



## **SUMMARY**

### **Determination of Effects**

Implementation of the proposed Federal action will have “*no affect*” on the Canada lynx or grizzly bear. That is, it is not likely to compromise the continued existence of threatened or endangered species.

### **Consultation Requirements**

In accordance with the Endangered Species Act (ESA), its implementation regulations and FSM 2671.4, the Gallatin National Forest is not required to request consultation with the Fish and Wildlife Service for this project. This decision was reached in response to the determination of potential effects on the Canada lynx and grizzly bear rendered in this assessment.

### **Need For Re-Assessment Based On Changed Conditions**

The findings in this Biological Assessment are based on the best current data and scientific information available. A revised Biological Assessment must be prepared if: (1) new information reveals affects, which may impact threatened, endangered, and proposed species or their habitats in a manner or to an extent not considered in this assessment; (2) the proposed action is subsequently modified in a manner that causes an affect, which was not considered in this assessment; or (3) a new species is listed or habitat identified, which may be affected by the action.

## **INTRODUCTION**

The purpose of this Biological Assessment is to review the effects of a potential Federal action on threatened, endangered, and proposed species and their habitats. Threatened, endangered, and proposed species are managed under the authority of the Federal Endangered Species Act (PL 93-205, as amended) and the National Forest Management Act (PL 94-588). Section 7 of the Endangered Species Act directs Federal departments and agencies to ensure actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of their critical habitats (16 USC 1536).

Consequently, this Biological Assessment analyzes the potential effects of the proposed Federal action on threatened, endangered, and proposed species known or suspected to occur in the proposed action influence area (Table 1).

Table 1. Threatened, Endangered And Proposed Species Known Or Suspected To Occur Within The Influence Area Of The Proposed Action.

Species	Status	Occurrence
Canada Lynx ( <i>Lynx Canadensis</i> )	Threatened	Known
Grizzly bear	Threatened	Known

**Proposed Action**

The Gardiner Ranger District, Gallatin National Forest proposes to permit the construction and maintenance of an electric fence along a 7-mile corridor, in part, on National Forest system land in the Gardiner Basin. Implementation of this project has been requested by Montana Fish, Wildlife, and Parks (FWP) as part of a larger strategy related to bison management.

The Interagency Bison Management Plan identified the Royal Teton Ranch as an area where the presence of bison could be tolerated after cattle removal. The Ranch properties are located within the Reese Creek to Yankee Jim Canyon management area north of the Yellowstone National Park boundary and west of the Yellowstone River. The fence will help control bison movement outside of Yellowstone Park in Montana.

**Background Information: Royal Teton Ranch Grazing Agreement (narrative provided by Montana, Fish, Wildlife and Parks)**

*In the IBMP, the Royal Teton Ranch (RTR) was identified as one of the areas where the bison's presence could be tolerated after the cattle were removed from the area. The ranch's properties lie within the Reese Creek to Yankee Jim Canyon management area north of YNP's boundary and west of the Yellowstone River.*

*In the plan's adaptive approach, three steps were defined in order to decrease the probability of brucellosis transmission to cattle and allow a limited number of bison to roam north into Montana during winter months. During step 1, cattle would still be using ranch property and bison movement would be restricted to areas south of Reese Creek and would be hazed back into YNP. If the hazing were unsuccessful, NPS would capture all bison attempting to leave the park to be tested, processed, and monitored per the IBMP.*

*Step 2 would be implemented when cattle no longer graze on the RTR. In this phase of the IBMP, a limited number bison would be allowed north beyond Reese Creek through RTR to Forest Service lands near Yankee Jim Canyon that have been tested and found seronegative for brucellosis. This corridor will provide bison a safe avenue to winter forge areas on public lands thusly providing bison more natural free-ranging movement opportunities and allowing the IBMP partner agencies meet their brucellosis management goals.*

*In step 2 of the IBMP, initially only 25 seronegative bison would be allowed to roam in designated "bison use areas" north of the Park on RTR lands. As per the IBMP and the RTR Bison Management Plan, if the of the pilot bison group and the initial implementation of step 2 is successful, the number of bison allowed to move through the RTR could be increased to 100 animals.*

*FWP proposes to implement its' part of the step 2 of the IBMP by 1) entering into a 30-year grazing agreement with the Royal Teton Ranch, 2) contributing \$300,000 to the costs of the agreement, and 3) constructing and maintaining fences, cattle guards, and related structures as necessary to manage bison moving through the bison use areas per the RTR grazing agreement. Fence construction and maintenance would be contracted to a second party by FWP.*

*Obtaining this grazing agreement is one of the wildlife management goals identified in the Bison Management Plan EIS to establish a bison-tolerant zone north of the YNP boundary where bison could emigrate in the winter for forage. The goals of the proposed action are:*

- To ensure tested and non-tested bison are appropriately segregated;*
- To move seronegative bison through the RTR to a more suitable grazing lands on public lands north of the ranch; and*
- Prevent damage to persons and property.*

*As part of the terms of the RTR grazing agreement, FWP will contract the construction and maintenance of the electrical fence along the 7-mile bison corridor primarily parallel to the RTR property line and county road right-of-way. The fencing was designed, in consultation with bison ranchers and wildlife fencing experts, to be a strong enough deterrent to bison movement but to be easily traversed by other wildlife and easily collapsed when the bison have been moved back into YNP.*

