

Table 11: Methods Each Alternative Uses

Table 11: Methods Each Alternative Uses to Ensure Each Agreed-Upon Objective Is Met										
Objective	Alternative 1: No Action - Continuation of the Current <i>Interim Bison Management Plan</i>	Alternative 2: Minimal Management	Alternative 3: Management with Emphasis on Public Hunting	Alternative 4: Interim Plan with Limited Public Hunting and Quarantine	Alternative 5: Aggressive Brucellosis Control within Yellowstone National Park through, Capture, Test, and Removal	Alternative 6: Aggressive Brucellosis Control within Yellowstone National Park through Vaccination	Alternative 7: Manage for Specific Bison Population Range	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implementation of Interim Plan outside Park, Modified Preferred inside Park
1. Address bison population size and distribution; have specific commitments relating to size of bison herd	Overall size not specified in <i>Interim Bison Management Plan</i> ; distribution (winter numbers): Eagle Creek/Bear Creek - 100–200, Reese Creek - 0; West Yellowstone - 50–100; no commingling of bison/cattle per landowner discretion; capture/slaughter and agency shooting controls distribution	Overall size: 1,700 to whatever environmental conditions dictate; road closure controls distribution; limited by landowner tolerance; acquire additional winter range; allow bison on all public land inside line; distribution (winter numbers): Eagle Creek/Bear Creek - 100–200, Gardiner Valley area - 200; West Yellowstone - 50–100	Overall size: 1,700–3,500; West Yellowstone and Eagle Creek/Bear Creek: hunting program to regulate numbers/ distribution; Reese Creek: capture/ slaughter - run capture facility until additional winter range acquired; quarantine seronegatives: Eagle Creek/Bear Creek - 100–200, Reese Creek SMA - 50–100; W. Yellowstone - 50–100	Overall size: 1,700–3,500; distribution (winter numbers): Eagle Creek/Bear Creek - 100–200; Reese Creek - 0; West Yellowstone - 50–100; capture, test, slaughter, or quarantine, shooting to control distribution; hunting in Eagle Creek/Bear Creek and West Yellowstone; remove seronegatives captured at Reese Creek to control numbers	Distribution limited to Yellowstone National Park; agencies capture/test/ slaughter seropositives parkwide; shoot strays; population size dictated by disease control success	Overall size: 1,700–3,500; distribution (winter numbers): Eagle Creek/Bear Creek - 100–200; Reese Creek - 0; West Yellowstone - 50–100; capture, test, slaughter, shooting; capture at Seven-Mile Bridge; incidental hunting at Eagle Creek/Bear Creek and West Yellowstone may help control numbers; capture and slaughter control distribution	Overall size: 1,700–2,500; Eagle Creek/Bear Creek - 100–200; Reese Creek SMA - 50–100; West Yellowstone - 50–100; capture, test, slaughter and quarantine, shooting, limited hunting in Eagle Creek/Bear Creek and West Yellowstone control numbers and distribution; specific measures at specific population ranges	Overall size: maximum of 3,000; Eagle Creek/Bear Creek – 100 to 200; Reese Creek area- up to 100; West Yellowstone - up to 100; distribution controlled by zone management; numbers controlled by capture, test, and removal to quarantine or slaughter when population over 3,000, and by holding up to 125 seronegative bison over winter when population less than 3,000; purchase or otherwise acquire additional winter range for bison in northern range	Same as alternative 1	Same as alternative 1; except in step 1, park would use capture, test, and removal to enforce whole herd maximum of 3,000; in steps 2 and 3, Montana may continue this
2. Clearly define a boundary line beyond which bison will not be tolerated	Maiden/Little Trail, Reese Creek, on north; West Yellowstone/Horse Butte/north boundary of Cabin Creek; Hebgen Lake on west side	Yankee Jim Canyon on north; Buffalo Horn Creek; Hebgen Lake on west side	Yankee Jim Canyon, west side of Yellowstone River and Gardiner; Little Creek/ Maiden Basin on east side of river; Cabin Creek, Hebgen Lake on west side	Same as alternative 1	All bison restricted to Yellowstone National Park	Inside Yellowstone National Park; Eagle Creek/Bear Creek; West Yellowstone, Horse Butte	Same as alternative 3	Same as alternative 3, steps 2 and 3; same as alternative 1, step 1	Same as alternative 1	Same as alternative 1
3. Address the risk to public safety and private property damage by bison	Removal at landowner request or by Department of Livestock	Same as alternative 1	Removal at landowner request or by Department of Livestock; West Yellowstone - hunting on private lands with agreement by landowners	Removal at landowner request or by Department of Livestock; special hunt on private land	Same as alternative 1	Same as alternative 1	Same as alternative 4	Remove through hazing at landowner request; shoot only if hazing ineffective	Same as alternative 1	Maximize use of hazing; otherwise same as alternative 1
4. Commit to the eventual elimination of brucellosis in bison	Vaccinate bison when safe and effective vaccine developed; capture/ slaughter seropositives in West Yellowstone; slaughter all at Reese Creek	Vaccinate bison when safe and effective vaccine developed	Vaccinate bison when safe and effective vaccine developed; slaughter seropositives; remove seronegatives captured at Reese Creek	Vaccinate bison when safe and effective vaccine developed; capture/ slaughter seropositives; remove seronegatives captured at Reese Creek	Parkwide capture and slaughter of seropositives; vaccinate when safe and effective vaccine developed	Capture/slaughter seropositives at Reese Creek/Seven-Mile Bridge; parkwide vaccination until seropositive rate plateaus; then parkwide capture and slaughter of seropositives	Vaccinate bison when safe and effective vaccine developed; slaughter seropositives; quarantine seronegatives captured at Reese Creek	Vaccinate all captured bison with vaccine safe for that age/sex/ pregnancy status; when safe and effective vaccine and safe and effective remote delivery system available, begin parkwide vaccination of all bison for whom the vaccine has proven safe and effective	Same as alternative 1; in addition, vaccinate captured bison with safe vaccine; whole herd with safe and effective vaccine and safe and effective remote delivery	Same as alternative 1; in addition, vaccinate captured bison with safe vaccine; whole herd with safe and effective vaccine and safe and effective remote delivery



TABLE 11: METHODS EACH ALTERNATIVE USES TO ENSURE EACH AGREED-UPON OBJECTIVE IS MET (CONTINUED)

Objective	Alternative 1: No Action - Continuation of the Current <i>Interim Bison Management Plan</i>	Alternative 2: Minimal Management	Alternative 3: Management with Emphasis on Public Hunting	Alternative 4: Interim Plan with Limited Public Hunting and Quarantine	Alternative 5: Aggressive Brucellosis Control within Yellowstone National Park through, Capture, Test, and Removal	Alternative 6: Aggressive Brucellosis Control within Yellowstone National Park through Vaccination	Alternative 7: Manage for Specific Bison Population Range	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implementation of Interim Plan outside Park, Modified Preferred inside Park
5. Protect livestock from the risk of brucellosis	Monitor movement; test/slaughter all seropositives (and some seronegatives); vaccinate bison/cattle; enforced boundary; remove on private land; surveillance testing; test/vaccinate adult contact cattle; shoot on private land or crossing out of SMAs	Monitor movement; modify livestock use where bison present; public acquisition of private land; easements; modify cattle allotments and operations in SMAs; hazing; shoot on private land or crossing out of SMAs; boundary control; vaccinate cattle in SMA; surveillance testing; test/vaccinate adult contact cattle; vaccinate bison calves	Monitor movement; capture/slaughter seropositives (phase 1); hunting; temporal separation in West Yellowstone with possible changes in allotments in phase 2; public acquisition of winter range, easements, or modifications in cattle operations; surveillance testing; test/vaccinate adult contact cattle; vaccinate bison calves; haze or shoot on private land or crossing out of SMAs	Monitor movement; test/slaughter seropositives; vaccinate bison/cattle; enforced boundary; hunting to remove at West Yellowstone; remove on private land; surveillance testing; test/vaccinate adult contact cattle; shooting on private land or crossing out of SMAs	Restrict to park; capture/test/vaccinate/slaughter inside Yellowstone National park; monitor movement; vaccinate cattle; surveillance testing; shoot on private land	Vaccinate bison; capture/test/slaughter; vaccinate cattle; monitor movement; surveillance testing; shoot on private land or crossing out of SMAs	Monitor movement; test/slaughter seropositives; vaccinate bison/cattle; enforced boundary; remove bison on private land; surveillance testing; test/vaccinate adult contact cattle; public acquisition of winter range; haze or shooting on private land or crossing out of SMAs	Monitor movement; ensure spatial and temporal separation of bison and birth products from susceptible cattle; haze bison into park well before cattle arrive; monitor pregnant bison outside park; cattle vaccination, bison vaccination; wait until cattle lease expires before bison occupy newly acquired lands; haze or shoot bison on private land or crossing out of zones in boundary areas; adaptive management to phase tolerance of untested bison outside park; additional monitoring of cattle; possible adult vaccination of cattle	Same as alternative 1	Same as alternative 1 in step 1; vaccinate bison as above
6. Protect the state of Montana from risk of reduction in its brucellosis status	Designate SMAs; adopt above measures to protect livestock from risk of brucellosis	Designate SMAs; adopt above measures to protect livestock from risk of brucellosis	Designate SMAs; adopt above measures to protect livestock from risk of brucellosis	Designate SMAs; adopt above measures to protect livestock from risk of brucellosis	Adopt above measures to protect livestock from risk of brucellosis	Designate SMAs; adopt above measures to protect livestock from risk of brucellosis	Designate SMAs; adopt above measures to protect livestock from risk of brucellosis	Designate management zones; adopt above measures to protect livestock from risk of brucellosis; make funds available to certify individual cattle herds as brucellosis free	Same as alternative 1	Same as alternative 1; vaccinate bison as above
7. At a minimum, maintain a viable population of wild bison in park, as defined in biological, genetic, and ecological terms	Discussion process to develop contingency measures	Increase available winter habitat through modifications in cattle allotments, private cattle operations, etc.	Increase available winter habitat through modifications in cattle allotments, private cattle operations, etc.; reduce number of hunting permits issued; use capture facilities to hold bison for park release	Reduce number of hunting permits issued; release live, rather than quarantine and remove	Slow down pace of bison eradication	Same as alternative 5, plus reduce number of hunting permits issued	Haze instead of shoot bison on private land or crossing SMA boundary; release rather than quarantine seronegatives, use capture facilities to overwinter bison in severe winters	Haze instead of shoot bison on private land or crossing management zone boundary; release rather than remove seronegatives; use capture facilities to hold bison if population below 3,000; direct funds to complete research on carrying capacity	Same as alternative 1; use Stephens Creek to hold calves	Same as alternative 1; use Stephens Creek to hold overwintering seronegative bison when population numbers drop below 3,000



