Vegetation management; Manage vegetation to reduce the risk of adverse wildfire impacts to isolated native fish populations. Objective appropriate management response. Suppression activities are designed and implemented so as not to prevent attainment of desired stream function, and to minimize disturbance of riparian ground cover and vegetation. Objective: Temporary Fire Facilities : Incident bases, camps, heli-bases, staging areas, heli-spots and other centers for incident activities are located outside of RCAs; Objective Fire Suppression: Chemical retardant, foam, or additives are not delivered to surface waters. Standard 10: If the only suitable location for incident bases, camps, helibases, staging areas, helispots and other centers for incident activities are within the RCA, an exemption may be granted following a review and recommendation by a resource advisor. Standard #11 Monitor water quality and aquatic resources in fish key watersheds where chemical retardant, foam, or</p>	<p>Strategic fuel reductions in some areas where populations are considered at very high risk to effects from wildfire. Effects should be a benefit, but scope will be limited.</p> <p>Impacts to habitat from sedimentation and temperature elevation will occur. Objectives raise awareness and provide general direction to minimize impacts, but they will still occur intermittently forestwide related to fire patterns. Impacts should be relatively small and of short duration, because of Objectives and fire rehab and BAER actions.</p> <p>Mortality to individuals from retardant drops may still occur but on an infrequent basis and at a small scale.</p> <p>Potential for Extinction of isolated WCT populations will remain. The likely-hood remains relatively low, since it is uncommon to have</p>

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MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATION	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
		<p>additives are delivered to surface waters. Monitoring should take place as soon as conditions allow for safe access. Other considerations:</p> <p>The Beaverhead-Deerlodge NF Aviation in Briefing Booklet contains the BDNF Aquatic Nuisance Species Prevention Strategy (ANSPPS);</p> <p>Appropriate management response will often be guided by direction in a Fire Management Plan for that area. Issues specific to TES species will likely be considered in developing the plans.</p>	<p>extinctions, even where extreme fire behavior is extensive throughout drainage.</p> <p>Introduction of ANS can still occur, but direction to minimize risk is accepted and the procedures directed in the ANSPS are being implemented.</p> <p>Impact is that there will likely be mortality to individuals, but it will be infrequent and relatively small in scope. Habitat impacts will occur intermittently, but again scattered across the landscape over the planning period. Impacts from suppression should be short lived 0-2 years. Substantial impact to habitat quality and complexity might occur due to intense and large-scale fire behavior.</p>
Recreation and Travel Management	.Potential Introduction of Aquatic Nuisance Species; Sedimentation to streams. Sanitary wastes into streams	<p>Objective: RMOs guide management actions to achieve quantitative objectives; Objective: Road drainage; Reconstruct road and drainage features that are proven less effective than designed for controlling sediment delivery, or retard attainment of desired stream function, or increase sedimentation in Fish or Restoration Key Watersheds Objective Roads; Close and stabilize or obliterate and stabilize roads not needed for future management activities Objective Recreation sites: Recreation sites are adjusted if not meeting desired conditions; Standard #1 New activities in RCAs maintain or improve the physical and biological characteristics; Standard #2; Evaluate risks of ANS introduction as part of project analysis; Standard #18: Where no alternative to placing facilities exists outside RCA avoid</p>	<p>Reduced risk of ANS introduction, but not eliminated. Sedimentation impacts from roads on some populations will be cumulative with other influences and will have a supporting role in maintaining populations at a suppressed level. Degraded conditions may favor brook trout where they are sympatric with WCT</p> <p>Recreation sites will be substantially mitigated probably within the life of the plan</p> <p>Evaluation of on ongoing activities fish key watersheds w/in 3 years and timeframes for implementing mitigations will be established.</p>

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MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATION	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
		impacts to RCA and Negative effects on fish. Standard #19 ; Solid and sanitary waste facilities in RCAs are prohibited; Standard #23 : Terminate recreation activities that cannot be adjusted to be consistent with achieving desired stream function. Standard #28 ; Complete evaluations of ongoing activities in Fish key watersheds. Those inconsistent with goals and objectives will be identified within 3 years and timeframes for implementation of mitigation will be identified.	
Fire Management	Prescribed fire is done under a prescription, which minimizes risk of escape and allows the placement of treatment to be precise. There is some potential for escape but it is uncommon. Effects could be sedimentation and an increase in water temperature.	In Fish Key Watersheds; project will not occur unless beneficial or no effect (Standard #8); Outside Fish Key watersheds; will not occur w/in 300' unless beneficial or no effect (Standard #1)	Effects from Prescribed fire should be discountable
Livestock Grazing	Decrease in habitat quality; Grazing will maintain or increase amount of degraded habitat in some WCT streams; mortality of eggs and fry will occur in some streams.	Objective: Spawning areas; Reduce impacts from grazing practices in known or suspected threatened, endangered or sensitive fish spawning areas: Standard #7 guidance defined in the Grazing Permit Administration Handbook will become mandatory rather than discretionary in Fish Key Watersheds when grazing is identified as a major contributor to degraded stream condition, and there is non-compliance with livestock grazing standards; or other aspects	Degraded habitats will tend to recover faster in fish key watersheds, but will not probably be fully recovered in some areas by the end of this planning cycle. Outside of fish key watersheds, effective implementation will occur at a rate that is consistent with what has occurred over the last 10 years. Impacts with regard to degraded habitat are cumulative and will have some role in suppressing

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MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATION	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
		of livestock grazing permits terms and conditions.; Standard 14 ; Grazing practices that prevent attainment of desired stream function, or are likely to adversely affect threatened or endangered species, or adversely impact sensitive species, are modified; Standard #15 ; : Locate new livestock handling and/or management facilities outside of Riparian Conservation Areas; Standard #16 Limit livestock trailing, bedding, watering, salting, loading, and other handling efforts to those areas and times that would not retard or prevent attainment of desired stream function; Standard #28 ; Complete evaluations of ongoing activities in Fish key watersheds. Those inconsistent with goals and objectives will be identified within 3 years and timeframes for implementation of mitigation will be identified.	population size; In some instances, population trend may be stable. In situations where habitat conditions are severely degraded and brook trout are competing with WCT, failure to implement effectively may have a cumulative effect in causing a downward population trend. Where livestock have access to, and are trampling a significant number of WCT redds this management action is likely reducing population size and may be causing a negative population trend. Where brook trout are competing with WCT and livestock have access to and are trampling more than a few redds, this action is probably contributing to a negative population trend.
Oil and Gas Leasing	Decrease in habitat quality primarily through sedimentation	NSO stipulations inside fish key watersheds; CSU outside fish key watersheds where conservation populations occur	No effect on WCT in fish key watersheds - protection should be adequate so that sediment effects on quality of habitat are minor and not measurable with regard to suppressing population numbers or creating a negative population trend.
Non-Native Influence	Decrease in habitat occupied; Decrease in available habitat; Decrease in distribution; loss of connected habitats; Mortality, loss of individuals;	None – The USFS does not manage populations, this is the State of Montana’s responsibility Other Considerations: <u>Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat trout and Yellowstone Cutthroat Trout in Montana 2007</u> ; under objective 1: Securing and enhancing populations will most frequently involve either limiting or removing non-native species, conserving or restoring habitat. MFWP is conducting Non-	Hybridization and competition are continuing. WCT populations will continue to decline and Extinctions will likely occur..

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MANAGEMENT ACTION OR THREAT	MECHANISM OF AFFECT	MITIGATION	ESTIMATED LEVEL OF IMPACT WITH MITIGATIONS
		native removals a limited level, due to limitations in funding and man power. They are initiated and directed by Montana Fish, wildlife and parks. BDNF will assist in setting priorities and doing removal projects	
Aquatic Resource Management	Increase habitat quality; Increase Watershed Condition; Increase available habitat through non-native removal or removing fish passage barrier; prevent non-native influence through barrier placement;	None - beneficial	Habitat conditions will improve for some populations, due to the Aquatic focus on restoration. The WCT Conservation MOU, of which the Forest Service was signatory to is non-binding, but contains goals for WCT conservation and restoration actions that are equally shared by Montana Fish, wildlife and parks and BDNF. For this reason non-native removal, barrier placement and fish passage projects will occur over the next 10 years.

Table 12. An assessment of the effects of BDNF land management actions on westslope cutthroat trout, after implementing mitigations in preferred Alternative 6. Listed are the scope and duration of effects and whether they are likely to contribute to species risks or to population level extinction.

