

File Code: 1950

Date: March 2011

Subject: Bison Effects Report
Watkins-South Fork Allotment Renewal

To: Cavan Fitzsimmons, District Ranger
Susan Lamont, IDT Leader

INTRODUCTION AND STATEMENT OF ISSUE

Bison are a focal point of cultural significance for Native American tribes and are hunted as a big game species by tribes and permitted state hunters on a limited basis. Estimates put the bison population prior to European colonization at approximately 30 million animals ranging throughout the United States and into Canada. Slaughter of bison starting in the mid 1800s reduced the population to less than 1000 animals by 1900 scattered in small herds in the western United States. The magnitude of this decline is unprecedented in any other mammalian population. Currently, less than 500,000 bison (including ranches, captive herds, conservation herds, and wild) survive in North America. Most individuals have traces of domestic cattle DNA. Approximately 30,000 bison are maintained in conservation herds with fewer than 5,000 free-ranging. Most of the free ranging bison are within the Greater Yellowstone Area (GYA), specifically Yellowstone National Park (YNP), and as of Fall 2010, number approximately 3900 bison.

Bison management in the GYA has been a focal point of controversy for many years. The controversy stems from the perceived risk of spread of Brucellosis to domestic cattle. When cattle contract the *Brucella abortus* bacteria (brucellosis), it can result in spontaneous abortions in young cows (domestic and wild). Brucellosis is spread through contact with birthing materials and/or aborted fetuses of infected animals. There has never been a documented case of bison spreading brucellosis to domestic cattle under natural conditions. Noted cases of transmission to cattle under natural conditions have been traced *Brucella* strains associated with Rocky Mountain elk.

In an effort to control Brucella, an Interagency Bison Management Committee was formed and guidelines were established. The Interagency Bison Management Plan (IBMP) created coordinated framework for management direction for bison. The Gallatin National Forest Plan has no management direction for bison other than it is a big game species. Impacts to big game species and their viability are covered in the elk report (Swilling, 2011). Montana Fish, Wildlife, and Parks (FWP) has no statewide plan for bison management; however a plan is currently being developed (Dood, 2010, pers comm). The Montana cattle industry comprises 50% of the agriculture industry in Montana drawing nearly \$1 billion dollars annually (Montana Cattlegrowers Website, 2011). The continued lucrateness of the cattle industry is contingent upon maintaining a brucellosis-free herd. The Brucellosis monitoring program is under the

purview of USDA APHIS and MDOL. APHIS is in the process of changing brucellosis surveillance requirements that would reduce the burden on cattle growers in Montana outside the GYA (Federal Register, 2010, 1-18). The livestock operator on the Watkins and South Fork Allotment vaccinates the cattle for brucellosis. The vaccination that is widely used is not 100% effective at protection from the disease. Estimates suggest the vaccine is 75-80% effective in cattle and 40-60% effective in bison.

The IBMP was signed in 2000 and represents a coordinated effort between YNP, GNF, FWP, Animal and Health Inspection Service (APHIS) and Montana Department of Livestock (MDOL) to manage bison and livestock in Montana (IBMP, ROD, 2000, Attachment 1). MDOL has primary responsibility for managing bison in Montana as they are classified as livestock. Montana FWP has recently requested the FWP Commission to reclassify bison as game animals. The National Park Service (NPS) monitors bison within the boundaries of Yellowstone National Park. The goals of the IBMP are to maintain a wild, free-ranging bison population and to reduce the risk of spread of brucellosis to domestic cattle. The IBMP identifies zones (Figure 1, can you make this a black and white map so it can be inserted into the document, color maps are expensive to print) on the landscape with varying levels of tolerance for bison. Zone 1 encompasses YNP with no limits on bison populations. Zone 2 are areas on National Forest and private lands with seasonal and population level restrictions. Bison in Zone 2 after May 15th or if bison populations exceed 30 animals are subject to management actions by MDOL and FWP which include hazing and harassment, relocation, and lethal removal. Zone 3 is all areas outside of Zone 1 or 2 where there is no tolerance for bison per MDOL direction. Regardless of numbers, timing, or land ownership, bison are subject to immediate management action in Zone 3.