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8. Be based on factual information, with the recognition that the scientific database is changing	Ongoing research to develop safe, effective vaccine; better blood test; understand intra- and inter-species transmission; estimates of minimum population; brucellosis pathology and epidemiology in bison	Same as alternative 1 except add research effects of road grooming on bison migration	Same as alternative 2	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 2	Assume carrying capacity is 3,000 based on research in NAS (1998) report; assume risk of transmission is nonexistent if bison are removed 45 days before cattle return, based on research on viability of the brucella organism; incorporate vaccination research findings into management strategy; continue research on epidemiology and pathology of brucellosis in bison	Same as alternative 1	Same as alternative 1; focus on GYIBC to provide information on safe and effective vaccine criteria
9. Recognize the need for coordination in the management of natural and cultural resource values that are the responsibility of signatory agencies	Apply laws, constraints for siting facilities, consultation/coordination; specify cooperative responsibilities	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1



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Bison population range	No range specified in existing interim plan	Allow natural forces to determine herd size	Manage herd within range of natural variation: 1,700–3,500	Same as alternative 3	Manage herd size to prevent loss of genetic integrity and ensure success of disease control	Same as alternative 5	Manage herd within range of 1,700 to 2,500	Manage for overall population limit of 3,000 bison	Same as alternative 1; assume management would maintain herd within 1,700–3,000	Same as alternative 1; assume management would maintain herd within 1,700–3,000
Capture, test, and slaughter operations	Reese Creek: capture all bison at Stephens Creek facility inside park and ship seropositives to slaughter, temporarily hold seronegative bison; West Yellowstone: capture, test, and ship seropositive males and females and all pregnant females to slaughter; test and release seronegative male and nonpregnant females on public land; capture facilities on national forest and/or private land used during winter months	Phase 1 same as alternative 1; phase 2 no capture, test, and slaughter operations	Reese Creek: in phase 1, ship all seropositives to slaughter, seronegatives to quarantine; in phase 2, capture facility between Yankee Jim Canyon and Reese Creek as backup to hunting; West Yellowstone: no capture facilities	Capture facilities same as alternative 1, except ship seronegatives from Reese Creek to quarantine	Temporary capture facilities throughout park; test; ship all seropositives to slaughter and release all seronegatives within park; Stephens Creek facility remains	Reese Creek: ship all captured bison to slaughter; West Yellowstone capture facility at Seven-Mile Bridge area inside park; test and ship seropositives to slaughter; test, vaccinate, and release all seronegatives onsite; phase 2 capture facilities same as alternative 5	Reese Creek: in phase 1, ship all seropositives to slaughter, seronegatives to quarantine; in phase 2, capture facility between Yankee Jim Canyon and Reese Creek; West Yellowstone: same as alternative 1, except quarantine all seronegatives at high population levels and all seronegative-pregnant bison at population mid range; capture facility at Horse Butte	Step 1- Reese Creek: same as alternative 1; West Yellowstone: capture bison, ship seropositives to slaughter, release all seronegatives on public land up to 100 tolerance; Step 2 - Reese Creek: capture bison, ship seropositives to slaughter, release seronegatives on public and conservation easement lands up to 100 tolerance; West Yellowstone: same as Step 1; Step 3 - Reese Creek: allow untested bison on public and conservation easement lands up to 100 tolerance, capture and release seronegatives when >100, <45 day separation, >3,000 bison; West Yellowstone: allow untested bison up to 100 tolerance, capture and release seronegatives when >100, <45 day separation, >3,000 bison	Capture facilities same as revised alternative 1 except hold calves instead of all seronegatives at Stephens Creek facility; possibly ship seronegatives to quarantine in phase 1 and phase 2 same as alternative 4; West Yellowstone: same as alternative 1	Capture facilities same as either revised alternative 1 or 4 in step 1 (depending on whether quarantine is available); in steps 2 and 3, Stephens Creek facility would only be used to hold up to 125 overwintering seronegative bison if total population numbers were 3,000 or below. West Yellowstone - assumed to be same as alternative 4 in all steps.
Contingency Plan	None specifically identified. Actions common to all alternatives identifies that when the population approaches 1,700, agencies would more aggressively employ	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1 but bison population could go below 1,700	Same as alternative 1	Same as alternative 1	Detailed plan to reduce the number of bison that are killed as part of bison management actions and to provide for a generally stable bison population should large numbers of bison attempt to move outside the park in	“Agency implemented lethal controls would decrease as population approaches 1,700 and cease at 1,700 in certain areas.”- same as or similar to alternative 1	Same as alternative 1 and hold up to 125 seronegative bison over the winter if population levels at 3,000 or below.



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Contingency Plan (Continued)	nonlethal methods to encourage bison to remain within management boundaries; lethal control would still occur for bison posing greatest risk of transmission							response to severe winter weather; actions emphasize hazing, capture, and release of seronegative bison to tolerance level, and holding seronegative bison for spring release; if hazing ineffective and tolerance levels exceeded, additional bison sent to quarantine, to slaughter, or shot.		
Agency Shooting	Agency personnel would shoot bison that could not be hazed, evaded capture, or were deemed unsafe to handle (usually large adult males)	Agency personnel would shoot bison that could not be hazed and attempted to move beyond SMA boundaries, threatened human safety, or were identified for removal from private property	Same as alternative 1	Same as alternative 1	Bison would be shot if they attempted to move beyond the park boundary and were unresponsive to hazing	Same as alternative 1	Same as alternative 1	Same as alternative 1	Not specifically addressed, but assumed to be the same as alternative 1	Same as alternative 1 in step 1; in steps 2 and 3, Montana might choose to continue to shoot bison to enforce boundaries or facilitate capture
Quarantine operations	No quarantine operations	No quarantine operations	Quarantine operations - take seronegatives from Stephens Creek in phase 1; relocate capture facility in phase 2	Quarantine operations - Reese Creek: quarantine all seronegatives; West Yellowstone: quarantine seronegative-pregnant females	No quarantine operations	No quarantine operations	Quarantine operations – take seronegatives from Stephens Creek in phase 1; West Yellowstone: quarantine seronegative-pregnant females; if population high, quarantine all seronegatives	Quarantine operations, if available; take seronegative bison from Reese Creek and West Yellowstone under the following circumstances: 1) when bison tolerance levels of 100 were exceeded, 2) when overall population >3,000, 3) to enforce 45-day separation period	Quarantine operations Reese Creek quarantine all seronegatives until whole-herd (including adult) vaccination initiated; West Yellowstone: quarantine seronegative pregnant females. Same as alternative 4	Quarantine operations used in step 1, if available; Montana may continue to use quarantine for captured seronegative, nonpregnant bison in steps 2 and 3
Monitoring of bison	Aerial and ground reconnaissance of bison in and adjacent to park	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1 and monitor bison to facilitate capture inside park	Phase 1, same as alternative 1; phase 2, same as alternative 5	Same as alternative 1	Aerial and ground reconnaissance of bison in and adjacent to Yellowstone National Park; telemetry of pregnant bison; additional staff to enforce zone management boundaries	Not specifically addressed; assumed to be similar to alternative 1	Same as alternative 1



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Bison hunting	No hunt	No hunt	If legislature approves, state of Montana institutes fair-chase hunt on public and private land in all SMAs; public hunt during winter (Oct.–Feb.) primary method to control population numbers and distribution	If legislature approves, state of Montana institutes fair-chase hunt on public lands; public recreational hunt during winter (Oct.–Feb.)	No hunt	No hunt	If legislature approves, state of Montana institutes fair-chase hunt on public lands at Eagle Creek/Bear Creek; in phase 2, hunting could be allowed on public lands in all SMAs	No hunt	No hunt	No hunt
Bison management on public lands adjacent to Yellowstone National Park	Allow bison on public lands in Eagle Creek/Bear Creek except north of Little Trail Creek/Maiden Basin hydrographic divide; do not allow bison north of Reese Creek; do not allow bison in West Yellowstone area beyond May and until November 1	Allow bison on public lands in Eagle Creek/Bear Creek; in Gardiner Valley south of Yankee Jim Canyon; and south of Buffalo Horn Creek and east of Hebgen Lake in western area	Allow bison on public lands in Eagle Creek/Bear Creek except north of Little Trail Creek/Maiden Basin hydrographic divide; do not allow bison in West Yellowstone area beyond May and until November 1; in phase 1, bison not allowed north of Reese Creek; phase 2, bison allowed between Reese Creek and Yankee Jim Canyon	Same as alternative 1	Do not allow bison outside park; haze to return bison to interior of park	Same as alternative 1	Allow bison on public lands in Eagle Creek/Bear Creek except north of Little Trail Creek/Maiden Basin hydrographic divide; do not allow bison in West Yellowstone area beyond May and until November 1; in phase 1, bison not allowed north of Reese Creek; in phase 2, bison allowed between Reese Creek and Yankee Jim Canyon	Allow bison on public lands in Eagle Creek/Bear Creek area except north of Little Trail Creek/Maiden Basin hydrographic divide; Reese Creek: step 1 - do not allow bison north of Reese Creek; step 2 - allow seronegative bison on public and conservation easement lands up to 100; then after 2 years (step 3) allow untested bison up to 100; for steps 2 and 3, do not allow bison beyond zone management boundaries at Yankee Jim Canyon. Haze to return to park in spring; West Yellowstone: step 1, 2 - release all seronegative bison on public land in Horse Butte area during winter up to 100; step 3 - allow untested bison on public land during winter, up to 100; do not allow bison in West Yellowstone area past mid-May to enforce 45-day separation;	Same as alternative 1 except state veterinarian would consult with agencies, use weather and other criteria to determine haze back date within 30–60 day window (e.g., the date may vary between April 1 and May 1).	Same as alternative 1