MANAGEMENT ACTION OR THREAT	ESTIMATED SCOPE OF EFFECT	ESTIMATED DURATION OF EFFECT	ESTIMATION AS TO WHETHER ACTION CONTRIBUTES TO RISKS OR TO POPULATION LEVEL EXTINCTION
Vegetation and Timber Management	Very limited scope; Insignificant based on Mitigations in plan	Not applicable	There should be no contribution to risks or to population level extinction
Wildlife Habitat Management	Very limited scope because many will occur outside of areas influencing WCT;	Very long-term 40 – 100 years	There should be no contribution to risks or to population level extinction
Appropriate Management Response (Fire)	<p>Limited scope, 5-10 populations because suppression will be more common than non-suppression and there is opportunity to include WCT concerns in a fire management plan.</p> <p>Wildfire can result in population extinction, but it occurs very rarely. Extinction from wildfire is not documented on the BDNF. The scope of wildfire extinctions is probably not more than 1 or possibly 2 populations within the planning cycle. The potential to mitigate this risk does not exist. Management can possibly reduce the potential for significant impact through fuel treatments in drainages with elevated risk of high intensity fires and isolated WCT. The scale of accomplishment and our inability to predict when and where fires will occur, however, probably doesn't allow</p>	<p>Fire suppression impacts on habitat: 3-10 years. Because of post fire rehabilitation and BAER actions.</p> <p>Wildfire impacts on habitat: Depending on severity; 5 – 40 years.</p>	<p>Fire suppression: Since impacts will be small and the duration of effects is relatively short, this action probably</p> <p>Does not contribute to risks or to population level extinction:</p> <p>Wildfire may have substantial population level effects and can even cause extinction. Since it is a natural event which, we cannot fully mitigate, the effects should be considered cumulatively with other management actions regarding WCT viability.</p>

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MANAGEMENT ACTION OR THREAT	ESTIMATED SCOPE OF EFFECT	ESTIMATED DURATION OF EFFECT	ESTIMATION AS TO WHETHER ACTION CONTRIBUTES TO RISKS OR TO POPULATION LEVEL EXTINCTION
	fuels treatment to mitigate risk in the limited time frame of this planning cycle		
Recreation and Travel Management	Scope is probably moderate having notable influence on 10 to 20 populations	In fish key watersheds, probably 5 to 15 years. Outside fish key watersheds 15 to 30 years.	depressed or small population size. May cumulatively contribute to downward trend in some populations, most commonly, where brook trout are present. Effects in fish key watersheds should be effectively mitigated within the planning cycle. Outside fish key watersheds Risks will continue beyond the planning cycle. Contributes to Risks and may contribute to population level extinction
Fire Management	Very limited scope 0-5 populations; based on fact that primary objectives have been in uplands and limited funding and acres accomplished on the BDNF over last 10 years	Typically very short term for temperature elevation and sediment introduction	Fire Management will not contribute to risks or to population level extinction.
Livestock Grazing	Scope is extensive; 690 miles of WCT-occupied stream are in livestock grazing allotments. Effects on habitat are typically moderate to long-term 5 – 25 years; Mortality on fry and eggs occur on an annual basis. Effects are expressed for one generation and are thus short-term 3 – 5 years;	Effects on habitat are typically moderate to long-term where habitats are degraded 5 – 25 years; Mortality on fry and eggs occur on an annual basis. Effects are expressed for one generation and are thus short-term 3 – 5 years;	Depressed or small population size and declining population trend. Habitat quality effects in fish key watersheds should be effectively mitigated and well into recovery within the planning cycle. Outside fish key watersheds Risks will continue beyond the planning cycle. May cumulatively contribute to downward trend in some populations. Depressed or small population size and/or declining population trend. In some populations where brook trout are absent and in all where brook trout are present and competing with WCT, trampling of redds will likely contribute to a downward population trend. The cause of downward trend is direct

MANAGEMENT ACTION OR THREAT	ESTIMATED SCOPE OF EFFECT	ESTIMATED DURATION OF EFFECT	ESTIMATION AS TO WHETHER ACTION CONTRIBUTES TO RISKS OR TO POPULATION LEVEL EXTINCTION
			mortality to individuals and (because of differences in the timing of spawning between brook trout and WCT,) livestock management will select for brook trout over WCT. Trampling of redds will be mitigated in fish key watersheds within 5 years and forestwide within 10 years. Contributes substantially to risks and may contribute to population level extinction
Oil and Gas Leasing	Scope is very limited 0-5 populations, based on oil and gas activities over the past 15 years;	Effects from oil and gas are moderate to long term 5 – 25 years	Will not contribute to Risks or to population level extinction.
Non-Native Influence	Scope is extensive; Impacts from non-natives are considered very long term 40-100 years, because there is no efficient or effective way to eliminate non-natives at the scale of our planning unit;	Impacts from non-natives are considered very long term 40-100 years, because there is no efficient or effective way to eliminate non-natives at the scale of our planning unit;	Contributes substantially to all 4 Risks and to population level extinction
Aquatic Resource Management	Scope is limited to moderate 10 – 20 populations. Habitat improvements will occur much more frequently and at a larger scale because of aquatics focus. (measured with regard to all degraded habitat restored or available habitat increased or non-native impacts removed to an extent population is secured.	Improvements should be very long term 40-100 years.	Will not contribute to risks or to population level extinction. Effects will be beneficial in securing populations.

Westslope cutthroat Viability Conclusions

Table 12 displays the management actions or threats that are likely to contribute to WCT population risks and/or population level extinctions. These include Non-native trout influences, Livestock grazing and recreation and travel management.

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Non-native trout hybridization and competition are the most significant factors in every risk category influencing WCT. They have been a dramatic catalyst in past WCT extinctions, and in suppressing WCT populations and shaping current WCT distribution. If non-native influences could be immediately removed from the analysis area, WCT populations would immediately begin expanding and the risks of population level extinctions would largely disappear. Conversely, if all impacts from roads and livestock grazing were immediately removed, risk of extinctions would persist and populations would likely still be lost. This is important in understanding the extent to which WCTs status and distribution, in combination with non-native influences are increasing the significance of management impacts.

After considering mitigations in the preferred alternative, livestock grazing and recreation and travel management are actions that will act cumulatively with non-native influences and contribute to risks regarding WCT viability. However, the direction for emphasis of watershed scale restoration provides encouragement that opportunities and funds for correcting road related problems will be more available than in the past. The scope of effect between roads and livestock grazing are different and livestock management (without complete exclusion) does not lend itself to correcting stream impacts as quickly as can occur when mitigating road related impacts. Thus, livestock impacts related to degraded habitats will probably persist longer and have an increased likelihood of contributing to population loss.

The significance of degraded habitat is magnified by the presence of brook trout and could be substantial in isolated populations that occupy short reaches of stream. Degraded habitats can increase the competitive advantage of brook trout to the extent that WCT displacement occurs. Extended drought conditions on the Forest may also be favoring brook trout. A number of our isolated populations on the BDNF appear to be experiencing declines in population numbers. Progressive invasion by brook trout toward the headwaters of drainages have been observed in several locations. This is likely occurring in more populations than we've observed, since we have limited capability to monitor all populations frequently. The rate of invasion appears to have accelerated in the last 10 years, possibly the result of drought changing temperature regimes.

Brook trout are currently sympatric with about 2 out of 3 WCT populations forestwide, so the scope of brook trout and cumulative management impacts is substantial. The plan addresses ongoing activities in Fish Key watersheds, by requiring that they be evaluated to determine effects on WCT and bull trout within 3 years (of the signing of the revised plan). It requires that a schedule be developed for implementing mitigation actions to alleviate impacts. It does not, however specify a time within which all actions have to be completed. The Determination in this BE for WCT is based on the assumption that mitigations will be implemented within 5 years in fish key watersheds and within 10 years outside fish key watersheds. If these timeframes are not met, then the Determination should be revisited.

The scope and intensity of impacts on WCT from recreation and travel management probably tend to be substantially less than those from livestock grazing. This is deduced from data gathered over the last 3 years on the BDNF, which indicates that an average of 70% of WCT redds are likely being trampled in suitable rangelands if cows are grazing adjacent riparian areas. It is also likely that many redds are being trampled multiple times. Roberts and White

(1992) documented that substantial mortality can be incurred from humans walking on trout redds. Since the level of foot loading in cows is greater than in humans, mortalities from livestock trampling would be at least as high as those observed in the 1988 study. The mortality incurred in populations that are already at risk is in some cases probably responsible for initiating or increasing a negative population trend. Based on these considerations, it seems more likely that unmitigated livestock grazing could contribute to the loss of a population.

In the last 10 years, our data indicate two WCT populations have been lost. One appears to have been due to brook trout competition, the other because the occupied stream reach went dry. Because management impacts from livestock grazing will continue at their current level for well beyond 5 years for many WCT populations, there is a possibility these actions could contribute to the loss of populations. There is less risk of loss in fish key watersheds because mitigations will be implemented sooner than in other locations. Based on the scope of impact there is a higher likelihood that livestock grazing could contribute to the loss of a population.

This Biological Evaluation must reach one of several possible determinations. They are:

- 1) No Impact;
- 2) Beneficial Impact;
- 3) May impact individuals, but will not likely contribute to a trend towards federal listing or reduced viability for the species; or
- 4) Will impact individuals or habitat with a consequence that the action may contribute to a trend toward federal listing or cause a loss of viability to the population or species.

Under the preferred alternative, livestock grazing will inevitably impact individuals with the consequence the action may contribute to loss of viability to one or more populations. It is doubtful however, it will contribute to a trend toward federal listing or to loss of viability across the planning unit.

In addressing the significance of 457 of the 563 WCT populations being isolets and restricted to headwater reaches, USFWS in its August 7, 2003 finding indicated fragmentation was not a significant risk to species viability. It states ... "the small WCT populations in headwater areas were numerous but they occupied a small proportion of the total habitat occupied by WCT. Most of the occupied stream miles (88.5 percent) were habitat for WCT in metapopulations. Consequently, the best scientific and commercial information available to us indicates that the WCT subspecies is not threatened by the fragmentation and isolation of small WCT populations in headwater areas."

In addressing threats from brook trout it also states: "it is evident from their longstanding coexistence in some streams that complete competitive exclusion of WCT by brook trout is not inevitable where the two fishes co-occur. In addition, the database did not provide conspicuous insights into how far upstream brook trout may eventually move in the various drainages in which they now occur. Nonetheless, as we will describe, the available scientific information indicates brook trout are not a substantial threat to the majority of extant populations constituting the WCT subspecies."