The public has expressed concern that the allotment renewal would prevent bison from engaging in seasonal movement across the landscape or occupying forest service managed lands. Alternatives have been suggested for the purpose of preventing closure of the South Fork-Watkins area to native bison. This idea is based on the assumption that if cattle are removed from the project area, bison from YNP will be allowed to occupy the South Fork-Watkins area. The framework to manage bison was published by the IBMP and sets limitations on bison distribution in and around Yellowstone National Park. That decision resulted in Zone 3 encompassing the Watkins and South Fork allotments. Therefore, these allotments are currently in a no tolerance zone for bison regardless of the type of domestic animal stocked there (see Alternative 4). Based on public comments, the public has expressed concern over these allotment renewals and the potential for cattle to impact bison. This public concern has prompted the forest service to provide an analysis on the impacts of the allotment renewal on free-ranging, wild bison resulting in the addition of an Alternative-4, Modified Proposed Action.

Issue The issue is whether or not bison would be impacted by the renewal of the Watkins and South Fork grazing allotments. The social issue of where bison are allowed to roam or not roam is beyond the scope of this project, so is not included in this analysis.

Indicator

An indicator of biological impacts to bison would be the prevention of bison movement and

dispersion across the landscape because of fences. The impact would be measured by the presence of fences, the disturbance from human while maintaining the fences and presence of forage availability. These include increased human presence that would disturb bison, and infrastructure such as gates, fences, water facilities, mineral licks, and cattle guards.

BACKGROUND

A. Affected Environment

The South Fork and Watkins allotments are in Zone 3 and the South Fork allotment borders Zone 2 (Figure 1). During their migration, bison often pass through the South Fork allotment from Zone 2 into Zone 3. Turn-out for the South Fork allotment is July 1st with 15 cow-calf pairs. The public has raised concern that by renewing the South Fork allotment grazing permit bison would be prohibited by the from freely ranging. Bison have no designated status (i.e., sensitive species, MIS species, etc) conveyed by the Forest Service and FWP has no population management objectives. The Forest service role operating within the IBMP framework is a role of monitoring and documenting, and bison management by the forest is focused on providing quality habitat for big game species.

Bison Movements

Bison are highly migratory species tending to move to accessible forage. During winter and spring, bison start migrating toward areas of lower snow pack for easier access to food and to prepare for calving. Bison migrations tend to occur northward and westward out of YNP onto lands administered by the GNF at which point they fall under the jurisdiction of MDOL and FWP. These movements tend to be density dependent and influenced by snow depth (Cormack, *et al*, 2005, p. 127-128). Currently, less than 3900 bison reside in YNP. By late April, bison numbers outside YNP range from 600-700 animals in the Hebgen Basin regardless of the population density in the park. These annual migrations bring bison into close proximity to private ranchlands or public lands where cattle are grazed during some portion of the year. Bison in YNP have tested 40-60% positive for brucellosis with 15-25% actively infected in any given year (YNP DEIS, 2010, p. vi). During migration events bison remain highly gregarious and congregate along the south facing slopes of Horse Butte. Additional Bison migrate north and south of Hebgen Lake bringing them onto lands that are actively grazed starting as early as mid June on private lands and July 1 on GNF lands.

Wildlife species can be impacted by range fences. The fences present on the Watkins and South Fork allotments are 4-strand barbed wire fences. These fences have little impact on wildlife movement and many are dropped during the winter. The most effective fence design for allowing wildlife passage and preventing bison movements was shown to be a 3-strand, high tensile electrified fence (Karhu and Anderson, 2006, p. 297). None of this type of fence is present on either allotment however a private rancher in the area has indicated a desire to erect a high tensile fence to keep wild bison separated from summer cattle.