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Bison management on public lands adjacent to Yellowstone National Park (Continued)								beginning approximately November 1, do not allow bison beyond management zone boundaries during winter		
Bison management on private lands adjacent to Yellowstone National Park	Remove bison at landowner request	Same as alternative 1	Bison hunted with landowner permission; remove at landowner request	Remove bison at landowner request; possible bison hunt under special and limited circumstances	Same as alternative 1	Same as alternative 1	Same as alternative 3	Remove, preferentially by hazing, at landowner request	Same as alternative 1	Same as alternative 1
Surveillance testing of cattle	No change in existing cattle surveillance requirements	Require testing of susceptible cattle in SMA	Require testing of cattle in contact with bison	Same as alternative 3	Same as alternative 1	Require testing of cattle in high-risk areas in West Yellowstone	Whole herd surveillance protocols for cattle within SMAs recommended by APHIS	APHIS would cooperate with Montana to conduct additional testing and vaccination of cattle that graze in areas that bison might occupy in the winter; APHIS would offer livestock operators option of having cattle certified as brucellosis free; federal agencies would provide funds for direct costs of additional testing in unlikely event bison commingle with cattle	Not specifically addressed; assumed to be same as alternative 1	Same as alternative 1
Vaccination of cattle with RB51	Encourage calfhood vaccination of cattle adjacent to park	Encourage vaccination of all susceptible female cattle calves within SMA, adjacent to park or within 20-mile radius of either	Same as alternative 2	Same as alternative 2	Same as alternative 1	Same as alternative 2	Same as alternative 2	Montana would encourage vaccination of cattle that may graze in areas that bison might occupy in winter; if voluntary compliance was not 100%, Montana would make it mandatory; federal government would reimburse direct cost of vaccination	Mandatory vaccination if 100% compliance not met by May 2001; cost reimbursed by federal government	Mandatory vaccination if 100% compliance not met by May 2001; cost reimbursed by federal government



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TABLE 12: SUMMARY COMPARISON OF ALTERNATIVE ACTIONS (CONTINUED)										
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Vaccination of bison	Vaccinate bison calves after vaccine is developed that is safe and effective for bison using capture facilities and remote means	Same as alternative 1, using remote means only	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1	Vaccinate all captured vaccination-eligible bison (initially calves and yearlings) with safe vaccine; possible remote vaccination with safe vaccine, safe/effective delivery system on untested bison tolerated at West Yellowstone; when safe and effective vaccine and safe and effective delivery available, conduct remote parkwide vaccination on eligible bison	Vaccinate captured bison with safe vaccine for that age/class of bison in phases 1 and 2; vaccinate whole herd with safe and effective vaccine for all bison with a safe and effective remote delivery system in phase 2	Vaccinate all captured vaccination-eligible bison (initially calves and yearlings) with safe vaccine; possible remote vaccination with safe vaccine, safe/ effective delivery system on untested bison tolerated at West Yellowstone; when safe and effective vaccine and safe and effective delivery available, conduct remote parkwide vaccination on eligible bison - same as modified preferred alternative
Modify national forest grazing allotments	No modification of national forest grazing allotments	Modification of national forest grazing allotments may occur	No modification of national forest grazing allotments expected in phase 1, but may occur in phase 2	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 3	If needed, modify public land-grazing start date to ensure 45-day temporal separation between bison use of public lands in winter and cattle grazing on public lands in summer and fall	Same as alternative 1	Same as alternative 1
Change in land use, easement, or acquisition of additional wildlife habitat.	No change in existing land use/ownership FEIS NOTE: Land north of Reese Creek designated as wildlife habitat has been acquired; a cattle lease on this land remains in effect until 2002	Easement or acquisition of additional winter wildlife habitat; or change from breeder cattle (susceptible cattle) to steers/spayed heifers within SMA	Similar to alternative 2, with reduced acquisition	Same as alternative 1	Same as alternative 1	Same as alternative 1	Phase 1, no change; phase 2, acquire additional winter range north of Reese Creek; no changes in cattle operations	Same as revised alternative 1	Same as revised alternative 1	Same as revised alternative 1



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Action	Alternative 1: No Action – Continuation of the Current <i>Interim Bison Management Plan</i>	Alternative 2: Minimal Management	Alternative 3: Management, with Emphasis on Public Hunting	Alternative 4: Interim Plan with Limited Public Hunting and Quarantine	Alternative 5: Aggressive Brucellosis Control within Yellowstone National Park through Capture, Test, and Removal	Alternative 6: Aggressive Brucellosis Control within Yellowstone National Park through Vaccination	Alternative 7: Manage for Specific Bison Population Range	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implement Interim Plan outside Yellowstone National Park, Modified Preferred Alternative inside Yellowstone National Park
Winter road grooming	No change in existing winter road management FEIS NOTE: (Changes in winter road management made as a result of separate planning efforts would be implemented	Eliminate winter grooming and snowmobile use of some trails; research effects of closures on population numbers and on ability to keep bison within park boundaries	Research effects of road closures on bison	Same as alternative 1	Plow roads in winter for access to bison capture facilities	Phase 1 - plow road to Seven-Mile Bridge capture facility; phase 2 - plow roads same as in alternative 5	Same as alternative 1	No changes in winter road management proposed	Same as revised alternative 1	Same as revised alternative 1
Total annual cost of alternative (includes one-time only costs such as quarantine, capture facilities, and land acquisition)	<ul style="list-style-type: none">• NPS – \$660,500• USFS – \$16,500• State of MT – \$154,000-\$451,000• APHIS – \$201,300	<ul style="list-style-type: none">• NPS – \$420,700• USFS – \$187,000• State of MT – \$165,000• APHIS – \$36,300• Shared costs (up to \$44.1 million)	<ul style="list-style-type: none">• NPS – \$709,800• USFS – \$44,000• State of MT – \$247,500• APHIS – \$1,026,300-\$1,356,300• Shared costs (up to \$33.1 million)	<ul style="list-style-type: none">• NPS – \$643,800• USFS – \$27,500• State of MT – \$448,800• APHIS – \$1,185,800-\$1,515,800	<ul style="list-style-type: none">• NPS – \$2,815,290• USFS – \$16,500• State of MT – 0• APHIS – \$56,100	(phase 2) \$1,1013,860 – phase 1; \$2,377,160 – phase 2 <ul style="list-style-type: none">• USFS – \$16,500• State of MT – \$156,700–phase 1; \$192,500–phase 2• APHIS – \$24,700–phase 1; \$29,700–phase 2	<ul style="list-style-type: none">• NPS – \$1,071,700• USFS – \$33,000• State of MT – \$443,020• APHIS – \$1,216,300-\$1,546,300• Shared costs (up to \$29.1 million)	<ul style="list-style-type: none">• NPS – \$1,071,700• USFS – \$22,00• State of MT – \$388,020• APHIS – \$1,538,800• Shared costs (up to \$29.1 million)	Costs not included. Assumed to be similar to alternative 4	In step 1 - same as alternative 1; in steps 2 and 3 - NPS costs would be reduced; Montana’s may be increased



