Draft Environmental Assessment

for

Interim Translocation of Bison

September 2011

Montana Fish, Wildlife & Parks

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Executive Summary

This environmental assessment evaluates interim locations for placement of bison pending completion of a statewide bison conservation strategy. Two alternatives are under consideration. The sources of bison for the interim period are brucellosis-free bison originating from the on-going Quarantine Feasibility Study (Study). The statewide bison conservation strategy is expected to be completed by the end of 2015.

The Study established testing and monitoring protocols to produce brucellosis-free bison. Brucellosis in the Greater Yellowstone Area (GYA) is a disease caused by *Brucella abortus*, a bacterial organism transmitted primarily by contact with products of birth or abortion or by milk of infected animals. Brucellosis can be spread when wild animals or domestic animals from an affected herd mingle with brucellosis-free herds, including bison or cattle. Currently, Montana is designated as brucellosis-free state by U.S.D.A.'s Animal and Plant Health Inspection Service (APHIS), which allows for the unrestricted interstate movement of cattle herds.

The bison moving on to the monitoring phase of the Study are considered to be brucellosis-free by APHIS. There are currently 68 bison ready to begin the first year of the monitoring phase at the Slip & Slide pastures and the Green Ranch. There is an additional 143 brucellosis-free bison at the Green Ranch starting their second year of the monitoring period. An initial allocation of these bison would not exceed more than 40 animals at each of the chosen sites.

Alternatives

1) **No Action: Bison remain at the Slip n' Slide pastures and at the Green Ranch**

   A) Slip n' Slide pastures are privately owned (approx. total 70 acres). Both pastures are located just north of Corwin Springs, Montana, in Park County. FWP currently leases the pastures for the QF bison to graze on and the leases for both pastures have been renewed through July 2012. Some costs to FWP would be involved for this alternative for the leases, feed, and equipment at the Slip & Slide pastures. Initial costs are approximately $187,000 and annual costs are estimated at $170,000.

   B) The Green Ranch is a sub-ranch of the Flying D Ranch owned by Turner Enterprises, Inc. (TEI) located 20-miles west of Bozeman, Montana, in Gallatin and Madison Counties. The property consists of approximately 12,000 acres of intermountain grassland. The majority of the parcel is deeded land, with 2,577 acres leased land from the Montana Department of Natural Resources and Conservation (DNRC). The Green Ranch is separated from the main portion of TEI's Flying D Ranch by the Madison River.

   There are no costs to FWP for the study bison remaining at the Green Ranch for the duration of the monitoring period. However, if the agreement was terminated during years 1-3, TEI would retain all the progeny but returning all the original study bison back to FWP. If termination occurred at the end of the monitoring period, FWP would still receive all the original study bison and 25% of their progeny with the remaining progeny going into TEI's ownership.

2) <u>Proposed Alternative: Translocate groups of study bison to FWP and/or Tribal lands</u>

This alternative considers placement of portions of the study bison at Marias River Wildlife Management Area, Spotted Dog Wildlife Management Area or locations within Fort Belknap and Fort Peck Reservations.

A) Marias River Wildlife Management Area

The Marias River WMA is located 8 miles southwest of Shelby and 70 miles northwest of Great Falls in Pondera and Toole Counties and falls within FWP Administrative Region 4. The property consists of 8,866 contiguous acres (7,540 deeded, 492 DNRC, and 833 BLM) on the north and south sides of the Marias River. There are approximately 14 miles of Marias River frontage. Use of DNRC and BLM lands within the Marias River WMA are subject to their respective permitting processes.

Proposed improvements would include:

A. Boundary fencing: Fencing for a proposed bison pasture would encompass the entire WMA perimeter boundary (8,866 acres or approximately 20 linear miles). The fence would be 5-foot high and be constructed of 5 strand barbed wire. Smooth top and bottom wires may be used where fence conditions, topography, and/or wildlife passage dictates an adjustment. Heavy wood and steel posts would be to support the wires. Special fencing requirements must be met at the points where the Marias River enters and departs the WMA. These circumstances would be addressed on-site as fencing proceeds. Special fencing may include extended drift fencing, floater gate(s) and/or extended fence portions along or into the river.

B. Internal winter pasture fencing: Winter pasture fencing would be on an 880- acre pasture for the sake of controlled winter handling and monitoring purposes. Similar fence construction standards would apply.

C. Construct corrals and chutes for handling bison when veterinary care or research testing is required.

D. Install or modify a barn and shed to store maintenance equipment, hay, and mineral supplements for bison, and small office for staff.

Estimated start-up costs for this location are $846,110 and annual costs are estimated at $139,000. The source of these funds is yet to be determined.

Management of the bison at this location is described in section 2.1.2 and would meet the yearly APHIS testing requirements and decrease the possibility of the bison leaving the designated pasture area within the WMA.

B) Spotted Dog Wildlife Management Area (WMA)

The Spotted Dog WMA was acquired in September 2010 with funding from the Natural Resources Damage Program (NRDP). It encompasses 27,616 acres owned by FWP and 10,261 acres of DNRC lands that are leased by FWP. The Spotted Dog property is located approximately 5 miles northeast of Deer Lodge and one mile south of Avon.

A 2,560-acre bison pasture, designed in consideration of the terms of the purchase agreement between FWP and Rock Creek Cattle Company (RCCC), is proposed to be established within the WMA. The purchase agreement specifies that RCCC has the right to graze cattle on the rest of the property until December 31, 2012. Within the enclosure, bison grazing on the 320 acres of DNRC School Trust Land would be subject to the DNRC permitting processes.

FWP proposes to construct a new boundary fence for the designated bison pasture and develop a handling facility to manage the bison when necessary. The following describes the improvements:

A. Boundary fencing: The pasture would encompass 2,560 acres. In order to mitigate potential for property damage caused by bison (§ 87-1-216 MCA) and in order to avoid the exposure of game animals to supplemental feed provided to the bison (§ 87-3-130 MCA), a 7' high woven wire fence with heavy wood or steel posts is expected to be required.
B. Pasture fencing: The pasture fence would split the designated bison pasture into two parts to facilitate maintenance of the boundary fence and the rest-rotation of bison grazing. The pasture fence design would likely be a combination of electric wires and traditional 5-strand barbed wire fence. The final design of this fence would be determined at a later time and after FWP staff has observed the behavior of the bison on site.
C. Barn and shed: These structures would be used to store maintenance equipment, hay and mineral supplements for the bison, and house a small office for FWP staff;
D. Double fence area: The structures would be double fenced to keep bison away from buildings and ensure safe passage in and out of the management facility by staff; and
E. Corrals and chutes: These tools would be needed to handle bison when veterinary care or research testing is required.

Estimated start-up costs for this location are $1,163,910 and annually costs are estimated at $139,000. The source of these funds is yet to be determined.

Management of the bison at this location is described in section 2.1.2 and would meet the yearly APHIS testing requirements and decrease the possibility of the bison leaving the designated pasture area within the WMA.

C) Fort Belknap Reservation

The Fort Belknap Indian Reservation is located in north-central Montana and covers 675,000 acres and is home to members of the Assiniboine and Gros Ventre tribes.

Fort Belknap has an existing tribally-owned herd that grazes on approximately 22,000 acres of land in the northwestern portion of the reservation in Blaine County, locally known as Range Unit 2 (13,000 acres), Range Unit 7 (7,000 acres), and Range Unit 60 (2,000 acres). This herd numbers over 450 animals and is intensively managed to support

commercial businesses (fee hunting and meat processing) and to provide bison for tribal cultural needs.

Since the Tribes commercial bison is currently using Range Units 2, 7, and 60, the Tribes have planned to enclose 800 acres on the northeastern corner of the old bison pasture to hold study bison that are translocated to the Fort Belknap Reservation. The study bison would only be held within this smaller pasture until the commercial herd is liquidated, which is expected to take three years through hunts, sales of animals to InterTribal Bison Cooperative members, and culling bison for cultural needs. If a boundary fence for the 800-acre pasture is not completed in time to receive study bison, the Tribes at the Fort Peck Reservation have offered to provide temporary pasture for these bison on Range Unit 62 (see the following section regarding Fort Peck's location information) until Fort Belknap's fencing effort is completed.

While a formal agreement between FWP and Tribal leadership has not yet been reached, the Tribes would meet the yearly APHIS testing requirements if bison were translocated there. At the end of the interim period, FWP anticipates the ability to receive a percentage of the study bison back for conservation purposes.

D) Fort Peck Reservation

The Fort Peck Reservation encompasses over 2 million acres in northeastern Montana and is home to the Assiniboine and Sioux tribes.

The study bison would be placed at a site located approximately 41 northeast of Wolf Point in Roosevelt County and property consists of 4,800 acres and is known as Tribal Range Unit 62 in Township 30N, Range 49E, which is east of State Highway 13. Currently this range unit is not being grazed by cattle or the Tribes' commercial bison herd.

The Tribes currently manage a commercial herd of 200 bison known as the Turtle Mound Bison. This herd is kept on Range Unit 57, which is 4 miles north of Range Unit 62. These bison are used and harvested for cultural and ceremonial purposes and are available for non-member fee hunts.

The Fort Peck Tribes would be expected to meet the same testing requirements for the bison as described for the Tribes at the Fort Belknap Reservation. The agreement with the Fort Peck Tribes would also be similar to the Fort Belknap Tribes' agreement terms.

3) <u>Alternatives Eliminated from Detailed Study</u>

A) Other FWP-owned Properties

An internal review of potential translocation sites for the interim holding of study bison included Robb-Ledford WMA, Dome Mountain WMA, Blacktail WMA, Wall Creek WMA, Gallatin WMA, and Mount Haggin WMA. With the exception of the Mount Haggin WMA, all were located within the Designated Brucellosis Surveillance Area (DSA) as set by the Montana Department of Livestock. The DSA is an area of increased surveillance (testing) and mitigation practices including vaccination, temporal and spatial

separation of cattle and domestic bison from infected wildlife in an area in which brucellosis positive wildlife are known to exist. Those WMAs within the DSA were eliminated from additional analysis and further consideration because of too great a risk for a brucellosis positive elk to come into contact with a study bison rendering the Study no longer valid.

Mount Haggin WMA, south of Anaconda, was deemed unsuitable due to typically severe winter conditions that would likely result in being unable to contain the bison on the WMA.

Warm Springs WMA, south of Deer Lodge, was initially under consideration if the expansion of the WMA included an adjacent property (locally known as the Dutchman property) was completed before the end of 2011. The anticipated transfer date of the Dutchman property into FWP ownership is unknown thus this WMA was eliminated from further investigation.

B) Bob Marshall Wilderness

The Bob Marshall Wilderness was eliminated from additional investigation as an interim site for the following reasons: 1) wilderness designation prohibits facility development or installation of fencing; 2) very limited road access for monitoring bison; 3) does not allow for spatial and temporal separation from livestock due to existing grazing leases; 4) high potential for bison to migrate out of the wilderness during harsh winters; and 5) only limited areas exist within the wilderness that provide bison habitat (e.g. grasslands).

Potential Consequences

Consequences of leaving the study bison at the Slip & Slide pastures and the Green Ranch until a statewide bison conservation strategy are minimal. There would be some costs involved with the Slip & Slide pastures and a higher number of progeny from the Green Ranch would become the property of TEI. There would be no new impacts to the physical or human environments if this alternative were chosen.

The anticipated consequences to the physical and human environment if the proposed alternative were chosen are mixed, some positive, some negative, and some neutral. For the FWP-owned wildlife management areas, many of the impacts to vegetation, wildlife, and recreation would be measureable and steps would be taken to mitigate those negative impacts, such as aggressive control of escaping bison, rest-rotation grazing plan, supplemental feed, and fencing around sensitive areas. Positive impacts include increased wildlife viewing and the potential to use these bison for future conservation efforts. Start-up costs for the WMAs would be substantially higher than for the other potential locations, and the source of this funding is unknown.

On tribally-owned properties, the potential impacts to the physical and human environment are expected to be minimal or neutral. Both tribal locations have been subjected to grazing and the infrastructure to contain, support, and handle the bison is already in place.

A summary chart of the anticipated impacts can be found on page 90.

Chapter 1.0: Purpose of and Need for Action

1.1 PROPOSED ACTION

This environmental assessment evaluates potential locations for interim placement of bison pending completion of a statewide bison conservation strategy. The statewide conservation strategy is expected to be completed by not later than the end of 2015 by which time decision on whether there is a place on the Montana landscape for wild bison will be made. The source of bison for this interim period are disease-free bison originating from the on-going Quarantine Feasibility Study.

In 2004, Montana Fish, Wildlife & Parks (FWP), the National Park Service, and USDA Animal and Plant Health Inspection Service (APHIS) investigated the implementation and logistics of a bison quarantine facility to determine if seronegative bison calves can be serially tested and efficiently screened to determine the presence of brucellosis while maintaining them in a secure environment. The construction and execution of this research has been in accordance with the Interagency Bison Management Plan (IBMP) and the 2000 Bison Management Environmental Impact Study (EIS). The IBMP and the EIS went through their own environmental analysis process.

The IBMP cooperating agencies agreed that capture and relocation of bison to other suitable habitats would be an appropriate alternative to lethal removal of bison that exceed the population objectives for YNP, as defined by the IBMP. Relocation of bison would also provide an opportunity to coordinate the IBMP with a broader North American bison conservation strategy to establish new public and tribal bison herds and augment existing public and tribal bison herds with brucellosis-free bison. However, the Brucellosis Uniform Method and Rules (UM&R) (USDA APHIS, VS 1998) discourage the movement of animals from brucellosis-affected herds unless the animals have first cleared quarantine to certify that each animal is free of brucellosis.

In 2005, FWP and APHIS established a bison quarantine facility to begin a multi-year research project, the Quarantine Feasibility Study (Study). This study was to determine the latent expression of brucellosis in bison and test the sensitivity of quarantine procedures for detecting the bacteria in multi-generations of bison. The cooperating partners considered disposition of the any bison found to be seronegative for brucellosis to tribal or non-tribal organizations at the completion of the program. Bison released at the end of their quarantine are considered brucellosis-free. Although they are considered brucellosis-free, the quarantine protocol calls for continued testing of bison that leave the quarantine facility for a period of five years to absolutely verify that the quarantine protocol is effective.

As part of the Study, a total of 100 bison calves that originated in Yellowstone National Park (YNP) were brought into the quarantine facilities in 2005 and 2006. During the Study, a portion of the research herd was culled and extensively tested for brucellosis, sufficient to detect at the 95% confidence level the prevalence of brucellosis in 5% or more of the herd. The remaining animals were moved into Phase II of the Study, which included a mixture of cows with the bulls for breeding the following springs through 2011. A separate environmental analysis document

was completed for this phase. Hormone surges associated with pregnancy are thought to be a stimulus of the *brucella* organism. Several of the bison have gone through at least 2 or 3 pregnancies since entering the quarantine study, and have continued to test negative for *brucella*. The study protocol calls for movement of the bison and calves out of the quarantine facility after a single pregnancy to a site where they can be monitored, as long as they all continue to test negative for brucellosis. While the bison are considered brucellosis-free, the continued testing requires they be somewhat confined to enable capture for testing.

The quarantine protocols and research data gathered at the bison quarantine facilities in Corwin Springs have established processes and monitoring methods that have yielded bison that are seronegative for brucellosis.

In 2010 after a Request for Proposal procedure, the first cohorts of study bison were moved from the Corwin Springs facility to the Green Ranch and the agreement was negotiated with its owner, Turner Enterprises Inc. FWP's decision to place study bison at the Green Ranch in 2010 is being challenged in a lawsuit. FWP believes it is prudent to relocate those bison if possible to public or tribal lands for the remainder of the monitoring period.

Current Study Bison Population

As the end of June 2011, the following populations of study bison exist at the quarantine facility pastures north of Corwin Springs and at the Green Ranch west of Bozeman.

The current status of the Green Ranch bison is as follows: Of the 87 translocated, 86 survived the move (one orphaned calf died as a result of the transfer), 21 calves were born in 2010, and 4 others died leaving a total of 103. The circumstances of the deaths besides the orphan calf were: a yearling male died of meningoencephalitis; a 5 year old cow broke a leg; a newborn died of an infected umbilical cord and a 2-year old heifer was struck by lightning. Forty calves were born in 2011, resulting in a total of 143 bison.

	Bulls	Cows	Yearlings	Calves
Quarantine Facility	5	34	22	7
Green Ranch	11	71	21*	40*

* Per the FWP agreement with Turner Enterprises, in years 1-3 only the original study bison would be returned to FWP and in years 4-5 or if the agreement was terminated, 25% of the original study bison offspring would be returned to the Department along with all the original bison.

The bison currently at the quarantine facility will be done with the required monitoring period in December 2016. The bison at the Green Ranch will be done with their monitoring period February 2015.

Need to Move Study Bison

At the January 13, 2011 FWP Commission meeting, the FWP Commission requested FWP staff to move forward with identification and analysis of potential interim sites where bison can be held until completion of a statewide conservation strategy.

The testing component of the Study has been completed, all bison have continued to test negative for *brucella* and the remaining bison at the Gardiner study facility are ready for placement at a new site for the monitoring period following quarantine.

1.2 Objectives of the Proposed Action

1.2.1 Identify interim locations where brucellosis-free bison from the Yellowstone National Park herd can be held pending completion of a statewide bison conservation strategy.

1.2.2 Provide brucellosis-free bison for future conservation and restoration efforts.

1.3 Authorities, Relevant Documents, and Overlapping Jurisdictions

1.3.1 Authorities

Montana Fish, Wildlife and Parks

Montana statute section 87-1-201 (3), Montana Code Annotated (MCA), authorizes the Montana Fish, Wildlife and Parks Commission to set the policies for the protection, preservation, and propagation of the wildlife, fish, game, furbearers, waterfowl, nongame species, and endangered species of the state. Within the policies established by the Commission, FWP is responsible for supervising the management and public use of all the wildlife, fish, game, furbearing animals, and game and nongame birds of the state (§ 87-1-201 (1) MCA).

This EA includes complete descriptions of management elements for each site considered for interim translocation of bison. The management elements herein collectively represent the management plan for each site. FWP considers this EA and public review process as meeting the management plan requirements of § 87-1-216(6) for each of the sites discussed herein (Spotted Dog WMA, Marias River WMA, Fort Belknap Reservation, Fort Peck Reservation). A compilation of management plan elements for Spotted Dog WMA are presented in Appendix B as an example of this.

1.3.2 Relevant Documents

Bison Management Plan for Montana and Yellowstone National Park (2000) The State of Montana was a co-lead with the Departments of the Interior and Agriculture in the development of the Interagency Draft Environmental Impact Statement (DEIS) and Bison Management Plan. A federal Final Environmental Impact Statement (FEIS) for Bison Management for the State of Montana and Yellowstone National Park, which included the Interagency Bison Management Plan (IBMP), was published in August 2000. In November 2000, the Final Environmental Impact Statement (FEIS) for the IBMP was completed. The final State of Montana and federal Records of Decision were published in December 2000 pursuant to the requirements of the Montana Environmental Policy Act (MEPA) and National Environmental Policy Act (NEPA). These documents anticipated the addition of quarantine as a tool to provide disease-free bison for distribution to other sites that otherwise would be sent to slaughter. This EA is, therefore, tiered to the Bison Management Plan EIS and the following documents. (All documents can be found at www.ibmp.info.)

Bison Quarantine Feasibility – Phase I, Environmental Assessment (2004) FWP prepared an environmental assessment for the proposal to implement a bison quarantine feasibility study. The study called for establishing a bison quarantine research facility under approved design, location, and operational parameters. Based on the completion of the environmental assessment and analysis of the comments, the decision was made to establish this facility near Corwin Springs, Montana. Phase I of the study stressed the culturing of tissue samples from bison to determine if they are harboring brucellosis even after several seronegative tests. (http://fwp.mt.gov/news/publicNotices/environmentalAssessments/conservation/pn_0004.html)

Bison Quarantine Feasibility – Phase II/III, Environmental Assessment (2005) Phase II/III EA of the feasibility study went to further the research and testing protocols initially implemented in Phase I. The basis for Phase II/III was based on the successful results of Phase I. Completion of the study is expected to provide insight to the feasibility of quarantine protocols as one component of a broader bison conservation strategy. (http://fwp.mt.gov/news/publicNotices/environmentalAssessments/speciesRemovalAndRelocation/pn_0018.html)

Background Information on Issues of Concern for Montana: Plains Bison Ecology, Management, and Conservation (2011) - FWP completed a public background document that summarizes the current of knowledge pertaining to bison with an emphasis on Montana. This effort is the basis to begin a process to evaluate the potential for establishing a wild plains bison population somewhere within the state. (http://fwp.mt.gov/wildthings/publicComments/bisonBackground.html)

1.3.3 Overlapping Jurisdictions

Montana Department of Livestock

The Montana Legislature has designated bison that originate from YNP as a species requiring disease control. The Montana Department of Livestock (DoL) is authorized to remove or destroy publicly owned bison that enter Montana from a herd that is infected with a dangerous disease or whenever those bison jeopardize Montana's compliance with state or federally administered livestock disease control programs (§ 81-2-120 (1)-(4) MCA). The DoL regulatory authority for the administration of the control of bison that emigrate from YNP is identified in Montana Administrative Rule (ARM) 32.3.224. The Montana legislature has found that bison pose a significant potential for transmission of infectious disease to persons or livestock and for damage to persons or property (§ 87-1-216 (1) MCA). FWP is required to cooperate with the DoL in the management of these bison (§ 87-1-216 MCA). FWP also is authorized to enter into cooperative agreements with other agencies to promote wildlife research (§ 87-1-210 MCA).

USDA Animal and Plant Health Inspection Service, Veterinary Services (APHIS VS)

APHIS, VS has regulatory authorities under the Animal Health Protection Act (AHPA) (7 U.S.C. 8301 et seq.). Through this act, APHIS is authorized to carry out animal disease eradications programs, such as the National Brucellosis Eradication Program. Pursuant to the AHPA, Congress authorized the Secretary of Agriculture to cooperate with state authorities to carry out the provisions of the AHPA and to administer its regulations. Thus APHIS enters into cooperative agreements with individual states for a brucellosis eradication program. This

program is premised on the Code of Federal Regulations and Brucellosis Uniform Methods and Rules (UM&R). The UM&R describes minimum standard procedures for surveillance, testing, quarantine, and interstate transport. As part of its authority, APHIS, VS has the federal regulatory authority to approve quarantine protocols.

The removal of bison from the quarantine research study and the actions that APHIS would be continuing after the study bison removal falls within the class of actions that have been categorically excluded under APHIS' National Environmental Policy Act (NEPA) Implementing Procedures in 7 Code of Federal Regulations, section 372.5(c)(1), Routine Measures. Routine measures under the APHIS procedures include identifications, inspections, testing, quarantines, removals, and monitoring conducted by agency programs to pursue their missions and functions.

Fork Belknap Reservation

The Fort Belknap Reservation is home to two tribes, the Assiniboine, or Nakoda, and the Gros Ventre with a combined enrollment of approximately 4,000. The combined reservation and additional tribal lands encompass 650,000 acres of the plains and grasslands of north-central Montana (Montana Office of Tourism, 2011).

The reservation was established by the Act of May 1, 1888 (OPI, 2009). The Fort Belknap Community was organized in 1935 under the Indian Reorganization Act and its original constitution and bylaws were approved on December 13th of that year (OPI, 2009). In 1994, a new constitution and bylaws of the Fort Belknap Community were ratified by popular referendum.

Fort Peck Reservation

About 6,800 Assiniboine and Sioux live on the Fort Peck Reservation, with another approximately 3,900 tribal members living off the reservation. The Fort Peck Reservation is in northeastern Montana, 40 miles west of the North Dakota border and 50 miles south of the Canadian border, with the Missouri River defining its southern perimeter. It includes more than two million acres of land (Montana Office of Tourism, 2011).

The same Act that established the Fort Belknap Reservation also established the Fort Peck Reservation in 1888. The Fort Peck Tribes adopted their first written constitution in 1927. The Tribes voted to reject a new constitution under the Indian Reorganization Act in 1934. The original constitution was amended in 1952, and completely rewritten and adopted in 1960 (Fort Belknap Tribes, 2011).

1.4 DECISIONS THAT MUST BE MADE

The decisions that need to be made are:

1) Do the proposed sites meet the requirements for interim placement of bison pending completion of a statewide conservation strategy for bison in Montana;
2) For suitable locations, how many study bison should be placed at a location; and

3) If the site(s) do meet the requirements, do the benefits of the action(s) justify the financial and priority costs to other department programs and mandates, and can potentially significant impacts to the physical and human environments be avoided.

1.5 SCOPE OF THIS ENVIRONMENTAL ANALYSIS

Public scoping was initiated after the January 13, 2011 meeting of the FWP Commission. At that meeting, the Commission endorsed FWP's proposal to evaluate appropriate areas that could support a population of at least 50 bison. A total of 241 interested parties submitted comments after the Commission meeting. Additional public comments have been received through FWP website at http://fwp.mt.gov/wildthings/management/bison/default.html. As of the publication of this EA, seventy comments have been submitted.

Since two other groups of Study bison have been relocated, comments received for those environmental analyses were also considered since there were many common themes and issues expressed then as now.

1.5.1 Issues Studied in Detail

Of the 308 scoping comments received, most were focused on issues related to the potential translocation of bison to a FWP-owned property or Tribal lands and restoration efforts for the species. Some comments provided suggestions for potential sites (in state and out of state) for the study bison.

Issues that were submitted by the public that are within the scope of this EA include the following:

- Fencing:
  - Fencing required to keep bison enclosed would not be wildlife friendly
  - Fencing required to keep bison enclosed would not allow for fair chase hunting
- Spread of Disease:
  - Potential threat of spreading brucellosis to cattle
  - Potential threat of spread of brucellosis to free-ranging elk
  - Potential threat of elk spreading brucellosis back to study bison
  - Perceived economic impacts related to the cattle industry
- Restoration to free ranging bison:
  - Managing bison as wildlife
- Concerns that bison on public lands would restrict existing recreation opportunities
- Concerns about public safety and private property damage if bison escape a designated area

In addition to the issues identified above, FWP wildlife management area managers and wildlife biologists were also surveyed to learn of potential issues related to the possible translocation of Study bison to FWP-owned properties. Topics mentioned were:

- Bison capacity limitations of a specific site
- Bison would compete with wildlife for forage
- Potential need for double fencing to ensure spatial boundary between bison and adjacent cattle, which is likely not wildlife friendly
- Costs to FWP (staffing, fencing, supplemental feed, etc.)

1.5.2 Issues Eliminated from Further Study

Comments received that focused upon the Interagency Bison Management Plan, bison management near Yellowstone National Park, jurisdictional issues over bison management (FWP versus DoL), and the removal of cattle from historic bison habitat are beyond the scope of this EA.

1.6 Applicable Permits, Licenses, and Other Consultation Requirements

1.6.1 Permits and Licenses

No permits or licenses are necessary for the translocation of the study bison within state. Approval is required by the FWP Commission prior to any movement of the animals to a new location. Senate Bill 207 (2011 Legislature) is not applicable to the proposed action because by the bill's definition, these bison are neither feral nor domestic and therefore, no permit is required from DoL for their movement.

Appropriate stream permitting (e.g. Section 310, 124 permit, 310 permit, etc.) or other applicable permissions would be obtained before construction of fencing was initiated at a FWP-owned property.

1.6.2 Consultation Requirements

FWP would be required to consult with APHIS and DoL regarding the translocation of the study bison because of APHIS's need to evaluate the bison through the 5-year monitoring period of the Study and DoL's jurisdiction over the administration of livestock disease control programs.

FWP anticipates consulting with Fort Belknap and Fort Peck tribal leaders and tribal fish and game managers in the management and oversight of the study bison if the bison are placed on their lands.

Senate Bill 108, passed by the 62nd Legislature, requires the department to consult with county commissions on policy issues involving predators or big game (which bison are). Once this proposal is developed, county commissions in affected counties would be provided opportunity to comment.

FWP would contact the Montana State Historic Preservation Office prior to the construction of any facility related to the proposed action to ensure no known culturally or historically sensitive sites are disturbed as required by state statute 22-3-424.

Chapter 2.0: Alternatives

2.1 FOUNDATION FOR THIS CHAPTER

2.1.1 History and Development Process of Alternatives

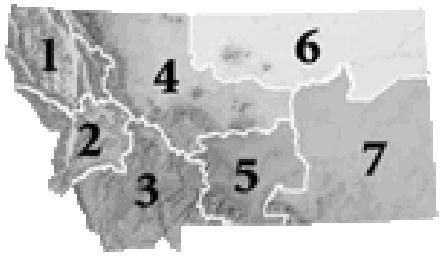
All potential translocation sites were evaluated by the criteria established for previous bison site consideration (FWP, 2009). Since the previous sites were identified through a Request for Proposal solicitation process and were based on an assumption that the location would be permanent (vs. interim), some of the criteria's tone was and now remains directed towards the placement of the study bison with a third-party versus a state agency. The site evaluation criteria are:

- Translocation site must be within suitable habitat within the historic range of plains bison.
- Agreement to surveillance and monitoring plan, and a response protocol developed by APHIS (attached) if brucellosis is detected.
- Any decision to translocate quarantine bison for the purpose of establishing new or augmenting existing conservation herds requires the consent of the entity that receives the bison and that entity's commitment to manage the bison in a manner that supports the purposes of the North American Bison Conservation Strategy.
- All applicable import rules and laws apply.
- All bison originating from the quarantine facility and as many offspring as possible are and will continue to be classified as public wildlife under the management jurisdiction of Montana Fish, Wildlife and Parks or the appropriate state or Tribal jurisdiction where they reside. It is desired that as many of these bison as possible contribute towards the long-term conservation of bison in North America. [NOTE: The above statement is from the final RFP that was issued.]
- On public land, a suitable comprehensive management plan to address population management, control of distribution, management of wildlife conflicts and habitat management within the project area would be required.
- As much as is practical, hunting should be part of the population management program (as appropriate) on any restoration area.
- All restoration projects must comply with environmental regulations of recipient jurisdictions.
- A public involvement process must be completed to assure a degree of social acceptance of the project.
- Intent is to enable expansion of founders rather than hold them at the number initially dispersed.