Bison Forage

Bison are grazers focusing primarily on grasses and sedges. Gates *et al* (2005, p. 50) summarized important forage species for wintering bison in the Yellowstone area: "Important winter habitat for bison included shrub-grasslands consisting of Idaho fescue, bearded wheatgrass, bluebunch wheatgrass, Sandberg's bluegrass, shrubby cinquefoil (*Dasiphora floribunda*), Richardson's needlegrass, tufted hairgrass (*Deschampsia cespitosa*), big sagebrush and silver sagebrush (*Artemisia cana*). Wet meadows consisting of willows (*Salix* spp.) and sedges (*Carex* spp.) and vegetation associated with thermal areas (hot springs vegetation) were also identified as important bison forage during the winter."

Gates *et al* (2005, p. 127) also concluded that Yellowstone National Park is a forage limited system for bison necessitating the need for migration in harsh winters and above certain population levels. The simplest estimate of carrying capacity for bison in Yellowstone National Park is derived from an estimate of 0.405 bison/km² gives a theoretical carrying capacity of 3652 bison (Plumb, *et al*, 2009, p. 2380-2381.) This number is derived from a simple, generalized model of food limited carrying capacity with a large 95% confidence interval 0 – 1700 bison/km². More complex models specific to the Yellowstone ecosystem predict a carrying capacity of >6000 bison (Plumb, *et al*, 2009, p. 2382). As these theoretical carrying capacities are reached, density-dependent factors result in migrations from Yellowstone onto wintering grounds on the Gallatin NF. Maximum carrying capacities in the park will likely never be reached due to winter kill and management removals which mitigate those density dependent factors.

Within the Hebgen Basin there are 1247 ac (5.046km²) of aspen, 13,175 acres (53.317 km²) of grass/meadow/shrubland, and 1708 (6.912 km²) acres of willow. These habitats represent the most favorable for bison. Habitats excluded as preferred bison habitat are open and closed forest canopy, whitebark pine, and Hebgen Lake.

Anthropogenic Disturbance to Bison

Bison in YNP appear to have little aversion to humans from generations of exposure to park visitors. This trend also holds when bison migrate from the park onto GNF lands. Observations from the 2011 bison hunting season in the Hebgen Basin indicate most shots were taken at less than 40 yds in open terrain.

Vehicular traffic has varying levels of impact to bison. Borkowski *et al*. (2006, p. 1915) studied behavioral responses of bison to over snow vehicles (OSV) inside YNP. For bison, 81% of the responses to vehicles and associated human activity were categorized as "no response" while a combined <9% of the responses resulted in "travel", "flight" or a "defensive" reaction from bison. Bruggeman *et al* (2006, p. 1550) found bison use of groomed trail to be reduced during the grooming period then increase in the spring after grooming stops. Additional studies (Bruggeman, *et al*, 2007 p. 1421) indicate there is an overlap in bison use of road corridors as travel routes although that use cannot be completely distinguished from natural landscape features and historical bison travel patterns.

B. Applicable Laws, Regulations, Policy and Forest Plan and Travel Plan Direction

The Gallatin National Forest has no policy or guidance specific to bison. Montana FWP has no management plan in place or population objectives for bison.

The Gallatin Forest Plan contains management direction for big game winter range. There is a Forest-wide standard specifying that “big game winter range will be managed to meet the forage and cover needs of deer, elk, moose, and other big game species in coordination with other uses (USDA Forest Service 1987, page II-18).”

The IBMP promotes free roaming bison on the landscape and the GNF is signatory to this management framework. All alternatives presented in this analysis would not prevent bison from migrating into either the South Fork or Watkins allotments. Alternative 4-Modified proposed action was created to ensure greater flexibility for bison management should the IBMP be modified to allow bison in Zone 3.

Any alternative analyzed would not impact big game winter range. Selection of alternative 1 would result in 100% of available forage for wildlife. Alternatives 2 and 3 are similar with the majority of forage available to bison, similar infrastructure and levels of human disturbance. Currently, bison are not allowed to winter in Zone 3. Grazing pressure on the allotments is light leaving forage available for wintering bison. The exact carrying capacity for bison on the allotments cannot be determined without detailed analysis of biotic and stochastic influences which is beyond the scope of this analysis.