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In addressing threats from stochastic events it states: “The widespread geographic distribution of WCT across the subspecies’ range further mitigates potential negative effects resulting from local population extinctions following future catastrophic natural events, as no single event is likely to impact a significant percent of the overall number of isolated populations. Moreover, given the widespread efforts for the conservation of these fish (*see* ‘‘Evaluation of Ongoing Conservation Efforts,’’ below), any such local extirpation is likely to be followed by reintroduction efforts if WCT were not available naturally to re-colonize those habitats.”

The only conclusion that can be made from these and other statements in the finding is that population losses will not constitute a threat to the subspecies unless a substantial portion of its range or distribution is affected.

The significance of individual populations relative to distribution, could change within the perspective of ESA, if the geographic area considered for listing WCT was reduced substantially. However, this was addressed in the finding also. It stated: “While conducting the new status review for WCT, we found no compelling evidence for recognizing distinct population segments of WCT. Instead, for purposes of the new status review, we recognize WCT as a single taxon in the contiguous United States”

If we consider the legal requirement under NFMA relative to the current status of WCT across the BDNF, the finding relative to the loss of a few populations cannot be substantially different from the USFWS 2003 Finding.

Our isolated populations are the ones at greatest risk. As stated above the average length of stream occupied east of the continental divide (where nearly all populations are isolated) is 4.4 miles. The loss of 2 populations (equal to the number lost in the last 10 years) could conceivably be projected to be a reduction in WCT distribution of 9 miles out of 1280 within the analysis area. The rationale in the finding would suggest, this is not substantial enough to threaten WCT viability and it suggests there is a high likelihood the populations would be restored to result in no net loss.

The Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout and Yellowstone Cutthroat Trout in Montana (MCTSC 2007) states under Objective 3: “Efforts will be made to re-establish cutthroat trout populations within their historical range. These efforts may involve expanding existing populations or establishing “new” populations, primarily through translocation”

The 1982 planning rule - Section 219.19, Fish and Wildlife Resources, stipulates:

Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area. For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area. In order to insure that viable populations will be maintained, habitat must be provided to support, at least, a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area.

The aquatic resources conservation strategy and specifically our designation of fish key watersheds is consistent with the best available science. Key watersheds were designated because they met criteria that indicated they were the strongest populations, representing migratory and resident life histories while being well distributed forestwide. They represent a substantial proportion of the remaining WCT populations forestwide and provide the foundation for maintaining this species' viability across the planning unit. If populations are lost they most likely will be outside fish key watersheds, so WCT will remain well distributed.

Based on this, the 173 populations across the analysis area are currently well distributed and will remain so. The distribution is not substantially different in appearance from that for the subspecies range-wide. Habitat is provided to support a minimum (adequate) number of reproductive individuals. Many of the populations across the planning area are isolated, and cannot interact with other populations. However, the isolation has nothing to do with habitat provided by the Forest. As stated earlier in this document, the forest provides abundant habitats that are connected throughout. The isolation is due to non-native hybridization and competition excluding WCT from significant portions of its historic range.

Even so, nearly all of the populations on the BDNF, exhibiting migratory life histories are contained in the fish key watersheds in the Rock Creek drainage. These watersheds encompass a broad geographic area and contain approximately 40% of the stream miles occupied by WCT on the BDNF. The populations in these watersheds have retained migratory life histories because they can still move freely within the system and the habitats allow interaction between populations. These watersheds were designated as "key" specifically so stringent management direction would ensure we maintain connectivity and the ability for individuals to interact between populations in the best and largest area we can provide on the BDNF.

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Considering all of the information above, my determination for WCT relative to management direction in Alternative 6 of the Revised Forest Plan is:

Will impact individuals or habitat with a consequence the action may contribute to a trend toward, or cause a loss of viability to a population.

However, the action will not likely contribute to a trend towards federal listing or reduced viability for the species across the planning unit.

Determination Summary

	Northern Leopard Frog	Boreal Toad	Grayling	Westslope** Cutthroat Trout
DETERMINATION	NI	MIIH	MIIH	WIFV

** See discussion and explanation for call on previous page

Sensitive Species Determinations

NI = NO IMPACT

MIIH = MAY IMPACT INDIVIDUALS OR HABITAT, BUT WILL NOT LIKELY CONTRIBUTE TO A TRENDS TOWARDS FEDERAL LISTING OR LOSS OF VIABILITY TO THE POPULATION OR SPECIES.

WIFV = WILL IMPACT INDIVIDUALS OR HABITAT WITH A CONSEQUENCE THAT THE ACTION MAY CONTRIBUTE TO A TREND TOWARDS FEDERAL LISTING OR CAUSE A LOSS OF VIABILITY TO A POPULATION OR SPECIES.

BI = BENEFICIAL IMPACT.

Signature

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/s/ James A. Brammer

Date: November 22, 2008

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GLOSSARY

Please note there is a section under R named Road Related Terms

ACRONYMS

AMP: Allotment Management Plan

ASQ: Allowable Sale Quantity

AUM: Animal Unit Month

BMPs: Best Management Practices

CEQ: Council on Environmental Quality

CFR: Code of Federal Regulations

DEIS: Draft Environmental Impact Statement

FEIS: Final Environmental Impact Statement

FSH: Forest Service Handbook

FSM: Forest Service Manual

GIS: Geographical Information System

HRV: Historical Range of Variability

HUC: Hydrologic Unit Code

INFISH: Inland Native Fish Strategy

MIS: Management Indicator Species

NEPA: National Environmental Policy Act

NFMA: National Forest Management Act

NWPS: National Wilderness Preservation System

PCA: Primary Conservation Area

PFC: Properly Functioning Condition

RCA: Riparian Conservation Area

RMOs: Riparian Management Objective

RNA: Research Natural Area

ROD: Record of Decision

TES: Threatened, Endangered, and Sensitive

ATV: An all terrain vehicle

Activity Area: A land area impacted by a management activity to which soil quality standards are applied. Activity areas must be feasible to monitor and include harvest units within timber sale areas, prescribed burn areas, grazing areas or pastures within range allotments, riparian areas, recreation areas, and alpine areas. All temporary roads, trails, and landings are considered to be part of an activity area.

Activity Fuel: Fuels resulting from or altered by forestry practices such as timber harvest and thinning as opposed to naturally created fuels.

Adaptive Management: A type of natural resource management in which decisions are made and adjusted based on testing, monitoring, evaluation, and incorporating new knowledge gained from science or experience as part of an ongoing process.

Adit: A nearly horizontal passage from the surface in a mine.

Affected Environment: The natural, physical, and human-related environment sensitive to changes as a result of the proposed action.

Allotment (grazing): Area designated for the use of a certain number and kind of livestock for a prescribed period of time.

Allotment Management Plan (AMP): A document applying to management of rangeland ecosystems and livestock operations on the public lands prescribing: (1) the manner in and extent to which livestock operations will be conducted in order to meet ecosystem health, multiple use, economic, and other objectives; (2) describing range improvements to be installed and maintained; and (3) containing such other provisions relating to livestock grazing and other objectives found by the Secretary of Agriculture to be consistent with the provisions of FLPMA. An AMP integrates resource objectives, standards, guidelines, and management requirements for soil and water for watershed protection, wildlife and fisheries, recreation, timber, and other resources on lands within a range allotment.

Allowable Use: A predetermined amount of current forage production that is to be removed and/or soil disturbance that is acceptable under a given set of circumstances in order to accelerate range improvement. Degree of use will vary depending upon range type, range condition and trend, season of use, and physiological needs of various species. Allowable use is also often defined as the degree of use estimated to be proper until proper use is known.

Altered Potential: Condition caused by nature or humans that prevents a stream from recovering its original state. An example might be found where a stream has been placer mined, or a landslide or slump changed the immediate landscape features where the stream must function.

Allowable Sale Quantity, (ASQ): On a National Forest, the maximum quantity of timber that may be sold from the area of suitable land covered by the forest plan for a specified time period specified by the plan.

Anadromous: Fish that ascend rivers from the sea for breeding; i.e. salmon.

Aquatic Ecosystem Restoration: The establishment of “improved” hydrologic, geomorphic, and ecological processes in a degraded watershed system; and the replacement of lost, damaged, or compromised elements of the natural system.

Aquatic Systems: The interaction of biological and physical attributes in relation to streams, lakes, rivers, ponds, etc.

Animal Unit Month (AUM): The amount of forage required by a 1,000-pound cow, or the equivalent, for one month.

Appropriate Management Response: Appropriate Management Response (AMR): AMR is any specific action taken in response to a wildland fire suitable to meet protection or fire use objectives described in fire or land management plans.

Aquatic Nuisance Species: non-indigenous plant or animal species that threaten the diversity or abundance of native species, the ecological stability of infested waters, or commercial, agricultural, aqua-cultural, or recreational activities dependent on such waters.

Aquatic Systems: Biological and physical attributes and their interaction related to water.

B

Beaverhead Unit: The Beaverhead National Forest was combined with the Deerlodge National Forest in 1997. We refer to the geographic areas of the former forests as “Unit.”

Beneficial Uses: Attributes that are considered useful products of the resource. They may include (but are not limited to): recreation, production of salmonid fishes, drinking water, power generation, and irrigation.