FWP wildlife management areas (WMAs) that did not meet the original Study bison site criteria or if the addition of bison at a WMA would put the Study bison at risk or in conflict with other uses at the WMA, were eliminated from further discussion. WMAs eliminated from further investigation included all sites in FWP Administrative Regions 1, 5, 6, and 7, as well as many in Regions 2 and 4 (Map 1). The remaining sites in Regions 2 and 4 that met the most of criteria are

discussed in detail under Section 2.2. WMAs located in Region 3 are discussed under section 2.3.1.

Map 1. FWP Administrative Regions



Sites not owned by FWP submitted for consideration included sites owned by Fort Belknap and Fort Peck Tribes that had previously expressed interest in receiving some of the Study bison.

Other organizations or private parties that expressed interest in receiving some of the Study bison were not considered viable options at this time and for this analysis because they wanted a very small number of bison, were not able to accept bison at this time, or were requesting the bison for solely commercial interests. These requests or the conditions of these requests are not in compliance with the site criteria requirements.

2.1.2 FWP Site Standards for Bison Management

The FWP WMAs under evaluation would require fencing and improvement to their existing facilities to support bison. The management of study bison on any of the WMAs would be consistent with FWP policies and rules as well as Senate Bill 212 (Appendix A). This EA includes complete descriptions of management elements for each site considered for interim translocation of bison. The management elements herein collectively represent the management plan for each site. FWP considers this EA and public review process as meeting the management plan requirements of § 87-1-216(6) for each of the sites discussed herein (Spotted Dog WMA, Marias River WMA, Fort Belknap Reservation, Fort Peck Reservation). A compilation of management plan elements for Spotted Dog WMA are presented in Appendix B as an example of this. All of the chosen sites would have a similar document drafted for that location.

General management of bison

Translocated bison would be managed as semi-wild and allowed to graze within the bison-fenced portion of the WMA.

FWP intends that bison would subsist on standing native forage. FWP would however be prepared to provide supplemental feed or mineral, as needed.

The bison would be processed and tested according to the FWP/USDA APHIS quarantine study protocols (Appendix C). Any bison that die during the 5-year period would be necropsied, and the tissue samples would be delivered to the Montana State Diagnostic Laboratory in Bozeman. Bison would be treated for parasites as necessary.

FWP would be responsible for all costs incurred arising from protecting public safety and any damage to private property that occurs as a result of the translocation of bison per state statute 87-1-126 (6).

Daily monitoring of bison and attendant fence and facilities is required. FWP would hire additional field technicians dedicated to the maintenance and monitoring of bison, in addition to adding duties to existing permanent staff. These individuals would serve as initial points of contact for the public, local communities and agricultural producers.

Bison Population Management

An initial allocation of study bison would not exceed 40 animals at each of the WMAs. This number would limit the short-term impacts of grazing and trampling on native vegetation within the enclosures, and allow bison to maximize grazing without supplementation. This limit on numbers also would reduce pressure on the perimeter fence and reduce risk of escape.

Bison would be removed from a WMA as needed to offset births and any additions of bison to the enclosure. FWP would hold only the fewest male bison necessary to meet surveillance and monitoring requirements, and any male calves in excess that are born in the first 10 months on the WMAs would be moved to another site. Translocations to other approved release locations for the further conservation of wild bison in Montana would be the first choice for disposition of excess bison.

Overly aggressive animals might be culled, if judged appropriate in the field.

Management of Bison Escapes

FWP would maintain a zero tolerance for bison leaving a WMA.

In the event of an escape, FWP would work simultaneously to secure the enclosure perimeter to prevent continued escapes and to locate and recover the escaped animals. One team would work to secure and repair the breach in the fence, with other teams working to gather the escaped bison. Logistical support would be provided by the Regional office and led by the Regional Wildlife Manager who would alert local authorities and landowners.

Finding and locating all of the bison would be the first priority for the herding/capture teams. FWP would dispatch one of its helicopters to help locate bison as needed to expedite response. The herding and capture team would stop the forward movement of bison and herd the bison back into the enclosure with ATVs, horses, pickups, and/or a helicopter. If the bison are farther from the enclosure, FWP may use a helicopter to assist with driving bison.

If the bison are too far from the WMA or if weather conditions are too challenging for herding efforts, FWP may chemically immobilize bison, under the oversight of the FWP Wildlife Veterinarian. Immobilized bison would be loaded and transported by truck back to the enclosure or an alternative facility.

As a last resort, escaped bison would be euthanized if they could not be herded or tranquilized and transported safely. FWP would be prepared to euthanize an escaped bison if necessary to avoid human injury or excessive property damage. FWP personnel would field-dress any bison that were killed and donate the meat to a local Food Bank. Heads and hides may be salvaged for educational purposes.

Monitoring Protocols

The study bison would be held and tested according to the APHIS protocols for bison that graduate from the quarantine facility. Appendix B provides additional information about the protocols.

During the monitoring period, composite fecal examinations would be conducted 4 times per year, and the animals would be treated for parasites as necessary. All animals would be worked and tested according to the study protocol. Blood samples would be drawn yearly from a significant number of the adult bison for viral and bacterial disease testing to monitor exposure to environmental pathogens. Any bison that die during the monitoring period would be necropsied, and the tissue samples would be delivered to the Montana State Diagnostic Laboratory in Bozeman. Computerized records would be kept on all bison throughout the study period, and those records would made available to the State and Federal agencies.

Following the Completion of Monitoring Period

With the completion of FWP statewide bison conservation strategy, the study bison could be relocated to a permanent site to support ongoing restoration and conservation efforts of the species in Montana. A full environmental impact statement will be developed before bison are permanently moved to any location in Montana where FWP has management jurisdiction. Depending on the recommendation of the statewide conservation strategy, bison could also be retained on the WMAs or be introduced to another WMA within the historic range of plains bison. A separate analysis would be completed before bison were transferred to another permanent location or if the bison's interim monitoring site was under consideration as a permanent location.

2.1.3 Tribal Negotiations

Although no formal negotiations have occurred between FWP and Tribal leadership, for purposes of this assessment the following assumptions are made for the management of the study bison through the 5-year monitoring period. Negotiations would follow the expectations of the State-Tribal Cooperative Agreement Act (§ 18-11-101, et seq.)

Monitoring protocols:

These would be identical to the ones previously described for bison translocated to an FWP-owned property.

At the end of the 5-year monitoring period

Similar to the agreement that FWP signed with Turner Enterprises (Green Ranch), FWP would negotiate with the Tribes to reserve the right to receive a portion of the study bison and/ their offspring back if needed for bison conservation purposes. The remaining bison progeny would remain under tribal jurisdiction and would be used to increase the genetic diversity of each

Tribe's bison herd. FWP would have no management jurisdiction for bison on the reservation once the monitoring period ends.

FWP anticipates a statewide bison conservation strategy would be completed by the time the monitoring period has ended that would define an appropriate location(s) for the study bison and their progeny to be placed for future conservation and restoration efforts, which could include allowing the Tribes to keep some or all of the original bison.

2.2 ALTERNATIVES UNDER CONSIDERATION

2.2.1 Alternative A: No Action - Bison remain at the Slip n' Slide pastures and at the Green Ranch

A) Slip n' Slide Pastures, Corwin Springs MT

The pastures encompass 70 acres at two locations just north of Corwin Springs Montana (Map 2) and are part of the facility established in 2006 specifically for the implementation of the Quarantine Feasibility Study.

The Slip n' Slide pastures are privately owned by the Shooting Star Ranch (approx. 30 acres) and the Rigler family (approx. 40 acres). Both pastures are located just south of Yankee Jim Canyon along Highway 89. FWP currently leases the pastures for the study bison to graze on and the leases for both pastures have been renewed through July 2012. It may be possible for FWP to renew the leases again in the future.

The landscape is gently sloping and mostly native grassland except for the mixed alfalfa- and grass-cultivated hay meadows. A small portion of the eastern side is forested on the north slopes and creek bottoms and is primarily surrounded by Gallatin National Forest and State of Montana land.

Currently, there are sixty-eight bison at the Slip & Slide pastures (5 bulls, 34 cows, 22 yearlings, and 7 calves).

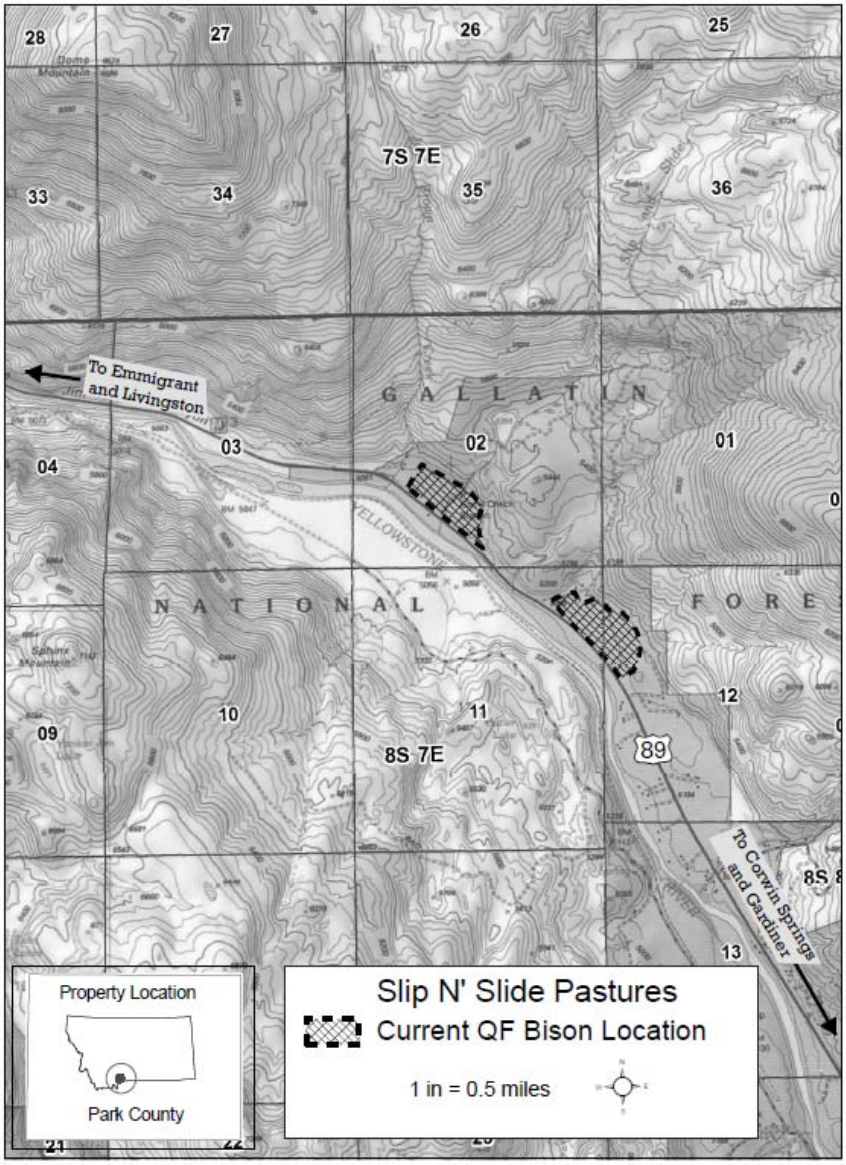
Facilities

Current facilities at the Slip n' Slide pastures include two fenced pastures with year-round water. The fence design surrounding the pastures is a double fence: boundary and quarantine fences. FWP is anticipating the need to install a temporary or portable handling apparatus within one of the pastures for testing the bison per the quarantine study protocols.

Herd Management

Management of the study bison at Slip & Slide would transfer from APHIS to FWP for the monitoring period. Bison would be provided feed and would have the ability to graze the hay meadows.

Map 2. Location map for the Slip n' Slide Pastures



Based on potential population growth of the herd, the carrying capacity of the pastures would likely be reached after two more birthing cycles, 2012 and 2013 (B. Frye, personal communication 4/12/11) at which time FWP would begin to actively manage the herd size through culling or placement of excess animals at alternate sites.

There is a zero tolerance of bison escapes from these pastures and there have been no bison escapes from these pastures since the Study was initiated.

With the completion of the statewide bison conservation strategy, bison would be transferred to permanent location found acceptable through that document's assessment process.

Anticipated Costs to FWP

Component	Detail	Cost
Start-up:		
Portable Chute		$ 17,000
Annual:		
Leases	For both pastures	$ 50,000
Feed & Mineral Supplements		$ 25,000
Personnel		$ 100,000
General maintenance	Fence, water system, electricity	$ 5,000
	Total:	$ 170,000

B) Green Ranch

The Green Ranch is a sub-ranch of the Flying D Ranch owned by Turner Enterprises, Inc. (TEI) located 20-miles west of Bozeman, Montana, in Gallatin and Madison Counties (Map 3). The property consists of approximately 12,000 acres of intermountain grassland. The majority of the parcel is deeded land, with 2,577 acres leased land from the Montana Department of Natural Resources and Conservation. The Green Ranch is separated from the main portion of TEI's Flying D Ranch by the Madison River.

Currently there are 143 bison at the Green Ranch pastures, which includes the remaining original study bison, 21 yearlings from 2010, and 40 new calves. Eighty-seven bison were transferred to the ranch in 2010, however three cows and 1 calf died of various natural causes during 2010.

Facilities:

The 12,000-acre parcel is perimeter fenced for bison, and also cross-fenced to divide the parcel into grazing management unit. Between the perimeter fencing and the cross-fencing, two fences generally separate the study bison herd from any livestock on adjoining properties.

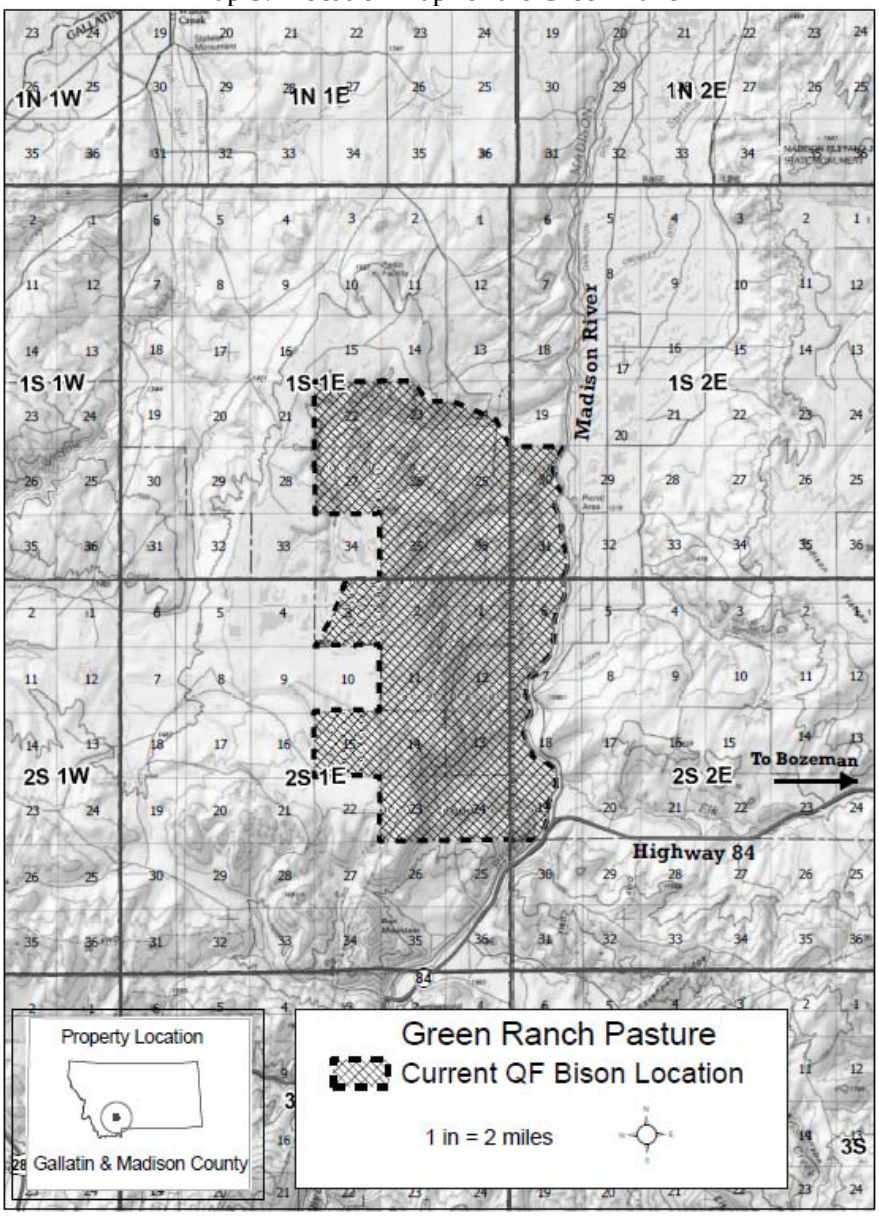
Herd Management

The Green Ranch has a carrying capacity of 400 animal units for the remainder of the monitoring period without any need for forage supplementation. In the event of severe prolonged drought that reduces the carrying capacity of the rangeland below the level required for the entire complement of bison, the parcel also has irrigated hay production that can be used as a safety net.

During the monitoring period, the study bison are being managed as one mixed-age herd that can be rotated through the parcel's 14 pastures (ranging from 300 to 3000 acres in size), consistent with TEI's established rest-rotation strategy of grass and habitat management.

In the event a bison escapes, and it cannot be safely retrieved by traditional methods, the animal will be immobilized by TEI's staff wildlife veterinarian and transported back to the facility. In the event that effort is unsuccessful, the animal will be euthanized in a humane manner.

Map 3. Location map for the Green Ranch



The study bison are being processed and tested according to the FWP/USDA APHIS protocols. TEI has applied an electronic identification tag to each animal, as well as a dangle tag, to aid in monitoring, testing, and management. All vaccinated females are given an ear tag.

Anticipated Costs to FWP

There are no costs to FWP for the study bison remaining at the Green Ranch for the duration of the monitoring period. However, at the end of the monitoring period FWP would receive all the original bison and 25% of their progeny. The remaining progeny would go into TEI's ownership. Under the agreement, TEI keeps 100% of progeny born during the first three years.

2.2.2 Alternative B: Proposed Action - Translocate groups of study bison to FWP and/or Tribal lands

This alternative proposes translocating bison from the Slip n' Slide pastures and Green Ranch to FWP's Marias River and/or Spotted Dog Wildlife Management Areas (WMA) and/or to range units owned by the Fort Belknap and Fort Peck tribes.

An initial allocation of the bison would not exceed 40 animals at each of the proposed sites. The composition of translocated bison to the WMAs would likely be mixed sex and age groups. However, a final decision may be made to limit the configurations to cow/calf pairs and yearlings. Separation of breeding aged bison is necessary to reduce population growth of the herd within the WMA and is expected to reduce cattle- bison conflicts and the possibility of escapes. Bulls, yearlings and remaining cow/calf pairs would be available for placement elsewhere.

The following is a description of each site under consideration.

A) Marias River WMA

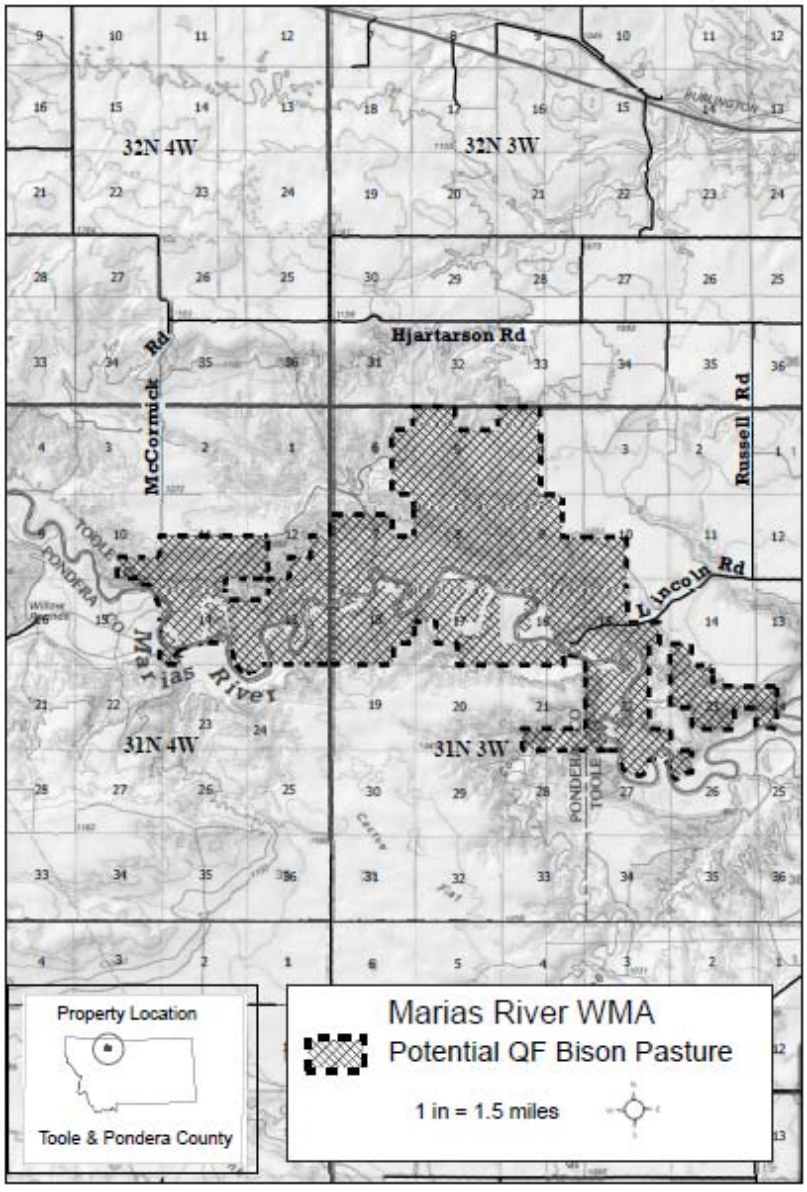
The Marias River WMA is located 8 miles southwest of Shelby and 70 miles northwest of Great Falls in Pondera and Toole Counties and falls within FWP Administrative Region 4 (Map 4). The property consists of 8,866 contiguous acres (7,540 deeded, 492 state school trust, and 833 acres BLM) on the north and south sides of the Marias River. There are approximately 14 miles of river frontage on the Marias River within the property. Use of DNRC and BLM lands within the Marias WMA is subject to their respective permitting processes.

Objectives for acquiring this property in 2008 as stated in the Decision Notice were:

- Protect and enhance riparian, sagebrush grasslands, and cottonwood gallery habitats;
- Protect in perpetuity 14 miles of the Marias River and its water-borne resources;
- Manage wildlife and fisheries habitat in a sustainable manner to support priority fish and wildlife species;
- Propose reestablishment of fish species native to the Marias River;
- Provide public access to over 10,700 acres of continuous habitat that is currently inaccessible for recreational uses;
- Provide opportunity and access for public hunting, fishing, wildlife viewing, hiking, non-motorized boating, and opportunity for other public recreational users;
- Protect wildlife habitat and fisheries resource from incompatible land uses or development and potentially loss of public access to those resources;
- Promote a river and ground based state park that provides multiple levels and options of recreational opportunities;
- Develop and provide educational interpretive programs that promote and inspire responsible outdoor recreation, preservation of important natural and cultural resources, and appreciation of park values;
- Promote tourism through recreation opportunities that will benefit local communities;

- Identify and preserve important cultural, heritage, geologic, and paleontological resources;
- Manage as a cooperative and combined WMA and State Park.

Map 4. Location map for the Marias River WMA



The WMA is open to the public from April 1st through January 15th for camping, hiking, horseback riding, hunting, and wildlife viewing. Public access to the interior of the WMA and the river is limited and walk-in only via the McCormick Road at the northwestern corner of the WMA. Limited administrative access is available via the Lincoln Road on the WMA's eastern boundary.

Facilities:

FWP anticipates using the old Lincoln Ranch buildings site within the WMA as the primary handling area for the bison. There are five buildings on the property, only one of which is of suitable construct and condition to provide equipment storage. This location was chosen because of its access, terrain (flat and hardened), and utilities availability. The pole barn building would be used to store equipment, feed, and tools needed for the management of the bison. Substantial facility improvement would be required to include construction of corrals, handling chutes and feed/equipment storage.

Six and a half miles of the WMA had a boundary fence on the northern rim that has been replaced by a 4-foot, 5-strand barbed wire fence to deter cattle from entering the WMA. The remaining boundary fences are in fair to poor condition. Interior fences are rare and are generally in poor condition where present. New fencing would be required for the entire circumference of the WMA to meet the spatial separation requirements of the study between the bison and cattle. Periodically, cattle from neighboring ranches do trespass onto the WMA. The topography of portions of the WMA is expected to present some challenges in fencing designs.

FWP staff met with the manager of the Snowcrest Ranch and the staff of the quarantine facility in Corwin Springs on December 2010 and March 2011 to learn about those location's fencing designs and typical challenges of managing bison. Based on those meetings, FWP staff has agreed the following fences would be needed at the WMA to meet the quarantine study site criteria to manage the bison. Analysis of proposed fencing design and impacts to wildlife is located in section 3.3.2.

E. Boundary fencing: The fencing for the proposed bison pasture would encompass the entire WMA perimeter boundary (8,866 acres or approximately 20 linear miles of fence). The fence would be 5 foot high and be constructed of 5 strand barbed wire. Smooth top and bottom wires may be used where fence conditions, topography, and/or wildlife passage dictates an adjustment to the previous description. Heavy wood and steel posts are used to support the wires. Special fencing requirements must be met at the points where the Marias River enters and departs the WMA. These circumstances would be addressed on-site as fencing proceeds. Special fencing may include extended drift fencing, floater gate(s) and/or extended fence portions along or into the River.

F. Additional internal winter pasture fencing would be required to identify an 880-acre pasture for the sake of controlled winter handling and monitoring purposes. Similar fence construction standards would apply.

Although the Marias River flows through the WMA, FWP would plan to establish a new watering location within the winter pasture for the bison. The river sometimes freezes over in winter and/or open water can be difficult to reach due to ice along the shoreline.

Anticipated FWP Costs:

Component	Quantity	Cost
Start-up:		
Fencing:		
Boundary	20 miles @ $3.00/foot	$ 316,000
Pasture	4 miles @ $3.00/foot	$ 63,360
Gates	8 @ $10,500 each	$ 84,000
Handling Facilities & Equipment	Handling chutes, corrals, building repair	$175,000
Tractor	High estimate, depending upon options	$ 185,250
Water Infrastructure	Pump, troughs, connections to power, etc.	$12,000
Misc. Equipment	ATVs, signage	$ 10,500
	TOTAL:	$ 846,110
Annual:		
Personnel:		
Herd Mgmt	(1) FTE, (1) part time & veterinary services	$100,000
Fence/Facility Maintenance		$ 3,200
Utilities & Fuel		$ 15,000
Winter Fee & Supplements	Feed	$ 20,000
	TOTAL:	$ 138,200

The source of these funds has yet to be determined.

Herd Management- Site Specific: See section 2.1.2 for general herd management. Because of typical harsh winter weather conditions and no internal all-season roads at this WMA, oversight and management of the bison herd would make it necessary for the herd to be restricted to an approximate 880-acre portion of the WMA during the winter months (usually December - March) that could be accessible from Lincoln Road and the handling facilities. Supplemental feed would be provided to the bison during this period as needed by FWP staff. Otherwise, the study bison would be allowed to roam the entire WMA to graze on the available grasses and forbs.