Table 13: Comparison of Alternatives Submitted by Organization

Table 13: Summary Comparison of Actions in Alternatives Submitted by Organizations After Release of the <i>Draft Environmental Impact Statement</i>					
Action	Bison Alternative	Plan B	Fort Belknap Tribe	Citizens’ Plan	USAHA Plan
Sponsors	The Fund for Animals; other organizations, including the Humane Society, Earth Island Institute and over 1,600 individuals	Written and submitted by an independent wildlife biologist; endorsed by organizations including the Ecology Center, Montana Ecosystems Defense Council, and Taxpayers for Common Sense	Fort Belknap Native American Community of Montana	Greater Yellowstone Coalition, Defenders of Wildlife, Inter Tribal Bison Cooperative, National Parks and Conservation Association, National Wildlife Federation, other organizations, and more than 47,500 individuals	U.S. Animal Health Association
Summary of plan’s overall management approach	Allow bison to roam freely and be regulated naturally; modify winter use management to restore natural regulation as the primary mechanism for controlling population and distribution; alter cattle operations on private and public lands and require vaccination of cattle to reduce the risk of bacterial transmission	Adopt a cost-effective approach to disease management by addressing the underlying factors that cause brucellosis to be problematic; reduce the prevalence of brucellosis in bison by nonintrusive, remote vaccination; vaccinate and annually test the few cattle in areas used by bison, remove cattle from public lands used by bison, and compensate ranchers who switch to no-risk operations; maintain bison populations at ecological carrying capacities through active management	Allow bison to range freely and retain their status as wildlife; give bison priority over livestock in the use of all public lands outside the park; make the acquisition of land for winter range and migration routes a priority; this approach appears to be similar to phase 2 of alternative 2	Manage herd size to the ecological carrying capacity of land both inside the park and within special management areas; minimize disease transmission through separation, including changes in cattle operations on public lands and the acquisition of land or easements; regulate herd sizes through public harvest or live removal to quarantine for later disposition to tribal or other public lands	Aim to totally eradicate brucellosis from the Yellowstone bison; under phase 1, reduce the number of bison testing positive through vaccination; maintain population at 1,800; in five years begin phase 2, capture and test every bison within the park, slaughter those testing positive, and quarantine those testing negative; do not allow bison outside the park except into the Eagle Creek/Bear Creek SMA
		The approach is similar to phase 2 of alternative 3		Similar in approach to modified preferred alternative; carrying capacity outside park identified and analyzed in phase 2 of alternative 2	Approach same as alternative 6
Bison population range	No set limit, naturally regulated Same as alternative 2, phase 2	Actively manage to achieve ecological carrying capacity	Establish population goals for the herd based on habitat available in park, SMAs, acquired land	Establish ecological carrying capacities for the park and special management areas outside the park; if additional lands became available, increase size of herd; review annually by cooperative wildlife team	1,800 bison until non-National Park Service range experts say Yellowstone National Park can accommodate more than this. Never more than 2,200
			Alternative 2, phase 2 assumes bison will use available winter habitat up to its ecological carrying capacity	Alternative 2, phase 2 assumes bison would use available winter habitat in the park and in SMAs similar to those suggested in the Citizens’ Plan up to their ecological carrying capacity (see results of new stochastic modelling in “Environmental Consequences: Impacts on Bison Population”)	Impacts on bison population indicated for years 1–10 (1997–2006) for alternative 5 (table 47) would occur in years 6–15 in this alternative; unclear impacts for phase 1, population at 1,800; assume removals at Stephens Creek and Seven-Mile Bridge facility is 100% of migrating bison, e.g., that all bison indicated in table 42 as remaining outside Yellowstone National Park at West Yellowstone would also be removed to slaughter or quarantine for years 1–5 (1997 to 2001 in table 42)
Capture, test, and slaughter operations	None	None	Within 18 months, construct facilities in appropriate locations to capture bison	Immediately relocate Stephens Creek facility to outside park; use to trap and test for quarantine to maintain population numbers; retain one capture facility on west side in SMA. Use facility to maintain population size, keep number of bison outside park to carrying capacity; hold seropositive bison for use in research or for use by tribes.	Two permanent capture facilities - at Stephens Creek and Seven-Mile Bridge in both phases; in phase 1 assume capture, test, and removal to slaughter of seropositive bison in these facilities; remove seronegative bison to slaughter or quarantine at Reese Creek, release into western part of park from Seven-Mile Bridge; shoot or capture and return to park, quarantine if bison migrate to western park boundary; in phase 2, add 7 temporary facilities in the park, begin parkwide capture, test, and slaughter as described in alternatives 5 and 6
	Same as alternative 2, phase 2	Same as alternative 2, phase 2	Unclear purpose, location of facilities	Similar approach to modified preferred alternative, although capture facility remains at Stephens Creek; relocation analyzed in phase 2 of alternative 3	



TABLE 13: SUMMARY COMPARISON OF ACTIONS IN ALTERNATIVES SUBMITTED BY ORGANIZATIONS AFTER RELEASE OF THE *DRAFT ENVIRONMENTAL IMPACT STATEMENT (CONTINUED)*

Action	Bison Alternative	Plan B	Fort Belknap Tribe	Citizens’ Plan	USAHA Plan
Quarantine operations	None	None	Unclear; possible use of capture facilities to complete quarantine protocol; live removal for tribes in cooperation with Inter Tribal Bison Cooperative	Locate away from park; use different, less severe protocol and pasture-type facility; use to maintain population size and number of bison in SMAs at carrying capacity	Build immediately; locate in area far removed from cattle; suggestions include in park, adjacent to Stephens Creek, or build new capture facility at Seven-Mile Bridge or in Lamar Valley or Madison River areas near west boundary of park; use to hold bison tested and released from Seven-Mile Bridge facility and migrating westward out of the park
	Same as alternative 2 and others	Same as alternative 2 and others	The description of quarantine and associated impacts would likely be similar to that described in the environmental impact statement for alternatives 3, 4, 7, and the modified preferred alternative; the distribution of live bison completing quarantine in the Ft. Belknap Tribe alternative would be coordinated with tribal governments and/or Inter Tribal Bison Cooperative	Impacts of quarantine are not part of this final environmental impact statement; proposed location and type would be decided in a future NEPA process; different protocol is considered unreasonable by APHIS (see “Volume 2: Responses to Comments” for more information)	Impacts of a quarantine facility would be decided in a future NEPA process. In the environmental impact statement, quarantine is assumed to become available one year following the signing of a record of decision in alternatives 3, 4, 7 and the modified preferred alternative
Monitoring of bison	Continue agencies’ existing monitoring of bison within and adjacent to the park	Done by Montana Department of Fish, Wildlife and Parks for bison as they do for other species	Not addressed	Continue agencies’ existing monitoring	Aerial and ground monitoring within and adjacent to the park
	Same as all alternatives	No change to impacts from other alternative			No anticipated differences in impacts between this and monitoring as described for alternatives analyzed in the environmental impact statement
Bison hunting	None	Not addressed. But “active management” by state wildlife agencies referenced; this usually includes hunting	If hunting is used, tribal hunting only; no public hunt	Regulate public harvest to help maintain population limits	Allow in the Eagle Creek/Bear Creek SMA if approved
	Same as alternative 2	Most similar to alternative 4, although numbers of bison killed through hunting and hunting area much larger	Impacts of tribal hunting would be indistinguishable from public hunting (see alternatives 3 and 4)	Impacts of hunting analyzed in alternatives 3 and 4	Impacts of hunting only in Eagle Creek/Bear Creek area analyzed in alternative 7
Bison management on public lands adjacent to Yellowstone National Park	Allow bison to roam freely in all areas outside the park	Allow bison to roam freely in all areas outside the park	Allow bison to roam freely within Greater Yellowstone Ecosystem; offer incentives to modify livestock operations; use Inter Tribal Bison Cooperative to manage bison on newly acquired lands	Allow bison to roam freely in SMAs located north and west of the park, but keep boundaries flexible, especially on west side; focus on changes in cattle management rather than bison management; boundaries roughly the same as alternative 2, phase 2	Bison allowed to occupy Eagle Creek/Bear Creek except north of Little Trail Creek/Maiden Basin hydrographic divide; do not allow bison north of Reese Creek; do not allow bison in West Yellowstone area
	Same as alternative 2, phase 2	Same strategy as alternative 2, phase 2 and alternative 3, phase 2, but area where this would need to occur is much larger	Same strategy as phase 2 of alternatives 2 and 3, but area larger	Same as phase 2 of alternative 2	Impacts on bison distribution would be intermediate between those alternatives in 5 and 6
Bison management on private lands adjacent to Yellowstone National Park	Avoid hazing unless it can be done humanely from private lands where not tolerated; construct fencing and require vaccination and testing for cattle.	Use volunteers to haze bison from private land upon request	Haze bison where they are not permitted. Use Inter Tribal Bison Cooperative to manage bison on newly acquired lands; offer incentives to modify livestock operations	Haze bison from private land to avoid conflicts with human safety or property; compensate owner for any property damage	Bison not allowed outside park except into Eagle Creek/Bear Creek area (public lands); if bison do evade capture, haze or shoot at landowners request or with landowner permission
	Same effect as alternative 2, phase 2, but area requiring action much larger	Possibly unreasonable as Montana Department of Livestock required to remove bison from private land for disease control or if landowner requests it; impacts similar to phase 2 of alternatives 2 or 3, area much larger	Approach similar to phase 2 of alternatives 2 and 3, but area larger	Same approach as alternatives 2, 3, 7 or Modified Preferred	Same as all alternatives (see “The Alternatives: Actions Common to All Alternatives”)



Table 13: Comparison of Alternatives Submitted by Organization

Table 13: Summary Comparison of Actions in Alternatives Submitted by Organizations After Release of the <i>Draft Environmental Impact Statement (Continued)</i>					
Action	Bison Alternative	Plan B	Fort Belknap Tribe	Citizens’ Plan	USAHA Plan
Surveillance testing of cattle	Federal and state agencies will use testing in conjunction with fencing for separation and vaccination	Not addressed	Not addressed	Not addressed	Require testing of cattle in areas near West Yellowstone
	Most similar to modified preferred alternative				Same as alternative 6
Vaccination of cattle	Mandatory	Mandatory if contact with bison possible	Vaccinate at federal expense	Require vaccination within and adjacent to the SMAs	Encourage vaccination of female calves that may come in contact with bison
	Same effect as all alternatives, but costs higher because area larger	Same as alternative 3, phase 2	Costs would be higher than in environmental impact statement because of additional area; would be borne by federal government, not livestock operators	Impacts of this approach similar to assumptions made in analysis (all cattle in impact area vaccinated) of all alternatives	Same approach as alternative 1
Vaccination of bison	None	Vaccinate when safe and effective vaccine available	Not addressed	Vaccinate when safe and effective vaccine available and can be administered when sure that elk will not reinfect bison	Immediately vaccinate calf and yearlings with RB51; use empirical data from domestic bison herds to implement adult vaccination with reduced dose of RB51, especially for seronegative adult females.
	Seroprevalence would continue at existing levels or increase	Remote vaccination of bison calves part of all alternatives		Same approach as alternatives 1, 2, 3, 4, 7, and the modified preferred alternative; seroprevalence would not drop low enough that elk reinfection was a concern in these alternatives	When seroprevalence stabilizes (no statistically significant reductions occurring), begin parkwide capture and test program; slaughter seropositives, vaccinate, and release seronegative bison into park or quarantine.
Modify national forest grazing allotments	Prohibit cattle grazing on affected public lands; U.S. Forest Service would provide alternative public lands if available	Give bison preference over cattle on public lands; remove cattle if there are conflicts; limit grazing permits to steer only or other low-risk operations	Give bison preference over cattle; modify permits to reduce or eliminate contact between bison and livestock	Change the type, timing, and location of cattle operations to accommodate bison on public lands	None
	Same as alternative 2, phase 2	Type of impacts same as phase 2 of alternatives 2 or 3 with larger extents	Same approach as alternative 2, phase 2	Similar to or same as phase 2 of alternatives 2 and 3, and steps 2 and 3 of modified preferred alternative	Modifications would not be necessary as no bison exit the park into areas where allotments occur; same as alternative 5
Change in land use, easement or acquisition of additional wildlife habitat	Acquire private grazing lands, if available, as additional winter range	None	Make acquisition of additional land from willing sellers for winter range and migration routes a priority	Acquire key winter range north and west of the park by purchasing land or easements from willing sellers	None proposed
	Assume same as alternatives 2, 3, and 7, phase 2, or unreasonable due to costs (to acquire additional land wherever bison range)		Assume same as alternatives 2, 3, and 7, phase 2, or unreasonable due to costs (to acquire additional land in entire Greater Yellowstone ecosystem)	Similar to phase 2 of alternative 2 (given SMA boundaries identified in Citizens’ Plan)	Same as alternatives 1, 4, 5, and 6
Winter road grooming	Change policy to end all grooming and snowmobile use in park	Not addressed	Not addressed	Study impact of groomed roads on bison migration; take action to close them if warranted	Plow roads as required to transport bison from capture facilities, quarantine
	Unknown impact, assume similar to phase 2, alternative 2			Same as alternative 3	Same as alternatives 5 and 6