Beneficial Effect: A situation that results from a management activity that promotes improvement in stream or habitat conditions, beneficial to fish or other aquatic organisms. Activities that create a short-term impact, but will provide significantly longer benefits will still be classified as a Beneficial Effect. An example might be removal of a culvert that is a movement barrier to fish. Removal may produce sediment over a short period of time, but will provide significant long-term benefits to the fish population.

Best Management Practices (BMPs): A set of practices which, when applied during implementation of a project, ensures that water-related beneficial uses are protected and that State water quality standards are met.

Biological Diversity (or Biodiversity): The variety and abundance of life and processes. It includes all living organisms, the genetic differences among them and the communities and ecosystems in which they occur. Biological diversity also refers to the compositions, structures, and functions of species and habitats and their interactions.

Biological Assessment: A document prepared by or under the direction of the federal agency concerning listed and proposed threatened and endangered species and proposed critical habitat that may be present in the project area and the evaluation of potential effects of the action on such species and habitats.

Biotic: Pertaining to any aspect of living components.

C

CSU: (Controlled Surface Use) A stipulation attached to a lease which allows use and occupancy but requires special operational constraints to protect identified resource values and may modify the lease rights.

Candidate Species: Species identified by the United States Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS), which are considered to be candidates for listing under the Endangered Species Act.

Canopy: The more or less continuous cover of branches and foliage formed collectively by the crowns of adjacent trees and other woody growth. Layers of canopies may be called “stories”.

Capability: The potential of an area to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils and geology, as well as the application of silvicultural practices or protection from fires, insects, and disease.

Climax: The terminal plant community of a succession; it remains relatively unchanged (dynamic stability) unless the environment changes. Species are capable of reproducing themselves within the community and excluding new species, especially dominant species.

Coarse Woody Debris: Sound and rotting dead woody plant material, standing or fallen, generally greater than 3 inches in diameter. It provides habitat for wildlife and plants and is a source of nutrients and structures for soil protection and development.

Code of Federal Regulations (CFR): The official, legal tabulation, or regulations directing federal government activities.

Commodity: Anything useful or anything bought or sold.

Condition Class: Departure from the historic fire regime, as determined by the number of missed fire return interval – with respect to the historic fire return interval and the current structure and composition of the system resulting from alterations to the disturbance regime. Three classes categorize the current condition with respect to each of five historic Fire Regime Groups. The relative risk of fire-caused loss of key components defines the system increases for each higher number condition. Class 1 level means little or no risk.

Connectivity: The degree to which similar but separated vegetation components of a landscape are connected.

Conservation Strategy: The term also refers to a requirement under Section 7 of the Endangered Species Act for Federal agencies to consult with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service with regard to federal actions that may affect listed threatened species or critical habitat.

Corridor:

Biological Corridor - Landscape elements that connect similar patches of habitat through an area with different characteristics. For example, streamside vegetation may create a corridor of willows and hardwoods between meadows or through a forest.

Utility Corridor – A linear strip of land identified for present or future location of utility rights-of-way within its boundaries.

Cover Type: The present vegetation of an area.

Cover: Vegetation used by wildlife for breeding, and rearing of young, protection from predators, (hiding cover), or to ameliorate conditions of weather (thermal cover).

Cross Country Travel: Wheeled motorized travel off of roads and trails. All roads and trails on an inventory maintained at the Forest Supervisor's Office.

Cultural Resources: The physical remains of human activity (e.g., artifacts, ruins, burial mounds, petroglyphs, etc.) having scientific, prehistoric, or social values.

Cumulative Impacts: Cumulative effects or impacts can result from individually minor, but collectively significant, actions that take place over a period of time. Actions of non-Forest Service entities are considered as a part of cumulative effects associated with an action.

D

Deerlodge Unit: The Deerlodge Forest was combined with the Beaverhead Forest in 1997. We refer to the former forest as a "Unit."

Demographic: Statistics of human populations (size, density, growth, distribution, etc.).

Desired Condition (DC): A portrayal of the land, resource, or social and economic conditions that are expected to result in 50-100 years if objectives are achieved. A DC is a vision of the long-term conditions of the land.

Developed Recreation: Recreation that requires facilities and might result in concentrated use of an area; for example, a campground or ski resort.

Dispersed Recreation: Recreation, such as hunting, scenic driving, and backpacking, spread over a large area. Facilities or developments are provided for access and protection of the environment more so than the comfort and convenience of visitors.

Disturbance: Any event, such as wildfire or timber harvest that alters the structure, composition, or function of an ecosystem.

Diversity: The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan.

Dominance Types for the BDNF:

If the dominance type is single species, the species comprises greater than or equal to 60%.

If the dominance type is two species, the 1st species comprises roughly 40-80%

If the dominance type is three species, the 1st species comprises roughly 20-60%.

If no three species can be assigned, the 1st species is a MIX, for BDNF this is either tolerant mix (TASH) or intolerant mix (IMIX).

E

Economics: The study of allocation of limited resources, goods, and services among competing uses.

Ecosystem: A naturally occurring, self-maintained system of varied living and non-living interacting parts that are organized into biophysical and human dimension components.

Ecosystem Integrity: A condition where the parts and functions of an ecosystem are sustained over time and where the system's capacity for self-repair is maintained, such that goals for uses, values, and services of the ecosystem are met.

Ecosystem Management: Scientifically based land and resource management that integrates ecological capabilities with social values and economic relationships, to produce, restore, or sustain ecosystem integrity and desired conditions, uses, products, values, and services over the long term.

Ecosystem Structure: The biological and physical attributes that shape ecological systems. Biotic attributes include: population size, structure, and range, foliage density and layering, snags, large woody debris, or the size, shape, and spatial relationships of cover types within a landscape. Physical attributes include: soil and geologic substrate variables, slope and aspect, or stream gradient.

Encroachment: Plant succession in the absence of disturbance, in areas the plant type is not desired.

Eligibility (for Wild and Scenic Rivers): A river is eligible for inclusion in the National Wild and Scenic River System if it is free flowing and has at least one river-related value that is considered outstandingly remarkable.

Elk Habitat Effectiveness: An index of the capability of an area to provide protection for elk. It is based on the density of roads open to public motorized use per square mile.

Elk Security Area: A contiguous block of cover, over 250 acres in size at least ½ mile from an open road.

Endangered Species: Designated by the U.S. Fish and Wildlife Service, and animal or plant that has been given federal protection status because it is in danger of extinction throughout all or a significant portion of its natural range.

Energy Transmission Facility: Pipelines or power lines and associated structures and equipment used to transmit bulk electricity, crude oil, natural gas, refined petroleum products, or hydrogen from generation or collection points to distribution points. Electric transmission lines are generally larger than 66 KV. Transmission facilities do not include smaller distribution lines serving residential or commercial end use. Transmission facilities do not include oil and gas field production, gathering, or collection lines or facilities.

Entrenchment Ratio: Entrenchment describes the relationship of the river to its valley and landform features. Entrenchment is qualitatively defined as the vertical containment of a river and the degree to which it is incised in the valley floor (Kellerhals et al. 1972). The term entrenchment ratio, the vertical containment of the river, has been quantitatively defined (Rosgen 1994) to provide a consistent method for field determination. The entrenchment ratio is the ratio of the width of the flood-prone area to the surface width of the bankfull channel. Ratios of 1-1.4 represent entrenched streams; 1.41-2.2 represent moderately entrenched streams; and ratios great than 2.2 indicate rivers only slightly entrenched, (Rosgen, 1996)

Environmental Impact Statement (EIS): A detailed statement prepared by the responsible official for a major federal action, which significantly affects the quality of the human environment. Alternatives to the proposed action are provided, and effects analyzed.

Even-Aged Management: The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Clearcut, shelterwood, or seed tree cutting produce even-aged stands of essentially the same age.

Extent of Concern: The portion of a travel route for which a Scenic Concern Level has been assigned. The extent of concern for sites is not listed, but can be described as the perimeter of developed or heavily used areas. The extent of concern provides the general location for project analysis viewpoints and visibility mapping.

F

Facilities: Picnic tables, toilets, hardened campsites, campground, other buildings or structures.

Fire-Dependent Ecosystem: Forests, grasslands, and other ecosystems historically composed of species that evolved with and are maintained by periodic fire.

Fire Frequency or Return Interval: How often fire burns a given area; often expressed in terms of fire return intervals. For example, a site might burn over every 5 to 15 years.

Fire Intensity: Expression used to describe the power of wildland fires. More commonly described as the rate of energy release per unit length of the fire front.

Fire-Prone Ecosystem: Ecosystems that historically burned intensely at low frequencies (stand replacing fires), burned at a high frequency (understory fires), or burned infrequently historically, but – because of changed conditions-now experience more frequent fire events.

Fire Regime Group: A generalized description of the role fire plays in an ecosystem. It is characterized by fire frequency, predictability, intensity, seasonality, duration and scale (patch size), as well as regularity or variability.

Fire Risk: The chance that a fire will ignite as affected by the nature and incidence of causative agents.

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Fire Severity: A qualitative measure of the fire's immediate effects on the ecosystem. Relates to the extent of mortality and survival of plant and animal life-both above and below ground-and to loss of organic matter.

Fire Terms:

Prescribed Fire – Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements (where applicable) must be met, prior to ignition.

Wildfire – An unplanned, unwanted wildland fire, including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out.

Wildland Fire – Any non-structure fire, that occurs in the wildland. Three distinct types of wildland fire have been defined and include wildfire, wildland fire use and prescribed fire.