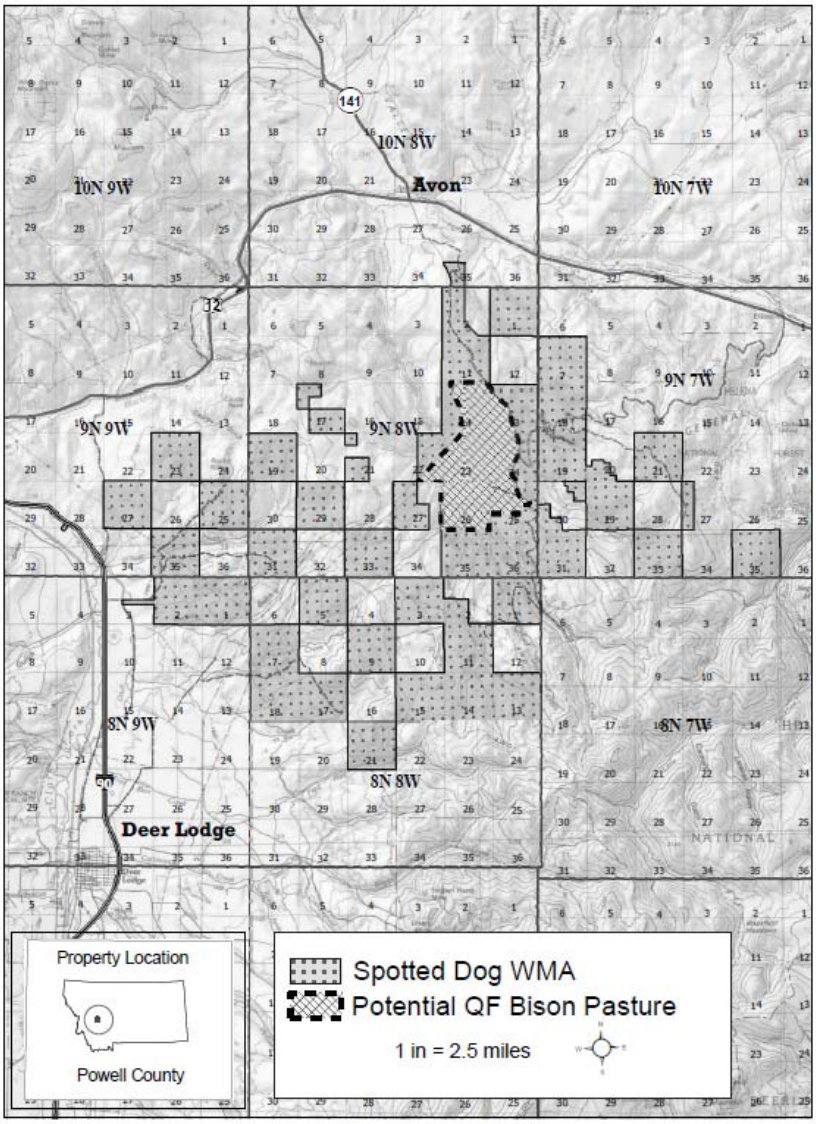
At the Marias WMA, a full-time staff member would be hired by FWP and dedicated to maintenance and bison monitoring. This individual would reside in a neighboring community to the WMA. This person would ensure that bison do not breach the pasture fence or leave the WMA and if emergencies arise, would contact other FWP area staff to initiate a response. Nearby FWP Region 4 staff to assist the Marias WMA maintenance technician includes a wildlife biologist in Conrad, a game warden in Dupuyer, a wildlife management area manager in Choteau, and other FWP staff from points further removed. Additional duties would include ensuring trespassing cattle or domestic bison are removed from the WMA when they are discovered thus ensuring study bison and trespass animals do not come in contact.

B) Spotted Dog WMA

The Spotted Dog WMA was acquired on September 2, 2010 with funding from the Natural Resources Damage Program (NRDP) and encompasses 27,616 acres owned by FWP and 10,261 acres of DNRC lands that are leased by FWP (Map 5). As stated in the Decision Notice (August 2, 2010), FWP's goals for acquiring and managing the Spotted Dog WMA are to:

- Permanently protect fish & wildlife resources;
- Enhance critical winter habitat for elk, mule deer, and antelope;
- Maintain migratory patterns to and from the National Forest for a regionally significant elk herd;
- Provide lasting public access to previously inaccessible lands;
- Maintain landscape connectivity between the Blackfoot and Clark Fork watersheds;
- Replace lost and injured natural resources that were the subject of Montana v. ARCO.

Map 5. Location map for Spotted Dog WMA
with the proposed bison pasture delineated

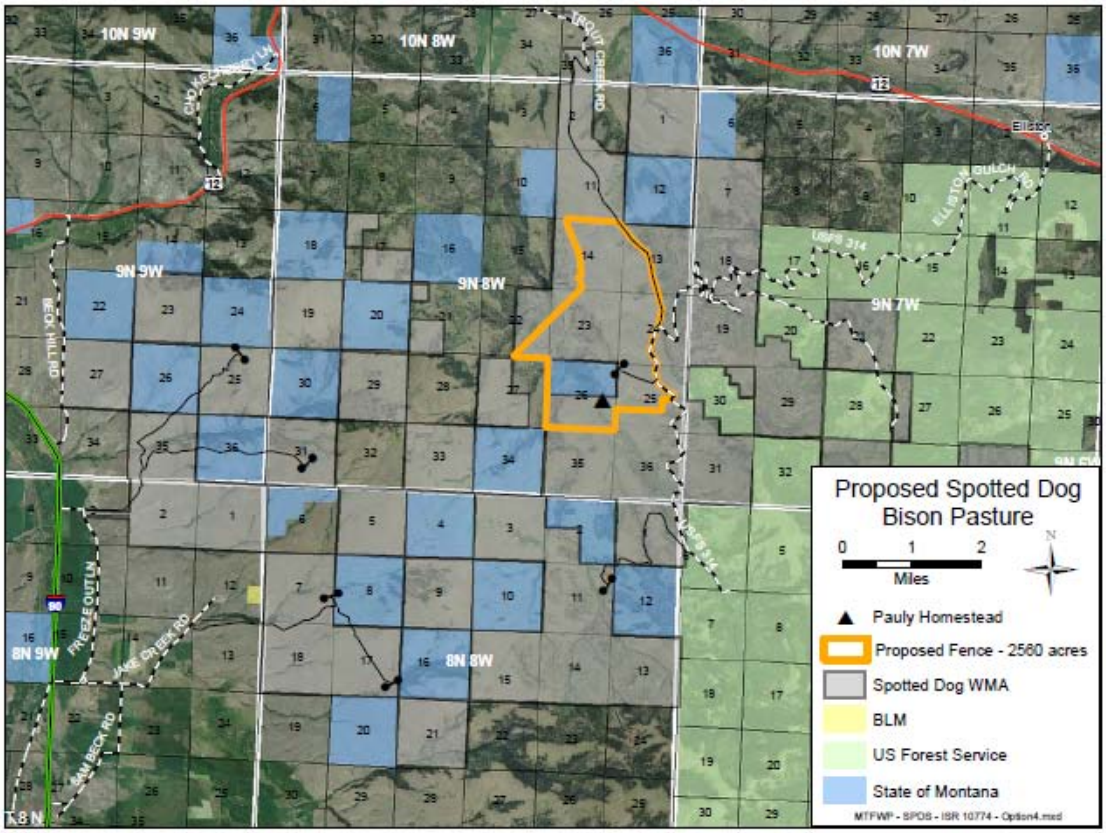


The Spotted Dog property is located approximately 5 miles northeast of Deer Lodge and one mile south of Avon, Montana.

The WMA is open to the public for hunting, camping, wildlife viewing, and other recreational activities from May 15th through December 1st. Access for winter motorized and non-motorized recreation is allowed upon and east of U.S. Forest Service Road 314 throughout the winter. Access into the WMA is provided by Freeze Out Lane from the west (from Deer Lodge), U.S. Forest Service Road 314 from the east (from Elliston), and Trout Creek Road from the north (from Avon).

The proposed 2,560-acre bison pasture (Map 6) was designed within the WMA in consideration of the terms of the 2010 purchase agreement between FWP and Rock Creek Cattle Company (RCCC). The purchase agreement specifies that RCCC maintains their grazing rights on all of the property except four sections until December 31, 2012. Within the enclosure, bison grazing that would occur on the 320 acres of Department of Natural Resources School Trust Land would be subject to the DNRC permitting processes.

Map 6. Aerial map of the Spotted Dog WMA with proposed bison pasture



FWP used the following criteria to select the proposed bison enclosure: appropriate habitat for bison; accessibility by an all season road; presence of water; proximity to utilities and facilities; and as feasible, limiting the impact to wintering ungulates, in particular, barriers to migratory elk movement. The bison enclosure would not be expanded when the RCCC lease expires.

Facilities:

There are at least 60 miles of boundary fence, much of it in disrepair, around and within the WMA. Most of the existing fence is 5-strand barbed wire with old wood posts or material gathered and used on site. The WMA's boundary fence is in poor shape in many places, and plans are underway to replace this fence with a wildlife-friendly cattle fence, using funding set aside for this specific purpose by the Natural Resource Damage Program (NRDP).

There is currently no fencing around the proposed 2,560 acre bison pasture. FWP proposes to construct a new 7' woven wire perimeter fence around the pasture. See below for additional fencing details. Cattle owned by RCCC would continue to be grazed on the WMA against the perimeter of this enclosure through the grazing season of 2012, in accordance with FWP's purchase agreement with RCCC, which allows for 1,700 cow-calf pairs in 2011 and 1,500 cow-calf pairs in 2012.

Based on Snowcrest Ranch and Quarantine Facility site visits, the new fencing recommendations include:

F. Enclosure fencing: The fencing for the proposed bison pasture would encompass 2,560 acres split into two pastures. In order to mitigate potential for property damage caused by bison (§ 87-1-216 MCA) and in order to avoid the exposure of game animals to supplemental feed provided to the bison (§ 87-3-130 MCA), a 7' high woven wire fence with heavy wood or steel posts is expected to be required.

G. Pasture fencing: This fence would split the designated bison pasture into two parts to facilitate maintenance of the boundary fence and the rotation of bison grazing. The pasture fence design would likely be a combination of electric wires and traditional 5-strand barbed wire fence. The final design of this fence would be determined at a later time and after FWP staff observed the behavior of the bison on site.

Evaluation of Alternative Enclosure Fencing Design: Alternatives to the woven-wire fence outlined above is a fence type consisting of 5 high-tensile wires, 48 inches tall, with the bottom wire spaced 18 inches from the ground. Both the top and bottom wires would be electrified to keep bison and cattle on their respective sides of the fence. Advantages of the 5-wire fence are its permeability to wildlife, lower initial construction cost, and aesthetic benefits.

The 5-wire fence requires a tolerance for bison escapes from the enclosure. Yellowstone bison are able to jump this fence type at the Snowcrest Ranch. Elk and deer crossing the fence lead to broken wires that present additional opportunities for bison escapes. Deep snow, such that can be found at Spotted Dog WMA, would be likely to render a 48-inch fence ineffective (the bison would walk over it).

Section 87-1-216 MCA, holds FWP "liable for all costs incurred, including costs arising from protecting public safety, and any damage to private property that occurs as a result of the department's failure to meet the requirements of subsection (5)." Subsection (5) substantively requires FWP to successfully contain translocated bison within the area to which they are translocated, and further to respond by constructing a more effective

enclosure in the event of an escape. With every expectation of escapes by bison from the 5-wire fence-type, FWP could expect to eventually construct the page-wire fence-type in compliance with §87-1-216, after having also invested in the 5-wire fence, and having satisfied its liability for any damage to private fences or other properties resulting from bison escapes.

Section 87-3-130 MCA prohibits the supplemental feeding of game animals. FWP is exempted from the provisions of this statute only in the circumstance when it conducts supplemental feeding for "disease control purposes," such as in the case of completing the Study for the control of brucellosis in bison. In the case of deer, elk, and other indigenous game species on the Spotted Dog WMA, supplemental feeding is potentially a source of disease transmission by creating artificial animal concentrations. Upwards of 1,000 elk potentially would be affected by access to supplemental feed on this critical natural wintering area. Therefore, it is necessary to exclude deer and elk from the bison enclosure. This argues for the relatively impermeable page-wire fence type to meet statutory intent and the principles of sound wildlife management.

There is an old ranch house area (Pauly Homestead) at the south end of the proposed bison enclosure. A water well and power are found there. The Pauly Homestead is 7 miles south of Avon and would be difficult to reach in winter conditions since Trout Creek Road is only plowed 2 miles in. Because of the potential difficult winter access conditions, FWP proposes to establish a bison management facility at the northeastern most corner of the proposed bison pasture where it abuts Trout Creek Road. At this location FWP would:

- Install a barn and shed to store maintenance equipment, hay and mineral supplements for the bison, and small office for staff;
- Double fence this area to keep bison away from buildings and ensure safe passage in and out of the management facility by staff; and
- Construct corrals and chutes for handling bison when veterinary care or research testing is required.

Since the management facility would be distant from the water well at the Pauly Homestead, FWP would drill a well to ensure a year-round water source for the bison in the northern portion of the enclosure. It would also be necessary to have water at the Pauly Homestead where the existing well would be retrofitted.

Anticipated FWP Costs:

Component	Quantity	Cost
Start-up:		
Fencing:		
Boundary (11 miles)	58,080 feet @ $8.00/foot	$ 464,640
Pasture (3 miles)	15,840 feet @ $3.00/foot	$ 47,520
Gates	10 @ $10,500/gate	$ 105,000
Handling Facilities & Equipment	Handling chutes, corrals	$ 175,000
Water Infrastructure	Pump, troughs, connections to power, etc.	$ 110,000
Feed/Hay Shelter	100'Lx40'Wx22'H	$ 28,000
Machine Shed with office	60'Lx30'Wx18'H	$ 38,000

Tractor	High estimate, depending upon options	$ 185,250
Misc. Equipment	ATVs, signage	$ 10,500
	TOTAL:	$ 1,163,910
Annual:		
Personnel:		
Herd Mgmt	(1) FTE, (1) part time & veterinary services	$100,000
Fence/Facility Maintenance		$ 3,200
Feed		$ 14,553
Mineral Supplements		$ 5,200
Utilities	Storage Building and Stock Tank Pumps and Heaters/year	$ 2,800
Fuel	For tractor operation 189 days of feeding/year	$13,891
	TOTAL:	$ 139,644

The source of these funds has yet to be determined.

Herd Management- Site Specific:

See section 2.1.2 for bison management information.

The study bison would be limited to 2,560 acres within the Spotted Dog WMA, which would be fenced to the specifications previously noted. These acres are located in the northeastern quarter of the WMA and would be accessible by the Trout Creek Road south of Avon.

Although the bison would be allowed to graze the 2,560 acres all year, during the winter months, FWP would provide supplemental feed to them because this portion of the WMA receives heavy snowfall and severe weather.

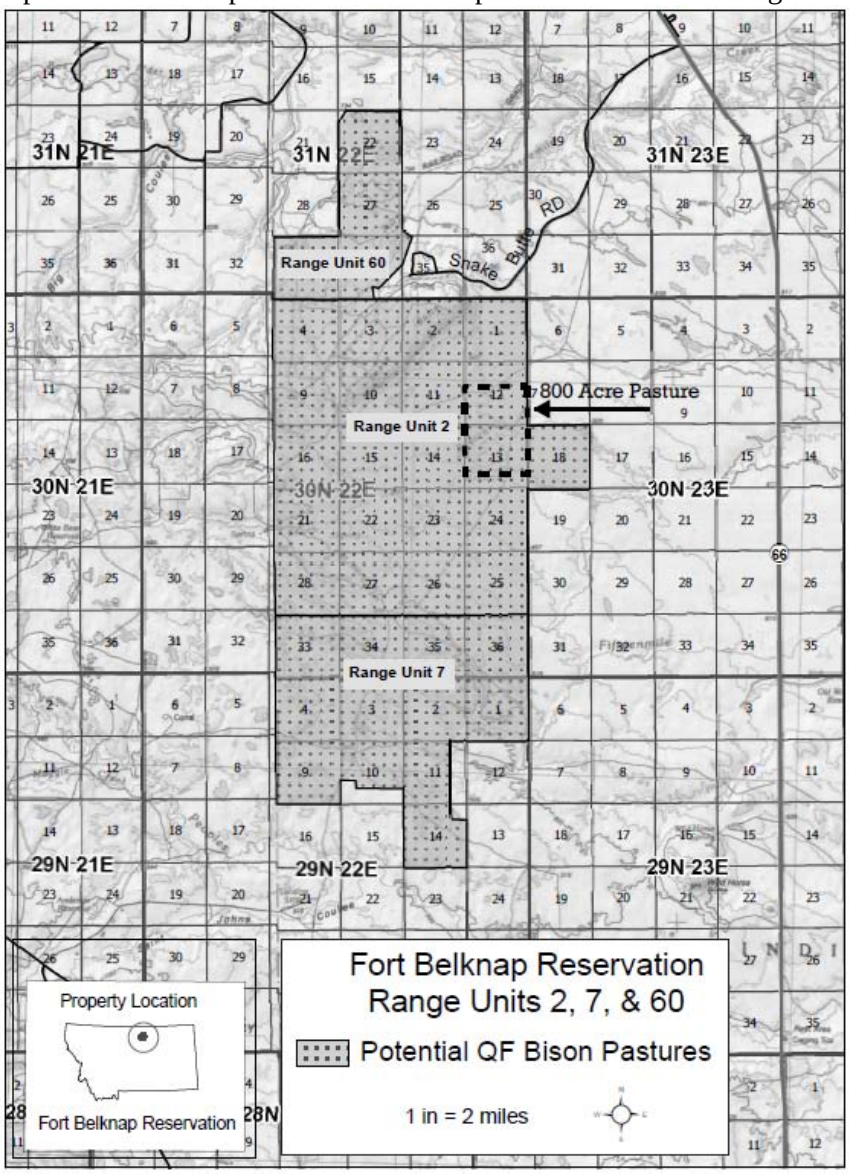
FWP plans to keep bison apart from deer, elk and antelope in order to avoid feeding wildlife other than bison, reduce fence entanglements by wildlife, and reduce fence damage that would lead to bison escapes.

FWP would be prepared to feed the bison within the enclosure on every day of the year, if necessary, and would elect to feed bison depending on native grass production and quality as well as the distribution and condition of the bison. The purpose of feeding would be to satisfy nutritional demands, conserve native vegetation within the enclosure, and prevent bison from pushing the fences. Hay would be weed-seed-free, grass (not grain). Mineral pellets would be used to supplement their diet.

C) Fort Belknap Tribal Lands

The Fort Belknap Indian Reservation was created by an Act of Congress on May 1, 1889. It is home to members of the Assiniboine and Gros Ventre tribes. The reservation is located in north-central Montana covers 675,000 acres within FWP Administrative Region 6 (Map 7).

Map 7. Location map for the Fort Belknap Reservation Bison Range Units



Fort Belknap has an existing tribally-owned herd that grazes on approximately 22,000 acres of land in the northwestern portion of the Reservation, locally known as Range Unit 2 (13,000 acres), Range Unit 7 (7,000 acres), and Range Unit 60 (2,000 acres). This herd was started in 1974 and now numbers over 450 animals. The Fort Belknap Fish and Game Department has intensively managed this herd since 1992 to support commercial businesses (fee hunting and meat processing) and to provide bison for tribal cultural needs.

The 22,000 acre site of the bison pasture is located along the western boundary of the Fort Belknap Reservation southwest of the community of Fort Belknap. Adjacent landowners to the bison pasture include private, Federal, State, and other tribal lands within Blaine County Montana. These sections encompass primarily prairie grasslands.

Since the Tribes commercial bison is currently using Range Units 2, 7, and 60, the Tribes have planned to enclose 800 acres on the northeastern corner of the old bison pasture to hold study bison that are translocated to the Fort Belknap Reservation. The study bison would only be held within this smaller pasture until the commercial herd is liquidated, which is expected to take three years through hunts, sales of animals to InterTribal Bison Cooperative members, and culling bison for cultural needs of the Tribes. If a boundary fence for the 800-acre pasture is not completed in time to receive study bison, the Tribes at the Fort Peck Reservation have offered to provide temporary pasture for the study bison on Range Unit 62 (see page 35 for location information) until Fort Belknap's fencing effort is completed.

Facilities

The existing bison pastures are currently surrounded by a 6 foot, 6 or 7 strand barb wire fence capable of holding buffalo under normal circumstances. The fence consists of eight foot treated wooden brace posts 2.5 foot into the ground at 15 foot intervals with 7.5 foot steel T-posts in between and placed at 15 foot intervals. The lowest wire is 18 inches off the ground to allow for wildlife passage. The fence boundary is continually being improved when it is taken down due to snowdrifts or after a bison escapes.

At the northeastern corner of the Range Unit 2, a handling facility exists with wooden corrals and chutes. This facility is used to handle and process the Tribes' commercial bison herd.

The planned 800-acre pasture has yet to be fenced, yet the Tribes do have a commitment of funding to assist with its construction by the Defenders of Wildlife. The boundary fence of the smaller pasture is anticipated to be 7-8 foot high woven game fence.

Access to the 22,000 acre bison pasture is primarily via Snake Butte and Timber Ridge Roads, Snake Butte Road is a tribally-owned road, whereas Timber Ridge Road has a shared ownership between the Tribes and Blaine County. There are a few established primitive interior roads within the bison pastures. All access points within the bison pastures are through heavy metal gates and the public is not allowed to enter the pastures unless Tribal Fish & Game staff is present.

In the future, the Tribes plan to install a pasture fence along the boundary between the Range Unit 2 (13,000 acres) and Range Unit 70 (7,000 acres) to its south in order to establish a grazing rest-rotation program between the three range units. A boundary fence already exists between Range Units 2 and 6.

Herd Management:

The study bison herd would be kept within the 800-acre pasture until the Tribes existing commercial bison herd was liquidated, in approximately 3 years. The study herd would be provided supplemental feed within the smaller pasture until they were released on to the 22,000 acre bison pasture. The bison would be managed as semi-wild once they are using the larger pasture and would only be rounded up for testing purposes or if needed for treatment of a disease outbreak or extenuating circumstances such as fire or other environmental factor, which may require them to be removed from the range units.

The Tribes would allow for the natural expansion of the study bison herd since the carrying capacity of the pasture is 450 animals. (See 3.2.2 (4) for available vegetation). If necessary, culling efforts would be completed by Tribal Fish & Game staff and the harvested meat would be distributed equally to tribal programs providing services to seniors and diabetics on the Reservation and for cultural and traditional ceremonies.

The 800-acre pasture and boundary fencing would be visually inspected on a daily basis for obvious signs of damage. Damaged fencing would be repaired immediately. The bison pastures would be patrolled and the bison would be managed by a dedicated tribal member, with the assistance of Tribal Fish and Game Department.

The bison manager would maintain the animal records, serve as a liaison between Tribal officials and State and Federal agency personnel, respond to inquiries by the general public, and supervise the quarantine operation. The Tribes would hire technicians, if necessary, to handle the bison, provide for daily care, and maintain the facilities.

If any bison were to escape either the temporary pasture or the larger bison pasture, the bison would be herded back into its designated pasture. Based on the Tribes experience with its commercial bison herd, most escapes occur during the winter when snowdrifts bring down fences. The bison manager would continually check and repair weak stretches of the boundary fencing in order to decrease the likelihood of escapes. If study bison escapes and exit the Reservation, FWP would work with the Tribes to immediately herd the bison back onto the pasture.

When the quarantined bison herd is subjected to brucellosis testing, the herd would be moved into the corral facility for testing. Bison testing positive for brucellosis would be handled as described in the quarantine protocol. Should bison need to be sent to slaughter at an approved slaughter facility, a permit for their release from the quarantine facility would be obtained from DoL.

Quarantine Operation Monitoring

Monitoring activities would ensure that the a) serologic testing of each group is performed at intervals according to Study's protocol, b) bison are tested at appropriate intervals for each group (mature males, mature pregnant females prior to mid-gestation, and mature pregnant females after mid-gestation), and c) oversee testing after-birth, breeding females, male bison, and calves to ensure that they are healthy (test negative for brucellosis). The quarantine facility would be monitored on a 24 hour basis to prevent unauthorized entry. The Fort Belknap Tribes would be responsible for monitoring any field slaughter and the distribution of meat, hides, and heads of serologic positive bison at the facility.

During winter and spring, bison would be observed daily for abortions. Any aborted fetuses will be reported immediately to investigators and submitted to the state veterinary diagnostic laboratory for an abortion work-up and *Brucella* culture. In the fall of 2012, all bison (cows, yearlings and calves) would be worked through a chute and blood samples collected for brucellosis serology testing.

As 3-year-olds and assuming that bison would be calving every year thereafter, it is anticipated that all the study bison would be tested in 2012. Thereafter, a percentage of adult or adolescent bison will be tested. Using a calculation to determine a 5% or greater prevalence with 95% confidence, a figure of 45-55 bison would need to be tested each year as the population grows. See section 3.2.2 (3) for more information about the rangeland conditions.

Animal capture can be accomplished by setting up a trap and working them through a chute or by chemical immobilization delivered by dart, or by helicopter capture or a combination of techniques.

As part of the requirements of the project to ensure that latent infection is not present in the translocated bison, it is necessary to monitor the population for 5 years following translocation. During the first year (2012) every animal would be serologically tested as described above.

Should serologically positive animals be detected in 2012 or subsequent years, the positives would be sacrificed, necropsied, and specimens collected for culture. If *Brucella abortus* infection is confirmed, whole-herd testing will be necessary. With results of the whole herd test, a disease management plan would be developed in cooperation with the recipient agency or tribe, the State Veterinarian's office, and APHIS epidemiologists. Depending on testing results, the disease management plan may consist of vaccination and rigorous test and slaughter, to whole herd depopulation.

Costs to FWP

There would be no direct costs to FWP under this option, but FWP regional staff would continue to provide technical assistance as needed to tribal and APHIS staff until the end of the study. The Tribes would incur all costs related to the holding of the study bison.

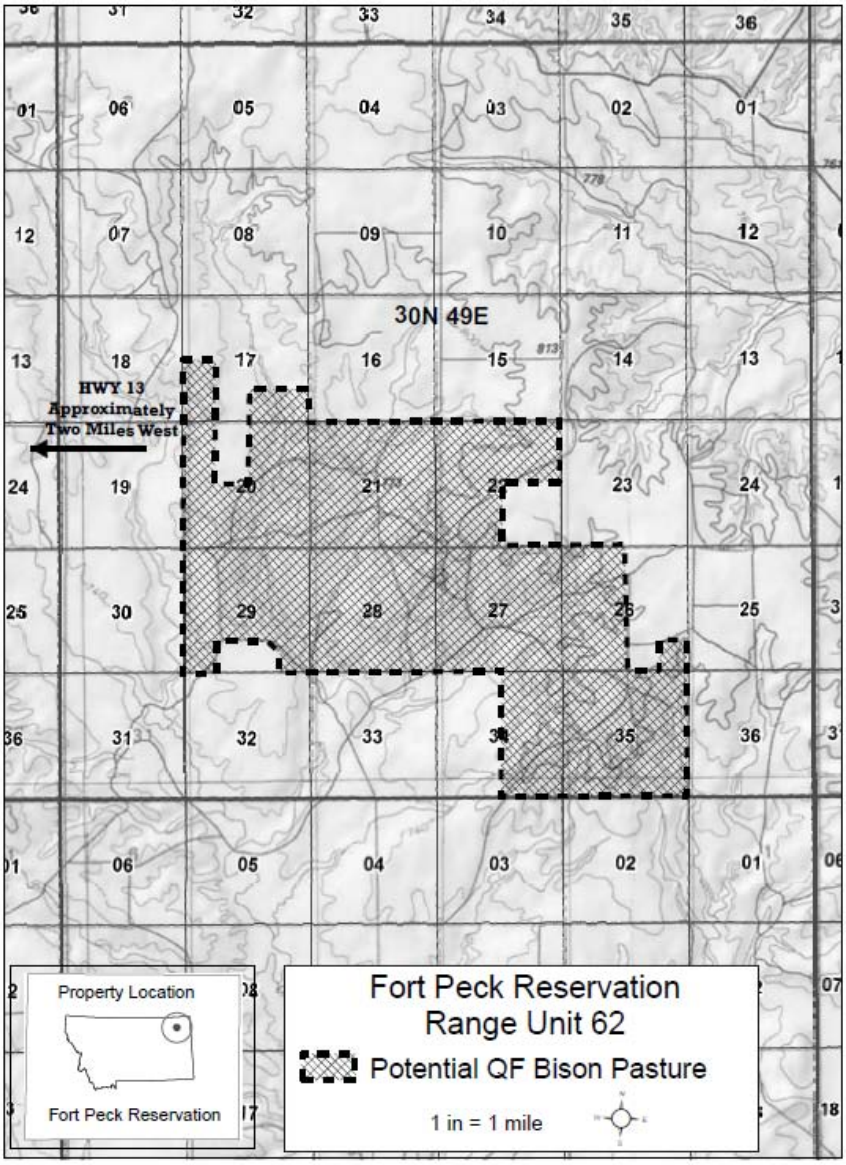
D) Fort Peck Tribal Lands

The Fort Peck Reservation encompasses over 2 million acres in northeast Montana and is home to the Assiniboine and Sioux Tribes.

The study bison would be placed at a site located approximately 41 northeast of Wolf Point in Roosevelt County, the property falls within FWP Administrative Region 6 (Map 8). The property consists of 4,800 acres and is known as Tribal Range Unit 62 in Township 30N, Range 49E, which is east of State Highway 13. Currently this range unit is not being grazed by cattle or the Tribes' commercial bison herd.

The Tribes currently manage a commercial herd of 200 bison known as the Turtle Mound Bison. This herd is kept on Range Unit 57, which is 4 miles north of unit proposed for the study bison. These bison are used and harvested for cultural and ceremonial purposes and are available for non-member fee hunts.

Map 8. Location map for the Fort Peck Reservation Bison Range Unit



Facilities

A boundary fence already exists at Range Unit 62. The fence is 5 foot high with 6 strand wires. It consists of a 6 strand wire fence design with the bottom wire being smooth and 20 inches from the ground and the top wire smooth too. The top and bottom wires are smooth with 4 strands of barbed wire 8 inches apart in between. The barbed wire is closely spaced to keep bison from sticking their heads in between the wires and potentially breaking the wire. Seven foot steel T-posts are installed every 16 foot with wood braces every 1/8 of a mile for strength. Steel gates are at all six entrances to this bison range unit. At two of the entrances there are additional barbed wire gates that are in place to give access through a corner of Range Unit 62 to adjoining neighbors' properties. In the future, the main entrance to Range Unit 62 and the bison would have the addition of a 16 foot by 14 foot steel cattle guard to allow for vehicular traffic to enter the unit without opening and closing the metal gate.