C. Methodology for Analysis

Zone designations for bison were made by the Interagency Bison Management Plan (EIS 2000). These zones are socio-political and unrelated to the biological needs of bison. The zones were plotted in ArcGIS with the allotment boundaries overlaid. The report author has witnessed three winters of varying intensity through which bison movement patterns have been directly observed moving from Yellowstone Park through Zone 2 and into Zone 3.

Literature reviews have been conducted for appropriate literature focusing on bison movement patterns in and around Yellowstone. Other information included impacts of humans and fences and of the ecological role bison play in various communities in which they inhabit.

For this analysis, suitable habitat will be shrub/steppe/grasslands and aspen habitats (Gates et al, 2005, p.50) below 9000ft. (Rick Wallen, pers comm.) to assess carrying capacity of bison in the two allotments. That area will be calculated in acres using ArcGIS then converted to km². Using the metric of 0.405 bison/km², a carrying capacity of those two allotments will be determined.

Spatial boundary: Defining a spatial boundary for analysis is problematic as are migratory and range widely over large areas. Socio-political boundaries (i.e. zones) are not entirely appropriate as they have little biological value, but they do have influence on bison distribution within the project area. The spatial boundary for this allotment renewal would be the area

within and surrounding Hebgen Lake. Bison have a large range and suitable habitat is abundant throughout Hebgen Basin, and the Hebgen Lake area has available forage throughout the entire area. YNP studies indicate bison will occupy a wide range of habitats under 9000ft in elevation (YNP, unpublished data). The South Fork and Watkins allotments have suitable bison habitat, although bison are not allowed to move through the South Fork allotment to the Watkins allotment.

Temporal boundary: The temporal boundary for past, present, and reasonably foreseeable actions is ten years from permit reissuance. This time frame was selected due to 10 years being the length of the valid permit. Actions associated with the management of this allotment could be expected for the length of the valid permit. The temporal boundary will be defined as the previous 10 years of the valid permit since the operator has not changed, allotment management practices have not changed, and there has been little fluctuation in animal unit months.

EFFECTS ANALYSIS

A. Direct and Indirect Effect

Alternative 1 (No grazing)

There would be no direct effects to bison from selection of alternative 1. There would be no infrastructure that would serve to impede bison movement on the landscape. The current fencing for cattle is 4-strand barbed wire would be removed. Human activity would remain present as weed spraying would occur. Bison from Yellowstone Park have no natural aversion to humans given the high visitor.

There would be minor indirect effects to bison from selection of alternative 1. With cattle removed from the landscape, there would be less competition for forage on those allotments. Currently, forage is not a limiting factor on this allotment for cattle with light grazing pressure during late spring through summer. All forage in the allotments would be available to bison and other wildlife year-round if cattle were not present. Using the basic measure of food limited carrying capacity of 0.405 bison/km², if the suitable habitat of these two allotments were suitable habitat and available to only bison; it would result in an increase in carrying capacity of 6.3 bison in the Hebgen Basin.

Alternative 2 (No action) and Alternative 3

Alternative 2 and 3 have similar effects and will be analyzed together.

Selection of alternative 2 would result in maintaining current management of the allotments. There would be no direct effects from selection of this alternative. Fences that are currently in place do not affect bison. There are no high tensile electric fences associated with these allotments. The operator drops the fences when the cattle are removed in the fall, so during the winter migration bison do not encounter barriers.

There will be no direct effect to bison from selection of alternative 3. Alternative 3 is similar to alternative 2 except there will be infrastructure improvement with the addition of a cattle guard and fence relocation in the Watkins allotment and development of a water gap

for cattle on the South Fork allotment. These improvements will not impede bison as all bison are removed from the landscape prior to cattle turn out.