Table 13: Comparison of Alternatives Submitted by Organization

Table 13: Summary Comparison of Actions in Alternatives Submitted by Organizations After Release of the <i>Draft Environmental Impact Statement (Continued)</i>					
Action	Bison Alternative	Plan B	Fort Belknap Tribe	Citizens’ Plan	USAHA Plan
To a large degree, does proposed alternative meet objectives 1–9 and purpose of bison management plan as stated in the environmental impact statement	No; violates several objectives (1, 2, 3, 4, 6, and 9) outright; does not “protect economic interest and viability of livestock industry in Montana” (purpose) or achieve objective 5 to a large degree	No; violates objectives 1 and 2. The agencies believe it would not be possible to achieve objectives 4, 5, and 6 or protect the Montana livestock industry from threat of brucellosis transmission from bison with an ever increasing range occupied by bison	Unclear; appears to violate objectives 1, 2, 4, 5, and 6; no stated boundary, population size, vaccination of bison (commitment to eventual elimination of brucellosis); unclear purpose of capture facilities, quarantine, timing of cattle changes or land acquisition may mean objectives 5 and 6 cannot be achieved		No; bison would not remain wild and free ranging, as they would be extensively handled throughout phase 2, and confined to the park and Eagle Creek/Bear Creek for the entire 15-year life of the plan; also, the use of a bison vaccine before it is clearly safe, particularly for adults, violated objectives 7, 8, and 9
NEPA status	Rejected as unreasonable for violating stated purpose and objectives; geographic scope much larger - since no boundaries, may include all former range of bison in U.S.; within the geographic boundaries defined by the agencies, this approach is similar to alternative 2, phase 2	Scope of analysis much larger than in environmental impact statement; since no boundary set, geographic scope may include all former range of bison in U.S.; rejected as outside the scope of this environmental impact statement and unreasonable for violating stated purpose and objectives; within the geographic boundaries defined by the agencies, this approach is similar to alternative 3, phase 2	Scope of analysis much larger than in environmental impact statement and appears to violate several objectives; rejected as outside the scope of this environmental impact statement, and unreasonable for violating stated objectives	Viable alternative; however, the impacts of each management tool identified are similar or identical to those already analyzed for one or more alternatives in the environmental impact statement; the alternative is not rejected, but is considered already analyzed in the environmental impact statement and no further analysis is needed	Rejected as unreasonable for the following reasons: violates purpose of taking action by not preserving a wild and free-ranging population and violates objectives of taking action



Action	Alternative 1: No Action - Continuation of the Current <i>Interim Bison Management Plan</i>	Alternative 2: Minimal Management	Alternative 3: Management with Emphasis on Public Hunting	Alternative 4: Interim Plan with Limited Public Hunting and Quarantine	Alternative 5: Aggressive Brucellosis Control within Yellowstone National Park through, Capture, Test, and Removal	Alternative 6: Aggressive Brucellosis Control within Yellowstone National Park through Vaccination	Alternative 7: Manage for Specific Bison Population Range	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implementation of Interim Plan outside Park, Modified Preferred inside Park
Agency-enforced boundary control at Reese Creek	✓	✓ (phase 1)	✓	✓	✓	✓	✓	✓ (steps 1, 2)	✓	✓ (step 1)
Agency enforced boundary control at Little Trail Creek/ Maiden Basin divide	✓	✓ (phase 1)	✓	✓		✓	✓	✓	✓	✓
Bison shot inside Eagle Creek/Bear Creek area			✓ (hunt)	✓ (hunt)	✓ (agency)					
Agency-enforced boundary at Yankee Jim Canyon (northern boundary beyond Reese Creek)		✓	✓ (phase 2)				✓ (phase 2)	✓ (steps 2, 3)		
Agency-enforced boundary at Cabin Creek area boundary on western side	✓		✓	✓		✓	✓	✓	✓	✓
Agency-enforced boundary at Buffalo Horn Creek on western side		✓								
Capture facility at Stephens Creek (northern, Reese Creek boundary inside park)	✓	✓ (phase 1)	✓ (phase 1)	✓	✓	✓	✓ (phase 1)	✓	✓	✓ (step 1)
Capture facilities at Duck Creek and Madison River (western boundary)	✓	✓ (phase 1)		✓	✓					
Capture facilities at several locations inside park					✓	✓ (phase 2)				
Capture facilities at Duck Creek and Horse Butte (western boundary)							✓	✓	✓	✓
Capture facilities at Seven- Mile Bridge (western boundary inside park)						✓				



TABLE 14: COMPARISON OF FEATURES OF EACH ALTERNATIVE (CONTINUED)

Action	Alternative 1: No Action - Continuation of the Current <i>Interim Bison Management Plan</i>	Alternative 2: Minimal Management	Alternative 3: Management with Emphasis on Public Hunting	Alternative 4: Interim Plan with Limited Public Hunting and Quarantine	Alternative 5: Aggressive Brucellosis Control within Yellowstone National Park through, Capture, Test, and Removal	Alternative 6: Aggressive Brucellosis Control within Yellowstone National Park through Vaccination	Alternative 7: Manage for Specific Bison Population Range	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implementation of Interim Plan outside Park, Modified Preferred inside Park
Seronegative bison from Stephens Creek slaughtered	✓	✓ (phase 1)			✓	✓		✓ (step 1; steps 2 and 3 under certain conditions, quarantine full)	✓ (phase 1)	✓ (step 1)
Seronegative bison from Stephens Creek quarantined			✓	✓			✓	✓ (step 1; steps 2 and 3 under certain conditions)	✓	✓ (step 1)
Seronegative- nonpregnant bison from West Yellowstone capture facilities released onsite	✓	✓ (phase 1)		✓		✓	✓	✓	✓	✓
Seronegative-pregnant bison from West Yellowstone slaughtered	✓	✓ (phase 1)							✓	✓
Seronegative-pregnant bison from West Yellowstone quarantined				✓			✓ (at high population levels)		✓	✓
Seronegative-pregnant bison from West Yellowstone released onsite						✓		✓		
Quarantine facilities			✓	✓			✓	✓	✓	✓
Bison hazed into capture facilities, away from borders	✓	✓ (phase 1)	✓	✓	✓	✓	✓	✓	✓	✓
Bison crossing boundaries shot	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SMA in Eagle Creek/Bear Creek	✓	✓	✓	✓		✓	✓	✓	✓	✓
SMA between Reese Creek and Yankee Jim Canyon on west side of Yellowstone River only			✓				✓	✓		
SMA between Reese Creek and Yankee Jim Canyon on east and west side of Yellowstone River		✓								
Western SMA including Horse Butte area	✓	✓	✓	✓		✓	✓	✓	✓	✓



TABLE 14: COMPARISON OF FEATURES OF EACH ALTERNATIVE (CONTINUED)

Action	Alternative 1: No Action - Continuation of the Current <i>Interim</i> <i>Bison Management Plan</i>	Alternative 2: Minimal Management	Alternative 3: Management with Emphasis on Public Hunting	Alternative 4: Interim Plan with Limited Public Hunting and Quarantine	Alternative 5: Aggressive Brucellosis Control within Yellowstone National Park through, Capture, Test, and Removal	Alternative 6: Aggressive Brucellosis Control within Yellowstone National Park through Vaccination	Alternative 7: Manage for Specific Bison Population Range	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implementation of Interim Plan outside Park, Modified Preferred inside Park
Western SMA includes Cabin Creek/Lee Metcalf area	✓	✓	✓	✓		✓	✓	✓	✓	✓
Western SMA includes all land south of Buffalo Horn Creek		✓								
Bison hazed back into park from West Yellowstone in May	✓	✓ (phase 1)	✓ (phase 1)	✓		✓	✓	✓	✓	✓
Bison hazed back into park from Reese Creek in April								✓ (steps 2, 3)		
Bison hunted in West Yellowstone area			✓	✓ (limited)			✓ (possible)			
Untested bison outside park at Reese Creek								✓ (step 3)		✓ (step 2, 3)
Seronegative bison released at Reese Creek								✓ (step 2)		✓ (step 2)
Untested bison allowed into western SMA, including West Yellowstone area								✓ (step 3, possible in step 2)		
Capture facility at Stephens Creek used only to hold 125 bison overwinter, if late winter population greater than 3,000, or if more than 100 bison occupy Reese Creek management area outside park.								✓ (step 3)		
Capture facility at Horse Butte used only if late winter population greater than 3,000, or if more than 100 bison occupy West Yellowstone management area outside park								✓ (step 3)		