In addition to the fencing, two solar powered water tanks have been installed within the range unit with propane generators to ensure the water does not freeze during the winter. The range unit has two natural springs, one that is open year-round and three reservoirs that provide seasonal water supply. There is also a working windmill water pump that would be available to the bison as soon as a new stock trough is installed.

Currently, handling facilities are seven driving miles away at the Turtle Mound bison range unit. For convenience, the Tribes plan to install a portable capture facility within Range Unit 62 purchased with funds through an InterTribal Bison Cooperative grant.

Herd Management

The Tribes plan to allow for the natural expansion of the study bison herd until the herd reaches the desired population of 150 animals. (See 3.2.2 (4) about the vegetation available). When that capacity has been reached the Tribes plan to cull the herd to a 70% cow 30% bull ratio. Culling efforts would be completed by Tribal Fish & Game staff and the harvested meat would be distributed equally to tribal programs providing services to seniors, diabetics, and Head Start centers on the Reservation and would be used in cultural and traditional ceremonies. There is also the potential that the harvested bison meat would be used in local school breakfast programs.

The bison herd would be managed as semi-wild and would only be rounded up for testing purposes or if needed for treatment of a disease outbreak or extenuating circumstances such as fire or other environmental factor which may require them to be removed from the range unit.

During the calving season, the Tribes maintain a zero tolerance policy for escaping bison, meaning that bison would be herded back onto the range unit immediately following an escape with the use of trucks, ATVs, or on horseback.

Compensation for property damages caused by escaping study bison (i.e. broken fencing, damaged crops, etc.) would be covered under the Tribal bison insurance policy.

Selective removal of individual bison from the herd would only be done for a specific purpose such as an older rogue bull who may continually try to leave the range unit, health reasons, etc. When animals are removed from the herd for any reason, the Fort Peck Fish & Game Department would document the animal, reason for death or where transferred to and if needed conduct tests to confirm cause of death if not intentional.

Although the Tribes would be using a mainly hands off policy in management, the Tribes would work with a local veterinarian. If it is noted that at anytime any health concerns are found, per any recommendation from the veterinarian, the Tribe may wish to work the herd to avoid a complete outbreak. A policy to necropsy all animals that die of unknown causes would be implemented. The Tribes will maintain a working relationship with USDA APHIS in monitoring/testing of the herd. The bison manager would also keep up to date on symptoms of any type of disease outbreak and of any local outbreaks that may be in the vicinity of this herd.

Native grass hay would be supplemented to the herd only during extenuating environmental/weather circumstances such as severe snow storms, flooding, fire or any other circumstance that could drastically reduce the range unit's carrying capacity in a short time period.

The Tribes intend to hire a bison wrangler to monitor this bison herd and the perimeter fencing to minimize the potential for escapes, private property damage on adjacent land, and ensure the bison do not come in contact with livestock.

Bison Monitoring

The Tribes would maintain the study bison in one or more fenced pastures, approved by Federal and State animal health officials, on site until fall of 2016. During winter and spring, bison will be observed daily for abortions. Any aborted fetuses will be reported immediately to investigators and submitted to the state veterinary diagnostic laboratory for an abortion work-up and *Brucella* culture. In the fall of 2012, all bison (cows, yearlings and calves) would be worked through a chute and blood samples collected for brucellosis serology testing.

As 3-year-olds and assuming that bison would be calving every year thereafter, it is anticipated that all the bison would be tested in 2012. Thereafter, a percentage of adult or adolescent bison will be tested. Using a calculation to determine a 5% or greater prevalence with 95% confidence, a figure of 45-55 bison would need to be tested each year as the population grows. The study bison moved to Range Unit 62 are expected to have an 80% reproduction rate based on rangeland health conditions. See section 3.2.2 (4) for more information about the rangeland conditions.

As part of the requirements of the project to ensure that latent infection is not present in the translocated bison, it is necessary to monitor the population for 5 years following translocation. During the first year (2012) every animal will be serologically tested as described above. Animal capture can be accomplished by setting up a trap and working them through a chute or by chemical immobilization delivered by dart, or by helicopter capture or a combination of techniques.

Should serologically positive animals be detected in 2012 or subsequent years, the positives would be sacrificed, necropsied, and specimens collected for culture. If *Brucella abortus* infection is confirmed, whole-herd testing would be necessary. With results of the whole herd test, a disease management plan would be developed in cooperation with the recipient agency or tribe, the State Veterinarian's office, and APHIS epidemiologists. Depending on testing results, the disease management plan may consist of vaccination and rigorous test and slaughter, to whole herd depopulation.

It is anticipated that if the translocated herds remain seronegative through the monitoring period following quarantine, continued regular monitoring would not be required.

Costs to FWP

There would be no direct costs to FWP under this option, but FWP regional staff would continue to provide technical assistance as needed to tribal and APHIS staff until the end of the study. The Tribes would incur all costs related to the holding of the study bison.

2.3 Alternatives Eliminated from Detailed Study

2.3.1 Other FWP-owned Properties (Robb-Ledford WMA, Dome Mountain WMA, Blacktail WMA, Wall Creek WMA, Gallatin WMA, and Mount Haggin WMA)

An internal review of potential translocation sites for the interim holding of study bison included Robb-Ledford WMA, Dome Mountain WMA, Blacktail WMA, Wall Creek WMA, Gallatin WMA, and Mount Haggin WMA. With the exception of the Mount Haggin WMA, all were located within the Designated Brucellosis Surveillance Area (DSA) as set by the DoL. The DSA is an area of increased surveillance (testing) and mitigation practices including vaccination, temporal and spacial separation of cattle and domestic bison from infected wildlife in an area in which brucellosis positive wildlife are known to exist (DoL 2010). Those WMAs within the DSA were eliminated from additional analysis and further consideration because of too great a risk for a brucellosis positive elk to come into contact with a bison from the Study rendering the project no longer valid.

Mount Haggin WMA, south of Anaconda, was deemed unsuitable due to typically severe winter conditions that would likely result in being unable to contain the bison on the WMA.

Warm Springs WMA, south of Deer Lodge, was initially under consideration if the expansion of the WMA included an adjacent property (locally known as the Dutchman property) was completed before the end of 2011. The anticipated transfer date of the Dutchman property into FWP ownership is unknown as of the publication of this document thus this WMA was eliminated from further investigation.

2.3.2 Bob Marshall Wilderness

The Bob Marshall Wilderness was eliminated from additional investigation as an interim site for the following reasons:

- Its wilderness designation prohibits facility development or installation of fencing.
- Very limited road access for monitoring bison.
- Site does not allow for spatial and temporal separation from livestock due to existing grazing leases.
- High potential for bison to migrate out of the wilderness area during harsh winters.
- Only limited areas exist within the wilderness that provide bison habitat (e.g. grasslands).

Chapter 3.0: Affected Resources & Predicted Environmental Consequences

3.1 Description of Relevant Bison Habitat and Behavior

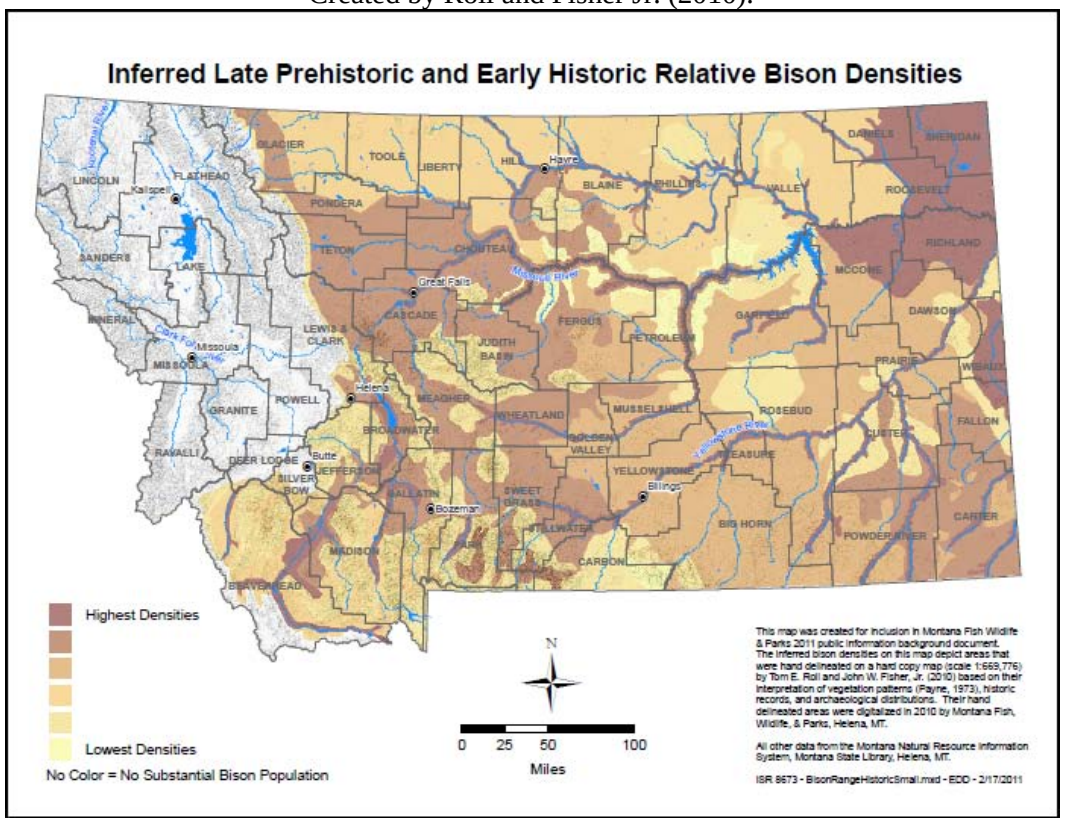
(Excerpts from Background Information on Issues of Concern for Montana: Plains Bison Ecology, Management, and Conservation)

Historic Distribution:

The historical distribution of bison covered most of the North American continent (Hornaday, 1889; Gates et al., 2010). Guthrie (1980) notes that while historical groups of bison were found throughout North America, the greatest concentration were found along a line from Alberta to Texas, just east of the Rocky Mountains and in the intermontane basins located just to the west. The largest concentration of bison occupied the Great Plains, which extends east to the Missouri River valley and westward to the front range of the Rocky Mountains. The Great Plains also extends from Canada to Mexico, and is the largest biome in North America (Isenberg, 2000). Isenberg (2000) notes that the Great Plains consist primarily of short-grass and mixed-grass rolling plains, but also include wooded river valleys and high, forested hills.

Map 9 illustrates the inferred late-prehistoric and early-historic relative distribution and densities of bison within the state of Montana. This map was created based on vegetation patterns (Payne, 1973), archeological records and reports of historic human activities by Roll and Fisher Jr. Though populations of bison were found throughout much of the state, regions delineated as highest and higher densities had the highest estimated year round populations.

Map 9. Inferred Late-Prehistoric and Early-Historic relative densities of bison in Montana. Created by Roll and Fisher Jr. (2010).



Though bison were primarily located in the lower elevations of the plains, there are numerous reports of bison seasonally moving to high elevation within the Rocky Mountains, especially along the Front Range. Fryxell (1926) located skulls at approximately 9,500 feet, 10,500 feet, and 11,500 feet within the Snowy and Centennial ranges. Hornaday noted that bison had ranged to an elevation of 11,000 feet, based on a skull that was found in Two Ocean Pass within Yellowstone National Park (YNP) (Fryxell, 1926).

The observations of early travelers within the region, archeological records of a variety of bison-kill sites, and the oral history of Native Americas support the distribution and abundance of bison within Montana. As of 2010, the State Historic Preservation Office of the Montana Historical Society had 320 bison kill sites on record, though it is estimated that these sites are only a small representation of the overall sites that once existed in Montana (data provided by D. Murdo, State Historic Preservation Office, May 2010). The first are bison jumps in which early hunters either on foot or on horseback drove bison herds over a cliff (McHugh, 1972; Geist, 1996). The second type of archeological kill sites found within Montana are bison pounds, in which bison were driven into a small area enclosed by either stones or logs and then slaughtered (Murdo, personal communication).

Habitat

Bison evolved through natural selection as a "dominate grazer" on complex landscapes (Fuhlendorf et al., 2010), and historically occupied a variety of habitats. Bison were found throughout the prairies, the arid plains and grasslands, meadows, river valleys, aspen parklands, coniferous forests, woodlands, and openings in the boreal forests (Long, 2003; Burde and Feldhamer, 2005; FWP, 2010a; MNHP, 2010). Bison utilize the woodlands in the summer for shade, and in the winter when the accumulation of snow prevents feeding in more open terrain (Meagher, 1978; Burde and Feldhamer, 2005). Berger and Cunningham (1994a) observed that bulls were more common in breaks, woody draws, and ravines then females. The cow groups were more common on prairie habitat. Currently most managed bison preserves confine bison to small reserves of land that are often outside of the short-grass plains, which was one of their main historic habitats (Isenberg, 2000).

The impacts of large grazers such as bison can be both positive and negative, the key is how the species is managed on the landscape. The grazing and wallowing behavior of bison result in the creation of environments, which contain plant communities that have a greater diversity than the surrounding region. This increase in plant diversity is utilized by other animals and increases the diversity of wildlife within the region (Foresman, 2001; Picton, 2005; Gates et al., 2010).

A study completed by Frank et al., (1998) found that the presence of large herbivores, bison and elk, within YNP increased the aboveground plant production by an average of 43%, thus dramatically promoting energy capture within the ecosystem (pp. 519). This study found that, "ungulates stimulate allocation to shoot growth while simultaneously enhancing light levels, soil moisture, and nutrient availability" (Frank et al., 1998, pp. 518). Frank et al., (1998) note that, "because animals are continually on the move, grazing at any site, although often intense, never lasts long. Furthermore, because ungulates tend to graze grasslands early in the growing season, when forage is the most rich in minerals, and then migrate off sites while conditions are still favorable for plant growth, defoliated plants are provided with both sufficient time and suitable

conditions to regrow" (pp. 519). Frank et al., (1998) conclude that, "in contrast to most terrestrial habitats, where climate is the preeminent factors determining primary production and ecosystem energy flow, ungulates play a major role in regulating these processes in grazing ecosystems" (pp. 519). Thus, "ungulates in grazing ecosystems do not simply respond passively to ecosystem gradients of forage characteristics; they actually modify vegetation structure, with the result that herbivores increase their own foraging efficiency (Frank et al., 1998, pp. 518).

The grazing of bison and their presence in a region enhances the availability of nitrogen to plants by increasing the nitrogen cycling and by altering the form in which inorganic nitrogen exists. This increase in available nitrogen increases the productivity of the vegetation (Frank and Evan, 1997). Bison can stimulate increased biomass production in a grassland system by redistributing nitrogen and other nutrients through feces and urine deposition (Frank and Evan, 1997).

Knapp et al., (1999) found that the grazing behavior of bison which, in conjunction with wallowing and other ecological events such as fire, increased the diversity of the grassland to provide suitable nesting habitat for a variety of obligate grassland nesting bird species (Gates et al., 2010). Grassland birds evolved alongside native grazers, such as bison, and are dependent on the heterogenic mosaic landscape patterns that emerge from the grazing patterns of bison (Knopf, 1996). Some of the bird species that utilize bison altered habitat are upland sandpipers, grasshopper sparrows, mountain plover, McCowan's longspur, ferruginous hawks, and long-billed curlew (Knopf, 1996; Gates et al., 2010).

Diet

The diet of the plains bison consists primarily of grasses, though bison will consume forbs and woody vegetation when their preferred vegetation is not readily available (Nowak and Paradiso, 1983; Foresman, 2001; Long, 2003; Burde and Feldhamer, 2005; Picton, 2005). The study of the diet of bison, cattle, and sheep on short grass vegetation in northeastern Colorado by Peden et al., (1974) found that bison have a greater preference for warm-season grasses, which are grasses that grow during the summer and mature in the late summer or fall. The study found that bison consumed more warm-season grasses than cattle or sheep, with warm-season grasses making up approximately 80% of their diet except for during late winter and early spring.

Bison's nutritional needs change seasonally and are related to the length of the day. A mature bison gains and loses weight cyclically, with weight loss occurring in the fall and winter, and weight gain occurring in the spring and summer (Feist, 1999). On average bison tend to lose 10-15% of their body weight during the winter (Feist, 1999).

Bison are ruminants with a four chambered stomach system that allows them to effectively digest plant material. Bison have a mutually beneficial or symbiotic relationship with microorganisms including bacteria and protozoa, which allow an increased utilization of plant material, then would occur in the micro-organisms absence (Feist, 1999; Picton, 2005; Gates et al., 2010).

Bison are a diurnal and crepuscular species, meaning that they are mostly active during the day and during twilight (Nowak and Paradiso, 1983; Long, 2003; Reynolds et al., 2003). Bison typically forage between nine to 11 hours daily, but will increase their foraging if the quality of food is low (Picton, 2005). Bison alternate between active foraging and passively ruminating in

order to allow time for the microorganisms to break down the plant material (Foresman, 2001). The large size of the bison allows for a larger digestion vat, therefore allowing bison to utilize lower quality forage than other ungulates, such as elk, cattle, or deer.

Behaviors toward other wildlife

Bison evolved alongside other native ungulate species, such as elk, mule deer, and pronghorns. Knowles (2001) notes that, "bison tend to ignore other ungulate species except when closely approached during a feeding bout. Interspecies aggression may be exhibited at this time but chase distances are typically very short as long as the other species exhibits flight behavior" (pp. 26).

Barmore Jr. (2003) examined the relationship between native ungulate species in the northern range of YNP during 1962-70. Through combining his observations and relevant literature, he determined the amount of separation and the factors responsible for separation of the different species. Barmore Jr. (2003) found that the following ecological separations occurred between bison, mule deer, moose, bighorn sheep, and pronghorn antelope during 1962-70, and probably during primeval times, based on major differences in four niche dimensions; spatial distribution, habitat selection, food habits, and tolerance of snow. Barmore Jr. (2003) observed niche dimensions were factors responsible for the ecological separation of bison from mule deer.

General Behaviors

Bison engage in a wallowing behavior that is done to clean themselves and to rub off the loose old coats of hair. This behavior forms circular to oval-shaped bare soil depression (Coppedge et al., 1999). Meagher (1973) observed that bison tended to utilize the same wallows annually. Wallows are approximately eight to ten feet in diameter and tend to occur on flatter ground consisting of finer texture soils. Wallowing is associated with the relief of insect and parasite irritation, shedding, and potentially as a means of thermoregulation, as bison may lower their body temperature through contact with cooler soil (Nowak and Paradiso, 1983; McMillan et al., 2000; Lott, 2002; Reynolds et al., 2003; Picton, 2005). Wallowing is also associated with reproduction. Bulls will urinate in a wallow and then both the bull and cows will roll in the urine. The pheromones in the urine induce the cows to come into estrus, helping to coordinate the estrus cycle of the females within the herd (Bowyer et al., 1997; Picton, 2005).

Bison wallows increase the heterogeneity of the landscape. The soil within a wallow becomes exposed and compacted. This compacted shallow bowl collects rainwater, and creates a microenvironment in which seeds can sprout. The seedlings of sedges and rushes occur in wallows that are otherwise absent in the prairie (Coppedge et al., 1999; Knapp et al., 1999; Lott, 2002).

Bison of all age and sex classes also engage in a behavior referred to as horning, which involves the rubbing of an object with its head, horns, neck, or shoulders (McHugh, 1958; Coppedge and Shaw, 1997). Horning is believed to be associated with relief from insect irritation, though it may also be a behavioral display or associated with coat shedding (McHugh 1958; Coppedge and Shaw, 1997; Gates et al., 2010). Horning typically involves rubbing on a shrub or small tree, though bison may utilize manmade objects as well (Gates et al., 2010). Bison prefer to horn

aromatic shrubs, sapling, and treated utility poles, which may contain insecticidal or insect deterring properties to gain relief from insects (Coppedge and Shaw, 1997).

3.2 RELEVANT RESOURCE VEGETATION

3.2.1 Alternative A: No Action - Bison remain at Slip n' Slide Pastures & the Green Ranch

1) Slip n' Slide Pastures

- Affected Area

The landscape is gently sloping and mostly native grassland except for the mixed alfalfa- and grass-cultivated hay meadows. A small portion of the eastern side is forested on the north slopes and creek bottoms and is primarily surrounded by Gallatin National Forest and State of Montana land. The elevation of the irrigated hay fields ranges between 5,000 and 5,100 feet.

- Direct Effects

Anticipated short term affects would be minimal since the pastures are currently being sustained and grazed by the study bison. Cultivation of the alfalfa-hay meadows would continue by the property's owners. FWP would continue to provide the bison with supplemental feed during the winter.

As the population of the herd grows, the grazing pressure on the pasture's alfalfa-hay forage is expected to increase thus reducing the amount available to each animal. Supplemental feed may be required during the summer months to sustain the herd.

At the completion of the monitoring period, the pastures would become available to other uses depending on the desires of the current owners (e.g. continue as cultivated field, retire the fields, etc.).

2) Green Ranch

- Affected Area

Intermountain prairie grassland is the dominant habitat type at the ranch. Vegetation species include a mix of rough fescue, Idaho fescue, bluebunch wheatgrass, needle-and-thread grass, and other grasses and forbs in lesser quantities. The elevation of the Green Ranch pastures ranges from 4,380 to 4,600 feet.

- Direct Effects

Green Ranch property rotates the study bison between fourteen grazing pastures, so that the vegetation is adapted to the grazing pressure of the bison. The Ranch would continue to manage the bison this way per the Green Ranch's current resource management philosophy. FWP expects there would be no short or long-term impacts to the vegetation if the pastures are continued to be grazed.

- Indirect Effects for Both Properties

No indirect impacts to existing vegetation are anticipated if the bison remain at the Slip n' Slide pastures or at the Green Ranch for the remainder of the monitoring period.

3.2.2 Alternative B: Proposed Action - Translocate groups of bison to FWP and/or Tribal lands

1) Marias River WMA

- Affected Area

The three focus habitat types within this WMA (8,866 acres) are riparian, mixed broadleaf, and sagebrush grassland. The multi-layered plant canopy provided along the Marias River corridor provides a variety of nesting, resting, and foraging areas for wildlife (Image 1).

Image 1. Marias River WMA: Looking downstream on the Marias River

The riparian and mixed broadleaf habitats (41% of the property) are very high quality with extensive stands of cottonwoods, intermixed with willow, buffalo berry, and other shrubs. There are four freshwater ponds within the property, which were created by old river channels that provides ideal waterfowl breeding and brood rearing areas. The U.S. Fish and Wildlife Service Wetland Database notes the property encompasses approximately 22 acres of freshwater forested/shrub wetland and approximately 127 acres of freshwater emergent wetland.

The sagebrush-grassland habitat (59% of the property) in the uplands is extensive and high quality. Much of the sagebrush grassland habitat is heavily infested with noxious weeds as well as crested wheatgrass and smooth brome – both invaders. Lack of grazing has resulted in range conditions that are fair to good. The primary species are needlegrass, wheatgrasses, and blue

grama with some sagebrush. Uplands consist of "breaks" interspersed with open benchlands. There are several drainages that are ideal escape terrain for mule deer.

Upland habitat is currently in fair to good condition. River bottom shrub and tree habitats are structurally complete, but show the effects of long term and continuous grazing practices. Smooth brome and several species of noxious weeds make up much of the understory. Historically, the Marias River WMA, previously known as the Lincoln Ranch, supported a cattle operation for many years.

In the river bottom and historically cultivated areas, noxious weeds are present. Leafy spurge, spotted knapweed, Russian knapweed, musk thistle, whitetop, and perennial pepperweed are is present throughout the floodplain corridor. Drier upland sites and travel corridors also host these invader species in localized situations.

- Direct Effects

The Marias River WMA is within the historic range of the plains bison. The Blackfeet Indians are known to have hunted bison in the area of the WMA when the bison migrated along the Front Range. The existing habitats (sage-grasslands and riparian) have been subjected to seasonal grazing pressure of historical bison herd use and more recently, year round grazing pressure of cattle at the Lincoln Ranch by its previous owner.

The wallowing behavior of the bison would change small areas (approximately ten feet in diameter) in numerous locations within the WMA to eliminate existing vegetation and disturb top soils. Vegetation may return to those spots when the monitoring period has passed and the bison are potentially moved to a permanent location. However, those indentations would likely remain visible after the bison are gone even if the wallows are reclaimed by grasses and forbs. Some long term impacts to the vegetation within the WMA are unknown since none of FWP's WMA has had bison herds on them to use as reference points.

The vegetation within the 880-acre winter pasture is expected to receive the most intensive impacts of bison since bison are expected to be enclosed there from December to March. Although the vegetation would be dormant through that period, movement of top soils, the previous season's seeds, and root systems by the bison's presence could contribute to less ground vegetation in the spring and forage for other wildlife, especially if there is no snow cover to protect the plant species. Vegetation communities may be impacted by their presence at the WMA. However, the extent of those impacts are based upon numerous variables, such as timing of the grazing, how intense the grazing pressure is at a given location, and is difficult to predict long term.

FWP may design and pasture rotation system for acres the bison are using in order to minimize grazing pressure in a given area and encourage bison movements within the WMA.

Construction of the new facilities (shed, corrals, etc.) would result in direct loss of vegetation and habitat on the 30 acres of range land. Installation of the boundary fence may also result in minor impacts to vegetation from soil compaction and crushing of plants, more importantly there is the potential for introduction of weeds into new sites when construction occurs. Contractors would

be required to clean their vehicles and exercise caution to avoid introducing weeds where they work.

Bison wallowing activities are anticipated to provide a necessary substrate for the spread of noxious weeds within the WMA. Additionally, the dense coarse fur of the bison would be likely to spread seeds from noxious weeds to previously non-weed infested areas within the bison pasture, especially near wallows where soils are disturbed. To address the role that bison and construction activities may have on weed distribution, FWP would continue to implement its weed control program using biological and chemical management tools on the WMA.

- Indirect Effects

The potential spreading of seeds from knapweed and leafy spurge infestations within the WMA would likely increase the need for additional long term control of noxious weeds infestations since seeds can remain dormant for many years after they are moved and dropped. New noxious weed infestations could affect the long term range health of the WMA if the spread of seeds is extensive.

2) Spotted Dog WMA

- Affected Area

Information on the vegetation of Spotted Dog is available from land-cover mapping completed in the Upper Clark Fork River Basin as part of an assessment of terrestrial resources (Table 1; Montana Fish, Wildlife & Parks and Natural Resource Damages Program, 2010a) and subsequent prioritization of resources in the Basin (Montana Fish, Wildlife & Parks and Natural Resource Damages Program, 2011). In addition, FWP has ongoing vegetation inventories and is establishing vegetation monitoring transects and exclosures to learn how plant communities change across time and in relation to management of the WMA. FWP is assessing the composition of plant communities and condition of range in and outside of the proposed bison pastures. Information from the habitat mapping and preliminary surveys follow; it describes vegetation and its condition on WMA within the proposed enclosure, on the WMA's eastern and western portions, and overall.

Table 1. Habitat types by acreage on Spotted Dog WMA.

Habitat Type	Acres
Lower montane, foothill, & valley grasslands	12,420.6
Douglas-fir forest	4,158.8
Montane sagebrush steppe	2,719.0
Lodge pole pine	1,794.7
Harvested forest	1,750.0
Subalpine-upper montane grassland	1,628.8
Mesic meadow	1,317.0
Ponderosa pine	435.5
Riparian woodland	411.4
Wet meadow	207.9
Deciduous shrub land	185.9
Subalpine spruce	135.2

Aspen	69.2
Developed	50.9
Limber pine - juniper woodland	13.3
Water	9.8
Cliffs & canyons	5.3
Emergent marsh	2.0
Agriculture	0.4
TOTAL classified habitats	*27,315.70*

Proposed Pasture

Approximately 70% of the proposed bison pasture is on a continuous grassland bench at 5,400-5,500 feet in elevation, and is composed of cool season native grasses (predominately rough fescue), forbs, and shrubs (rabbit brush). The remaining 30% of the enclosure (in the southern part of the enclosure) slopes downward from the bench into a complex of slopes and draws with coniferous cover and a large meadow alongside the South and Middle Forks of Spotted Dog Creek.

The vegetation in the proposed bison pasture area is mostly a climax mixed fescue grassland with inclusions of blue bunch wheatgrass/Sandberg bluegrass grassland. There are areas in the draws in these large grassland areas that have wet meadow vegetation composed of carex and rush species and wet meadow grasses and forbs. There are hillsides between the grassland benches and basins that are steep and have either conifer cover or are logged with scattered remaining conifers. The main tree species are Douglas fir and lodgepole pine, with an understory of blue bunch wheatgrass, Idaho fescue, Sandberg bluegrass and associated native forbs. Invasive weeds are present particularly in the logged areas. A few remnant Ponderosa pines can be found. The bottom land along Spotted Dog Creek is primarily historic grass hay meadows with visible ditches, apparently unused in recent times. Along the riparian and in the meadows along Spotted Dog Creek's tributaries south of the old corrals and buildings, there are well protected stream banks with numerous willow species present.

Two permanent monitoring sites have been established in 2011 within the proposed bison pasture area. One site is on the high bench of mixed fescue grassland and preliminary data show that rough fescue and Idaho fescue are the dominant grass species, with a very diverse mix of native forbs. The second site has been established on a north aspect of a gentle slope within the core of one of the grassland basins, and preliminary data show a good mix of fescue grassland species, with threadleaf sedge prevalent in the plot data. This species, along with lupine, are increasers with heavy use, and both of these species are a strong component in the plant cover on this site.