The South Fork allotment which borders Zone 2 receives light grazing pressure from domestic livestock with remaining forage available for bison in the late winter/early spring. Being in Zone 3, all bison are removed from this area immediately by MFWP and MDOL and are not allowed to remain on the landscape. If bison were allowed to remain on the landscape in zone 3, with cattle present, interspecific competition would continue as there would be less forage available to bison in late winter. Without cattle present and allocating all forage to bison while precluding other wild ungulate use (elk and deer), this would provide an increase in carrying capacity of 6.3 bison. However, there are 15,496 (16,130-634 allotment habitat) acres (62.71 km²) of available forage throughout the entire Hebgen Basin that potentially could support 0.405 bison/km² or 154.8 bison. Permanently preventing bison from occupying these allotments would result in a 4.0% reduction in carrying capacity throughout Hebgen basin. The indirect impacts are minor and insignificant.

Alternative 4 (Modified preferred alternative)

This alternative was introduced by the public during the scoping process. The scope of this analysis and decision is limited to assessing whether or not to reissue a permit for livestock grazing on this allotment and if so, under what terms and conditions. The alternative of discontinuing livestock grazing is analyzed as Alternative 1. Beyond that, alternatives that prescribe activities and/or management of the area for other purposes are outside what is considered to be a reasonable range of alternatives.

Development of alternative 4 was driven by public concern for bison and was added as an alternative as a result of public comments. Selection of alternative 4 will have no direct or indirect impacts on bison. The design criteria established through alternative 4 would effectively reduce the socio-political conflicts that arise when bison and cattle co-exist on the landscape. In terms of biological impacts of selection of alternative 4, the direct and indirect effects would be similar as for alternatives 2 and 3 above.

Since the livestock will be removed once the desired grazing utilization level is reached, this alternative will be similar to alternatives 2 and 3.

B. Cumulative Effects

Cumulative effects are those additive effects from proposed project when analyzed with any past, present or reasonably foreseeable future activities occurring within the established temporal and spatial boundaries. There are no direct effects from any of the proposed alternatives 1-4. There would be minor indirect effects from the selection of alternative 1 as the carrying capacity of Hebgen basin would increase by 6.3 bison.

The main effects of concern to bison are impacts to the amount of forage available or those actions that would impede bison movement across the landscape. This project would result

in cumulative effects when analyzed with those past, present, or reasonably foreseeable future activities that would reduce forage or prevent bison movement.

Alternative 1

Cumulative effects from selection of this alternative would be minor. There would be an increase in forage available to bison through eliminating competition by cattle. None of the infrastructure currently in place would impede bison movement. Activities on private lands such as cattle grazing and home construction could reduce the amount of forage available to bison and/or fragment the landscape, respectively. The resulting hypothetical increase in carrying capacity, without competition from other ungulates (elk and deer), for Hebgen Basin would be 6.3 bison.

Alternatives 2, 3 and 4.

Implementation of alternative 2, 3, or 4 would keep livestock of some class on the landscape, as well as, the associated infrastructure needed to maintain those livestock. The current fences in place do not impede bison movement as they are not high tensile electric fences. The fences in place are dropped during the winter. Some high tensile fences are possible on adjacent private lands which would impede bison movement. Residential development on private lands could also fragment migration corridors. Grazing would continue on the allotments and on private lands preventing the 6.3 bison increase in potential carrying capacity. These alternatives would have minor cumulative effects to bison.

CONCLUSION

Changes to the Interagency Bison Management Plan are beyond the scope of this analysis, and the Forest Service alone does not have the authority to revisit this decision. The Secretaries of Interior and Agriculture, along with the governor of Montana, made the decision on the areas in which bison would be allowed outside of Yellowstone National Park. Zone 3, including the Watkins and South Fork allotments, is a designated no tolerance zone for bison. In the state of Montana, bison are managed under an interagency agreement. MDOL, APHIS, and FWP remove bison from Zone 3 where the Watkins and South Fork Allotments are located.