Wildland Fire Use – The application of the appropriate management response to naturally ignited wildland fires to accomplish specific resource management objectives in predefined designated areas outlined in Fire Management Plans.

Fire Use: “Use of Wildland Fire” or “Fire Use” describes the two types of wildland fire to provide resource benefits; prescribed fire and wildland fire use.

Fishery: The total population of fish in a stream or body of water and the physical, chemical, and biological factors affecting that population.

Flora: The plant life characteristic of a region, period, or special environment.

Forage: Plant material (usually grasses, forbs, and brush) that is available for animal consumption.

Forest Plan: A document that provides strategic direction by goals and objectives for management of a National Forest developed through agency and public involvement

Forest Products: Any products from national forest system lands that requires a permit to collect such as sawlogs, pulpwood, poles, posts, and fuelwood, mushrooms, berries, beargrass for floral arrangements, etc.

Forest Road and Trail Map: A map that displays the existing Forest Transportation System and additional routes in use at the time of the 2001 Off-Highway Vehicle Amendment, identified by members of the public. The map *may* be updated as per the criteria in the plan. This is an interim map eventually replaced by the BDNF Motorized Use Visitors Map

Forested Watershed: Watersheds where 90% or more is forested.

Fuel Management: Manipulation or reduction of fuels to meet forest protection and management objectives while preserving and enhancing environmental quality.

Fuel Treatment: The rearrangement or disposal of fuels to reduce the fire hazard.

G

Game Species: Any species of wildlife or fish for which seasons and bag limits have been prescribed, and which are normally harvested by hunters, trappers, and fisherman under State or federal laws, codes, and regulations.

Geographic Information System (GIS): A computer system that stores and uses spatial data.

Goal: A concise statement that describes a desired condition to be achieved sometime in the future, normally expressed in broad, general terms and is timeless in that it has not specific date by which it is to be completed. Goal statements form the principal basis from which objectives are developed.

Goods and Services: The various outputs produced by forest and rangeland renewable resources. The tangible and intangible values of which are expressed in market and non-market terms.

GYA: The Greater Yellowstone Area includes parts of the Beaverhead-Deerlodge, Bridger-Teton, Caribou-Targhee, Custer, Gallatin, and Shoshone national forests.

H

Habitat: The place where a plant or animal lives and grows under natural conditions.

Habitat Type: An aggregation of all land areas potentially capable of producing similar plant communities at the climax phase of succession.

Hazardous Fuel: Excessive live or dead wildland fuel accumulations that increase the potential for uncharacteristically intense wildland fire and decrease the capability to protect life, property, and natural resources.

Historical Range of Variability (HRV): The natural fluctuation of components of healthy ecosystems over time. In this EIS, refers to the range of conditions and processes that are likely to have occurred prior to settlement of the project area by people of European descent (approximately the mid-1800's), which would have varied within certain limits over time.

Hydrologic Recovery: This term is generally described as the restoration of hydrologic characteristics of harvested sites to a near pre-harvest condition resulting in recovery of streamflow characteristics at the watershed scale.

(HUC) Hydrologic Unit Code: A coding system developed by the U.S. Geological Service to map geographic boundaries of watersheds by size. For example, the Columbia River Watersheds is 1st code, the Clarkfork River is a 3RD. The Beaverhead River is a 5THcode and the Mussigbrod Creek is a 6TH code HUC. We deal mostly with 6th code HUCs on the BDNF.

I

Indicators: A measure of, or surrogate for the elements of ecosystem management.

INFISH (Inland Native Fish Strategy): On July 31, 1995, the Decision Notice for Inland Native Fish Strategy (INFISH) Environmental Assessment was signed. This strategy was developed to provide interim direction to protect habitat and populations of native resident fish until longer-term conservation strategies such as the Upper Columbia River Basin and federal recovery plans replaced it.

Inholding: Private land or patented mining claims that lie within National Forest land.

Intactness: Untouched or unaltered, especially by anything that harms or diminishes its character.

Integrated Pest Management: A pest management approach that uses prevention techniques, early detection, diagnosis and treatment of pest organisms in cooperation and coordination with other agencies and organizations to control or eradicate invasive species. Treatment uses cost effective methods that minimize adverse effects to non-target species. Examples:

Cultural - Silvicultural prescriptions, change of crop species

Mechanical - Fire, cultivation, pruning, trapping

Biological - use of parasites, predators, or disease

Genetic - use of resistant species or cultivars

Chemical - use of insecticides, herbicides, fungicides, etc

Inventoried Roadless Area: Any undeveloped areas, typically exceeding 5,000 acres, that met the minimum criteria for wilderness consideration under the Wilderness Act when inventoried during the Forest Service's Roadless Area Review and Evaluation (RARE II) process, subsequent assessments, or Forest planning. These areas meet the definition of roadless prescribed in FSH 1909.12 which specifies the areas "do not contain improved roads maintained for travel by standard passenger type vehicles."

J

K

Key Watershed: One or both of the following types of watershed designations

Fish Key Watersheds: Watersheds selected for focusing of Federal funds and personnel for the purpose of restoring or maintaining viability of Threatened, Endangered and Sensitive aquatic species.

Restoration Key Watersheds: Watersheds selected for focusing of Federal funds and personnel for the purpose of accelerating improvements in water quality and watershed conditions.

L

Lands Where Timber Harvest is *Not* Allowed: The acres identified as BDNF system lands that meet the criteria outlined in the timber harvest protocol in the Revised Forest Plan.

Lands Where Timber Harvest *is* allowed: The acres that may not be suitable, but harvest is used to achieve other resource objectives as described in the timber protocol.

Lands Suitable for Timber Production: The acres designated for growth and yield of timber products. These are the acres left over after the first two steps (listed above) of the timber protocol have been applied.

Landscape: An area composed of interacting ecosystems repeated because of geology, landforms, soils, climate, biota and human influences throughout. Landscapes are generally a size, shape, and pattern determined by interacting ecosystems.

Landscape Character: Particular attributes, qualities, and traits of a landscape that give it an image and make it identifiable or unique.

Landscape Visibility: Accessibility of the landscape to viewers, referring to one's ability to see and perceive landscapes.

Linkage: Route that permits movement of individual plants (by dispersal) and animals from a Landscape Unit and/or habitat type to another similar Landscape Unit and/or habitat type.

Locatable Minerals: These minerals are found on all national forests and lands which; 1.) Were public domain lands subject to location and entry under the US mining laws; 2.) Have not been appropriated, withdrawn, or segregated from location in entry; and 3.) Have been or may be shown to be mineral lands that are open for prospecting for locatable or hard rock minerals. Locatable minerals may include any solid, natural, inorganic substances, occurring in the crust of the earth such as "gold, silver, cinnabar, lead, tin, copper, or other valuable deposits." Locatable minerals are not the common varieties of mineral materials or leasable minerals. They may include certain non-metallic minerals and uncommon varieties of mineral materials.

Long-Term-Sustained-Yield Timber Capacity: The highest uniform wood yield from lands being managed for timber production that may be sustained under specified management intensity consistent with multiple-use objectives.

M

Management Activity: Activity humans impose on a landscape for the purpose of managing natural resources.

Management Area: A land area with similar management goals and a common prescription, as described in the Forest Plan.

Management Indicator Species (MIS): "Certain vertebrate and/or invertebrate species present in the area . . . selected because their populations changes are believed to indicate the effects of management activities. . . . additional plant or animal species selected because their

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population changes are believed to indicate effects of management activities on other species of selected major biological communities or on water quality." (CFR 219.19(a)(1). Designation does not infer a special degree of protection in and of itself.

Metapopulation: A collection of populations that interact through the exchange of individuals between populations.

Mitigation: Actions to avoid, minimize, reduce, eliminate, replace, or rectify the impact of a management practice.

Monitoring: The process of collecting information to evaluate if objectives and anticipate results of a management plan are being realized, or if implementation is proceeding as planned.

Multiple Use: "Multiple use" means the management of all the various renewable surface resources of the National Forests so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or relate services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some lands will be used for less than all of the resources and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output. (Multiple-Use Sustained-Yield Act of 1960).

Municipal Watershed: A watershed that contains a community water system or a stream feeding such a system. Montana Code Annotated 75-6-1-2 defines community water system as a public water supply system that serves at least 15 service connections used by year-round residents or that regularly serves at least 25 year-round residents.

N

National Forest Management Act (NFMA): A law passed in 1976 as amendments to the Forest and Rangeland Renewable Resources Planning Act that requires the preparation of Regional and Forest Plans and the preparation of regulations to guide that development.

National Environmental Policy Act (NEPA): An abbreviation for the National Environmental Policy Act of 1969, which requires environmental analysis and public disclosure of federal actions.

National Forest Scenic Byway: A road on National Forest System Land that has been designated by the Chief of the Forest Service for its exceptional scenic, historic, cultural, recreational, or natural resources.

Natural Appearing Landscape Character: Landscape character resulting from human activities, yet appears natural, such as historic conversion of native forests into farmlands, pastures, and hedgerows that have reverted back to forests through reforestation activity or natural regeneration.

O

OHV: A high clearance vehicle such as a sport utility vehicle, a four-wheel drive pickup, includes ATVs.

Objective: A concise, time-specific statement of measurable planned results that respond to pre-established goals. An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used in achieving identified goals. (36 CFR 219.3)

Occupied Grizzly Bear Habitat: Areas where there is high likelihood person will encounter a grizzly bear with her cubs of the year.