The remaining 35,317 acres of the WMA would be outside the proposed bison enclosure and would be excluded from the study bison.

Western portion of entire WMA

On the western 35% of the WMA, thinner soils overlaying bedrock are more fragile than the previously described areas. This area, near Rocky Ridge, has more drying winds, along with less water holding capacities. This area shows a high density of spotted knapweed and annual cheatgrass, along with prickly pear patches and areas of bare ground.

Currently, there are two quantitative vegetation monitoring sites established on the western part of the WMA. One site is along a dry coulee and in a fairly flat area. A review of the preliminary data on this site indicates high percentages of dense clubmoss. In addition, this site is composed of mostly Kentucky bluegrass but little other vegetation. A second vegetation monitoring site that has been established on this western area of the WMA is located on a moderate slope with a western aspect and includes antelope bitterbrush. Spotted knapweed is very prevalent in this site, along with a high percentage of bare ground. This site is representative of large areas of knapweed infestation on slopes along the western third of the WMA.

Eastern Portion of entire WMA

There is a large component of higher elevation mixed fescue grassland on 65% of WMA, along the eastern side of the WMA. Here there are two additional vegetation monitoring sites, located in the mixed fescue grassland. These sites are very similar to the first site described in the bison pasture, with a rough fescue dominated plant community and a strong representation of native forbs. These sites are both in areas that were distant from available water to grazing livestock.

To the east, adjoining the Helena National Forest the areas that were conifer forest in the past are almost all logged to some degree. Many of these areas were heavily logged with steep slopes and numerous roads and both burned and unburned slash piles throughout. With the opening of the canopy, along with good rains this 2011 season, the open areas have shown good grass production and a large suite of native forbs. These areas have the opportunity to slowly return to a forest canopy. However, these areas have very significant amounts of exotic and invading weed species that will need annual treatment to reduce their spread.

Image 2. Spotted Dog WMA: View from Trout Creek Road looking west with the Pintlar Range in background

Overall vegetation

Although there are many grazing cattle on the 37,877 acre Spotted Dog WMA they have been widely distributed, without any major concentrations. On drainages east of Spotted Dog Creek (especially Trout Creek), there is heavy use along the riparian areas with serious stream bank erosion and reduced native plant diversity. Invasive weed species are present along both active and abandoned roadways, and other sites where timber and livestock management activities have taken place. Exotic weed species include spotted knapweed, leafy spurge, common hound's-tongue, common mullein, hoary-cress, Canada thistle, St. John's Wort, and black henbane. Weed control activities have been implemented by FWP recently and have the potential to greatly improve the condition of the WMA

- Direct Effects

Under the existing proposal, RCCC retains their grazing lease for their cattle through 2012 and thereafter the grazing intensity on the WMA outside of the bison enclosure would decline. Also, this EA assumes that bison and the associated 7 foot fence would only be in place until 2016. If changes to either of these assumptions occur, additional analysis of impacts will be necessary.

Introduction of bison onto the Spotted Dog WMA along with the construction of a 11-mile high woven wire fence around a 2,560 acre enclosed pasture, as well as a holding facility and corrals, would have both positive and negative effects on vegetation. Negative effects would derive from direct loss of habitat due to the development footprint, year-round grazing by bison, and a year of increased cattle stocking density on lands outside of the enclosure. Positive effects would accrue as result of excluding cattle from within the enclosure. The most important near-term change to vegetation would result from the fact that cattle would be excluded from the bison pasture until the bison were removed.

Grazing under the terms of the 2010 purchase agreement with RCCC is for approximately 1,800 cow-calf pairs (animal-units; AU) grazed from mid-May through mid-November. Cattle will not be on the property from mid-November until mid-May. At 1,800 animal-units for 6-months, this amounts to 10,080 animal-unit-months (AUMs) on the entirety of the WMA annually.

It is necessary to compare the use of cattle vs. bison inside of the enclosure to determine the potential impact of replacing cattle with bison. If 125 cattle cow-calf pairs graze within the boundaries of the proposed enclosure over a 6 month period, then they exert 750 AUMs of grazing pressure. As proposed, all but a few bison would be cows and calves (who together consume .9 animal units of forage a month; M. Frisina personal communication). At 12 months of grazing, 40 bison cows and calves would exert 432 AUMs (40 cows/calves, at .9 AU= 36 AU x 12 months) of grazing pressure, which is 42% less than that expected from historic cattle grazing. Reduced grazing within the enclosure would benefit grasses and forbs in 2012, but would potentially result in greater grazing pressure than on the rest of the WMA when cattle are removed at the end of 2012.

On the remainder of the WMA, FWP expects that if RCCC stocking densities stay constant and the production of grasses is constant, a higher proportion of the standing forage would be consumed. The realized impact to vegetation from this higher stocking density would depend on grass production and would be limited to 2012, since RCCC's grazing lease expires then. FWP

stated in its August 2, 2010 *Decision Notice For the Proposed Land Acquisition: Spotted Dog Wildlife Management Area* that, "…as a practical matter it is unlikely that livestock grazing on the order of 10,000 AUMs would occur under an FWP prescription on Spotted Dog WMA after the terms of the purchase agreement expire in 2012. For necessities explained herein, any livestock grazing on Spotted Dog WMA after 2012 would be substantially restricted in numbers, distribution, and duration compared with the current condition."

As per the Spotted Dog acquisition decision notice, beyond 2012 FWP anticipated that the WMA would be rested from domestic grazers for a year or two and range condition evaluated before cattle were considered back on the WMA. FWP cannot predict the impacts to range without additional information on the duration of use and stocking densities beyond 2012.

Construction of the bison enclosure fence and associated facilities (holding facility and corrals) would result in direct loss of vegetation and habitat on the 30 acres of range land. Installation of the enclosure fence may also result in minor impacts to vegetation from soil compaction and crushing of plants. More importantly there is the potential for introduction of weeds into new sites as construction occurs. Where feasible fence lines would follow existing roads and trails so as to minimize both the footprint of development and likelihood that weeds would be moved to new sites. Contractors would be required to clean their vehicles and exercise caution to avoid introducing weeds where they work.

In order to manage range and move bison for handling or other purposes FWP would split the enclosure into two pastures and corrals within the holding facility. The ultimate impact of bison grazing, wallowing, and congregation in areas of favored use would depend on where the pastures are placed, how often bison are rotated within their enclosure, and how they respond to supplemental feeding. Overall, the range within the enclosure would benefit by excluding cattle for 3 years. Outside of the enclosure, one year of higher stocking densities should not have a major impact on range condition.

- Indirect Effects

The potential to spread seeds from knapweed and leafy spurge infestations within the WMA would likely increase the need for long term control of noxious weeds since seeds can remain dormant for many years after they are moved and dropped. The long term range health of the WMA could be impacted depends upon how aggressive and successful the control of new noxious weed infestations is.

3) Fort Belknap Reservation

- Affected Area

The bison pasture (Range Units 2, 7, and 60) are dominated by Snake Butte at the northern boundary of the pasture (Image 3). Its basalt cliffs are exposed on the northern, southern, and eastern sides of the butte and visible from across the prairie. The western side of the butte slopes gradually down from its crest at 3,138 feet to the prairie floor at 2,200 feet.

Natural Resources Conservation Service (NRCS) rangeland surveys were completed for all the bison pastures in 2006. The vegetation of the prairie grasslands of the Range Unit 60 (northern most of the bison pastures) is primarily composed of western wheatgrass, American vetch, plains

reedgrass, silver sage, needle and thread, blue grama, and prairie junegrass. Scarlet glodemallow, threadleaf sedge, fringed sagewort, winterfat, pussy toes, dandelion, and woolly plantain are also present in lesser amounts. Range Unit 2, the largest of the three range units and in between the other units, is mostly covered by western wheatgrass, needle and thread, silver sagebrush, scarlet globemallow, blue gamma, Japanese brome, purple prairie clover, and American vetch. Numerous other grasses, forbs, and sedges are also present throughout this unit. Range Unit 7's (southern most of the bison pastures) vegetation is largely compromised of western wheatgrass, blue grama, Sandberg bluegrass, needle and thread, green needlegrass, plains reedgrass, and various sedges. Also observed in lesser amounts are Western and/or thickspike, twin arnica, ballhead and cudweed sandwort, scarlet globemallow, western yarrow, and hoods phlox.

Image 3. Fort Belknap Reservation: View of the north side of Snake Butte.

In 2006, NRCS reported the vegetative health of the bison pastures ranged from fair to good, some seedlings and young desired plants were present, and plant residues and litter was adequate.

There are small riparian areas adjacent to the natural springs at the southern and northern base of Snake Butte.

- Direct Effects

Effects of the new bison on the 22,000 acre bison pasture is expected to be minimal because the pasture has been used by the Tribes' other bison herds. There may be a positive effect of the replacement of the 450 head bison herd by a smaller herd of study bison, leading to decreased grazing pressure and a higher amount of plant material.

Existing vegetation quality and quantity within the 800-acre pasture may decrease depending upon how long the new bison are required to be held in the winter pasture while the existing

bison herd is being liquidated. If the study bison are sequestered for an anticipated 3 years, the existing native grasses and forbs would likely be overgrazed giving rise to an increase in less desirable and less nutritious species (e.g. cheatgrass and brome). Supplemental feeding would be necessary for the new bison within this pasture until they are able to roam in the larger bison pasture. Once the study bison are released and grazing pressure is decreased, the health of the vegetation within the 800-acre pasture is expected to rebound.

The Tribes plan to establish a multiple pasture rest-rotation grazing program for all the bison use areas, which could improve overall rangeland health of the bison pastures in the future.

The Tribes have worked with local NRCS staff for the construction of three watering holes throughout the bison pastures. The establishment of new locations of water has helped expand the movement of the Tribes existing bison herd through the pastures, which has decreased the potential for overgrazing of the grasslands near natural sources of water. This behavior is expected to be the same for the study bison when they are able to roam the large bison pasture.

Supplemental feeding of native grass hay would be provided to the new bison herd when they are released into the large bison pasture only during extenuating environmental/weather circumstances such as severe snow storms, flooding, fire or any other circumstance that could drastically reduce the range unit's carrying capacity in a short time period.

Wallows and bison trails have already been established by the Tribes commercial herd. It is unknown if the study bison would reuse those spots or establish new places of their own. If new wallows are established, there would be localized areas of vegetation eliminated while in use by the bison. However, abandoned wallows areas would likely be reclaimed by native vegetation in the future.

- Indirect Effects

No indirect impacts to this resource are anticipated if the study bison are translocated to the existing bison pasture within the Fort Belknap Reservation for the duration of the monitoring period.

4) Fort Peck Reservation

- Affected Area

Range Unit 62 includes glaciated upland prairie, breaks-type topography, and bench lands. The predominant plant species with Range Unit 62 are western wheatgrass, plains reedgrass, and green needlegrass. Also, present are bluebunch wheatgrass, little bluestem, sideoats grama, threadleaf sedge, plains muhly, needle & thread, clubmoss, and at lesser amounts snowberry and rose. Currently, there are no noxious weeds present within Range Unit 62.

A Range Inventory completed by the NRCS in April 2010 indicated Range Unit 62 had a projected carrying capacity of 1,347 AUMs and up to 2,300 AUMs with adequate water development. The vegetation trend on 31% of the property is improving, whereas the trend on the remaining acres was not apparent. The Tribes are establishing the carrying capacity of the range unit at one bison for every 33 acres.

The NRCS inventory reported current livestock grazing is mainly near the two water resources (natural springs) which have contributed to negative impacts to adjoining riparian areas. Forge production in the uplands is abundant and the range condition is high (NRCS, 2010).

There are small freshwater emergent wetlands at numerous locations with Range Unit 62 (Image 4). The largest is 2.6 acres as identified by the USFWS's National Wetlands Inventory database.

The range unit has not been grazed since 2008 when the previous owner removed their cattle, which has contributed to a high level of fire fuels present.

Image 4. Fort Peck Reservation: Interior view of Range Unit 62 with natural spring.

- Direct Effects

The eastern glaciated plains, which include northeastern Montana, have evolved with grazing (bison, deer, antelope, jack rabbits, etc.) (NRCS, 2005). The addition of bison to the range unit would directly reduce the current level of forage available within the unit. Bison food habits studies have consistently shown that their diet is about 90% grasses, 5% forbs, and 5% shrubs (Fort Peck Tribes, 2006). The grazing of the unit by the bison is expected to reduce the fire fuels and the possibility of rangeland fires within the unit that could potentially spread to neighboring lands.

Grazing pressure to existing vegetation is not expected to negatively affect the native grasslands since the number of study bison to be transplanted is well below the carrying capacity of range and the target population of the herd is unit would be limited to 150 bison. Limiting the herd's size to ensure long term rangeland health is based on the recommendations from local NRCS staff for the management of the Tribe's commercial Turtle Mound bison herd at Range Unit 57, which has similar vegetation and topography to Range Unit 62.

The installation of the solar-powered water troughs is expected to be an incentive for the bison to move throughout the range unit instead of congregating near the two natural springs and

overgrazing those areas' vegetation. The water troughs were strategically located within a three mile radius of the other troughs and natural sources of water.

Once the study bison herd reaches the target of 150 bison, the Tribes plan to establish a rest-rotation grazing plan for Range Unit 62 to ensure over grazing is minimized and forage is available to the bison over the long term.

Supplemental feeding of native grass hay would be provided to the bison herd only during extenuating environmental/weather circumstances such as severe snow storms, flooding, fire or any other circumstance that could drastically reduce the range unit's carrying capacity in a short time period.

Movements of bison within the range unit have the potential to establish trails across the landscape. In addition to trails becoming established, bison would be expected to establish wallows to take dust baths. Both elements are expected to eliminate localized areas of vegetation while in use by the bison. However, affected areas would likely be reclaimed by native vegetation if unused by bison at some point in the future.

- Indirect Effects

The translocation of study bison to the range unit has the potential to draw additional visitors to Range Unit 62 to view the new bison. Currently there are only a limited amount of primitive dirt roads through the range unit's interior with no dedicated parking areas. Previously undisturbed areas along interior roads could be compacted and vegetation damaged if additional visitors pull off roads to view the new bison.

3.3 RELEVANT RESOURCE WILDLIFE

3.3.1 Alternative A: No Action - Bison remain at Slip n' Slide Pastures and the Green Ranch

1) Slip n' Slide Pastures

- Affected Area

The pastures are located within the Gardiner Basin and area surrounded by the Gallatin National Forest and private lands. The Gardiner Basin is a hydrologic unit extending from the south end of Mount Everts in YNP north to Yankee Jim Canyon, a distance of approximately 13 miles. The basin contains portions of the Yellowstone and Gardiner Rivers and the major tributaries of Bear Creek, Eagle Creek, Little Trail Creek, Bassett Creek, Cedar Creek, Slip n' Slide Creek on the east side and Stephens Creek, Reese Creek, and Mulherin Creek on the west side.

The mid to low elevation areas of the Gardiner Basin provide important winter range habitat and migration routes for elk, mule deer, bighorn sheep, pronghorn antelope and bison. White-tailed deer and moose occur in scattered areas within the basin, but neither is found in significant numbers within the project area. In addition to the ungulate populations, Gardiner Basin contains a full component of predators, scavengers, furbearers, small mammals, game birds, waterfowl, raptors, non-game birds, and amphibians and reptiles occurring in suitable habitats.

Elk: Resident elk inhabit the upper elevations of Slip n' Slide Creek, Cedar Creek and Joe Brown Creek throughout the summer and fall. During this time of year, there is very limited elk use at lower elevations in the Slip n' Slide pasture area. Resident elk are joined by larger numbers of migratory elk from YNP in late fall and early winter. In 2011, 30 elk were counted in this area (FWP, 2011c). In contrast to the relatively small numbers of elk that winter in the Slip n' Slide drainage, thousands of elk use this area as a migratory corridor between summer ranges in and adjacent to Yellowstone National Park and winter range in the Dome Mountain area of Paradise Valley. Migrant elk remain on their winter ranges until late April or early May, then migrate south through the Slip n' Slide drainage as they return to summer range inside YNP.

Mule deer: Mule deer are found in the vicinity of Slip n' Slide Ranch year-round. However, during the summer and early fall, deer population densities are relatively low. The Gardiner Basin, including the Slip n' Slide Ranch and adjacent area is important winter range for a large migratory mule deer population that occupies the Gardiner Basin from late November/December to early May. Within the Slip n' Slide drainage, the number of wintering mule deer has ranged 162 – 557, with an average of 326 from 1999-2009. In 2011, 235 deer were counted within the Slip n' Slide drainage, representing 13% of the total 1,840 mule deer counted in the entire survey area (FWP, 2011b).

White-tailed Deer: Unlike mule deer, whitetails occupy a relatively small year-round home range and do not exhibit long distance migrations and large seasonal changes in numbers observed in the local mule deer population. Whitetails have been observed in small numbers in the Slip n' slide drainage, often associated with thicker "habitat edge vegetation" in riparian areas or along field edges. Compared to the hundreds of mule deer counted, FWP typically observes only 10-20 whitetails during spring aerial deer surveys.

Bighorn Sheep: A small migratory population of bighorn sheep occurs seasonally on and adjacent to Slip n' Slide Ranch, and summers in the upper elevations between Yankee Jim Canyon and Yellowstone National Park. These bighorn sheep typically summer at the higher elevations until mid to late October, then move down into the area between Slip n' Slide Creek and Yankee Jim Canyon and remain until early May. In recent years from 2002-2011, aerial survey counts in this area have ranged from 2 - 14 bighorns (FWP, 2011a). Summer sheep activity occurs on the steep rocky slopes in the upper elevations of Slip n' Slide and neighboring drainages; however bighorns use the low elevation areas on or adjacent to private lands and are often seen along U.S highway 89 South during the winter.

Nongame Species: The Gardiner Basin ecosystem provides appropriate habitat for an abundance of nongame wildlife species. Table 2 is a representative list of common nongame species that are likely to occur in the Gardiner Basin. This is not meant to be a complete list of nongame species that inhabit the area.

Sensitive species (threatened, endangered, or state species of concern) that have been observed in the vicinity of Slip n' Slide pastures include Canada lynx (higher elevations), grey wolf, wolverine, and grizzly bear (MNHP, 2011).

Table 2. Nongame species likely within the Gardiner Basin

Birds	Mammals	Reptiles
Western meadowlark	Coyote	Gopher snake,
Brewer's blackbird	Badger	Terrestrial garter snake
American robin	Long-tailed weasel	Common garter snake
Vesper sparrow	Mountain cottontail rabbit	Western rattlesnake
Mountain bluebird	White-tailed jack rabbit	
Black-billed magpie	Richardson's ground squirrel	
Raven	Deer mouse	
American kestrel	Meadow vole	
Red-tailed hawk	Montane vole	
Golden eagle	Long-tailed vole	
Osprey	Little brown myotis	

The 2010 GYE grizzly bear population was estimated at 602 bears. Conflicts with grizzly bears in the Gardiner Basin have been caused by human garbage, gardens, apple trees, chickens, grain and carcasses. The quarantine facility pastures at the Slip n' Slide Ranch has very low potential for grizzly bear conflicts as the fencing is bear resistant.

- Direct Effects

Currently the existing double fence at the Slip n' Slide would remain in place until the end of the monitoring period. The double fence is not wildlife-friendly and does not allow for the passage of wildlife through the pastures.

No affects are anticipated to the movements of local wildlife are expected since the wildlife has been navigating around the fenced pastures since 2006.

At the end of the monitoring period, FWP and the property owners would negotiate the final disposition of the fencing and other improvements specifically used for the study bison. If the decision is made to remove the double fencing, FWP would replace those fences with comparable fencing used at the properties in 2006. The new fences could be a five strand barbed wire fence or another design, which could allow wildlife passage through the pastures.

- Indirect Effects

No indirect impacts are anticipated to wildlife in or in the vicinity of the Slip n' Slide pastures if the study bison remain at those sites until the completion of the monitoring period.

2) Green Ranch

- Affected Area

Since the Green Ranch is privately owned, there is only limited information on the wildlife species present at the pastures the study bison are using. According to observations from ranch staff, the pastures are used by antelope, mule and white-tailed deer populations, upland game birds, and other non-game species. No conflict with wildlife has arisen in the past with bison grazing on the pastures.

There are approximately 200-300 elk that use the area near the Green Ranch year-round. Additionally, there have been observations over the past two years of approximately 1,000 elk wintering on the other side of the Madison River near Black Ford Fishing Access Site, which is three miles south of the Ranch (personal communication with J. Cunningham, FWP wildlife biologist, 8/8/2011).

A search of the Montana Natural Heritage Program's database turned up three sensitive species that have been reported in the area of the Green Ranch. Those species are the western spotted skunk (south of the ranch), the greater short-horned lizard (northeast of the ranch), and the bald eagle (within the Madison River corridor).

- Direct Effects

The continued presence of the study bison at the Green Ranch is not expected to result in the deterioration of wildlife habitat as the Ranch's management philosophy is to balance the needs of wildlife and vegetation resources. The rest-rotation grazing program would likely not change the overall amount of forage currently available for ungulates or other species.

FWP does not expect any changes to the diversity or movement of wildlife since the fencing already exists along its boundary and wildlife have been navigating around or through it since the ranch was established. Additionally, FWP does not anticipate any changes in diversity or abundance of non-game species because there would be no changes in how the study bison are managed at the ranch, no new fencing is anticipated, and the rest-rotation grazing program would continue.

- Indirect Effects

No indirect impacts are anticipated to wildlife in or in the vicinity of the Green Ranch if the study bison remain at those sites until the completion of the monitoring period.

3.3.2 Alternative B: Proposed Action - Translocate groups of bison to FWP and/or Tribal lands

1) Marias River WMA

- Affected Area

The Marias River WMA provides habitat for at least 200 white-tailed deer, 200 mule deer, abundant pheasant, sharp-tailed grouse, Hungarian partridge, and less commonly, wild turkeys. The riparian vegetation community may provide nesting, resting, and foraging habitat for up to 134 native species of birds. The rocky outcrops along the river provide unique and finite habitat resources for many species of bats, birds and reptiles. During the spring and summer of 2010 and 2011, there were sightings and signs of grizzly bears using the WMA's river corridor.

There are over 300 terrestrial vertebrate species found within the grasslands community type throughout Montana. Table 3 below lists the Montana Species of Concern that are predicted to occur in the area of the property. Full inventory and monitoring efforts have yet to be undertaken to identify the presence of other potentially unidentified species.

Table 3. Species of Concern likely within the Marias River WMA

Bald Eagle	Grizzly Bear
Burrowing Owl	Meadow Jumping Mouse
Long-billed Curlew	Northern Myotis
Mountain Plover	Pallid Bat
Peregrine Falcon	Spotted Bat
	Townsend's Big-eared Bat
Milksnake	
Snapping Turtle	
Spiny Softshell Turtle	
Western Hog-nosed Snake	

A survey of the bird species present within the WMA was completed during the summer of 2011. Common species found were American kestrel, Caspian tern, northern flicker, western wood-pewee, least flycatcher, eastern kingbird, tree swallow, northern rough-winged swallow, bank swallow, black-billed magpie, raven, black-capped chickadee, mountain bluebird, American robin, gray catbird, yellow warbler, yellow-rumped warbler, spotted towhee, Sprague's pipit, and various sparrow species. Numerous other bird species were also observed with less frequency.

- Direct Effects

Design and installation of the new fencing to restrict bison movements from the WMA may deter deer or antelope movements through the WMA since the fence's design at five foot and five strand barbed could be an impediment to some individual animals. Smaller mammals are expected to move freely below the lowest wire.

Based on the research previously noted (section 3.1), FWP does not believe the placement of the bison at the Marias River WMA through the 5 year monitoring period, would interfere with the movements or habitat needs for the white-tailed deer population since they predominately use the riparian and mixed-broadleaf habitats found along the river corridor. No impact is expected to mule deer.

- Indirect Effects

The proposed new facilities and the addition of bison to the WMA may contribute to the displacement of some ground-nesting birds and ungulates from the immediate area.

2) Spotted Dog WMA

- Affected Area

Spotted Dog WMA provides habitat for a diversity of wildlife with especially significant big game winter range, and yearlong habitat for antelope, mule deer, white-tailed deer, elk, moose, black bear, and other species. The property has the right mix of cool season native grasslands, forests, and water to provide exceptional habitat for elk year-round. Some of the best winter range in the Upper Clark Fork exists on the WMA with high numbers of wintering elk observed annually. Wintering elk are found throughout the property with the largest concentration of elk found from Freeze-out Creek through O'Neill Creek, and to Rocky Ridge (Map 11, Elk locations 1984-2011). In 2011, 1,158 elk were counted on the Spotted Dog WMA and adjoining ranches.

Based upon observations or existing available habitat that is found within this WMA, a wide variety of game and nongame species can be found such as 49 species of mammals, two different species of amphibians and snakes, and approximately 100 species of birds. Nongame surveys were initiated within the WMA in July 2011 to document the species actually present. An list of expected species found with this WMA is located in Appendix D.

Spotted Dog was privately owned until September of 2010 and as a result there is limited data on nongame wildlife. As part of the assessment and prioritization of terrestrial resources in the Upper Clark Fork River Basin, the presence of Species of Concern (SOC) was modeled (FWP and NRDP, 2011). Twenty-four Species of Concern were predicted as likely present and 5 potential Species of Concern (PSOC) as possibly present. Table 4 is a list of species of concern that may be present in Spotted Dog WMA.

Table 4. Species of Concern in the Spotted Dog WMA.

Westslope Cutthroat Trout	Bald Eagle
Canada Lynx	Golden Eagle
Grizzly Bear	Northern Goshawk
Wolverine	Cassin's Finch
Fringed Myotis	Clark's Nutcracker
Hoary Bat	Brewer's Sparrow
Townsend's Big-eared Bat	Brown Creeper
Preble's Shrew	Grasshopper Sparrow
Silver-haired Bat	Flammulated Owl
Great Blue Heron	Common Poorwill
Great Gray Owl	Swainson's Hawk
Lewis's Woodpecker	Western Screech-Owl
Long-billed Curlew	Veery
Sharp-tailed Grouse - Columbian	Olive-sided Flycatcher
Peregrine Falcon	Western Toad
Pileated Woodpecker	An Agapetus Caddisfly

Wolves used the area extensively (the Boulder/Castle Rock pack from 1994-2003 and the Spotted Dog pack from 2005-2007) before these packs were eliminated due to their depredation on cattle. Several wolves currently inhabit the vicinity and have killed livestock on Avon-area ranches over the winter and spring; control actions have been taken. Sighting records suggest that grizzly bears may occasionally use Spotted Dog and the Helena National Forest.

Based on habitat, the WMA likely provides good nesting habitat for grassland bird species such as long-billed curlews, western meadowlarks, vesper sparrows, and grasshopper sparrows. White-tailed jack rabbits have been reported in the past and ground squirrels onsite provide the primary prey base for many birds of prey. Raptors found in the area include bald golden eagles, red-tailed hawks, American kestrels, and northern harriers. The property offers good foraging habitat for prairie falcons, but limited nesting habitat. Swainson's hawks may occur along the western edge of the property, though this species has mainly been found in areas with mixed grassland and irrigated agriculture in the Deer Lodge Valley. Bald eagles nest along the Little Blackfoot River, and they probably spend time foraging on the property.

FWP has collected data on Spotted Dog Creek, Trout Creek, and O'Neill Creek through an aquatic assessment conducted from 2008 to 2010 (FWP and NRDP, 2010a). The headwaters of these creeks sustain westslope cutthroat trout because there is an upstream barrier to Spotted Dogs' tributaries. The streams provide some recruitment to Little Blackfoot River and the Upper Clark Fork River while maintaining genetically pure strains of cut throat. Cutthroat, brook, and brown trout, as well as sculpin are found in streams in the WMA.

The impacts from the proposal to establish an enclosure and introduce bison would result primarily from the construction of and presence of new fences and facilities. The description of impacts assumes that the RCCC grazing lease would not be immediately renewed after 2012 and that bison (and the seven foot enclosure fence) would only remain in place until 2016. If the bison enclosure remains beyond 2016, additional analysis would be necessary to assess long-term impacts.