Selection of any alternative would have no direct effects and minor indirect and cumulative effects on bison. Forest Service actions do not prevent bison from moving across the landscape, including into the Watkins and South Fork allotments. Should state and national policies change, alternative 4 provides criteria to allow the permittee to continue his operations while reducing potential conflict.

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Your name and title

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Date

RESOURCE ISSUE: Bison

PROJECT: South Fork and Watkins Creek Allotments Management Plan

CUMULATIVE EFFECTS ANALYSES

Spatial and Temporal Bounds

and

Past, Present, & Reasonably Foreseeable Future Actions

□ Description of Temporal Bounds used for Cumulative Effects Analysis:

Temporal bounds identify a limit in time within which the potential effects of the proposed action should be considered in combination with the effects of other past, present and reasonably foreseeable future actions in the area.

The temporal boundary for past, present, and reasonably foreseeable actions is ten years from permit reissuance. This time frame was selected due to 10 years being the length of the valid permit. Actions associated with the management of this allotment could be expected for the length of the valid permit. The temporal boundary will be defined as the previous 10 years of the valid permit since the operator has not changed, allotment management practices have not changed, and there has been little fluctuation in animal unit months.

□ Description of Spatial Bounds used for Cumulative Effects Analysis:

Spatial bounds identify the geographic area within which the potential effects of the proposed action should be considered in combination with the effects of other past, present and reasonably foreseeable future actions in the area. In other words, it provides a logical spatial limit on other actions that should be considered.

Defining a spatial boundary for analysis is problematic as are migratory and range widely over large areas. Socio-political boundaries (i.e. zones) are not entirely appropriate as they have little biological value, but they do have influence on bison distribution within the project area. The spatial boundary for this allotment renewal would be the area within and surrounding Hebgen Lake. Bison have a large range and suitable habitat is abundant throughout Hebgen Basin, and the Hebgen Lake area has available forage throughout the entire area. YNP studies indicate bison will occupy a wide range of habitats under 9000ft in elevation (YNP, unpublished data). The South Fork and Watkins allotments have suitable bison habitat, although bison are not allowed to move through the South Fork allotment to the Watkins allotment.

□ Past, Present, & Reasonably Foreseeable Future Actions:

Listed are other past, present and reasonably foreseeable future actions occurring in the overall vicinity that should be considered for potential cumulative effects with the proposed **South Fork and Watkins Allotments Management Plan**. For each other action identified below I have made a determination of whether it "may have cumulative effects with the proposal" or "will not have cumulative effects with proposal." For the actions I determined not to be connected in terms of cumulative effect I've provided my rationale for that conclusion. In a general sense the reasons that an action will not have cumulative effects with the proposal is due to one or more of the following:

- a) The proposed project has no direct/indirect effects relative to the issue;
- b) The identified past/present/foreseeable action has no direct/indirect effect relative to the issue;
- c) The identified past/present/foreseeable action is removed geographically from the proposed action to an extent that there is no combined effect on the specific resource of issue (e.g., outside of spatial bounds);
- d) The identified past/present/foreseeable action is removed in time to an extent that there is no overlap in the direct/indirect effects of the action with the direct/indirect effects of the proposed action on the specific resource of issue (e.g., outside of temporal bounds).

OTHER ACTIONS IDENTIFIED WITHIN THE SOUTH FORK ALLOTMENT

Dispersed Camp Site in North Pasture – one primitive camp site next to the river no infrastructure (no outhouse, picnic table, or fire ring).

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
- ☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: Camping will not alter the forage availability in the allotment, and bison from YNP are acclimated to high levels of human disturbance and tolerate human presence. Camping typically takes place later in the spring after bison have returned to the park.

Invasive Plants Herbicide Treatment – will spray yellow toadflax in South pasture until the patch is eradicated (may take 5 to 10 years, of repeated herbicide application, to fully eradicate this patch of weeds). This patch was just discovered in 2009 and is approximately 50 X 50 feet in size.