Table 15: Comparison of Impacts

Table 15: Summary Comparison of Impacts of Alternatives

The following terms are used in this impact summary chart and throughout the environmental impact statement. In some cases, the terms are defined quantitatively. However, when they are not, the following definitions apply:

- Negligible – at lower levels of detection
- Minor – detectable, but slight
- Moderate – readily apparent environmental effects with the potential to become major
- Major – severe adverse or exceptional beneficial effects

Topic	Alternative 1: No Action	Alternative 2:	Alternative 3:	Alternative 4:	Alternative 5:	Alternative 6:	Alternative 7:	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implementation of Interim Plan outside Park, Modified Preferred inside Park
Impacts on Bison Population										
Estimated population size (# bison) in 2006 or later	3,100 in 2006 from DEIS deterministic model; the stochastic model predicts a mean population of 3,700	3,500 in 2006; moderate increase from DEIS deterministic model; the stochastic model predicts a mean population of 5,200, a major increase compared to alternative 1	3,500 in 2006; moderate increase from DEIS deterministic model; the stochastic model predicts a mean population of 3,700; similar to alternative 1	2,800 in 2006; minor decrease from DEIS deterministic model; the stochastic model predicts a mean population of 3,700; similar to alternative 1	Deterministic model predicts 2,150 in 1997 to 1,250 in 1999; up to 2,000 by 2006; major decrease; the stochastic model predicts a mean population of 2,900 in 2000 to 2,080 in 2001; major decrease, 2,494 in 2004; major decrease compared to alternative 1, 3,600 in 2014	Deterministic model predicts 3,500 in 2010; 2,500–2,900 in 2011; moderate to major decrease; the stochastic model predicts that phase 2 could not be implemented during life of the plan; required at least 20 years to fully implement alternative; a mean population of 3,700 at 15 years	Deterministic model predicts 2,700 in both 2006 and 2011; moderate to major decrease; the stochastic model predicts that the population objective is never achieved; the stochastic model predicts a mean population of 3,600; similar to alternative 1	Deterministic model predicts 3,245 in 2006; similar to alternative 1; major increase compared to alternative 7; the stochastic model predicts a mean population of about 3,700; similar to alternative 1	Same as alternative 1	Same as alternative 1
Estimated distribution in West Yellowstone	Deterministic model predicts 18–52 bison; the stochastic model predicts an average of 61–66 seronegative nonpregnant bison would remain	Deterministic model predicts 20–60 bison; the stochastic model predicts an average of 366–1,128 bison could winter in the western SMA; a major increase	Deterministic model predicts 16–120 bison; the stochastic model predicts an average of 62-68 bison, similar to alternative 1	Deterministic model predicts 1–52 bison; the stochastic model predicts an average of 56-60 bison; a minor decrease	Both deterministic and stochastic models predict 0 bison; a major decrease	Deterministic model predicts 22–60 bison; the stochastic model predicts an average of 58 – 80 seronegative bison might winter in the area; a minor to major increase	Deterministic model predicts 13–51 bison; the stochastic model predicts no bison would winter in the area in an attempt to meet population objectives; a major decrease	The deterministic model predicts 22–60; minor to moderate increase compared to alternative 1; the stochastic model predicts 10 bison up to 100 tolerance limit might winter in the area; similar to alternative 1 but more management flexibility and less hazing, capture and handling when tolerance limit is not exceeded	Same as alternative 1	Same as alternative 1
Estimated distribution in Reese Creek	0 bison	Deterministic model predicts 0–120 bison; the stochastic model predicts an average of 462–530 bison could winter north of the park; a major increase	Deterministic model predicts 60-80 bison; the stochastic model predicts an average of 68–80 bison could winter north of the park; a major increase	Deterministic model and stochastic model predict 0 bison; same as alternative 1	Deterministic model and stochastic model predict 0 bison; same as alternative 1	Deterministic model and stochastic model predict 0 bison; same as alternative 1	Deterministic model predicts 0–100 bison; the stochastic model predicts no bison would winter in the area in an attempt to meet population objectives; major decrease	Deterministic model predicts 65–82; major increase compared to alternative 1; the stochastic model predicts 10–20 up to 100 tolerance limit might winter in the area; major increase compared to alternative 1	Same as alternative 1	Same as alternative 1



TABLE 15: SUMMARY COMPARISON OF IMPACTS OF ALTERNATIVES (CONTINUED)

Topic	Alternative 1: No Action	Alternative 2:	Alternative 3:	Alternative 4:	Alternative 5:	Alternative 6:	Alternative 7:	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implementation of Interim Plan outside Park, Modified Preferred inside Park
Impacts on Bison Population (continued)										
Estimated seroprevalence rate in 2011 using the deterministic model and in 2013 for the stochastic model; (for all alternatives except alternative 6, these dates represent 11 years after vaccination of bison begins)	Deterministic model predicts seroprevalence would decline to 24% ; stochastic model predicts decline to about 11%	Deterministic model predicts seroprevalence would decline to 26% ; minor adverse impact ; stochastic model predicts decline to about 13%	Deterministic model predicts seroprevalence would decline to 28% ; minor to moderate adverse impact ; stochastic model predicts decline to about 15%	Deterministic model predicts seroprevalence would decline to 26% ; minor adverse impact ; stochastic model predicts decline to about 13%	Both deterministic and stochastic models predict seroprevalence would fall to near 0% ; a major beneficial impact	Deterministic model predicts seroprevalence would decline to 0% by 2013; major beneficial impact; stochastic model predicts decline to about 9% in 2014; similar to alternative 1, and that this alternative would require at least 20 years to fully implement	Deterministic model predicts seroprevalence would decline to 23%; negligible to minor beneficial impact; stochastic model predicts decline to about 14%	Deterministic model predicts seroprevalence would decline to 25%; negligible to minor beneficial impact; stochastic model predicts decline to about 13%	Same as alternative 1	Same as alternative 1
Impacts on Recreation										
Visitor experience related to capture facilities and operations	Minor adverse impacts related to capture operations and restricted access or closures because of them	No impact to visitors because capture facilities removed; relative benefit	Negligible adverse impact on visitor use as capture facilities rarely used; relative benefit	Similar to alternative 1	Moderate to major adverse impact from capture operations parkwide; moderate to major adverse impact from additional facilities and year-round operations	Similar impact from operations in phase 2 to those in alternative 5 ; major adverse impact to visitor experience from capture facility in Seven-Mile Bridge area	Similar to alternatives 1 and 4, although possible adverse impact from increased use of capture facilities to maintain population size	Similar to alternative 7, but less adverse as the target population level is higher than alternative 7	Same as alternative 1	Same as alternative 1
Wildlife viewing opportunities – percent change by 2006 and distribution	42% increase is bison population over 1997; relative benefit compared to existing conditions	14% increase over alternative 1; and wider distribution ; minor to moderate benefit compared to alternative 1 to those seeking to view bison	14% increase over alternative 1; minor to moderate benefit compared to alternative 1	8% decrease over alternative 1; minor adverse impact compared to alternative 1	35% decrease over alternative 1; minor to moderate adverse impact compared to alternative 1	1% higher, i.e., same as alternative 1 through the year 2009. Similar to alternative 5 after 2010	12% decrease by 2006; 23% by 2011; minor to moderate adverse impact compared to alternative 1	6% higher than alternative 1 by 2006; 7% lower by 2011; negligible to minor impact compared to alternative 1	Same as alternative 1	Same as alternative 1
Winter recreation; snowmobiling	No impact	Displacement of well over 50% of oversnow park visitors; major impact on individual in-park users; minor to moderate adverse impact overall	Possible minor to major impact if research indicates road closures needed	No impact	Major impact on some individual in-park snowmobile users; minor to moderate impact overall	Similar to alternative 2 for first 10 years; then similar to alternative 5 for 2–3 years	No impact	No impact	Same as alternative 1	Same as alternative 1
Hunting	No impact	No impact	75–85 bison hunting permits; minor to moderate benefit	35 bison hunting permits; minor benefit	No impact	No impact	15–25 bison hunting permits; minor benefit	No impact	Same as alternative 1	Same as alternative 1



TABLE 15: SUMMARY COMPARISON OF IMPACTS OF ALTERNATIVES (CONTINUED)