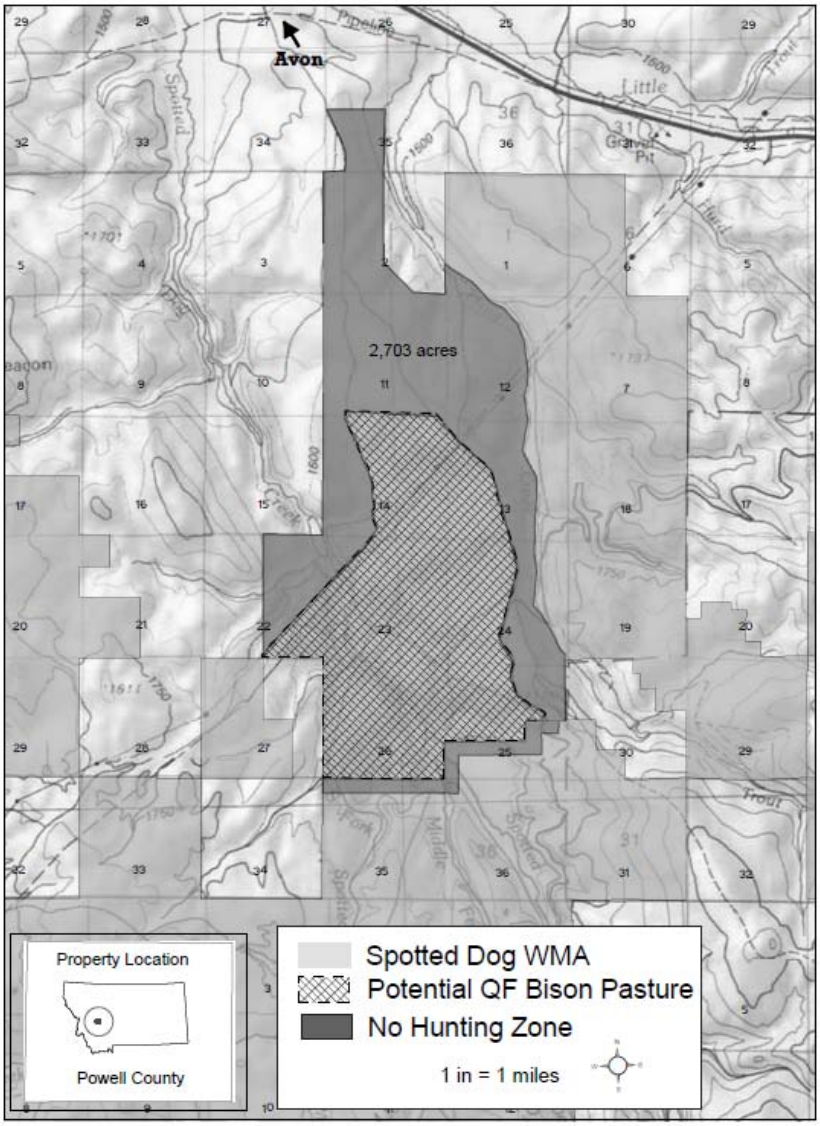
- Direct Effects

FWP has identified the predicted impacts to Threatened Species, Species of Concern, Potential Species of Concern, and big game species, and selected general categories to describe possible results of the proposed action: no impact known, no impact because the habitat or numbers of the species are limited, impact from direct loss of habitat or opportunity to move across the landscape, beneficial, and neutral impacts.

FWP considered potential impacts to wildlife from the placement of bison on Spotted Dog and specifically from the construction of a seven foot mesh fence as well as the holding facility and other developments on 30 acres. As proposed the fence would be 11 miles long (58,080') with 25 foot on either side of the fence that could be affected by its construction and subsequent maintenance. The development footprint of the fence would be 67 acres, where soils could be compacted, weeds may be introduced, and other direct (though mostly minor and temporary) impacts to habitat could occur. In total, 11 miles of fence with a 50 foot impact zone as well as the holding facility and developments might directly impact 97 acres of native grasslands.

Placement of a 2,560 acre enclosure around native grasslands, meadows, and timbered draws would have impacts to wildlife within its perimeter as well as wildlife whose movement is blocked by it. The bison enclosure would be impassable to antelope and intentionally resistant to entry by deer and elk. It would be possible for deer or elk to jump the 7 foot high perimeter fence, but such occurrences would be uncommon. The primary purpose for excluding deer, elk and antelope is to avoid artificially feeding and unnaturally concentrating wildlife other than the bison. The harvest of deer, elk, or other game animals within the enclosure would be prohibited. The possibility exists that game could be run into the perimeter fence from the outside. To assure fair chase hunting and that the hunters would not push elk into the fence, hunting would not be allowed west of Trout Creek, in other areas south of Avon, and within 200-yards of the bison pasture's southern boundary (Map 10).

Map 10. No Hunting Zone within Spotted Dog WMA.



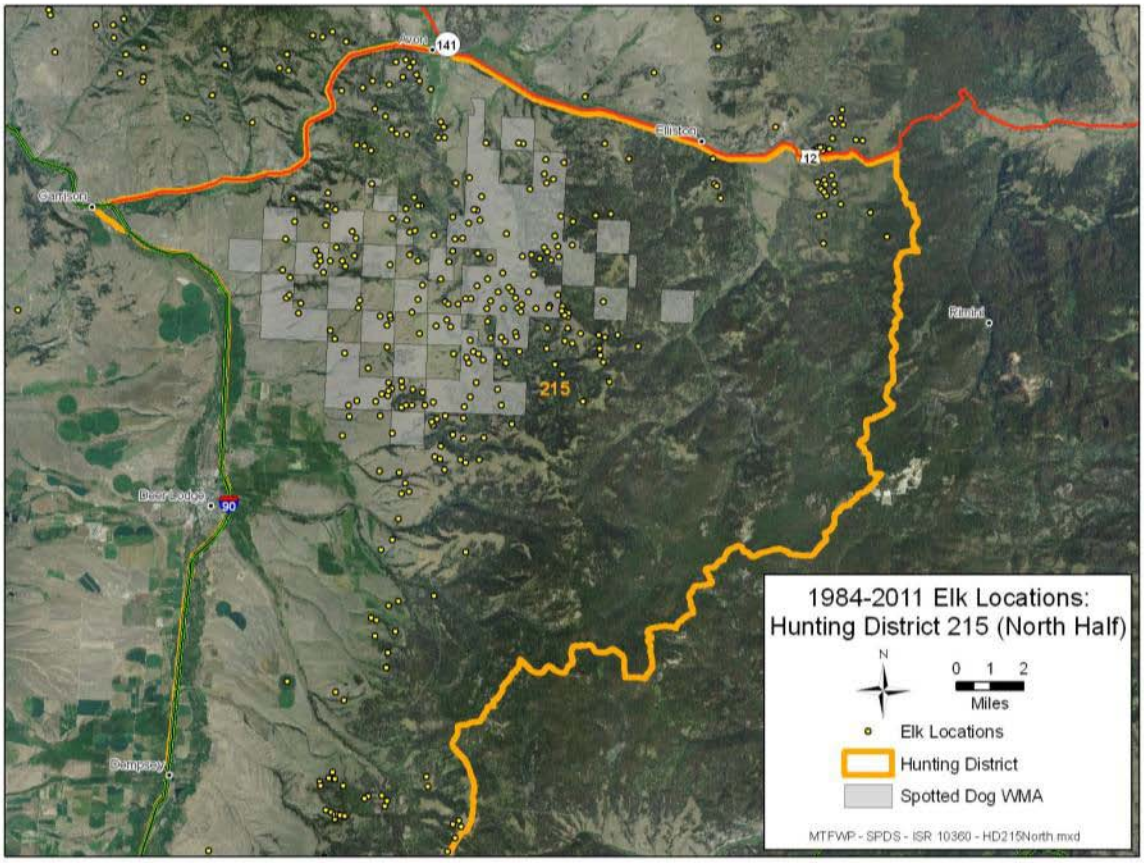
The most obvious impact to wildlife would be to large mammals whose passage through the enclosure would be precluded or inhibited. The spacing of the mesh within the woven wire fence would be 9 inches by 12 inches which is necessary to hold bison, but would not allow low flying wildlife to fly through it. FWP expects that some deer, elk, antelope, and moose as well as bats and birds would become entangled in or collide with the enclosure fence resulting in injury or mortality to these animals. FWP also expects that the frequency of these encounters would decline across time as animals learn that the high fence is in place. Upon construction FWP (or its contractors) would place flagging every 300 feet along the fence to make it more visible to wildlife and reduce the probability of entanglement and collisions. Small mammals, amphibians, and reptiles would be able to pass through or burrow under the enclosure fence. Wolves, bears, and lions would be able to climb over or under the fence once they become accustomed to it.

Mammals that are not able to pass through the fence would not be able to use habitat within its confines. This impact would be most pronounced on ungulates that have resided within the

enclosures' perimeter and to those that have traditionally traversed the land. A herd of 176 wintering elk was observed near the Trout Creek road in T9N, R8W, Section 11 during an aerial survey on February 26, 2011. These elk were not within the boundary of the proposed bison enclosure, but are known to use land within it, land on the adjoining Cross Canyon Ranch, and other lands within the Spotted Dog WMA. With the enclosure in place this herd and other mammals would have to use other portions of their home ranges to meet their life requirements (daily, seasonal and annual). Over time wildlife may adapt to the new fence, bison would become the dominant ruminant inside the enclosure, and outside of the enclosure ungulates would shift their habitat use.

Much of the deer and elk winter range, particularly during periods of deep snow, is located on the west half of the WMA (Map 11, Elk Winter Observations 1984-2011) and the enclosure would have less of an effect on wildlife access to that winter range. Landscape connectivity would be compromised by construction of the enclosure fence, but the impediment to movement on 2,560 acres should be seen within the context of the entire 37,877 acre Spotted Dog WMA.

Map 11. Winter locations of elk in north Hunting District 215 from aerial surveys, 1984-2011.



The barn and other new proposed facilities at the northeastern portion of the bison enclosure would displace some grassland birds, most notably the long-billed curlew. The enclosure fence may impact some grassland songbird species too, depending on whether or not the species would tolerate the proposed fence transecting their territory. It is difficult to predict what the tolerance level is for the avian species, thusly impacts are difficult to predict.

The bison enclosure would not affect the movement of fish or invertebrates because the fence would be above the high water mark. Since large numbers of cattle and elk would be excluded from the bison enclosure and replaced by bison that could be fed four months of the year, trampling of streamside vegetation and other riparian impacts may decline resulting in less sedimentation in Spotted Dog Creek and its tributaries. Any improvement to the riparian habitat in Spotted Dog would benefit nongame species, especially songbirds. Cattle would continue to cluster around riparian corridors outside of the enclosure.

- Indirect Effects

It is possible that some deer and elk would shift their distribution either onto private lands or the Helena National Forest. If shifts in elk behavior lead elk to spend more time on private lands, increased game damage and complaints from landowners would result.

When the enclosure fence is removed all of the direct and indirect impacts to wildlife and vegetation from the fence itself, to habitat and landscape connectivity, to range, and to fisheries would moderate across time or cease to exist as animals were able to again move across and within the enclosure unobstructed by the fence.

3) Fort Belknap Reservation

- Affected Area

The prairie grassland habitat of the bison pastures provides habitat and forage for mainly antelope with limited numbers of white-tailed and mule deer using the property. There are no known big game migration routes through the Fort Belknap bison pasture.

Four Species of Concern were identified to be potentially present with the bison pastures. Those species are black-tailed prairie dog, burrowing owl, greater sage grouse, and mountain plover (MNHP, 2011). In 1994, forty-three black-footed ferrets were transplanted to the area directly south of Snake Butte. Currently, the remaining population of black-footed ferrets is unknown but Fort Belknap Fish and Game were planning an inventory of the population during the summer of 2011.

The grasslands found within the Range Unit also provide forage and cover for a variety of non-game species. There has not been a formal inventory of species within the range unit, however base upon the habitat components present, Table 5 lists species that may be found there.

Table 5. Non-game species predicted within the Fort Belknap Reservation bison pastures

Birds	**Mammals**	**Amphibians**
Turkey Vulture	Masked Shrew	Tiger Salamander
Northern Harrier	Hayden's Shrew	Plains Spadefoot
Swainson's Hawk	Merriam's Shrew	Great Plains Toad
Red-tailed Hawk	Preble's Shrew	Boreal Chorus Frog
Ferruginous Hawk	Big Brown Bat	Northern Leopard Frog
American Kestrel	Little Brown Myotis	
Prairie Falcon	White-tailed Jack Rabbit	**Reptiles**
Killdeer	Mountain Cottontail	Greater Short-horned Lizard
Long-billed Curlew	Porcupine	Eastern Racer

Birds (con't)	**Mammals (con't)**	**Reptiles (con't)**
Short-eared Owl	Ord's Kangaroo Rat	Western Hog-nosed Snake
Burrowing Owl	Northern Pocket Gopher	Smooth Green Snake
Western Kingbird	Olive-backed Pocket Mouse	Gophersnake
Eastern Kingbird	Sagebrush Vole	Plains Gartersnake
Loggerhead Shrike	Prairie Vole	Common Gartersnake
Black-billed Magpie	Meadow Vole	Western Rattlesnake
American Crow	Muskrat	
Common Raven	Northern Grasshopper Mouse	
Horned Lark	White-footed Mouse	
American Robin	Deer Mouse	
Sprague's Pipit	Western Harvest Mouse	
Yellow Warbler	Western Jumping Mouse	
Spotted Towhee	Richardson's Ground Squirrel	
Chipping Sparrow	Thirteen-lined Ground Squirrel	
Clay-colored Sparrow	Coyote	
Brewer's Sparrow	Swift Fox	
Vesper Sparrow	Red Fox	
Lark Sparrow	Striped Skunk	
Lark Bunting	Long-tailed Weasel	
Savannah Sparrow	Least Weasel	
Grasshopper Sparrow	Mink	
Baird's Sparrow	Badger	
Song Sparrow	Raccoon	
McCown's Longspur		
Chestnut-collared Longspur		
Red-winged Blackbird		
Western Meadowlark		
Brewer's Blackbird		
Brown-headed Cowbird		
Golden Eagle		
Merlin		
Mountain Plover		
Mourning Dove		
Northern Flicker		
Common Grackle		

- Direct Effects

The replacement of the commercial herd with the study bison herd is not expected to affect any of the sensitive species or resident or transient game species, such as white-tailed deer, mule deer, or elk. When the existing commercial bison herd is liquidated and the study bison are able to roam the pastures, its anticipated additional forage would be available for wildlife since the overall number of bison using the pasture would be less than the current level for the near future.

The design of the boundary fence around the bison pastures allows for ungulates and small mammals to cross under the lowest strand which is 18 inches from the ground. The Tribes have not found this fence design to be an impediment to wildlife movements.

Some grassland birds, such as upland sandpiper, grasshopper sparrow, mountain plover, McCowan's longspur, ferruginous hawk, and long-billed curlew utilize bison-altered (e.g. grazing and wallows) habitat (Knopf, 1996; Gates et al., 2010). Knapp et al (1999) found that grazing behavior of bison in conjunction with wallows and other ecological events such as fire, increase the diversity of grasslands to provide suitable nesting habitat for a variety of obligate grassland nesting bird species (Gates et al., 2010).

- Indirect Effects

No indirect impacts to this resource are anticipated if the study bison are translocated to the existing bison pasture within the Fort Belknap Reservation for the duration of the monitoring period since the resident and transient wildlife currently using the pasture are already accustomed to the presence of bison using the range units.

4) Fort Peck Reservation

- Affected Area

The plains grassland habitat of Range Unit 62 provides habitat and forage for white-tailed deer and mule deer. A limited number of elk do pass through the area, primarily following the Poplar River corridor east of Range Unit 62. These elk are from the Wood Mountain region in southern Saskatchewan Canada.

No endangered, threatened or confirmed species of concern have been found within Range Unit 62 (MNHP, 2011).

The grasslands found within the Range Unit provide forage and cover for a variety of non-game species. There has not been a formal inventory of species within the range unit, however base upon the habitat components present, Table 6 lists species that may be found there.

Table 6. Non-game species predicted within the Fort Peck Reservation bison pasture

Birds	**Mammals**	**Amphibians**
Turkey Vulture	Masked Shrew	Tiger Salamander
Northern Harrier	Hayden's Shrew	Plains Spadefoot
Swainson's Hawk	Merriam's Shrew	Great Plains Toad
Red-tailed hawk	Preble's Shrew	Boreal Chorus Frog
Ferruginous Hawk	Big Brown Bat	Northern Leopard Frog
American Kestrel	Little Brown Myotis	
Prairie Falcon	White-tailed Jack Rabbit	**Reptiles**
Killdeer	Mountain Cottontail	Greater Short-horned Lizard
Long-billed Curlew	Porcupine	Eastern Racer
Short-eared Owl	Ord's Kangaroo Rat	Western Hog-nosed Snake
Burrowing Owl	Northern Pocket Gopher	Smooth Green Snake
Western Kingbird	Olive-backed Pocket Mouse	Gophersnake
Eastern Kingbird	Sagebrush Vole	Plains Gartersnake
Loggerhead Shrike	Prairie Vole	Common Gartersnake
Black-billed Magpie	Meadow Vole	Western Rattlesnake
American Crow	Muskrat	
Common Raven	Northern Grasshopper Mouse	

Birds (con't)	**Mammals (con't)**	
Horned Lark	White-footed Mouse	
American Robin	Deer Mouse	
Sprague's Pipit	Western Harvest Mouse	
Yellow Warbler	House Mouse	
Spotted Towhee	Richardson's Ground Squirrel	
Chipping Sparrow	Thirteen-lined Ground Squirrel	
Clay-colored Sparrow	Western Jumping Mouse	
Brewer's Sparrow	Coyote	
Vesper Sparrow	Swift Fox	
Lark Sparrow	Red Fox	
Lark Bunting	Striped Skunk	
Savannah Sparrow	Long-tailed Weasel	
Grasshopper Sparrow	Least Weasel	
Baird's Sparrow	Mink	
Song Sparrow	Badger	
McCown's Longspur	Raccoon	
Chestnut-collared Longspur		
Red-winged Blackbird		
Western Meadowlark		
Brewer's Blackbird		
Brown-headed Cowbird		
Golden Eagle		
Merlin		
Mountain Plover		
Mourning Dove		
Northern Flicker		
Common Grackle		

- Direct Effects

The addition of bison is not anticipated to affect or displace resident or transient game species, such as white-tailed deer, mule deer, or elk. Since the number of bison would be held at a maximum of 150 individuals, over grazing of the vegetation would be minimized and forage would be available for wildlife.

The design of the boundary fence of Range Unit 62 allows for ungulates and small mammals to either go under or over the smooth-wire strands. The lowest strand is 18 inches from the ground and the top smooth wire is at 5 foot. The Tribes have not found this fence design to be an impediment to the movement of wildlife.

Some grassland birds, such as uplands sandpiper, grasshopper sparrow, mountain plover, McCown's longspur, ferruginous hawk, and long-billed curlew utilize bison-altered (e.g. grazing and wallows) habitat (Knopf 1996; Gates et al., 2010). Knapp et al (1999) found that grazing behavior of bison in conjunction with wallows and other ecological events such as fire, increase the diversity of grassland to provide suitable nesting habitat for a variety of obligate grassland nesting bird species (Gates et al., 2010).

- Indirect Effects

No indirect impacts are anticipated to existing wildlife using the range unit if the study bison are translocated to Range Unit 62 within the Fort Peck Reservation for the duration of the monitoring period.

3.4 Relevant Resource Community & Economics

3.4.1 Alternative A: No Action - Bison remain at Slip n' Slide Pastures and the Green Ranch

1) Slip n' Slide Pastures

- Affected Area

The Slip n' Slide pastures are within an area known as the Paradise Valley, which is the scenic region between Livingston and Gardiner MT. The Paradise Valley is a route taken by thousands of visitors to Yellowstone National Park each year. The north entrance to the Park at Gardiner is the only entrance open year-round to automobile travel through to Cooke City MT.

State Highway 89 is the primary artery through the Paradise Valley, which runs adjacent to the path of the Yellowstone River. The small communities of Pray, Emigrant, and Corwin Springs exist between the larger towns of Livingston and Gardiner. The population of the Paradise Valley is approximately 9,200 residents (CEIC, 2011). The valley is rural in nature but the main industries are tourism-based, service-based, and construction businesses (Employment & Training Administration et al., 2011).

The area directly around the pastures is a mix of private residences and ranches, state owned lands, and Forest Service lands.

- Direct Effects

No changes to the nearby communities of Corwin Springs, Emigrant, or Gardiner are expected if the study bison remain at the Slip n' Slide pastures until the end of the monitoring period in 2016. The property owners would continue to be paid a lease fee from FWP for the use of their pastures. Assuming the lease had been renewed for that long, at the end of the monitoring period the bison would be moved from the Slip n' Slide pastures to another location that was decided through a future environmental analysis process. The pastures would then be open for other uses by the property owners.

- Indirect Effects

No impacts are expected to occur at the pastures if the study bison remain.

2) Green Ranch

The ranch is located in a rural area between the city of Bozeman and the small community of Norris along the Madison and Gallatin County lines. The City of Bozeman is home to 37,300 residents and within Gallatin County the population is 89,500 per the 2010 Census results. There is no Census data for the community of Norris because it is not incorporated, but Madison County has nearly 7,700 residents.

There are livestock businesses on properties neighboring the Green Ranch.

- Direct Effects

FWP expects there would be no changes to nearby communities or commercial businesses if the study bison were to remain at the Green Ranch until 2015 when the monitoring period is done. When the monitoring period ends the original study bison and 25% of their progeny would be returned to FWP for placement at another location to support additional restoration efforts. A future environmental analysis would be completed prior to the movement of the bison to a new location.

- Indirect Effects

No impacts are expected to occur at the Ranch if the study bison remain.

3.4.2 Alternative B: Proposed Action - Translocate groups of bison to FWP and/or Tribal lands

1) Marias River WMA

- Affected Area

The Marias WMA straddles the northeastern edge of Pondera County and the southwestern edge of Toole County. The nearest communities are Shelby (9.5 miles) to the north and Conrad (23.5 miles) to the south.

In 2010, the US Census Bureau reported the population of Conrad was approximately 2,570, with the total population of Pondera County at 6,153. The primary industries of the county are healthcare and social assistance, construction, retail trade, and accommodations and food services. Industries in the area include agriculture, natural resources extraction, professional services, and transportation (US Census, 2008b). The 2007 Census of Agriculture reported there were 542 farms within the county with approximately 29,000 cattle and calves.

In 2010, the population of Shelby was reported as approximately 3,400 and the total population of Toole County was 5,325. Toole County's main industries are healthcare and social assistance, retail trade, accommodations and food services, natural resource extraction, and transportation (US Census, 2008c). Professional services, wholesale trade, and farming are also present. In 2007, there were 425 farms reported to be in Toole County managing an estimated 15,000 cattle and calves (USDA, 2007a).

Adjacent private properties to the WMA sustain livestock and crop operations.

- Direct Effects

The bison that are in the monitoring phase of the Study have been tested for brucellosis eleven times during their participation in the study and are seronegative for the pathogen. The brucellosis-free bison would pose no health threat to neighboring landowners' cattle or the State's brucellosis status if they should breach the designated pasture. As per the management actions described in section 2.1.2, FWP would aggressively return any escaped bison to the enclosure in the most expedient way possible to ensure the public's safety, eliminate nuisance

conflicts, and decrease the potential for personal property damage. FWP would be responsible for all costs incurred arising from protecting public safety and any damage to private property that occurs as a result of the translocation of the bison per state statute 87-1-126 (6).

The addition of the bison within the Marias River WMA through the Study's monitoring period is not expected to impact any economic interests of Pondera or Toole County residents.

- Indirect Effects

Increased wildlife observation of bison on the Marias WMA may result in additional expenditures within Pondera and Toole Counties and provide some local economic benefits to neighboring communities.

2) Spotted Dog WMA

- Affected Area

The 7,000 residents of Powell County (US Census, 2010) are primarily focused near the communities of Deer Lodge (population 3,100), Elliston (population 220), Avon (population 115), Garrison (population 96), and Ovando (population 81).

The economy of Powell County is dependent on government, manufacturing, retail trade, and service industries (Powell County, 2005). As of the last census, only 9.2% of Deer Lodge's residents were employed in natural resource-based (agriculture, mining, fisheries, hunting, and forestry) jobs. Ranching and services are the primary businesses in the Avon area. The number of farms reported in Powell County in the 2007 Agriculture Census was 273 on which, 44,000 cattle and calves were managed (USDA NASS, 2011).

In 2006, the leadership of Powell County completed updates to their 2004 Comprehensive Plan and Growth Policy to provide guidance in decision-making for community and economic development, transportation management, public facilities, and natural resource management until the year 2025. Moreover, the entirety of Powell County is zoned, and the Powell County Zoning and Development Regulations (2009) detail the development requirements for each District. The Zoning/Development Districts map (2007) depicts the location of the Z/D Districts. Spotted Dog WMA lies in portions of three Districts: 1 (approximately 3% of the subject lands are in this District; minimum lot size 5 acres); 3 (86%; minimum lot size 160 acres); and 4 (12%; minimum lot size 40 acres). The WMA portion proposed to be the bison pasture lies entirely within District 3. This is a "land use district of predominantly agricultural and timber operations, outdoor recreational activities and low density residential use" (Sec. V-D-2. Characteristics, in Zoning and Development Regulations). Additionally, this district "emphasizes protection of open space, watersheds, grazing lands, fish and wildlife resources, soil and water resources, and the agricultural lifestyle and economy of the district."

At the January 2011 County Commissioners meeting, the Board of Commissioners for Powell County passed a resolution that all bison in Powell County would be considered domestic livestock and as such, would be under the same rules and regulations the DoL uses for all classes of livestock. State law however now classifies bison as native wildlife and state law supersedes the county resolution.

The WMA is crossed by 100kw power line and an underground natural gas line. Both utility companies retain easements to enter the WMA to maintain those lines. The companies have "unlimited access" but only for maintaining the lines.

- Direct Effects

The addition of the bison within the fenced pasture is not expected to negatively impact economic interests of the residents of Powell County. Although FWP believes the probability of bison escaping their pasture is low, the brucellosis-free bison would pose no health threat to neighboring landowners' cattle or the State's brucellosis status if they should breach the designated pasture. As per the management actions described in section 2.1.2, FWP would aggressively return any escaped bison to the enclosure in the most expedient way possible to ensure the public's safety and decrease the potential for personal property damage.

Although the proposed bison pasture would include a portion of the power and gas line routes, the fenced pasture and presence of bison would not limit the utility company easements and access to their infrastructures.

- Indirect Effects

Increased wildlife observation of bison on Spotted Dog WMA may result in additional expenditures within Powell County and economic benefit.

Local communities surrounding Spotted Dog WMA, including the Powell County Commissioners, have been clear and consistent in their opposition to the possible introduction of bison. A local landowner group has formed in opposition to this proposal. The introduction of bison to Spotted Dog WMA would be seen by the local community as a breach of its trust in FWP and State government, and an action in defiance of local voices. FWP would expect to encounter more local resistance in the future as it continues working on difficult fish and wildlife issues in the Deer Lodge, Avon, and Elliston communities.

3) Fort Belknap Reservation

- Affected Area

The Fort Belknap Reservation is located primarily in Blaine County with a small portion extending into western Phillips County. The largest communities within the reservation are Fort Belknap with approximately 1,300 residents and Lodge Pole with just under a population of 300 (CEIC, 2011). As of 2010, Blaine County had 6,500 residents (CEIC, 2011).

Blaine County's economy is supported by businesses in natural resource extraction, retail services, healthcare and social assistance, professional services, and agriculture (US Census, 2008a). In the 2007 Census of Agriculture it was reported that there were 655 farms within the county managing an estimated 79,200 cattle and calves (USDA 2007b). Within the reservation, there were 224 farms of which 175 were operated by Native Americans in 2008 (CEIC et al. 2009).

Within the reservation, the US Bureau of Indian Affairs and the Tribe are the major employers (MDOC, 2011). Retail services, construction, transportation, and professional businesses also provide employment opportunities. One tribally-owned business of note is the Little Rockies

Meat Packing Company, which is the first tribally-owned USDA-inspected meat packing facility in the U.S. (MDOC, 2011). In addition to the meat packing enterprise, the Pride of the Little Rockies Smoke House is a subsidiary of the packing company, which produces beef and bison jerky, meat snack sticks, and sausages. Bison for the smoke house is provided by the tribal bison herd.

A portion of the meat harvested from the existing bison herd is contributed to the Fort Belknap Diabetes Prevention Program to reintroduce lean meat back to tribal members in order to reduce diabetes within the membership.

The Tribes offer a trophy bull hunting program that offers two mature bison for sale, by sealed bid to non-tribal members.

- Direct Effects

Translocation of study bison to Fort Belknap's bison pasture is not expected to impact other livestock interests in the area because the bison have been tested eleven times by APHIS VS and have been found to be brucellosis free. Continuing testing by APHIS VS through the 5-year monitoring period is expected to ensure no changes to the bison's brucellosis free status.

Neighboring agricultural businesses are not expected to be affected by the bison's presence because the new bison would be kept within designated bison pasture as is the practice with the current commercial herd. If a bison escapes and causes damages to another landowner's fencing or crops, the Tribes have in the past and would continue to mend broken fences and compensate neighboring landowners for damages.

Experience has shown the main situations for bison leaving the units are snowdrifts taking down fencing wires and dominant males pushing the fencing during the rut, and bison being herded/pressed by vehicles towards a desired direction. A few bison from the Tribes' commercial herd did leave the bison pasture during winter of 2011, as a result of extreme winter conditions and fencing being taken down by snowdrifts.

If any of the study bison were to escape either the temporary 800-acre pasture or the larger bison pasture, the bison would be immediately herded back into the designated pasture at the time. If study bison leave the reservation, the expectation is the Tribes would immediately herb those bison back in to the Reservation. If study bison are not immediately rounded up, the bison would be captured or euthanized by FWP.

- Indirect Effects

The continued availability of bison on the Reservation would support the Fort Belknap Diabetes Prevention Program bison meat dietary program, which is anticipated to help decrease the diagnosis of diabetes of tribal members.

4) Fort Peck Reservation

- Affected Area

The largest communities near Range Unit 62 are Wolf Point and Poplar to the south. The 2010 U.S. Census reported the population of Wolf Point at 2,621 and Poplar at 810. Total population of Roosevelt County is approximately 10,200, of which 6,800 are Native Americans.

The economy of the reservation is driven by government offices (tribal, federal and state), manufacturing (metal fabrication, electronics, and commercial sewing), healthcare, retail, and hospitality industries (CEIC et al., 2009). Farming, ranching and natural resource extraction also are a part of the reservation's economy (Fort Peck Tribes, 2011).