Occupied mapped Lynx Habitat: All mapped lynx habitat on an entire national forest is considered “occupied” by lynx when:

- 1-There are at least 2 verified lynx observations or records since 1999 on the national forest unless they are verified to be transient individuals; or
- 2-There is evidence of lynx reproduction (dens) on the national forest.

Old Growth: We use the definition of Old Growth as found in Green, et. al., Old-Growth Forest Types of the Northern Region, R-1 SES 4/92: USDA Forest Service, Northern Region, Missoula, MT 59807.

Outstandingly Remarkable Value: Characteristic of a river segment that is judged to be a rare, unique, or exemplary feature that is significant at a regional or natural scale. Values can be recreational, scenic, geological, historical, cultural, biological, botanical, ecological, heritage, hydrological, paleontological, scientific, or research-related.

P

PSU Dominance Type: If the dominance type is single species; the species comprises $\geq 60\%$,

If dominance type is 2 species, the 1st species comprises roughly 80-40%,

If the dominance type is 3 species, the 1st species comprises roughly 60-20%

If no 3 species can be assigned, the 1st species is a MIX, For B-D this is either tolerant mix (TASH), or intolerant mix (IMXS)

Pastoral Landscape Character: Landscape character that is the result of human activities, containing positive cultural elements such as historic conversion of native forests into farmlands, pastures, and hedgerows, plus some remnants of native forests.

Pattern: The spatial arrangement of landscape elements (patches, corridors, matrix) that determines the function of a landscape as an ecological system.

Play: A known or possible accumulation of oil or gas sharing similar geologic properties.

Prescribed Fire: Any fire ignited by management action to meet specific objectives. All prescribed fires are conducted in accordance with prescribed fire plans.

Properly Functioning Condition (PFC): Ecosystems are in PFC when they function within their historic range of variability.

Proposed Action: A project or set of activities that a federal agency intends to implement, as defined in NEPA regulations.

Public Involvement: Any process designed to broaden the information base upon which agency decisions are made by informing the public about Forest Service activities, plans, and decisions to encourage public understanding about and participation in the planning processes which lead to final decision-making.

Q

R

Rangeland: Land on which the potential natural plant community is predominantly grass, grass-like plants, forbs, or shrubs suitable for grazing and browsing.

Reach: A segment of stream. Segment length will vary based on resource values being considered. For example, if trout over-wintering habitat is a consideration for analysis and over-wintering pools are confined to ¼ mile of stream; the reach analyzed for fisheries may be defined as ¼ mile. Similarly, if hydrologic function of the channel is being evaluated on a stream with 1.5 miles of the same type of channel conditions, the reach analyzed for hydrology may be 1.5 miles.

Recreation Allocations:

Summer

Backcountry: *Semi-primitive motorized* recreation settings are provided, and offer opportunities for varied types of travel (see table below) and recreational activities.

Mixed Road-based & Backcountry: Lands where both road-based and backcountry opportunities are provided, but the alternative does not allocate these lands separately.

Non-Motorized: Semi-primitive non-motorized recreation settings offer opportunities for mountain biking, horse and stock travel, hiking, dispersed camping, and other activities. These allocations are designed to provide secure wildlife habitat especially in areas which link landscapes and quiet summer and fall recreation opportunities and desirable semi-primitive settings.

Recommended Wilderness: *Semi-primitive nonmotorized* settings are provided, and offer opportunities for foot, stock, ski, snowshoe travel, dispersed camping, and other activities.

Recommended Wilderness Motorized: *In Alternative 1, motorized travel is allowed as shown in the travel plan.*

Road-based: Roaded natural and rural recreation settings are provided, and offer a wide variety of opportunities for dispersed and developed recreational activities.

Wilderness: *Primitive and semi-primitive nonmotorized* settings are provided, and offer opportunities for foot, stock, ski, snowshoe travel, dispersed camping, and other activities allowed in Wilderness. *These lands, designated as Wilderness by Congress, are the same in all alternatives.*

Wilderness Study Area: *Semi-primitive nonmotorized and semi-primitive motorized* settings are provided, and offer opportunities for wheeled motorized travel on routes as shown on the travel plan. These areas also offer opportunities for snowmobiling December 1 through May 14, and some nonmotorized travel in all seasons.

Winter

Motorized Recreation: Roaded and *semi-primitive* motorized recreation settings are provided in these areas, and offer opportunities for a variety of motorized and non-motorized travel and activities. The majority of the area in these allocations provides opportunities for travel by snowmobile (see Table #)

Non-Motorized : Primitive and semi-primitive non-motorized recreation settings are provided in these areas, and offer opportunities for ski touring, snowshoeing, and hiking, and other non-motorized activities. These allocations are designed to protect low elevation winter range for deer, elk, and moose; protect high elevation secure habitat for mountain goat and wolverine and to provide quiet winter recreation opportunities in accessible locations.

Recommended Wilderness Motorized: *In Alternative 1, motorized travel is allowed as shown in the travel plan.*

Recommended Wilderness: *Semi-primitive nonmotorized* settings are provided, and offer opportunities for foot, stock, ski, snowshoe travel, dispersed camping, and other activities.

Wilderness: *Primitive and semi-primitive nonmotorized* settings are provided, and offer opportunities for foot, stock, ski, snowshoe travel, dispersed camping, and other activities allowed in Wilderness. *These lands, designated as Wilderness by Congress, are the same in all alternatives.*

Wilderness Study Area: *Semi-primitive nonmotorized and semi-primitive motorized* settings are provided, and offer opportunities for wheeled motorized travel on routes as shown on the travel plan. These areas also offer opportunities for snowmobiling December 1 through May 14, and some nonmotorized travel in all seasons.

Wilderness Study Area - Nonmotorized: *In Alternative 5, some areas in the Sapphires WSA are specifically allocated as non-motorized in the winter.*

Recreation Opportunity Spectrum (ROS): A framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. The settings, activities, and opportunities for obtaining experiences are arranged along a

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continuum or spectrum divided into six classes—primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, rural and urban.

Primitive (PRIM) Area is characterized by essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other area users is minimal. The area is managed to be essentially free from evidence of man-induced restrictions and controls. Motorized use within the area is not permitted.

Semi-Primitive Non-Motorized (SPNM) Areas characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use not permitted, including airplanes, helicopters, etc.

Semi-Primitive Motorized (SPM) Areas characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Concentration of users is low, but there is often evidence of other area users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is permitted.

Recreation Types:

Developed - The type of recreation that occurs where modifications (i.e., improvements) enhance recreation activities in a defined area.

Dispersed - The type of recreation use related to and in conjunction with roads and trails that requires few if any improvements and may occur over a wide area. Activities tend to be day-use and include hunting, fishing, berry picking, off-road vehicle use, hiking, horseback riding, picnicking, camping, viewing scenery, snowmobiling, and many others.

Recreation Use:

LOW: 0 to 20 people per day,

MODERATE: 20 to 40 people per day,

HIGH: Over 40 people per day.

Reference Landscapes: These are terrestrial and aquatic areas with high ecosystem integrity and within the historical range of variability. They are of sufficient size, where relevant disturbance and ecological processes occur, and are generally unaffected by human activities.

Research Natural Area: An area that illustrates or typifies for research or educational purposes, the important forest and range types in each forest region, as well as other plant communities that have special or unique characteristics of scientific interest and importance. (36 CFR 1251.23)

Retard: To slow rate of recovery below the near natural rate of recovery if no additional human caused disturbance was placed on the system.

Riparian Areas/Habitats: Land where the vegetation and microclimate are influenced by perennial and/or intermittent water.

Riparian Conservation Area (RCA): As established by the Inland Native Fish Strategy, RCAs are portions of watersheds where riparian-dependent resources receive primary emphasis and management activities are subject to specific standards and guidelines. Examples include traditional riparian corridors, wetlands, intermittent streams, and other areas that help maintain the integrity of aquatic ecosystems. The following categories describe RCAs unless developed and documented through a watershed or site specific analysis.

Category 1 – Fish bearing streams: RCAs consist of the stream and the area on either side of the stream extending from the edge of the active channel to the top of the inner gorge, or to the outer edges of the 100 year floodplain, or to the outer edge of the riparian vegetation, or to the a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet including both sides of the stream channel), whichever is greatest.

Category 2 – Permanently flowing non-fish bearing streams: RCAs consist of the stream and the area on either side of the stream extending from the edge of the active channel to the top of the inner gorge, or to the outer edges of the 100 year floodplain, or to the outer edge of the riparian vegetation, or to the a distance equal to the height of one site-potential trees, or 150 feet slope distance (300 feet including both sides of the stream channel), whichever is greatest.

Category 3 - Ponds, lakes, reservoirs, and wetlands greater than 1 acre: RCAs consist of the body of water or wetland and the area to the outer, edges of the riparian vegetation, or to the extent of the seasonally saturated soil, or to the extent of moderately and highly unstable areas, or to the a distance equal to the height of one site-potential trees, or 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs or from the edge of the wetland, pond, or lake, whichever is greatest.

Category 4 - Seasonally flowing or intermittent streams, wetlands less than 1 acre, landslides, and landslide-prone areas: This category includes features with high variability in size and site-specific characteristics. At a minimum the RCAs must include:

- a. The extent of landslides and landslide-prone areas,
- b. The intermittent stream channel and the area to the top of the inner gorge,
- c. The intermittent stream channel or wetland and the area to the outer edge of the riparian vegetation,
- d. For Fish Conservation Watersheds, the area from the edges of the stream channel, wetland, landslide, or landslide-prone area to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest.
- e. For watersheds not identified as Fish Emphasis Key Watersheds, the area from the edges of the stream channel, wetland, landslide, landslide-prone area to a

distance equal to the height of one-half site potential tree, or 50 feet slope distance, whichever is greatest.