Topic	Alternative 1: No Action	Alternative 2:	Alternative 3:	Alternative 4:	Alternative 5:	Alternative 6:	Alternative 7:	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implementation of Interim Plan outside Park, Modified Preferred inside Park
Impacts on Livestock Operations										
Cost of vaccination and testing	2% of yearly production costs; minor impact in the long term, but more apparent in years of low cattle prices	With removal of test-eligible cattle, no testing or vaccinating in SMAs; possibly continued testing and vaccinating in areas near SMAs	Similar to alternative 2 in the long term, but smaller SMAs and possible continued presence of test-eligible herds in western SMA	Same as alternative 1	Possibly less vaccination and testing; minor beneficial impact	First 12 years, same as alternative 1; final 3 years, same as alternative 5	Same as alternative 3 north of Yellowstone National Park; same as alternative 1 west of park	Vaccination costs borne by APHIS resulting in a negligible to minor benefit to producers	Same as alternative 1	Same as alternative 1
Operational changes to non-breeding cattle–individual ranchers	No impact	Possible conversion of cow-calf operations; moderate to major impact on a few individual ranchers	Fewer possible conversions than in alternative 2; moderate to major impact on a few individual ranchers	No impact	No impact	No impact	No impact	No impact	Same as alternative 1	Same as alternative 1
Modification of grazing on national forest allotments	No impact	Possible allotment modifications; moderate to major impact on a few ranchers using allotments now	Fewer possible modifications than in alternative 2; moderate to major impact on a few ranchers using allotments now	No impact	No impact	No impact	Short term, no impact; long-term, a few allotments on the north end may be modified; moderate to major impact on those users	Allotment on/off dates modified; minor impact on local scale Negligible impact on a regional scale	Same as alternative 1	Same as alternative 1
Private land acquisition or easements	No impact	Possible buyouts or easements; major impact on public funds	Fewer possible buyouts or easements than in alternative 2; major impact on public funds	No impact	No impact	No impact	Same as alternative 3, but no acquisitions in West Yellowstone	Acquisitions complete; no new impact on public funds or on landowners expected; one cattle operator on acquired land may experience minor to major adverse effects from relocation	Same as alternative 1	Same as alternative 1
Property damage by bison	Minor impact overall, but could be moderate to major for individuals affected	Short term, same as alternative 1; long term, reduced adverse impact	Short term, same as alternative 1; long-term, reduced adverse impact	Same as alternative 1	Minor impact overall, but could be a moderate to major benefit for individuals who might otherwise experience damage under alternative 1	Same as alternative 1	Short term, same as alternative 1; long term, reduced adverse impact	Negligible to minor overall, but moderate to major for individuals affected	Same as alternative 1	Same as alternative 1
Perception of risk	Risk exists; minor impact	Risk exists; moderate adverse impact	Until changes in operations or acquisitions occur, same as alternative 1; thereafter reduced risk	Same as alternative 1	Reduced risk, moderate beneficial impact	Slightly less, but similar to alternative 5; minor to moderate benefit	West Yellowstone, same as alternative 1; Reese Creek, reduced risk in long term	The same or slightly more beneficial than alternative 1 from additional risk mitigation features	Same as alternative 1	Same as alternative 1



TABLE 15: SUMMARY COMPARISON OF IMPACTS OF ALTERNATIVES (CONTINUED)

Topic	Alternative 1: No Action	Alternative 2:	Alternative 3:	Alternative 4:	Alternative 5:	Alternative 6:	Alternative 7:	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implementation of Interim Plan outside Park, Modified Preferred inside Park
Impacts on Socioeconomics — Regional Economy										
Impacts on regional economy from wildlife viewing	40–45% of regional economy (\$500 million) dependent on tourism	Possible beneficial impact; magnitude unknown	Similar to alternative 2	Similar to alternative 1 with hunting an additional source of local income	Possible adverse impact; magnitude unknown	Similar to alternative 1 until phase 2; then similar to alternative 5	Similar to alternative 1	Similar to alternative 1	Similar to alternative 1	Same as alternative 1
Impacts on regional economy from snowmobiling	No change in existing conditions; \$30 million per winter	Loss of an estimated \$13.75 million in spending in the Greater Yellowstone Area, likely most heavily impacting communities nearest the park	Same as alternative 1	Same as alternative 1	Similar to alternative 2	Similar to alternative 2	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1
Impacts on regional economy from hunting	Bison hunting not allowed	Same as alternative 1	\$33,000 annual expenditures	\$15,380 annual expenditures	Same as alternative 1	Same as alternative 1	\$10,890 per year increase from fees, expenditures	Same as alternative 1	Same as alternative 1	Same as alternative 1
Impacts on regional economy from livestock sector	Livestock cash receipts for Gallatin and Park counties comprise 5% of livestock cash receipts statewide	A few livestock operators may relocate their private and/or federal grazing operations to other locations; adverse impact offset by increased wildlife viewing related tourism	Same as alternative 2, but fewer livestock operators potentially displaced	Same as alternative 1	Aggressive brucellosis control may increase livestock use of area; negligible benefit	Similar to alternative 5, but less beneficial to livestock operators as brucellosis eliminated more slowly	Same as alternative 3, but without the possibility of displacements in the West Yellowstone area	Similar to alternative 7	Same as alternative 1; no impact	Same as alternative 1; no impact
Impacts on Socioeconomics — Regional Economy Minority and Low-Income Populations										
Minority and low-income populations	\$19,500 of bison meat donated on average per year; minor beneficial impact	Negligible adverse impact from loss of bison meat	Negligible adverse impact from loss of bison meat to hunters; negligible benefit from availability of live bison; possible \$826,000 in live bison value to tribes	\$23,000 per year of bison meat received; value would be higher if some bison are donated live; minor benefit; possible \$1.17 million in live bison value to tribes	\$61,000 in meat available for 3–4 years; otherwise similar to alternative 1; minor beneficial impact	\$19,000 per year donated during phase 1; Similar to alternative 5 during phase 2; minor beneficial impact	\$26,000 per year of bison meat received; value would be higher if some bison are donated live; minor benefit; possible \$1.06 million in live bison donations to tribes	\$26,300 per year of bison meat donated; a possible \$1.8 million in live bison value over 15 years of the plan	Potentially more bison slaughtered therefore more meat available to tribes; Unknown number of bison could be sent to quarantine	Same as alternative 1
Impacts on Socioeconomics — Social Values										
Social values	Minor to moderate impacts to those with humanitarian/moralistic values; negligible impact to ranching values	Minor impact on traditional ranching lifestyles; relative positive impact on moral and humanitarian attitudes; possible major impacts on individual ranchers, tribes, those with moral/humanitarian values; possible major impact on winter visitors who support mechanized access	Minor to moderate impacts on those opposed to hunting; negligible impacts on those with humanitarian/moral values; minor impact on ranching values	Overall minor to moderate; impacts on tribes minor; ranching similar to alternative 1	Those with humanitarian/moral values, tribes, some visitors experience major impact; ranchers negligible to minor benefits from eradication of brucellosis in bison	Similar to alternative 5 during phase 2 (parkwide capture, test, and slaughter), to alternative 1 during first 12 years	Minor to moderate adverse impact on humanitarian/moral values; minor to major impact on tribes; minor impact on traditional ranching lifestyle	Similar to alternative 1, except tribes receiving more benefits from potential quarantine	Same as alternative 1	Same as alternative 1



Table 15: Summary Comparison of Impacts of Alternatives (Continued)

Topic	Alternative 1: No Action	Alternative 2:	Alternative 3:	Alternative 4:	Alternative 5:	Alternative 6:	Alternative 7:	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implementation of Interim Plan outside Park, Modified Preferred inside Park
Impacts on Socioeconomics — Nonmarket Values										
Annual nonmarket values attributed to well-being of bison population	No impact	Estimated present value of winter range of \$4.43 million	Similar to or slightly less than alternative 2	No impact	Estimated present value of capture, test and slaughter (seropositive) or vaccinate (seronegative) program of \$3.57 million	Same as alternative 1 until parkwide capture and slaughter, then same as alternative 5	Similar to alternative 3	Similar to alternative 3	Similar to alternative 1	Similar to alternative 1
Nonmarket values attributed to wildlife viewing	No impact	Possible benefit; magnitude unknown	No impact	No impact	Possible adverse impact; magnitude unknown	No impact	No impact	No impact	No impact	No impact
Nonmarket values attributed to recreation or hunting	No impact	Estimated loss of \$3.69 million annually	\$24,000 gain from hunting	\$11,000 gain from hunting	Similar to alternative 2 during capture period	Similar to alternative 2 during first 10 years, then similar to alternative 5 during capture and slaughter	Similar to alternatives 1 and 4 (\$8,000 gain from hunting)	No impact	Same as alternative 1	Same as alternative 1
Impacts on Threatened, Endangered, and Sensitive Species										
Bald eagle	Potential human disturbance impacts reduced to negligible through avoidance mitigation	No impact	No impact	Same as alternative 1	Potential direct effect on wintering eagles from capture facility in Madison River area; major impact possible	Potential major adverse impact on one pair of nesting bald eagles from construction of a capture facility at Seven-Mile Bridge	Same as alternative 1	Negligible effects on the bald eagle with required mitigating measures; minor positive effect on bald eagles on Horse Butte as a result of the potential for less hazing, capture and handling of bison	Same as alternative 1	Same as alternative 1
Analysis area grizzly bear – carrion supply	Slower than natural increase to maximum bison population level would have negligible impact	Quicker growth of bison population, largest range; moderate benefit compared to alternative 1 to bears by increasing carrion foraging	Minor benefit to bears compared to alternative 1 from increased growth rate, range of bison population	Same as alternative 1	Rapid decrease in bison numbers, reduction in carrion foraging opportunities for bears from range of bison population; moderate to major adverse impact	Same as alternative 1	Bison numbers less than alternative 1, but not biologically different for grizzly bears; negligible impact	Similar to alternative 7 but less adverse because of higher target bison population	Same as alternative 1	Same as alternative 1
Park interior grizzly bear – carrion supply	Groomed roads now allow bison to leave park during severe winter; negligible impact on bear carrion supply	Closing groomed roads to snowmobiles may keep bison in interior; minor to moderate beneficial impact on bear carrion supply by increased winterkill	Same as alternative 1	Same as alternative 1	Rapid decrease in bison numbers, reduction in carrion foraging opportunities for bears from range of bison population; moderate to major adverse impact	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1



TABLE 15: SUMMARY COMPARISON OF IMPACTS OF ALTERNATIVES (CONTINUED)