In 2007 there were 100 farms reported by U.S. Department of Agricultural Statistics within the reservation with 97 operated by tribal members (CEIC et al., 2009) and 728 farms were reported within Roosevelt County (USDA, 2007c). In 2010, the USDA reports there were 38,000 cattle and calves in Roosevelt County (USDA NASS, 2011).

One tribal enterprise is the Turtle Mound Buffalo Ranch. This domestic buffalo (AKA bison) operation provides bison to the Tribe for cultural purposes and offers commercial buffalo hunts for a fee from $650 to $5,000 depending upon the sex and age of the buffalo hunted. As of April 2011, the tribal herd had a population of 195 animals (Red Elk, 2010).

Adjacent properties to Range Unit 62 are a mix of livestock and crop operations.

- Direct Effects

Translocation of bison to Range Unit 62 is not expected to impact other livestock interests in the area because the bison have been tested eleven times by APHIS VS and have been found to be brucellosis free. Continuing testing by APHIS VS through the 5-year monitoring period is expected to ensure no changes to the bison's brucellosis free status.

Neighboring agricultural businesses are not expected to be affected by the bison's presence because the bison would be kept within Range Unit 62. If a bison escapes and causes damages to another landowner's fencing or crops, they would be compensated through the Tribes bison insurance policy. Main situations for bison leaving the unit would be snowdrifts taking down fencing wires, dominate males pushing the fencing during the rut, and bison being herded/pressed by vehicles towards a desired direction.

The Tribes would maintain a zero tolerance policy for escaping bison and the bison would be immediately moved back on to the unit with the use of trucks, ATVs, or on horseback by Tribal wardens.

Once the bison have been acclimated to their new enclosure, the Tribes anticipate an increase in visitor interest in the herd, thus supporting economic development for the local tourism related businesses, such as hotels, grocery stores, gas stations, and restaurants.

The translocation of bison to tribal land would support one or two new employment opportunities for local residents.

- Indirect Effects

A second bison herd within the Fort Peck Reservation with pure genetic roots to the historical herds that tribal ancestors followed on the Plains would be dedicated to cultural and spiritual needs of the Tribes. It is the hope that this 'cultural herd' would spur new interest in the social and economic connection the tribal members have had historically with the species.

Although, the study bison would be designated as a cultural herd and kept apart from the Tribes' commercial Turtle Mound bison herd after the monitoring period, the Tribes may consider using members of the cultural herd to strengthen the genetic diversity of the commercial herd in the future.

3.5 Relevant Resource Water

3.5.1 Alternative A: No Action - Bison remain at Slip n' Slide Pastures and the Green Ranch

1) Slip n' Slide Pastures

- Affected Area

No bodies of water exist within the Rigler portion of the Slip n' Slide pastures. Slip n' Slide Creek (north of the Rigler pasture) crosses through the Shooting Star portion of the Slip n' Slide pasture. Slip n' Slide Creek is a perennial creek. However due to diversions of water for irrigating hay fields on the Shooting Star Ranch, the water flow in to the Yellowstone River is limited.

2) Green Ranch

- Affected Area

Water resources at the Green Ranch for bison include the Green Ranch Ditch, Madison River, and numerous unnamed creeks. Previous bison herds that have been kept on the ranch have utilized wells and springs, with an irrigation ditch available if those resources run dry.

- Direct Effects for Both Properties

No changes to the existing water resources are expected if the bison remain at the Slip n' Slide pastures or at the Green Ranch until the end of the monitoring period. Slip n' Slide Creek would continue to be used by the Shooting Star Ranch for irrigation purposes.

- Indirect Effects for Both Properties

No indirect effects are expected to the existing water resources.

3.5.2 Alternative B: Proposed Action - Translocate groups of bison to FWP and/or Tribal lands

1) Marias River WMA

- Affected Area

The Marias River provides a healthy environment for sportfish such as burbot, northern pike, perch, rainbow trout, and walleye. There are also numerous non-game species present including catfish, various minnow species, blue sucker, and river carpsucker. The river's riparian areas host numerous waterfowl and amphibians, including the plains spadefoot and Great Plains toad.

- Direct Effects

Bison placed at this location would be allowed to cross the Marias River to graze the southern portion of the WMA. Since the population of the herd would be limited to a maximum of 40 bison and would be utilizing other areas on the northern portion of the WMA, FWP does not expect any negative impacts to aquatic species if the bison periodically cross the river.

High water conditions during the spring and sequestering the bison in the winter would limit the opportunities for the bison to cross the river.

- Indirect Effects

No indirect effects to water resources are expected.

2) Spotted Dog WMA

- Affected Area

The Spotted Dog WMA encompasses significant portions of Spotted Dog Creek as well as most of its tributaries (11 miles in the Middle, South & West Forks) and 4 miles of Trout Creek. Approximately 3 miles of Spotted Dog Creek and its tributaries would be within the proposed bison pasture. Spotted Dog Creek is an important tributary to the Little Blackfoot River that flows for approximately 14 miles before reaching its mouth near Avon. The Spotted Dog WMA encompasses about 4.5 miles of upper Spotted Dog Creek as well as much of its Middle and South Forks. Fish surveys completed within the WMA in 2011 showed the presence of many native westslope cut throat trout, which appear to be genetically pure based on testing. Introduced brook trout were also present, as were native longnose suckers.

There are numerous freshwater emergent wetlands and forested/shrub riparian areas along Spotted Dog Creek within the proposed bison pasture, with their sizes ranging from one acre up to 11 acres (USFWS, 2011). The 16-acre Spotted Dog Reservoir and associated wetlands would be excluded from the proposed bison enclosure.

- Direct Effects

As noted in the wildlife section, water quality may likely improve in the bison enclosure because of the removal of cattle. However, it is understood that the presence of confined bison may delay riparian recovery along some segments of the affected streams. Improved water quality would have a positive impact on invertebrates, fish and amphibians. What happens after RCCC's cattle lease expires in 2012 would be the greatest driver of water quality and the condition of riparian vegetation.

- Indirect Effects

FWP does not anticipate any indirect impacts to water as a result of proposal.

3) Fort Belknap Reservation

- Affected Area

The Range Units 2, 7, and 60 encompass two natural springs, three Natural Resource Conservation Service (NRCS) constructed stock watering holes, a perennial reservoir, four ephemeral reservoirs, four ephemeral lakes, two perennial lakes, one well, four water pits, and portions of the Upper White Bear Creek, Fifteen Mile Creek, and Peoples Creek-Saint John's Coulee watersheds (NRCS, 2006 a-c).

- Direct Effects

The establishment of the watering holes has helped expand the Tribes commercial bison herd's movement throughout the 22,000 acre pasture. Additionally, the watering holes have decreased the time the bison congregated near the natural springs. The study bison are expected to have similar usage patterns as the commercial herd and utilize the configuration of the watering holes, seasonal water bodies, and springs as they grazing around the bison pastures.

The Tribes consulted with NRCS for the placement of the watering holes taking into consideration the typical movement habits of bison on the Plains.

- Indirect Effects

No indirect impacts to the existing water resource are expected if the study bison are translocated to the existing bison pasture within the Fort Belknap Reservation for the duration of the monitoring period since the water holes (natural and man-made) are already establish.

4) Fort Peck Reservation

- Affected Area

Range Unit 62 has numerous small seasonal unnamed creeks traversing the property. There are two natural springs that provides a source of year-round water. The Tribes have installed two solar powered wells with stock tanks with a propane generator as back-up, one windmill with stock tank, and a stock dam as additional sources of water for their livestock businesses.

- Direct Effects

The establishment of the stock tanks will help in decreasing the potential that the bison will congregate for long periods of time near the natural springs and encourage the bison to migrate throughout the range unit for forage.

The Tribes consulted with NRCS for the placement of the stock tanks taking into consideration the typical movement habits of bison on the plains.

- Indirect Effects

No indirect impacts to the existing water resource are expected if the bison are translocated to Range Unit 62 within the Fort Peck Reservation for the duration of the monitoring period since the water holes (natural and man-made) are already establish.

3.6 Relevant Resource Recreation & Aesthetics

3.6.1 Alternative A: No Action - Bison remain at Slip n' Slide Pastures and the Green Ranch

1) Slip n' Slide Pastures

- Affected Area

The Slip n' Slide pastures are privately-owned irrigated crop pastures that FWP leases. There are no recreational opportunities allowed within the pastures. The two pastures have been fenced with double fences to contain the study bison since 2006. The fences are visible from State Highway 89.

- Direct Effects

Slip n' Slide Pastures:
Recreational opportunities would continue to be prohibited within the pastures while the bison were present. At the end of the monitoring period and the removal of the bison to another location, it likely would not change recreational opportunities because of the pastures' close proximity to buildings and residences.

At the end of the monitoring period and if the double fencing is removed, the viewshed of the pastures visible from Hwy 89 would be improved and less institutional in appearance. The exchange of the existing double fencing with a 5 strand barbed wire fence would be consistent with other fencing along the Paradise Valley corridor.

2) Green Ranch

- Affected Area

The Ranch is a privately owned component of the Flying-D Ranch. Public access is allowed only with the landowner's permission. The would be no changes of the viewshed at the Green Ranch with the addition of the study bison since the ranch has had bison there intermittently over the past 20 years and no new facilities are required to be installed.

- Direct Effects

FWP anticipates there would be no changes in public recreation at the Green Ranch if the study bison remained there. Presently, there is no public access permitted onto the ranch's properties.

The would be no changes of the viewshed at the Green Ranch with the addition of the study bison since the ranch has had bison there intermittently over the past 20 years and no new facilities are required to be installed.

- Indirect Effects for Both Properties

No indirect effects are predicted at either location to recreation or aesthetics values.

3.6.2 Alternative B: Proposed Action - Translocate groups of bison to FWP and/or Tribal lands

1) Marias River WMA

- Affected Area

The Marias River WMA is open to the public from April 1st through January 15th for camping, hiking, horseback riding, hunting, and wildlife viewing. Public access to the interior of the WMA and the river is limited and walk-in only via the McCormick Road at the northwestern corner of the WMA or Clark Brothers easement (north central boundary).

This WMA is in Hunting District 406 and deer hunting permits for within the WMA are allocated through a random drawing process for both archery and general rifle seasons. During each two week period of archery season, access is limited to 10 archers. The general rifle season has a similar schedule with 10 hunters for each one week period. General hunting for upland birds and waterfowl is offered on an unlimited basis.

The topography of the WMA provides open views of the prairies and coulees from the top of the ridge surrounding the river's path and cottonwood groves below. The existing boundary and interior fences are visible from most locations from within the WMA.

- Direct Effects

The proposed new boundary fence would continue to be visible from most areas within the WMA. No measureable changes to the aesthetic values of the WMA are expected since the proposed fences design is similar to the boundary fencing currently being installed.

The fencing required for an internal winter pasture would be a new addition to the landscape of the WMA. Some visitors may believe the proposed 5 foot pasture fence diminishes the open space qualities of the WMA.

The addition of the bison to the WMA may be perceived by some visitors as an artful addition to the landscape – returning it to the glory days of a couple centuries ago (historic and cultural), thus there may be a spike in public interest and visitors to the WMA to view bison. Others may see bison as a blight on the landscape and avoid visiting the WMA. Since a formal visitor survey at the WMA has yet to happen, FWP is uncertain what impact a group of bison would have on visitor attendance.

Depending upon the final design of a boundary fence and how it is configured over the Marias River, floaters would likely have to navigate through floater gates that would be suspended above the water's surface. This type of gate may be challenging for some novice floaters to do.

FWP does not believe there would be a need to alter any of the existing recreational opportunities offered within the WMA if some bison were placed there. Adequate signage and notice of the presence of bison would be installed to reduce public safety issues related to wildlife – human conflicts. If conflicts do occur, FWP would consider other management actions, such as additional fencing to establish a separate pasture or closure of a portion of the WMA to recreationalists, to minimize safety risks to both visitors and bison.

FWP does not expect any increase in vandalism or enforcement issues. FWP staff would visit the WMA regularly to check boundary fencing and the well being of the bison. Staff would also be available to respond to visitor questions or concerns related to the bison.

- Indirect Effects

The presence of study bison within the Marias River WMA may increase or decrease public use depending on the visitor's interest in the species.

2) Spotted Dog WMA

- Affected Area

The Spotted Dog WMA is open to the public from May 15th through December 1st for camping, hiking, horseback riding, mountain biking, hunting, fishing, and wildlife viewing. Motorbike and ATV use is allowed only on designated roads. Public access to the interior of the WMA is provided by Freeze Out Lane from the west, U.S. Forest Service Road 314 from the east, and Trout Creek Road from the north.

Within the eastern portion of the WMA there is a groomed snowmobile trail system maintained by the Helena Snowdrifters Snowmobile Club along Forest Service Road #314. Approximately fifteen miles of groomed and ungroomed snowmobile trails traverse the WMA (Helena Snowdrifters Snowmobile Trails, 2003). The estimated usage level, as reported by the Snowdrifters in a FY2011 FWP trail grant application, was 3,500 users for the season. The proposed bison pasture would not include any of portions of the snowmobile trails.

The Spotted Dog WMA is within Hunting District 215 for deer and elk hunting. The reach of Spotted Dog Creek flowing through the WMA provides a medium to good quality fishery for resident west slope cut throat trout and brook trout. The main stem of the creek is large enough to provide a quality, small-stream angling opportunity, and fish habitat appears to be in fair condition although impacts of riparian livestock grazing are evident.

Spotted Dog encompasses a large view-shed from Elliston to Garrison in the Little Blackfoot River Canyon and from Garrison to Deer Lodge along the Interstate-90 corridor. The open, uncluttered views of grasslands and forests as an observer enters the Little Blackfoot or upper reaches of the Clark Fork River reveal some of the least developed valleys in Western Montana.

- Direct Effects

The construction of a seven foot, woven wire fence within the WMA would be an immediate change to the view shed within that area of the WMA. The fence and associated barn, corrals, and chute would be visible to visitors traveling along Trout Creek Road since there are only small groves of conifers in that area to obscure the facilities. The new fence lines would be visible from a distance and from many vantage points within the interior of the WMA, since the majority of the interior acreage is open space and grasslands.

The bison enclosure would be closed to public entry year-round. The proposed enclosure size and location are an attempt to minimize the effects of lost public access for hunting and other purposes while allowing for the bison enclosure. The bison would be readily accessible for public viewing along more than 3 miles of dirt roads during periods of the year when the Trout

Creek Road or USFS Road #314 are open and passable. A current point of access from Trout Creek Road to portions of Spotted Dog Creek would be blocked by the enclosure.

The enclosure would not impede the public's use of these roads to access other portions of the WMA for recreation, nor existing public access to that portion of Spotted Dog Reservoir within the WMA boundary. This action would provide for bison viewing. The public would lose access to that portion of the WMA that is inside of the bison enclosure. The enclosure would also impede public access to Spotted Dog Creek, making it necessary for recreationalists to access the creek from south of the reservoir.

If bison were to escape the enclosure their presence could preclude public recreational use of the WMA. As discussed in section 2.1.2 FWP would make an immediate and decisive response to move bison back into the enclosure; thus, any disruption to visitor recreation would be short-term. Department staff would be present on the WMA on a daily basis to feed and monitor the bison; the presence of FWP staff may deter the public from vandalism to fencing or the harassment of bison.

If the bison were translocated to this WMA, FWP would establish a no shooting zone west of Trout Creek and north of the designated bison pasture (see Map 10). This special zone would reduce the acres available for hunting by an additional 2,530 acres within the WMA. The purpose of the no-shooting zone would be to avoid running deer, elk, or other wildlife into the impermeable enclosure fence, especially during hunting season. The no-shooting zone would include the areas of highest risk; e.g., the 2.5-mile stretch where the eastern boundary of the enclosure borders the Trout Creek and USFS 314 Roads, and the narrow interface between the western boundary of the enclosure and private lands. The enclosure would not be buffered by a no-shooting zone generally along its south boundary, where there are no open motorized routes. FWP would post and enforce a yearlong closure to the discharge of firearms within the no-shooting zone.

Both the enclosure and the no shooting zone adjoining it would result in a loss of approximately 5,200 acres for hunting. To assure fair chase hunting and that the hunters would not push elk into the fence, hunting would not be allowed west of Trout Creek, in other areas south of Avon, and within 200-yards of the bison pasture's southern boundary. See Map 10 (page 64) for a map of the no hunting zone.

- Indirect Effects

It is possible that if bison are introduced to the Spotted Dog WMA some recreationists would choose to hunt or otherwise recreate in other places including other WMAs, on USFS land, or nearby Block Management Areas, instead. Given the high profile, large size, and abundant recreation available on Spotted Dog, FWP finds it unlikely that there would be a major displacement of recreationists. There are no other WMAs of equivalent size in the Upper Clark Fork and Spotted Dog is a unique property. Also some individuals may also come to the WMA to view bison.

3) Fort Belknap Reservation

- Affected Area

The entire 22,000 acre bison pasture currently used by Fort Belknap's commercial bison herd is also considered a hunting refuge where limited permitted antelope and deer hunting are allowed by the Tribes. There is no public (tribal and non-tribal) access within the bison pasture unless a member of Fort Belknap Fish and Game is present. Small guided tours of the bison pasture with Fort Belknap Fish and Game staff are allowed during the late summer and early fall.

Snake Butte is a cultural and spiritual site for the Tribes. The northeastern portion of the butte is not inside the bison pasture and is accessible to members.

- Direct Effects

The transition of the Tribal bison interests, liquidation of the current bison herd, to placement and growth of the study bison herd is not expected to alter the current hunting opportunities with the bison pastures. A limited number of hunting permits for within the bison pasture would continue to be offered to tribal and non-tribal members for ungulates.

There would be no changes to the aesthetic values or the viewshed if the study bison were placed on the tribal bison pastures since the infrastructures and majority of fencing are already installed to manage the Tribes existing commercial bison herd. The additional of the fencing for the 800-acre pasture is not expected to diminish the overall aesthetic values of the landscape.

- Indirect Effects

No indirect impacts are expected to the recreational opportunities within the bison pasture if the study bison are translocated to the Fort Belknap Reservation.

4) Fort Peck Reservation

- Affected Area

Range Unit 62 is restricted to livestock and no recreational uses of the property are permitted. This property is surrounded by a 5 foot barbed and smooth wire fence. The western boundary of Range Unit 62 is 3 miles from Montana Highway 13 via County Road 2046. The fence line is not visible from the highway. The other three sides of the range unit are bordered by range and cultivated crop lands with no public roads or residences.

- Direct Effects

The placement of the bison on Range Unit 62 would be accessible for viewing by tribal and non-tribal visitors. Access to the range unit is provided by County Road 2046, which would have a large cattle guard at the entrance of the unit to provide drive in access for visitors while keeping the bison from escaping.

The new boundary fencing of the unit has not diminished the viewshed of the property since a cattle fence had been erected on the property's boundary by the previous leasee.

If an on-site capture facility is established within the range unit, the Tribes intend to design it as a portable structure that would be taken down when the monitoring requirements and study is

completed. Thusly, there would be no change to the aesthetic values or the viewshed over the long term.

No new recreation opportunities (e.g., hunting) are expected to develop with the placement of bison at range Unit 62 because the herd will be considered a research herd through the monitoring period and afterwards the bison will only be able for tribal cultural purposes.

- Indirect Effects

No indirect impacts are expected since there are currently no recreational opportunities allowed within Range Unit 62.

3.7 Relevant Resource Cultural & Historic

3.7.1 Alternative A: No Action - Bison remain at Slip n' Slide Pastures and the Green Ranch

1) Slip n' Slide Pastures

- Affected Area

Prehistoric man, Native American tribes (Shoshone and Nez Perce), explorers and miners, and early visitors to Yellowstone National Park used the Yellowstone River corridor from Gardiner north to Yankee Jim Canyon. Remnants of those travelers and residents have been found through numerous cultural resource surveys completed over the past two decades. The surveys have concentrated on the western side of the Yellowstone River along the route the Northern Pacific Railroad took between Livingston and Gardiner. The Slip n' Slide pastures are located on the eastern side of the Yellowstone River.

- Direct Effects

There are no known cultural or historic sites within the Slip n' Slide pastures. The pastures have been cultivated for alfalfa and hay for many years. No artifacts have been found by the property owners.

2) Green Ranch

- Affected Area

There are documented tipi rings on public lands south of the Green Ranch but not within the ranch. Small historic sites are known to exist at the Green Ranch, but use of the property by previous bison herds have not been known to disturb those areas.

- Direct Effects

Allowing the bison to remain at the pastures and at the Green Ranch through the remainder of the Study's monitoring period is not expected to affect any cultural or historic resources.

- Indirect Effects for Both Properties

No impacts are expected to cultural or historic resources at either location.

3.7.2 Alternative B: Proposed Action - Translocate groups of bison to FWP and/or Tribal lands

1) Marias River WMA

- Affected Area

A file search at the State Historic Preservation Office (SHPO) found there were no known recorded historic sites within the ranch. However, local knowledge of the property does acknowledge the Blackfeet Indians used the area for wintering sites. Trading posts and other white settlements were common in the area along the Marias River from the 1840s on. Tipi rings can be found on the bluffs above the river. Additionally, Meriwether Lewis crossed the Marias River in the area while fleeing the Blackfeet in 1806.

- Direct Effects

FWP does not anticipate any cultural or historic resources to be affected by the bison's presence within the WMA. There is the possibility that the bison's wallowing behavior may expose previously undocumented artifacts. If this situation occurs, FWP would consult with SHPO to ensure the identification and preservation of heritage properties per § 22-3-424 MCA.

- Indirect Effects

No indirect impacts to cultural or historic resources are expected within the Marias River WMA if a small herd of bison were placed there until the completion of the monitoring period in 2016.

2) Spotted Dog WMA

- Affected Area

The Montana State Historic Preservation Office (SHPO) completed a cultural resource file search prior to FWP's acquisition of the Spotted Dog WMA and reported that there are a few previously recorded sites within the project area. Most of the sites are associated with a historic irrigation system and stage coach route that traversed the property. SHPO's file search did locate a historic site recorded to have lithic scatter from prehistoric period within the boundaries of the WMA. Prehistoric and historic use of Deer Lodge Valley was by many Native American tribes including: Pend d 'Oreille, Shoshone, Blackfeet, Nez Perce, Salish, and Kootenai (MT Historic Preservation Office, 1995). These tribes probably used Spotted Dog WMA in historic times.

The Pauly Homestead is located in the west-central area of the WMA and would fall within the proposed bison pasture. The homestead includes four buildings (cabin, calving shed, workshop, and storage building) over fifty years old, as well as a modern home and large metal shop building. The historic buildings are of hand-hewn log construction and are mostly in poor condition as pigeons, rabbits, and cattle have used them at various times.

- Direct Effects

FWP would fence off the homestead area to preserve the historic buildings and provide a secure area when FWP was able to rehabilitate the home and shop building to working condition for the benefit of staff doing maintenance within the WMA in the future.

FWP does not anticipate any cultural or historic resources to be affected by the bison's presence within the WMA. There is the possibility that the bison's wallowing behavior may expose

previously undocumented artifacts. If this situation occurs, FWP would consult with SHPO to ensure the identification and preservation of heritage properties per § 22-3-424 MCA.

- Indirect Effects

No indirect impacts are anticipated to cultural or historic sensitive sites.

3) Fort Belknap Reservation

- Affected Area

The tribes of the Fort Belknap Reservation, Gros Ventre and Assinboine, were nomadic hunters and warriors. Both tribes followed the seasonal migration of the bison, because the bison provided all the necessities of life – food and materials for their clothing and teepees (Fort Belknap 2011). The Tribes consider the bison a respected member of their tribe and members do not intrude or harass the existing bison herd.

The Tribes' commercial herd of bison is used for cultural ceremonies (memorial feeds, pow-wows, sweat lodges, and medicine lodges) and meat for their commercial processing businesses, Little Rockies Meat packing company and its subsidiary, Pride of the Little Rockies Smoke House.

Snake Butte is a cultural and spiritual site for the Tribes. The northeastern portion of the butte that is not inside the bison pasture is accessible to members.

There are numerous stone etchings on the basalt rocks that are scattered on the top and the cliffs of the butte. Most of the rock art is thought to have been done by native peoples that moved throughout the Plains in historic times.

- Direct Effects

The transition of the Tribal bison interests, the liquidation of the current bison herd, to placement and growth of the new bison herd is not expected to affect the availability of bison for cultural purposes for the Tribes during or after the bison herd's transition.

The northeastern portion of Snake Butte would continue to remain open for cultural and spiritual ceremonies to tribal members.

- Indirect Effects

No indirect impacts are expected to tribal traditions if study bison are placed within the Fort Belknap Reservation.

4) Fort Peck Reservation

- Affected Area

The bison play an important role in Native American culture. The bison provided almost everything Native Americans needed. The Sioux and Assiniboine Tribes have a long history of economic and cultural ties to bison. Formerly, bison were the basis of the Tribes' economies and bison had spiritual significance to the Sioux and Assiniboine people. Historical notes recorded in the mid-1800s show that the Poplar River valley was used as a bison migration corridor with large herds moving south out of Canada in fall and returning in spring. These wintering herds

were hunted by the Assiniboine, and extirpation of the Northern Herd in 1872 resulted in total collapse of the Assiniboine society (Fort Peck Assiniboine and Sioux Tribes, 2006).

The location of Range Unit 62 is within the historic range of the American bison before the migration of European settlers towards the Rocky Mountains.

- Direct Effects

The addition of the study bison to the Reservation's landscape would allow the membership to continue to teach to their children the important role bison play in Native American culture.

The placement of the study bison within the Fort Peck Reservation would provide the following benefits to the community (ITBC et al., 2008):

1. Continue to restore viable bison herds on reservation lands for ecological & cultural purposes.
2. Conservation of a genetically important keynote species and preservation of tribal lands.
3. Development of a bison educational display that will educate Indian & non-Indian people alike.
4. Enhancement of the historical value of the Fort Peck Tribes.

Cooperative Yellowstone bison (e.g. study bison) restoration programs between the Fort Peck and Fort Belknap Tribes could move forward for the cultural and communal benefits previously noted.

- Indirect Effects

The establishment of a genetically pure Yellowstone bison herd within the Fort Peck Reservation may give rise to requests to the Fort Peck Tribes from other InterTribal Bison Cooperative members to donate animals for new bison conservation projects.

3.8 Cumulative Impacts

Under No Action Alternative:

On-going use of use of the Slip & Slide pastures and Green Ranch for the time remaining for the completion of the Study is not expected to have any cumulative impacts to existing resources. No new facilities or fencing is necessary to keep the bison at the sites. With or without the bison, both sites would continue to be used for agricultural purposes – hay fields for the Slip & Slide pastures and grazing pastures for bison (commercial business) at the Green Ranch.

For Proposed Alternative:

1) Marias River Wildlife Management Area:

The addition of bison to the landscape would affect vegetation and potentially wildlife resources at Marias WMA, as well as the necessity for the construction a boundary fence and handling facilities. The bison would grazing on acres that have not been disturbed for many years, which would result in changes in plant densities, forage for other wildlife species, and the level of fire fuels.

Assuming the boundary fencing is 5 foot high, some ungulate species, primarily deer and antelope, movements may change to travel around the new fence to access the river and to locate forage.

Since this WMA is fairly new and no visitor usage data is available, it is difficult to predict if and how the presence of bison would affect recreational opportunities and visitors to the WMA. New visitors may come to the WMA specifically to see the bison, where as some folks may avoid the site because the bison are there and able to roam the property. Not all the repercussions of the proposed action are known since the interim use of an WMA as a holding area for a game species is a unique use of a WMA.

2) Spotted Dog Management Area:

Introduction of bison to Spotted Dog would simultaneously affect vegetation, wildlife, fisheries, and water. For this analysis we have assumed that the placement of bison and associated fencing, plus infrastructure, would be temporary. Under this assumption, the bison (and the 7' enclosure) would only be in place until 2016 and the RCCC grazing lease would expire in 2012 with cattle grazing not occurring on the WMA until after a rest period. If these assumptions are not meet then additional analysis of effects, in particular to wildlife, would be necessary.

Impacts to the WMA and its resources from the placement of bison would be both direct and indirect and derive primarily from the fence construction and placement, as well as, from the fact that 2,560 acres would be enclosed with the intent of excluding ungulates. Wildlife (terrestrial and aquatic) interact with the vegetation and water which they use. In combination the exclusion of deer, elk, antelope, and moose, would result in changes to vegetation. Construction of a barrier to movement would reduce landscape connectivity for carnivores and ungulates alike. Less browsing upon shrubs, grazing on forbs, and some grasses may result in more robust plant communities, or alternately, for plant species dependent on ungulates, reduced extent. Changes in the structure, composition, and distribution of plants may have impacts that are difficult to quantify on wildlife, fisheries, nutrient cycling, seed dispersal, and water quality.

The introduction of bison on Spotted Dog WMA has the potential to exert a cumulative impact on the local ranching community. In 2010, FWP counted record numbers of gray wolves in Region 2, and confirmed wolf depredations on livestock have spiked in the Avon area in 2011. In 2011, FWP counted record-high numbers of elk on Spotted Dog WMA and Hunting District 215, and high elk numbers equate to increased potential for elk-caused damage in an area where damage to fences and crops has been a chronic problem for decades. Public hunting is the solution for elk numbers above objective, and increased hunter numbers and elk harvests pose problems of hunter trespass and other issues on private lands. FWP's acquisition of the Spotted Dog WMA in 2010 made public a large block of land that had been inaccessible to the public for decades, turning it into a destination for hundreds of public hunters. The introduction of bison to an enclosure on Spotted Dog WMA would close a portion of the WMA to hunting and to elk occupancy, potentially concentrating more elk and more hunters in fewer locations with greater pressure against those neighboring private lands. In view of this recent accumulation of impacts to the local ranching community, FWP proposes to avoid direct impacts of bison and potential bison escapes on private land by strictly adhering to the terms and intent of Senate Bill 212

(2011 Montana Legislature), including the installation of secure fence to prevent all but the most unfortunate escapes.