Riparian Management Objective (RMO): Fish habitat objectives established by Inland Native Fish Strategy for pool frequency, large woody debris, water temperature, and width-to-depth ratio on all streams in the project area.

Roadless: See Inventoried Roadless

ROAD TERMS

Road Related Terms:

Arterial Road: See Functional Class for subcategories under the new definition

Closure: A route or area is closed to all types of traffic, including foot traffic. This option is seldom used except in emergencies or special situations such as protection of an eagle nesting site. (Access and Travel Management - Northern Region Guide, October 1997)

Collector Road: See Functional Class.

Local Road: See Functional Class.

Forest Road: As defined in Title 23, Section 101 of the United States Code (23 U.S.C. 101), any road wholly or partly within, or adjacent to, and serving the National Forest System and which is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources. (FSM 7705 – Transportation System). Also see Road.

Forest Transportation Atlas: An inventory, description, display, and other associated information for those roads, trails, and airfields that are important to the management and use of National Forest System lands or to the development and use of resources upon which communities within or adjacent to the National Forests depend. (36 CFR 212.1)

Forest Transportation Facility: A classified road, designated trail, or designated airfield, including bridges, culverts, parking lots, log transfer facilities, safety devices and other transportation network appurtenances under Forest Service jurisdiction that is wholly or partially within or adjacent to National Forest System lands. (36 CFR 212.1, FSM 7705 – Transportation System)

National Forest System Road (NFSR): A road wholly or partly within or adjacent to and serving a part of the National Forest System and which has been included in a forest transportation atlas. (36 CFR 261.2). Also a classified Forest road under the jurisdiction of the Forest Service. Synonymous with the term “Forest Development Road” as used in 23 U.S.C. 205. (FSM 7705 – Transportation System)

Off-Highway Vehicle: Any motorized wheeled vehicle designed for cross-country travel over any type of terrain.

Off-Road Vehicle Designations:

Open - Areas and trails on which all types of motorized vehicles may be operated off roads without restrictions.

Restricted - Areas and trails on which motorized vehicle use is restricted by times or specified in orders issued under the authority of 36 CFR 261 or by law.

Closed - Areas and trails on which all motorized vehicle use is prohibited, except by permit, under authority of 36 CFR 361 or by law.

Public Access: Usually refers to a road or trail route over which a public agency claims a right-of-way available for public use.

Public Authority: A Federal, State, county, town or township, Indian tribe, municipal or other local government or instrumentality thereof, with authority to finance, build, operate or maintain toll or toll-free highway facilities. (23 CFR 460.2(b))

Public Road: Any road or street under the jurisdiction of and maintained by a public authority and is open to public travel. 23 U.S.C. 101(a), 23 CFR 460.2(a), FSM 7705 – Transportation System)

Restriction: A restriction precludes use of the route or area during a specified time period by: 1) Type of vehicle; 2) Type of traffic. (Access and Travel Management - Northern Region Guide, October 1997)

Road: A motor vehicle travel way over 50 inches wide, unless designated and managed as a trail. A road may be classified, unclassified, or temporary. (36 CFR 212.1, FSM 7705 – Transportation System).

Classified - Roads wholly or partially within or adjacent to National Forest System lands that are determined to be needed for long-term motor vehicle access, including State roads, county roads, privately owned roads, National Forest System roads, and other roads authorized by the Forest Service.

Temporary - Roads authorized by contract, permit, lease, other written authorization, or emergency operation not intended to be part of the forest transportation system and not necessary for long-term resource management.

Unclassified - Roads on National Forest System (NFS) lands that are not managed as part of the forest transportation system, such as unplanned roads, abandoned travelways, off-road vehicle tracks that have not been designated and managed as a trail, and roads that were once under permit or other authorization and were not decommissioned upon the termination of the authorization.

Decommissioned Road: a road stabilized and restored to a more natural state. Decommissioned roads are not managed as part of the Forest transportation system.

Functional Class: The way a road services land and resource management needs, and the character of service it provides. The three functional classes are arterial, collector, and local roads. (FSH 7709.54, Forest Transportation Terminology Handbook, no longer in print)

Arterial - A forest road that provides service to large land areas and usually connects with other arterial roads or public highways.

Collector - A forest road that serves smaller land areas than an arterial road, and usually connects forest arterial roads to local forest roads or terminal facilities.

Local - A forest road that connects terminal facilities with forest collector or forest arterial roads. Usually forest local roads are single purpose transportation facilities.

Road Density: Number of miles of open road per square mile.

Road Maintenance: The ongoing upkeep of a road necessary to retain or restore the road to the approved road management objective. (FSM 7705 – Transportation System)

Road Management Objectives: Defines the intended purpose of an individual road based on management area direction and access management objectives. Road management objectives contain design criteria, operation criteria, and maintenance criteria. (FSH 7709.55, Sec 33 – Transportation Planning Handbook)

Road Reconstruction: Activity that results in improvement or realignment of an existing classified road. (FSM 7700 – Transportation System)

Route: A road or trail as defined in this section.

Temporary Road: A road or trail necessary for emergency operations, or authorized by contract, permit, lease, or other written authorization that is not a forest road or trail that is not included in the Forest Transportation Atlas (36 CFR 212.1 (2005) Transportation System).

Rural/Agricultural Landscape Character: The result of extensive human activities, such as, conversion of native landscapes into extensively cultivated farmland, vineyards, pastures, or intensive livestock production.

S

Salable Materials: Mineral materials which consist of petrified wood and common varieties of sand, gravel, stone, pumice, pumicite, cinders, clay and other similar materials. Such mineral materials include deposits used for agriculture, animal husbandry, building, abrasion, construction, landscaping, and similar uses.

Salmonids: Members of the family of elongate soft-finned fishes Salmonidae - the trout and salmon family.

Scale: Defined in the framework as geographic extent; for example, region, sub-regional or landscape scale.

Scenery: General appearance of a place, general appearance of a landscape, or features of a landscape.

Scenery Management: The art and science of arranging, planning, and designing landscape attributes relative to the appearance of places and expanses in outdoor settings.

Scenic Attractiveness: The scenic importance of a landscape based on human perceptions of the intrinsic beauty of landform, rockform, waterform, and vegetation pattern. Reflects varying visual perception attributes of variety, unity, vividness, intactness, coherence, mystery, uniqueness, harmony, balance, and pattern. Attractiveness is classified as: A) Distinctive, B) Typical or Common, C) Undistinguished.

Scenic Concern Level –Public value and importance of views. See Agricultural Handbook #701, Chapter 4 to further define concern levels and their use to map landscape visibility and establish Scenic Integrity Objectives. **Concern Level 1:** A travel route or site where use is high, and/or concern for the scenery is high. **Concern Level 2:** A travel route or site where use is low or moderate, and/or concern for the scenery is moderate.

Scenic Integrity: State of naturalness or, conversely, the state of disturbance created by human activities or alteration. Integrity is stated in degree of deviation from the existing landscape character in a national forest. The objectives managed for are:

Very High – Generally provides for ecological change only.

High – Human activities are not visually evident. Activities may only repeat attributes of form, line, color, and texture found in the existing attributes, qualities or traits of a landscape that give it an image and make it identifiable or unique.

Moderate - Human activities must remain visually subordinate to the attributes of the existing landscape character. They may repeat form, line, color or texture common to these characters but changes in quality size, number intensity etc. must remain visually subordinate to the attributes, qualities or traits of a landscape that give it an image and make it identifiable or unique.

Low – Human activities of vegetative and landform alterations may dominate the original, natural landscape character but should appear as natural occurrences when viewed at background distances.

Scenic Quality: The essential attributes of landscape that when viewed by people, elicit psychological and physiological benefits to individuals and therefore, to society in general.

Scenic Resource: Attributes, characteristics, and features of landscapes that provide varying responses from and degrees of benefits to humans.

Secure Areas: Areas 1/3 of a mile from a route open to motor vehicles, larger than 10 acres.

Sensitive Species: Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by: a) Significant current or predicted downward trends in population numbers or density or, b) Significant current or predicted

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downward trends in habitat capability that would reduce a species' existing distribution. Forest Service sensitive species are not “listed” under the Endangered Species Act (ESA) and may not occur on all the forests within a Forest Service Region. Regional sensitive species lists undergo periodic review and are subject to change. G rankings denote global (range-wide) and state status from 1 (critically imperiled) to 5 (demonstrably secure)

Seral Stage: The series of plant community conditions that develop during ecological succession from bare ground (or major disturbance) to the climax stage. *Early seral stage* is a condition in which plants are present soon after a disturbance or at the beginning of a new successional process (seedling or saplings in a forest). Grass, herbs, or brush are abundant, diversity is high. A *mid-seral stage* is characterized in a forest setting has almost full crown closure in pole-to medium-sized trees. Understory vegetation and species diversity is less due to tree shading. A *late seral stage* is a condition with mature trees, often of old forest character. Tree growth has slowed, mortality has increased, understory forage is minimal, structural diversity may be high, and species diversity is generally less.

Short Interval Fire-Adapted Ecosystems: Those plant and animal communities that depend on frequently occurring wildland fires to cycle nutrients, control pathogens, maintain species composition, population, and distribution in healthy resilient condition across broad landscapes.