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
- ☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: Weed spraying will help to retain forage in the allotment by preventing the spread of weeds. The existing weed patch is too small to have a measurable effect on available forage. Bison from YNP are acclimated to high levels of human disturbance and tolerate human presence.

OTHER ACTIONS IDENTIFIED WITHIN THE WATKINS CREEK ALLOTMENT

Dispersed Camp Site in Adjacent to Hebgen Lake – five primitive camp sites next to the lake, no infrastructure. **Dispersed Camp Site next to Watkins Creek** - one site on east side of the creek

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
- ☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: Camping will not alter the forage availability in the allotment, and presence of humans will not displace bison. Bison from YNP are acclimated to high levels of human disturbance and tolerate human presence.

Spring Cover Western Toad Interpretive Site – Will install parking area, breeding site enclosure, walking paths and interpretive signs in the 2010.

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
- ☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: This area is too small to have a measureable impact on available forage. Bison from YNP are acclimated to high levels of human disturbance and tolerate human presence. The infrastructure will not prevent bison from access to this area. Even the three sided enclosure allows for bison access.

Watkins Creek Fish Culvert on Denny Creek Road – In 2010, the existing culvert will be replaced with a small bridge to improve fish passage

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
- ☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: This culvert is on an existing road and does not limit forage or accessibility to the bison.

Old Gravel Pit in Watkins Pasture – Gravel was extracted from this in the early 1980's for use on the Denny Creek Road. The pit has been "reclaimed" but the bottom of the pit is mostly cobble size rock, little grass/forbs and patches of spotted knapweed.

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
- ☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: Only a small section of the old gravel pit does not have forage (30 feet by 30 feet), most of the old pit has available forage. There are no structures preventing bison access.

Watkins Creek Trail and Trailhead – Located in Upper Watkins Pasture, the trail parallels the creek and runs through most of the meadows. Trail is used by horses and foot travel.

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: Bison are not displaced by the presence of people using the trail. Bison from YNP are acclimated to high levels of human disturbance and tolerate human presence.

Watkins Creek Woody Debris Fish Habitat – In 2010, augment existing woody debris by dropping a few trees adjacent to the stream for the purpose of improving fish habitat.

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: This area is heavily forested, does not contain grass/forbs, and is not desirable bison habitat.

Wally McClure Creek Fish Barrier – In 2007 installed a cement barrier in the stream to prevent hybridization of west slope cutthroat trout.

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: This area is heavily forested, does not contain grass/forbs, and is not desirable bison habitat.

Wally McClure Road Culvert Removal – In 2011 the Forest Service will remove the culvert just above the fish barrier. The road crossing will still be accessible to livestock and foot traffic. Horses from a guest ranch and other recreational users travel up and down the road and will cross the stream.

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: This area is heavily forested, does not contain grass/forbs, and is not desirable bison habitat. Bison from YNP are acclimated to high levels of human disturbance and tolerate human presence.

Past Timber Harvesting Within and Adjacent to South Fork and Watkins Creek Allotments–

- 1.) West Hebgen Timber Sale was harvested in 1990 (the last year of harvest activity), 9 ac were within the allotment but high on the ridge (tractor logged); the remaining 506 acres were harvested on the west side of Hebgen Lake but outside of both allotments (no harvest units within South Fork allotment).
- 2.) Quaking Dead Timber Sale was harvest in 1989 (the last year of harvest activity), which included 40 ac adjacent to Denny Creek Road (inside Watkins Creek allotment), and another 16 acres were harvested outside of the allotment.

- 3.) Trapper Timber Sale was harvest 1990 (last year of harvest activity); inside of the Watkins Creek allotment 89 ac of tractor logging occurred adjacent to Wally McClure road, 25 acres next to Denny Creek road, and 37 acres of cable logging high on the ridge; outside of the allotment, 332 acres were harvested.
- 4.) Old Harvest units high on the ridge but inside of Watkins Creek allotment, harvested 60 acres with tractors in 1960s.

☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

X WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: The proposed project has no direct/indirect effects relative to the issue. The identified past/present/foreseeable action has no direct/indirect effect relative to the issue. These old timber sales have established trees (about 10 to 20 feet tall) that are displacing the grass/forbs. These areas are transitory range lands, and quickly returning to a forested habitat. Since forage is very limited, these areas were not included in the forage analysis completed for bison.

Proposed Timber Harvest Within and Adjacent to South Fork and Watkins Creek Allotment –

- 1.) Lonesome Wood Fuel reduction project is proposed to thin trees adjacent to summer homes, Denny Creek Road and West Denny Road, implementation anticipated between 2011 and 2013.

X MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: Activities associated with Lonesome Wood project could increase forage for bison. Aspen treatments, prescribed fire, and forest openings could result in an increase in forage that would be available to bison.

EXISTING ROAD/TRAIL SYSTEM AND TRAVEL MANAGEMENT:

Situation(s) regarding this activity:

- 1.) Denny Creek road graded 2-3 times / year
- 2.) Watkins Creek trail closed to ATV travel in 2007

☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

X WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: Bison from YNP are acclimated to high levels of human disturbance and tolerate human presence.

IMPLEMENT 2007 TRAVEL MANAGEMENT PLAN-

Situation(s) regarding this activity:

- 1.) Will build ATV connector routes between West Denny road and Contour road in 2010;
- 2.) Designated campsites along Denny Creek road in 2009;

- 3.) Posted travel signs started in 2007;
- 4.) Enforce ATV restrictions to stay on designated routes started in 2001.

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: Bison from YNP are acclimated to high levels of human disturbance and tolerate human presence.

PRIVATE LAND MANAGEMENT:

Situation(s) regarding this activity:

- 1.) Cattle graze on private land south of the South Fork allotment.
- 2.) Horses grazing on private land adjacent to Watkins Creek allotment
- 3.) Weed spraying/spreading
- 4.) Building of homes/structures, roads, parking lots

- ☒ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
☐ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: Selection of alternatives 2, 3, or 4 would have additive effects when analyzed with activities on private lands. Cattle grazing on private lands reduces the amount of forage for bison. Additional development of houses and/or subdivisions would permanently eliminate bison habitat and result in fragmentation that could inhibit bison movement across the landscape.

RECREATIONAL USES:

Situation(s) regarding this activity:

1) Types of recreation:

Outfitter/guides, Hunting, Snowmobile use, OHV use, Mountain bike use, Horseback riding, Hiking, Fishing, Camping

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

2) Campgrounds:

Lonesomehurst, Cherry Creek, Spring Creek,

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

3) Dude ranches:

Fire Hole Ranch

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: Bison from YNP are acclimated to high levels of human disturbance and tolerate human presence.

PRESCRIBED FIRE AND WILDFIRE ACTIVITY:

Situation(s) regarding this activity:

- 1.) No prescribed fires have occurred in the west side of Hebgen Lake except for burning of slash piles from timber sales. Prescribed fire other than the activities associated with Lonesome Wood e (underburn 300 acres and burning of slash piles) is not being proposed for this area, only thinning of trees to reduce risk of crown fire.
- 2.) No large fires have occurred on the west side of Hebgen Lake.

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: There may be a temporary increase in forage after the underburn however, these treatment areas are isolated and not near natural meadows so will not likely be utilized by bison.

WEED TREATMENT

Situation(s) regarding this activity:

The Forest Service treats approximately 50 to 100 acres of invasive weeds along roads and trails on the west side of Hebgen Lake, annually. The acres of weed treatment may increase in the future if the weed population increases.

- ☐ MAY HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL
☒ WILL NOT HAVE CUMULATIVE EFFECTS WITH THE PROPOSAL

Explanation: Weed spraying will help to retain forage in the allotment by preventing the spread of weeds. The existing weed patch is too small to have a measurable effect on available forage. Bison from YNP are acclimated to high levels of human disturbance and tolerate human presence.

Resource Specialist

Date