3) Tribal Lands

Minimal cumulative impacts are expected to the existing resources at the Fort Belknap bison pasture if the study bison were placed there. With the transition from the commercial herd to the study herd using the pastures, there would be less browsing of the grazes and forbs which could lead to greater plant densities and plant matter over time since the number of bison using the acres would initially decrease. Since there would be not adjustments to existing fencing, facilities, or management by the Tribes, resident and transient wildlife would continue to use the area at existing levels.

As for the proposed bison pasture at the Fort Peck Reservation, predicted cumulative impacts would be most apparent with the decrease in the amount of plant matter and fire fuels present within Range Unit 62. Over time, bison grazing and movements would impact the existing plant communities, but these impacts are not expected to detrimentally hamper the entire habitat since the maximum number of bison allowed at the site would be limited. Positive effects of an additional bison group would be it could become a herd that would be dedicated for cultural purposes after the Study is completed.

Table 7. Summary of key differences between alternatives, including predicted resource impacts

Definitions:
Measureable = Impacts predicted to occur that could be quantified by a systematic process, (e.g. survey and inventory, economic gage, etc.) or some impacts can be mitigated for.
Negligible = Impacts anticipated but at occurring at a minimal level or impacts can be mitigated for.
Neutral = No change to the resource

Key element	**No Action Alternative** (Slip n' Slide Pastures & Green Ranch)	**Proposed Alternative** (Multiple locations including Marias River & Spotted Dog WMAs and Fort Belknap & Fort Peck tribal lands)
Cost to FWP	Slip n' Slide Pastures: $187,000 annually Green Ranch: A percentage of the progeny at the end of the monitoring period	Marias WMA: Start-up $846,110; Annually $138,000 Spotted Dog WMA: Start-up $1,163,910; Annually $139,644 Fort Belknap: Potentially some of the progeny at the end of monitoring period Fort Peck: Potentially some of the progeny at the end of monitoring period
Resources:		
Vegetation	Neutral – Both areas are already in use and there would be no changes for the management of existing resources	Marias WMA: Measureable – negative. Vegetation would be removed or disturbed by construction of fence and buildings. Wallowing and horning behavior (bison) would remove or damage specific locations of vegetation within the bison pasture. Historically the existing habitats had been subjected to year round grazing pressure but cattle grazing is currently prohibited. Movements of bison throughout the WMA may contribute to the spread of noxious weeds. Spotted Dog WMA: Measureable – both positive and negative. A transition from large-scale cattle grazing to small-scale bison grazing would be positive in 2012 only. However, concentrated grazing within the bison pasture and within riparian zones would have a negative impact. Steps to mitigate the impacts include supplemental feeding, limiting the number of bison allowed, and possibly the establishment of a rest-rotation schedule for portions of the bison pasture. Vegetation would be removed or disturbed by construction of fence and buildings. Wallowing and horning behavior (bison) would remove or damage specific locations of vegetation within the bison

Key element	No Action Alternative (Slip n' Slide Pastures & Green Ranch)	Proposed Alternative (Multiple locations including Marias River & Spotted Dog WMAs and Fort Belknap & Fort Peck tribal lands)
		pasture. Construction activities may contribute to the spread of noxious weeds within the WMA. Fort Belknap: Measureable – positive for vegetation since the grazing pressure would decrease as the existing commercial herd was liquidated and the study bison were introduced to the pastures Fort Peck: Measureable – mostly positive. The range unit has not been grazed by cattle for 3 years and the fire fuels have built up. The addition of these bison to the unit would help to reduce the fuels and wildfire risks. Mitigation of potential negative impacts is the limitation of the number of bison allowed on the unit and the locations of water sources throughout the unit to decrease the likelihood bison would congregate in a single area for an extended time.
Wildlife	Neutral – Resident wildlife at both locations are familiar with the existing fencing and the presence of bison on the landscape.	Marias WMA: Measureable – negative. The installation of a 5 foot fence may deter some deer and antelope movements through the WMA. The presence of bison and construction of new facilities may contribute to the displacement of some ground-nesting birds. Spotted Dog WMA: Measureable – negative. The proposed boundary fence for the bison pasture would not be wildlife-friendly. Ungulates and large mammals would be expected to navigate round the new fencing. Wildlife would be excluded from the pasture's interior. The pasture is within a known elk winter range. Fort Belknap: Neutral – there would be no change to the existing fence line, which local wildlife is already familiar with. The local wildlife is also familiar with presence of the Tribes current bison herd. There are no ungulate migration routes through the pasture. Fort Peck: Neutral – the addition of bison to this location is not anticipated to affect or displace resident or transient species. Forage for wildlife is expected to remain available for wildlife since the number of bison at the site would be managed and limited to 150 animals.

Key element	No Action Alternative (Slip n' Slide Pastures & Green Ranch)	Proposed Alternative (Multiple locations including Marias River & Spotted Dog WMAs and Fort Belknap & Fort Peck tribal lands)
Community/ Economy	Neutral	Marias WMA: Neutral – the presence of brucellosis-free bison at the WMA would have no affect on neighboring ranching operations. Spotted Dog WMA: Neutral - the presence of brucellosis-free bison at the WMA would have no affect on neighboring ranching operations. Fort Belknap: Negligible – positive. The addition of brucellosis-free bison at the Reservation would have no affect on neighboring ranching operations but could improve relations since the study bison would be replacing the existing commercial herd (brucellosis status unknown) in time. Fort Peck: Negligible – positive. The addition of brucellosis-free bison at the Reservation would have no affect on neighboring ranching operations. The Tribes hope the new herd would draw visitors to the area and stimulate their tourism-based businesses.
Water Resources	Neutral – water available to the bison at both locations is provided by established water wells and troughs.	Marias WMA: Neutral – bison may cross the Marias River periodically but no impacts are expected to existing aquatic species. Spotted Dog WMA: Negligible – positive and negative. Water quality may improve within the bison pasture along Spotted Dog Creek because of the exclusion of cattle. However, the recovery of some riparian areas along that creek may be delayed by bison usage. Fort Belknap: Neutral –water resources (springs, troughs, watering holes) are already established and being used by the existing commercial bison herd. The study bison are expected to utilize the same resources. Fort Peck: Neutral – the study bison are expected to move throughout the range unit and use the natural springs and stock troughs. No additional watering locations are expected to be needed.

Key element	No Action Alternative (Slip n' Slide Pastures & Green Ranch)	Proposed Alternative (Multiple locations including Marias River & Spotted Dog WMAs and Fort Belknap & Fort Peck tribal lands)
Recreation & Aesthetics	Neutral – both locations are privately-owned and there are no public recreation opportunities available. Facilities at both locations are established, so there would be no changes to the aesthetic values.	Marias WMA: Negligible – neutral and negative. FWP is currently in the process of replacing the WMA's boundary fence. A design adjustment from a 42 inch high fence to a 5 foot fence is not expected to diminish the aesthetic values of the WMA since old fencing is present in many locations. At this WMA the bison would be allowed to roam the entire property and there would be no restrictions to the public recreating. Adequate signage would be installed to inform the public of bison to reduce possible wildlife – human conflicts. Floaters of the Marias River would have to navigate through floater gates, which may be challenging for some floaters. Spotted Dog WMA: Measureable – negative. The proposed new 7 foot fence would reduce the acres available for public recreation. All recreational activities would be prohibited within the bison pasture. A 2,500-acre no shooting zone would be established on the north and eastern sides of the pasture. The viewshed would be altered with the addition of the new fence because there is currently no fencing in that area. Fort Belknap: Neutral – there would be no change to the aesthetics to the bison pasture, nor would there be a change in recreational opportunities within the bison pasture. Fort Peck: Negligible – positive for the Tribes to have a dedicated cultural bison herd to observe and to provide an incentive for visitors to come to the Reservation to see the bison
History & Culture	Neutral	Marias WMA: Neutral – no impacts are anticipated Spotted Dog WMA: Neutral – no impacts are anticipated and the historic Pauly homestead would have a fence installed around it to decrease potential damage caused by the bison. Fort Belknap: Neutral – the study bison would in time replace the existing tribal herd Fort Peck: Negligible – positive for the Tribes to have a dedicated cultural bison herd

Chapter 4.0: Determination if an Environmental Impact Statement is Required

The Department has determined an environmental impact statement (EIS) is not required by the proposed action of translocating study bison from the Slip n' Slide pastures and/or the Green Ranch to some or all the following locations: 1) Marias River Wildlife Management Area, 2) Spotted Dog Wildlife Management Area, 3) Fort Belknap Reservation, and 4) Fort Peck Reservation.

This environmental assessment (EA) is the appropriate level based on the following rationale based the significance criteria described at 12.2.432(1) (a-g) ARM (Administrative Rules of Montana):

(a) Severity, duration, geographic extent, frequency of occurrence of the impact –

Most of the anticipated impacts to resources are expected to be either negligible or neutral to the resource over the monitoring period at tribal lands or at the No Action alternative. FWP does acknowledge some impacts to resources at FWP-owned properties would be measureable in that changes at a specific resource would be directly affected by the presence of bison. For those resources, FWP has proposed either protocols or steps to mitigate short and long term impacts while the bison are present at FWP-owned sites.

The duration and frequency of the impacts of the proposed action is limited to 5 years for the completion of the Quarantine Feasibility Study, at which point the study bison and their progeny would be placed at a permanent site based upon the guidance of a statewide bison conservation strategy.

Geographic extent of the impacts is limited to the sites described in section 2.2.2 (Alternatives).

(b) Probability the impact will occur if the proposed action occurs –

There is a high probability that the predicted short-term impacts described in section 3.0 (Affected Resources & Predicted Environmental Consequences) would occur at the four sites included in the proposed alternative.

(c) Growth-inducing or growth-inhibiting aspects –

The presence of bison at any of the sites included in the proposed action is anticipated to have both growth inducing and inhibiting impacts to vegetation because of their grazing habits, wallowing activities, and movement through the location. As noted in section 3.1 that describes behaviors of bison, that section also describes how prairie vegetation had over centuries adapted to grazing bison.

The presence of bison is not expected to inhibit or induce growth other wildlife species and aspects of the human environment.

(d) Quantity and quality of each environmental resource that would be affected –

The physical resources (vegetation, wildlife, water, etc.) that would be affected are limited to a specific location and reviewing them in comparison to the larger geographic area of a given site, predicted impacts are minimal. Each location included in the proposed action has been subjected to influences by previous property owners.

Detailed descriptions of the affected resource can be found under section 3.0.

(e) Importance to the state and to society of each environmental resource that would be affected –

Montana's natural resources are of great cultural and economic importance to most residents of the state. Yellowstone bison evoke historic pictures of the old west and cultural connections to native peoples. Proposed project seeks to minimize potential resource impacts with the long term goal of furthering conservation of bison.

Physical resources at each proposed location is of high importance to the entity managing a given location (FWP and Tribes) for reasons of supporting other wildlife, commercial operations, recreation, or cultural resources.

(f) Any precedent that would be set as a result of an impact of the proposed action that would commit the Department to future actions -

The proposed action presents a new and unique use of a FWP-owned property not previously considered by the Department, which is using a wildlife management area to hold a wildlife species for the completion of a research project for a finite amount of time. The anticipated impacts do not set precedence nor commit FWP to future actions, but the proposed action may open the door for future unconventional uses of FWP-owned properties.

As presented in this assessment, the proposed action is to evaluate interim locations for placement of study bison pending completion of a statewide bison conservation strategy. If study bison were placed at FWP-owned properties, FWP would be committed move these bison to permanent locations at the end of 2016 under the guidance of a statewide bison conservation strategy.

(g) Potential conflict with local, state, or federal laws, requirements or formal plans -

If study bison are translocated to the Spotted Dog WMA and are considered as wildlife per the species description in 1.3.3, the bison's designation would be conflict a Powell County Commissioner's resolution (#2011-7) to treat any bison with in the county as livestock.

Chapter 5.0: Public Participation and Collaborators

5.1 PUBLIC PARTICIPATION

5.1.1 Public Comment Period

The public comment period will extend for (30) thirty-days beginning September 15th. Written comments will be accepted until 5:00 p.m., October 14, 2011 and can be mailed to the address below:

Interim Translocation of Bison EA
Montana Fish, Wildlife & Parks
PO Box 200701
Helena, MT 59620 or email comments to: BisonSiteEvaluationEA@mt.gov

The public will be notified in the following manners of the opportunity to comment on this Draft EA, the proposed action and alternatives:

- One statewide press release;
- Two legal notices in each of these newspapers: *Billings Gazette*, *Bozeman Chronicle*, *Montana Standard* (Butte), *Independent Observer* (Conrad), *Pioneer Press* (Cut Bank), *Silver Star Post* (Deer Lodge), *Fort Belknap News*, *Fort Peck Journal*, *Great Falls Tribune*, *Havre News*, *Independent Record* (Helena), *Missoulian* , *Shelby Promoter*, *The Glasgow Courier*, *The Valierian*, and *Wolf Pont Herald News*;
- Direct mailing to adjacent landowners and interested parties;
- Public notice on the Fish, Wildlife & Parks website: *http://fwp.mt.gov*
- Postcards or emails will be sent to parties that have submitted comments to previous bison-related environmental assessments or attended bison-related public meetings.

Copies of this EA will be available for public review at FWP Region Headquarters in Glasgow, Great Falls, and Missoula; at FWP's headquarters in Helena; and at FWP's resource office in Conrad.

5.1.2 Public Meetings

FWP and Tribal Fish and Game office has scheduled public meetings in Conrad or Shelly, Deer Lodge, and Glasgow to provide interested organizations and private individuals an opportunity to ask questions about the proposed project and submit public comments.

5.2 AGENCIES/OFFICES THAT CONTRIBUTED TO THE EA

Fort Peck Reservation
Robert Magnan, Tribal Fish & Game Director, Poplar MT

Fort Belknap Reservation
Mike Azure, Tribal Fish & Game Director, Fort Belknap MT
Mike Fox, Tribal Council Member, Fort Belknap MT
Bronc Speakthunder, Bison Range Manager, Fort Belknap MT

Montana Department of Livestock
Marty Zaluski, State Veterinarian, Helena MT

Montana Fish, Wildlife & Parks
Dave Dziak, Wildlife Area Manager, Warm Springs MT
Darlene Edge, Lands Specialist, Helena MT
Mike Frisina, Range Coordinator, Butte MT
Lauri Hanauska-Brown, Non-game, Threatened & Endangered Species Section Chief, Helena MT
Travis Haworth, FWP Warden, Conrad MT
Joe Kambic, FWP Warden, Deer Lodge MT
Steve Knapp, Habitat Section Supervisor, Helena MT
Mack Long, Regional Supervisor, Missoula MT
Karen Loveless, Wildlife Biologist, Livingston MT
Ken McDonald, Wildlife Bureau Chief, Helena MT
Gary Olsen, Wildlife Biologist, Conrad MT
Sharon Rose, Administrative Assistant, Missoula MT
Ryan Rauscher, Non-game Species Biologist, Glasgow MT
Graham Taylor, Regional Wildlife Manager, Great Falls MT
Mike Thompson, Regional Wildlife Manager, Missoula MT
Paul Valle, Construction Project Manager, Helena MT
Ray Vinkey, Wildlife Biologist, Philipsburg MT

USDA, Animal and Plant Health Inspection Service (APHIS)
Rebecca Frey, Wildlife Biologist/Disease Specialist, Bozeman MT

USDA, Natural Resource Conservation Service (NRCS)
Terry Buck, Harlem MT

5.3 Anticipated Timeline

Public Comment Period: 30 days
Decision Notice Published
Project Submitted to FWP Commission for Final Decision: November 10
Implementation of Approved Alternative
Translocation of Quarantine Facility Bison to Chosen Site(s)

Chapter 6.0: EA Preparer

Rebecca Cooper, FWP MEPA Coordinator, Helena MT

References

Barmore Jr., W. J. 2003. *Ecology of Ungulates and Their Winter Range in Northern Yellowstone National Park: Research and Synthesis, 1962-1970*. Mammoth Hot Springs, WY: National Park Service.

Berger, J. and C. Cunningham. 1994a. *Bison: Mating and Conservation in Small Populations*. New York: Columbia University Press.

Boyd, D. P. 2003. Conservation of North American bison: status and recommendations. M.S Thesis, University of Calgary, Calgary.

Bowyer, R. T., X. Manteca., and A. Hoymork. 1998. Scent marking in American bison: Morphological and spatial characteristics of wallows and rubbed trees. In L. Irby and J. Knight (Eds.), *International Symposium on Bison Ecology and Management in North America*, pp. 283-302. Bozeman, MT: Montana State University.

Burde, J. H. and G. A. Feldhamer. 2005. *Mammals of the National Parks*. Baltimore: The Johns Hopkins University Press.

Census and Economic Information Center (CEIC) - MT Dept. of Commerce, Research and Analysis Bureau (MT Dept. of Labor and Industry), and State Tribal Economic Development Commission (Governor's Office of Indian Affairs). 2009. Demographic & Economic Information for Fort Beknap Reservation. Retrieved from: http://www.ourfactsyourfuture.org/?PAGEID=67&SUBID=121

Census and Economic Information Center (CEIC). 2011. City/Town Current Population. Retrieved from: http://ceic.mt.gov

Coppedge, B. R. and J. H. Shaw. 1997. Effects of horning and rubbing behavior by bison (*Bison bison*) on woody vegetation in a tallgrass prairie landscape. *American Midland Naturalist* 138:189-196.

Employment & Training Administration, U.S. Census Bureau, and Economic Development Administration. 2011. Community Economic Development Hot Report – Park County. Retrieved from: http://smpbff1.dsd.census.gov/TheDataWeb_HotReport/servlet/HotReportEngineServlet?reportid=e8fc5022b3fc243e43d3606f0aee80ae&emailname=bh@boc&filename=ed2_home.hrml

Feist, M. 1999. *Basic nutrition of bison*. Agriculture Knowledge Centre. Retrieved from: www.agriculture.gov.sk.ca

Foresman, K. R. 2001. *The Wild Mammals of Montana*. Lawrence, KS: American Society of Mammalogists.

Fort Belknap Tribes. 2011. Fort Belknap Tribal History. Retrieved from: http://www.ftbelknap-nsn.gov/history.php

Fort Peck Assiniboine and Sioux Tribes. 2006. Turtle Mound Bison Ranch Management and Business Plan 2006 -2011. pp. 6.

Fort Peck Tribes. 2011. Tribal History. Retrieved from: http://www.fortpecktribes.org/

Frank, D. A. and R. D. Evans. 1997. Effects of native grazers on grassland N cycling in Yellowstone National Park. *Ecology* 78:2238-2248.

Frank, D. A., S. J. McNaughton., and B. F. Tracy. 1998. The ecology of the earth's grazing ecosystems: Profound functional similarities exist between the Serengeti and Yellowstone. *BioScience* 48:513-521.

Fryxell, F. M. 1926. A new high altitude for the American Bison. *Journal of Mammalogy* 7:102-109.

Fuhlendorf, S. D., B. W. Allred., and R. G. Hamilton. 2010. Bison as keystone herbivores on the great plains: Can cattle serve as proxy for evolutionary grazing patterns? *ABS Working Paper No. 4*: 1-40.

Gates, C. C., C. H. Freese., P. J. P. Gogan., and M. Zotzman (Eds. and Comps.). 2010. *American Bison: Status Survey and Conservation Guidelines 2010*. Gland, Switzerland: IUCN.

Geist, V. 1996. *Buffalo Nation: History and Legend of the North American Bison*. Stillwater, MN: Voyageur Press.

Guthrie, R. D. 1980. Bison and man in North America. *Canadian Journal of Anthropology* 1:55-73.

Helena Snowdrifters. 2003. Snowmobile Trails. Helena, Montana.

Helena Snowdrifters. 2010. FWP Snowmobile Trails Grant Program Application. Helena, Montana.

Hornaday, W. T. 1889. *The Extermination of the American Bison, with a Sketch of its Discovery and Life History: Annual Report (1887).* Washington, DC: Smithsonian Institution.

Inter-Tribal Bison Cooperative (ITBC) and Fort Peck Assiniboine and Sioux Tribes. 2008. Quarantine Bison Proposal. pp.4.

Isenberg, A. C. 2000. *The Destruction of the Bison: an Environmental History 1750 -1920.* Cambridge, United Kingdom: Cambridge University Press.

Knapp, A. K., J. M. Blair., J. M Briggs., S. L. Collins., D. C. Hartnett., L. C. Johnson., and E. G. Towne. 1999. The keystone role of bison in North American tallgrass prairie. *BioScience* 49:39-50.

Knopf, F. L. 1996. Prairie legacies-Birds. In F. B. Samson and F. L. Knopf (Eds.), *Prairie Conservation: Preserving North America's Most Endangered Ecosystem*, pp. 135-148. Covelo, CA: Island Press.

Knowles, C. J. 2001. *Suitability of Montana Wildlands for Bison Reintroduction.* FaunaWest Wildlife Consultants. Boulder, Mt.

Long, J. 2003. *Introduced Mammals of the World: Their History, Distribution, and Influence.* Collingwood VIC Australia: CSIRO Publishing.

Lott, D. F. 2002. *American Bison. A Natural History*. Los Angles: University of California Press.

McHugh, T. 1958. Social behavior of the American Buffalo (Bison bison bison). *Zoologica: New York Zoological Society* 43:1-40.

McHugh, T. 1972. *The Time of the Buffalo*. New York: Alfred A. Knopf, Inc.

McMillan, B. R., M. R. Cottam., and D. W. Kaufman. 2000. Wallowing behavior of American bison (*Bison bison*) in tallgrass prairie: an examination of alternate explanations. *American Midland Naturalist* 144:159-167.

Meagher, M. 1973. *The Bison of Yellowstone National Park.* Scientific Monographs 1. National Park Service, Washington, DC: Government Printing Office.

Meagher, M. 1978. Bison. In J. L Schmidt and D. L. Gilbert (Eds.), *Big Game of North America Ecology and Managemen*t. pp.123-134. Harrisburg, PA: Stackpole Books.

Montana Department of Commerce (MDOC), Montana Office of Tourism. 2011. Nakoda-Aaninin, Fort Belknap. Retrieved from: http://visitmt.com/places_to_go/indian_nations/nakoda-aaninin-fort-belknap

Montana Department of Livestock. 2010. Surveillance Requirements for Brucellosis and Establishing a Designated Surveillance Area. Order #10-01-D. Retrieved from: http://liv.mt.gov/brucellosis/default.mcpx

Montana Fish Wildlife& Parks (FWP). 2010. *Montana's Species of Concern*. Retrieved from: http://fwp.mt.gov/wildthings/concern/mammals.html

Montana Fish Wildlife & Parks (FWP). 2009. Request for Proposals: Disposition of Quarantine Facility Bison. Retrieved from: http://fwp.mt.gov/news/publicNotices/annualRules/pn_0060.html

Montana Fish Wildlife & Parks (FWP). 2011a. Northern Yellowstone Cooperative Bighorn Sheep Survey. May 9, 2008.

Montana Fish Wildlife & Parks (FWP). 2011b. Northern Yellowstone Cooperative Spring Mule Deer Survey.

Montana Fish Wildlife & Parks (FWP). 2011c. Northern Yellowstone Elk Survey North of Yellowstone National Park

Montana Fish, Wildlife & Parks (FWP) and Natural Resources Damage Program (NRDP). May 2010a. Prioritization of Tributaries in the Upper Clark Fork River Basin for Fishery Enhancement. Draft Final. Helena, MT. 18 pp.

Montana Fish, Wildlife & Parks (FWP) and Natural Resources Damage Program (NRDP). April 2010b. Upper Clark Fork River Basin Terrestrial Resource Assessment. Final Report. Helena, MT. 36 pp.

Montana Fish, Wildlife & Parks (FWP) and Natural Resource Damage Program (NRDP). April 2011. Upper Clark Fork Wildlife Resource Prioritization. Proposed Final. Helena, MT. 35 pp.

Montana Historic Preservation Office. 1995. National Register of Historic Places Registration Form – Warm Springs Mound.

Montana Natural Heritage Program (MNHP). 2011. Animal Species of Concern Reports. Retrieved from: http://mtnhp.org/SpeciesOfConcern/Default.aspx?AorP=a

Montana Office of Tourism. 2011. Nakoda Dakota Fort Peck. Retrieved from: http://www.visitmt.com/places_to_go/indian_nations/nakoda-aaninin-fort-belknap

Montana Office of Public Instruction (OPI). 2009. Indian Education for All – Montana Indians: Their History and Location. Retrieved from: http://www.opi.mt.gov/pdf/indianed/resources/MTIndiansHistoryLocation.pdf

Nowak, R. M. and J. L. Paradiso. 1983. *Walker's Mammals of the World* (4th ed.). Baltimore: The Johns Hopkins University Press.

Payne, G. F. 1973. Vegetative rangeland types in Montana. pp.16.Montana State University, Montana Agricultural Experiment Station.

Peden, D. G., G. M. Van Dyne, R. W. Rice., and R. M. Hansen. 1974. The trophic ecology of Bison bison L. on shortgrass plains. *The Journal of Applied Ecology* 11:489-497

Picton, H. D. 2005. *Buffalo Natural History and Conservation*. Stillwater, MN: Voyageur Press.

Powell County. 2006. Powell County Growth Policy. Deer Lodge, Montana. http://www.powellcountymt.gov/janda/files/home/1282171448_Powell%20County%20Growth%20Policy%2010-2006-p.pdf . Accessed 4 Aug 2011.

Powell County. 2007. Powell County, Montana, Zoning and Development Districts. Deer Lodge, Montana. http://www.powellcountymt.gov/janda/files/home/1282257027_Zoning-Development%20Districts%20w%20Sections%202-26-07.pdf . Accessed 4 Aug 2011.

Powell County. 2009. Powell County Zoning and Development Regulations. Deer Lodge, Montana. http://www.powellcountymt.gov/janda/files/home/1282256950_Powell%20County%20Z&D%20Regs%201-7-09-pp%20w.o%20resolution.pdf . Accessed 4 Aug 2011.

Red Elk, B. 2010. Tribes get grant for bison herd development. *Fort Peck Journal*: Vol. 2010 issue 28.

Reynolds, H. W., C. C. Gates, and R. D. Glaholt. 2003. Bison. In: G. A. Feldhamer, B. C, Thompson, and J. A. Chapman (Eds.), *Wild Mammals of North America: Biology, Management, and Conservation Second Edition*, pp.1009-1059. Baltimore: The Johns Hopkins University Press.

Stephenson, R. O., S. C. Gerlach., R. D. Guthrie., C. R. Harington., R. O. Mills., and G. Hare, 2001. Wood bison in late Holocene Alaska and adjacent Canada: Paleontological, archaeological and historical records. In: S. C. Gerlach and M. S. Murray (Eds.), *People and Wildlife in Northern North America: Essays in Honor of R. Dale Guthrie*, pp.124158. BAR International Series 944. Oxford: British Archaeological Reports.

U.S. Census Bureau, 2008a. 2008 County Business Patterns, Blaine County. Retrieved from: http://censtats.census.gov

U.S. Census Bureau, 2008b. 2008 County Business Patterns, Pondera County. Retrieved from: http://censtats.census.gov

U.S. Census Bureau, 2008c. 2008 County Business Patterns, Toole County. Retrieved from: http://censtats.census.gov

U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service. 2003. Brucellosis Eradication: Uniform Methods and Rules. APHIS 91-45-013. Retrieved from: http://www.aphis.usda.gov/animal_health/animal_diseases/brucellosis/downloads/umr_bovine_bruc.pdf

U.S. Department of Agriculture (USDA). 2007a. 2007 Census of Agriculture Blaine County Profile. Retrieved from www.agcensus.usda.gov

U.S. Department of Agriculture (USDA). 2007b. 2007 Census of Agriculture Pondera County Profile. Retrieved from www.agcensus.usda.gov

U.S. Department of Agriculture (USDA). 2007c. 2007 Census of Agriculture Roosevelt County Profile. Retrieved from www.agcensus.usda.gov

U.S. Department of Agriculture, National Agricultural Statistics Service (NASS). 2010. County Data – Livestock. Retrieved from: http://quickstats.nass.usda.gov

U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS). 2005. Field Office Technical Guide - Ecological Site Description. Section IIE. Retrieved from: http://efotg.sc.egov.usda.gov/treemenuFS.aspx

U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS). 2006a. Fort Belknap Rangeland Inventory: Management Unit 2.

U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS). 2006b. Fort Belknap Rangeland Inventory: Management Unit 7.

U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS). 2006c. Fort Belknap Rangeland Inventory: Management Unit 60.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2010. Range Unit 62 Feed/Forage Results and Summary. Poplar MT.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2011. National Wetlands Inventory. Retrieved from: http://www.fws.gov/wetlands/Data/mapper.html

van Zyll de Jong, C. G. 1986. *A Systematic Study of Recent Bison, with Particular Vonsideration of the Wood Bison (Bison bison athabascae Rhodes 1898).* Publications in Natural Sciences No. 6. Ottawa, Ontario: National Museums of Canada.

Vinkey, R., K. DuBois, C. Fox, and G. Mullin. 2010. Upper Clark Fork Basin Terrestrial Resource Assessment Final Report. Montana Fish, Wildlife & Parks and Montana Department of Justice Natural Resource Damage Program. 36pp.

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