Topic	Alternative 1: No Action	Alternative 2:	Alternative 3:	Alternative 4:	Alternative 5:	Alternative 6:	Alternative 7:	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implementation of Interim Plan outside Park, Modified Preferred inside Park
Impacts on Threatened, Endangered, and Sensitive Species (continued)										
Grizzly bear — human confrontations	Possibility of human/ bear encounter and bear being shot increased by bison management actions; currently mitigated by removal of bison viscera, body parts after shooting	Fewer bison likely shot because of larger SMAs, more dispersed shooting; beneficial impact compared to alternative 1	Possibility of human/ bear encounter and bears being shot increased by bison hunting; impact reduced to negligible through hunter education	Same as alternative 3	Same as alternative 1	Same as alternative 1	Same as alternative 3	Same as alternative 1	Same as alternative 1	Same as alternative 1
Grizzly bear — bison management activities	Potential disturbance and displacement caused by hazing and shooting of bison; negligible impact; no or negligible impact from capture facilities, as bears are denning	Potential temporary disturbance and displacement caused by hazing and shooting of bison; negligible impact, as most occurs during denning period	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1
Gray wolves — human confrontation	No impact	No impact	Possibility of a human/ wolf encounter and wolf being shot increased by bison hunting; impact reduced to negligible through hunter education	Same as alternative 3	No impact	No impact	Same as alternative 3	No impact	Same as alternative 1	Same as alternative 1
Gray wolves — bison management activities	Disturbance and displacement caused by hazing and shooting; short-term, negligible impact; no or negligible impact from capture facilities	Potential displacement of wolves that may inhabit the area in the future caused by shooting bison; negligible impact	Same as alternative 2	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1	Similar to alternative 1 but less adverse as a result of the potential for less hazing, capture and handling of bison	Same as alternative 1	Same as alternative 1
Gray wolves — bison as prey and carrion	Negligible impact	Moderate benefit for wolves by increasing their opportunities to forage on carrion due to quickest growth of bison population and largest range	Similar to alternative 2, but negligible as range and growth rate of bison population would be less	Same as alternative 1	Smaller range and rapid decrease in bison population would reduce wolf foraging opportunities; moderate to major adverse impact	Same as alternative 1	Reduced size of bison herd over the long term would have a negligible impact on wolf foraging opportunities	Negligible to minor benefit for wolves due to tolerance of bison beyond park boundaries during winter months	Same as alternative 1	Same as alternative 1
Wolverine and lynx — changes in snowmobile grooming	Negligible impact	Potential shift in use to national forest caused by stopping road grooming for snowmobiles at west entrance; potential increase in packed snow routes, allowing predators to access prey now used by lynx; negligible adverse impact	Negligible impact	Negligible impact	Negligible impact	Negligible impact	Negligible impact	Negligible impact	Same as alternative 1	Same as alternative 1



TABLE 15: SUMMARY COMPARISON OF IMPACTS OF ALTERNATIVES (CONTINUED)

Topic	Alternative 1: No Action	Alternative 2:	Alternative 3:	Alternative 4:	Alternative 5:	Alternative 6:	Alternative 7:	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implementation of Interim Plan outside Park, Modified Preferred inside Park
Impacts on Threatened, Endangered, and Sensitive Species (continued)										
Trumpeter swan — nesting pair	No impact	No impact	No impact	No impact	No impact	Major adverse impact from Seven-Mile Bridge facility	No impact	No impact	No impact	No impact
Impacts on Other Wildlife Species										
Pronghorn antelope — habitat removal	Removal of >13 acres of critical winter habitat due to Stephens Creek facility; moderate to major adverse impact	Same as alternative 1 during phase 1, then moderate to major benefit from removal of facility at Reese Creek	Same as alternative 1 unless land acquired and capture facility moved north; if so, possible major benefit	Same as alternative 1	Removal of critical winter habitat caused by Stephens Creek and other facilities; moderate to major adverse impact	Same as alternative 5	Same as alternative 3	Same as alternative 1	Same as alternative 1	Same as alternative 1
Elk, antelope, and other ungulates — capture operations	Disturbance and displacement caused by hazing, fences, and shooting; minor impact	Same as alternative 1 during phase 1, then minor benefit from removal of facility	Short term, same as alternative 1; long term, minor benefit from removal of Stephens Creek facility	Same as alternative 1	Minor impact caused by additional capture facilities	Same as alternative 5	Same as alternative 3	Moderate to major benefit to pronghorn and minor benefit to other wildlife species due to decreased use of capture facilities	Same as alternative 1	Same as alternative 1
Elk, antelope, and other ungulates — acquisition of land	No impact	Moderate to major beneficial impact on pronghorn; minor benefit to other ungulates	Moderate to major beneficial impact on pronghorn; minor benefit to other ungulates	Same as alternative 1	No impact	No impact	Same as alternative 3	Same as alternative 3	Same as alternative 3	Same as alternative 3
Predators and scavengers	Potential minor impact caused by hazing; negligible impact on carrion supply from removal of bison	No impact	Potential minor impact caused by hazing; no impact associated with changes in bison population relative to alternative 1	Same as alternative 1	Major decrease in prey/carrion; moderate adverse impact	Slight to moderate decrease in prey/carrion; minor adverse impact	Minor adverse impact from maintaining smaller bison population size over long term	Same as alternative 1 during step 1; minor benefit during steps 2 and 3	Same as alternative 1	Same as alternative 1
Impacts associated with snowmobiling	Displacement, noise, habitat modification; degree of impact unknown, likely minor	Minor to moderate impact from snowmobile use displaced to national forest	Same as alternative 1	Same as alternative 1	Moderate adverse impacts during parkwide capture and slaughter from displacement due to road closures	Same as alternative 2 for first 12 years, then additive with alternative 5; moderate impacts likely	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1
Impacts on Human Safety										
Risk of bison management personnel or hunters contracting undulant fever	Negligible to minor impact	Negligible impact	Negligible to minor impact	Minor impact	Moderate impact (phase 1); negligible impact (phase 2)	Negligible to minor impact for first 12 years; moderate impact last 3 years	With mitigation, negligible to minor	Same as alternative 1 but less adverse during step 3 when bison handling is expected to decrease	Same as alternative 1	Same as alternative 1



Table 15: Summary Comparison of Impacts of Alternatives (Continued)

Topic	Alternative 1: No Action	Alternative 2:	Alternative 3:	Alternative 4:	Alternative 5:	Alternative 6:	Alternative 7:	Modified Preferred Alternative	State of Montana October 24, 1999 Preferred Alternative	Implementation of Interim Plan outside Park, Modified Preferred inside Park
Impacts on Cultural Resources										
Archeological resources	No additional impact	Potential disturbance from removal of capture facilities; negligible or minor impact with required mitigation	Potential disturbance from grading for capture or quarantine facilities; negligible or minor impact with required mitigation	Same as alternative 3	Potential disturbance from grading for nine capture facilities has potential for major adverse impacts; could be mitigated to negligible or minor impacts; costs could be high	Capture facility in Seven-Mile Bridge area would have major adverse impacts to archeological resources; could be mitigated at minimum estimated cost of \$1 million; impacts, with mitigation, would be minor	Same as alternative 3	Potential disturbance from grading for capture or quarantine facilities; with mitigation, negligible to minor impact	Same as alternative 1	Same as alternative 1
Cultural significance of bison herd to tribes	Status quo may be considered major adverse impact to tribes viewing bison herd as culturally significant	Free ranging bison herd protected, herd size increased; minor to major positive impact compared to alternative 1	Similar to alternative 2	Similar to alternative 1	Restrictions on distribution and decreased size of herd would have major adverse impact	Similar to alternative 1 in phase 1; similar to alternative 5 in phase 2	Similar to alternative 1 and 4	Increased tolerance of bison outside park would be major benefit	Similar to alternative 1 but less bison expected to occupy public lands outside of park	Same as alternative 1
Historic landscape	Capture facilities visually intrusive on landscape; negligible impact	Dismantling capture facilities, additional bison restores scene; beneficial impact	Dismantling capture facilities inside park, some increase in bison restores scene	Similar to alternative 1	Additional capture facilities not part of historic scene inside park; major short-term adverse impact	Similar to alternative 5	Similar to alternative 3	Same as alternative 1 unless additional capture facility located north of the park; then possible adverse impact	Similar to alternative 1 but less bison expected to occupy public lands outside of park	Same as alternative 1
Impacts on Visual Resources										
Presence of capture/quarantine facilities	Minor to moderate impact on natural vista	Beneficial compared with alternative 1	Minor impact from relocated facility on north side; minor impact from quarantine, beneficial to west side	Minor to moderate impact on natural vista; quarantine minor impact	Major impact on natural vista from capture facilities parkwide.	Major impact on natural vista; major adverse impact from Seven-Mile Bridge facility	Similar to alternative 3; except on west side	Same as alternative 4	Same as alternative 4 if quarantine included	Same as alternative 1
Bison viewing	Potential increase in viewing opportunities from increase in bison population over time; minor benefit	Minor to moderate benefit for those seeking bison due to moderate increase in bison population, compared to alternative 1 and increased distribution	Similar to alternative 2	Same as alternative 1		Minor to moderate adverse impact on viewing opportunities for those seeking bison due to decrease in bison population, compared to alternative 1	Same as alternative 1 in phase 1, alternative 5 in phase 2	Minor benefit to those seeking to view bison from increased distribution of bison outside park and negligible changes in population level	Same as alternative 1	Same as alternative 1
Bison management activities	Potential major visual impact caused by hazing, shooting and gutting	No impact	Potential major visual impact caused by hunting	Similar to alternatives 1 and 3	Moderate to major visual impact from capture operations	Same as alternative 5	Similar to alternative 4	Similar to alternative 1 but less adverse due to potential reduction in management activities during step 3	Same as alternative 1	Same as alternative 1
Winter scene	Current effect on scene from snowmobiles and other winter recreationists	Minor to major benefits for the park visual scene from displaced snowmobiles, minor to major adverse impacts on the scene on adjacent U.S. Forest Service lands	Same as alternative 1, unless research indicates road closures; if so, similar to alternative 2	Same as alternative 1	Same as alternative 2, except visitors able to access park would experience moderate to major impact from capture operations on winter scene	Same as alternative 2, except visitors able to access park would experience moderate to major impact from capture operations on winter scene	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1