SILC 3: Satellite imagery land cover classification system (SILC) was started in the early 1990s to create regional land cover type, tree size, and tree canopy GIS databases for Montana and Idaho. The University of Montana developed the system with Region One of the U.S. Forest Service, the USGS Gap Analysis Program (GAP), and the state of Montana (Wildlife Spatial Analysis Lab. University of Montana.
<http://ku.wru.umt.edu/project/silcpage/index.shtml>. For the SIC3 2001 second west-central Montana classification see Metadata link: [SILC3REGIONZ Region Gird Metadata](#). This land cover grid is suited for analysis at the regional, sub-regional, and landscape levels. It is not for use at scales finer than 1:100,000.

Three of the SILC3 west-central Montana Landsat scenes were re-classified for sagebrush canopy cover classes for the Dillon Resource Area Office of the BLM in early 2002. In SILC3 all xeric shrublands and sagebrush types were classified as one combined type and had no canopy cover information. For this project five Sagebrush/Xeric Shrubland canopy cover classes were added to the map legend and a new classification was run for the three SILC3 scenes. (Wildlife Spatial Analysis Lab) For more information on the SILC3 sagebrush reclassification go to: [Southwest Montana Sagebrush Canopy Cover Classification](#).

Ski Touring: Includes all types of backcountry skiing from cross country with a focus on covering terrain, seeing the sights and being away from well traveled routes to climbing snow covered mountains to ski downhill. It does not include lift-assisted skiing.

Snowmobile: A motorized vehicle capable of use over snow or ice driven by a combination of cleats, belts, tracks, and skis.

Soil Classification: Systematic arrangement of soils into groups or categories on the basis of their characteristics; the USDA soil classification system divided from Orders to Suborders,

Great Groups, Subgroups, Family, and Type or Series Naming convention at the upper levels is based on Greek and Latin root words; at the series level naming is based on geographic place names.

Soil Function: Primary soil functions are: (1) the sustenance of biological activity, diversity, and productivity, (2) soil hydrologic function, (3) filtering, buffering, immobilizing, and detoxifying organic materials, and (4) storing and cycling nutrients and other materials.

Special Interest Area: An area important for cultural, biological, or geological features or values.

Special-Use Authorization: A permit, lease, or easement that authorizes the use or occupancy of National Forest System lands for certain purposes other than grazing, forest products, or minerals. (36 CFR 251.51)

Species: A unit of classification of plants and animals consisting of the largest and most inclusive array of sexually reproducing and cross-fertilizing individuals, which share a common gene pool.

Species Viability: A species consisting of self-sustaining and interacting populations that are well distributed through the species' range. Self-sustaining populations are those that are sufficiently abundant and have sufficient genetic diversity to display the array of life history strategies and forms to provide high likelihood for their long-term persistence and adaptability over time.

Stand: A community of trees or other vegetation uniform in composition, constitution, spatial arrangement, or condition to be distinguishable from adjacent communities.

Stand Composition: The representation of tree species in a forest stand, expressed by some measure of dominance (i.e., % volume, number, basal area).

Standard: A particular action, level of performance, or threshold specified by the Forest Plan for resource protection or accomplishment of management objectives. Unlike "guidelines" which are optional, standards specified in the Forest Plan are mandatory.

Stream Channel Stability: A classification system that utilizes ocular estimates of various channel, bank, and riparian area.

Stream Order: 1st order stream is a headwater stream. A 3rd order stream is the third branch from the 1st order stream.

Subpopulation: A geographically distinct segment of a larger population.

Succession: The replacement in time of one plant community with another r. The prior plant community (or successional stage) creates conditions that are favorable for the establishment of the next stage.

Successional Stage: A stage or recognizable condition of a plant community, which occurs during its development from bare ground to climax.

Suitability for Wild and Scenic Rivers: Evaluation of eligible rivers for inclusion into the national Wild and Scenic River System by determining the best use of the river corridor and the best method to protect the outstandingly remarkable values within the river corridor.

Summer: Season of use is May 16 through December 1.

Summer Backcountry: *Semi-primitive motorized* recreation settings. (See ROS)

Sustainability: The ability to maintain a desired condition or flow of benefits over time.

T

TE&S: Threatened, Endangered and Sensitive in reference to species.

Temporal: Related to time.

Terrestrial: Pertaining to the land.

Threatened Species: A U.S. Fish and Wildlife Service designation of a plant or animal species likely to become endangered throughout all or a specific portion of its range within the foreseeable future.

Timber Harvest: Timber harvest is an activity or tool by which trees are removed from the forest for numerous management purposes, one of which may be timber production.

Timber Production: The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use.

Traditional Cultural Property: A site eligible for listing in the National Register of Historic Places because of its association with cultural practices or beliefs of a living community that are rooted in that community's history and are important in maintaining the continued cultural identity of the community.

Trail: A commonly used term denoting a pathway for purposes of travel by foot, stock, or trail vehicles. (FSM 2353.05 – Trails)

Trail Vehicles: Off Highway Vehicles less than or equal to 50 inches with three or more low-pressure tires, handle-bar steering and a seat designed to be straddled by the operator

U

Uncharacteristic Wildfire Effects: An increase in wildfire size, severity and resistance to control, and the associated impact to people and property, compared to that which occurred in the native system.

Understory: Vegetation (e.g., trees or shrubs) growing under the canopy formed by taller trees.

Uneven-aged Management: The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting methods to develop and maintain uneven-aged stands are single tree and group selection.

Unique Habitat: Areas, usually small in size, that provide life requirements of plant or animal species that are not met on the general landscape: examples include vernal pools, snow beds, cliffs, talus slopes, seeps, fens, bogs, hummocks, solifluction lobes, caves, etc.

Unsuitable for Timber Production - Lands which meet at least one of the 10 exceptions listed under “suitable for timber production.”

Unsuitable Range: Land that should not be grazed by livestock because of unstable soils, steep topography, or inherent low potential for forage production.

Unsuitable for Timber Production - Lands which meet at least one of the 10 exceptions listed under “suitable for timber production.”

Uncharacteristic Wildfire Effects: An increase in wildfire size, severity and resistance to control, and the associated impact to people and property, compared to that which occurred in the native system.

Unwanted Wildfire: Fire that burns more intensely than the natural or historical range of variability, thereby fundamentally degrading the ecosystem or destroying communities or rare or threatened species/habitat. Also known as catastrophic, severe, uncharacteristically severe, or damaging.

Utility Corridor: Designated right-of-way corridor (FSM 1905)

V

Vacant Allotment: An allotment waived back to the government with no intent to restock by current permittee or purchaser.

Viable Population: A population, which has the estimated numbers and distribution of reproductive individuals to insure continued existence well distributed in the planning area. To insure that viable populations will be maintained, habitat must be provided to support, at least, a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area.

Viewshed: Total visible area from a single observer position, or the total visible area from multiple observer positions. Viewsheds are accumulated seen-areas from highways, trails, campgrounds, towns, cities, or other viewer locations. Examples are corridor, feature, or basin viewsheds.

Watershed: An area of land with a characteristic drainage network that contributes surface or ground water to the flow at that point; a drainage basin or a major subdivision of a drainage basin.

Watershed Analysis: Watershed analysis is a systematic procedure for characterizing watershed and ecological processes to meet specific management and social objectives. (Ecosystem Analysis at the Watershed Scale Federal Guide for Watershed Analysis 1995).

This information may then be used to:

- determine changes in Riparian Management Objectives,
- identify and prioritize restoration activities within the watershed,
- identify management activities that are consistent with the processes that create and maintain high quality aquatic habitats, and
- reveal the most useful indicators for monitoring environmental change.

In brief, watershed analysis is a set of technically rigorous and defensible procedures designed to provide information on what processes are active within a watershed (6th code), how those processes are distributed in time and space, what the current upland and riparian conditions of the watershed are, and how all of these factors influence riparian habitat and other beneficial uses. The analysis is conducted by an interdisciplinary team.

Watershed Assessment: See Watershed Analysis.

Water Yield: The measured output of the Forest's streams.

Well Distributed: The distribution of habitat over the entire forest, which helps achieve long-term objectives by not lumping habitat into one or a few areas; thereby increasing the risk of adverse effects from a single event. Well distributed will be evaluated by examining a particular condition or habitat for all eleven landscapes unless stated otherwise.

Wetlands: Those areas that are inundated by surface or ground water with a frequency sufficient, under normal circumstances, to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands include marshes, bogs, sloughs, potholes, river overflows, mud flats, wet meadows, seeps, and springs.

Wilderness Areas: Areas that are without developed and maintained roads, and that are substantially natural, and that Congress has designated as part of the National Wilderness Preservation System.

Wilderness Study Area: Those areas required for study of wilderness suitability under the Montana Wilderness Study Act of 1977 (Public Law 95-150).

Wildland(s): These lands are largely undeveloped in character and natural appearing, especially when compared to nearby privately owned lands near towns, cities, industrial, commercial, agricultural and rural landscapes. Forest Service wildland is publicly owned and administered under laws of the U.S. Congress for a variety of purposes.

Wildland Fire Use: The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in Fire Management Plans.

Wildland-Urban Interface: The line, area, or zone, where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuel.

Winter: Season of use is December 2 through May 15.

Wireless Telecommunication Facilities: Buildings, towers, or other physical improvements used to house or support wireless communication equipment and operations.

X

Xeric: A dry environment, characterized by plants that require very little moisture.

Y & Z

No terms defined.