*The electric fence will be only as high as necessary (approximately 48"), to keep bison out, but will allow most deer, elk and bighorn sheep to cross by jumping over the top. Only the minimum number of wires (4; 2 electrified, 2 ground) will be used to keep bison out, but also allow smaller animals to cross under or through fewer wires. Spacing distance of the 4 wires from the ground (20" high, 27" high, 38" high, and 48" high) will keep bison in, but allow smaller animals (particularly antelope) to cross under or through the wires more easily. Only two wires (the second from the bottom and the top) will be electrified, which will facilitate smaller animals (antelope, small to medium sized mammals) crossing under the bottom wire. All wires will be 12.5 gauge high tensile strength smooth wires. No barbed wire will be used. The use of smooth wire greatly reduces the risk of animals accidentally catching and twisting a leg between two wires. Fence posts will be equipped with "take-down" stays over large distances or the entire fence length. The take down feature will allow for seasonally removing (lowering) fence wires. Furthermore, the fence will only be operational (either electrified or in place) for about 12-14 weeks from approximately January 15 to April 20, when needed to restrict bison movements. For the remaining 38-40 weeks of the year the power will be turned off*

*and the wires for large selected distances or its entire length will be dropped to the ground.*

*Wherever possible steep natural topography is used to form the western boundary of the bison corridor, eliminating the need for fencing for large distances in several areas south of Mulherin Creek. Utilizing natural barriers reduces the length of fence construction.*

*The power required for the hot wires will be provided by small solar panels that store electricity in batteries located periodically along the fence line. Stored electricity will provide enough high voltage power 24 hours a day to discourage bison from crossing the fence without causing permanent harm to them.*

*In addition to the new fencing, FWP plans to install approximately eight cattle guards and six metal gates at various locations throughout the bison corridor, primarily at intersections along the Yellowstone Trail Road where access to RTR residences and ranch operation buildings are required. The cattle guards is expected to allow normal vehicle traffic through the ranch and deter the bison from moving out of the designated bison corridor. Like the cattle guards, the gates will allow ranch employees access to all areas of the RTR property while discouraging bison movements from the corridor. The gates are expected to facilitate the directed movement of the bison during herding operations.*

**Fence Description (narrative provided by FWP):**

- 1) Type: Four stand smooth wire electric fence with wire let down capability and powered by high voltage, low amperage solar powered fence chargers.*
- 2) Basic fence design\*: 8 foot wooden fence posts (3 ft below ground, 5 ft above ground) spaced at 20 foot intervals supporting 4 12.5 gauge high tensile strength smooth wires spaced as indicated from the ground: bottom wire (20" high), 2<sup>nd</sup> wire (27" high), 3<sup>rd</sup> wire (38" high), and top wire (48"). The 2<sup>nd</sup> and top wire will be electrified "hot wires". Wires will be supported by insulators.*

*\* In places the basic fence design may be altered or modified to suit the terrain and/or site specific fencing needs (e.g., on steep or rocky terrain, fence post spacing and/or type of post may be changed, temporary fiber glass stand up posts may be incorporated in the fencing that crosses the irrigated hay field, the short length of drift fencing in the Spring Creek Area may or may not be electrified).*

- 3) A few standard metal ranch gates will be located along the fence to allow for controlled passage of bison and riders during bison herding operations (see map for potential gate locations). During the non-operation time period the gates will be left open.*
- 4) Where necessary cattle guards will be installed to allow vehicle passage along major roads while prohibiting the passage of bison onto or across the roadway. Two standard*

*cattle guards will be installed side by side to insure that bison do not cross them (see map for cattle guard locations).*

**Fence location (narrative provided by FWP):**

*1) The location of the fence was designed to meet the concerns, needs, and requirements of the Royal Teton Ranch with regard to farming operations, property protection, and human safety issues (see map for the location of the fence).*

**Fence operation/management plan (narrative provided by FWP):**

*1) Period of operation: The period of operation will be restricted to coincide with typical dates when bison are present. Anticipated dates of electrification are January 15 – April 20. End date is 5 days following current mandated return of bison to Yellowstone National Park under the Interagency Bison Management Plan. Actual use period may be modified based on experience, field circumstances, or changes in bison management policies.*

*2) Period of non-operation: Anticipated dates of non-operation/non-electrification are April 21 – January 14. Actual non-use period may be modified based on experience, field circumstances, or changes in bison management policies. During periods of non-use the electric fencing will be disconnected and the wire will be dropped to the ground or down to the lowest (16") stay either A) over a large portion of the fence length where wildlife are likely to cross or B) over the entire length of the fence.*

*3) At least one month prior to January 15 the fence will be physically inspected along its entire length and tested by activating the fence chargers. Any minor or major repairs will be completed before January 15 to insure the proper functioning of the fence.*

*4) During the anticipated period of operation (January 15 – April 20) the fence will be periodically monitored to make sure that it is properly functioning to keep bison out of designated areas. Necessary repairs or modifications will be made as needed.*

*5) Shortly after April 20<sup>th</sup> the electricity will be disconnected, the fencing wires will be dropped to the ground or down to the lowest (20") stay either A) over a large portion of the fence length where wildlife are likely to cross or B) over the entire length of the fence, and the fence gates will be left opened.*

**MANAGEMENT DIRECTION**

Analysis of effects to threatened and endangered species was conducted by considering management direction provided in the Gallatin Forest Plan (and amendments) (USDA 1987) in concert with appropriate species specific management plans (lynx), the details of the proposal, and the biological requirements of the species. Most wildlife management direction in the Forest Plan pertains to grizzly bear conservation.

## **Forest Plan Standards and Guidelines**

The Gallatin Forest plan provides direction for threatened and endangered species management in accordance with the Endangered Species Act. Forest Plan goals for threatened and endangered species include:

- Provide sufficient habitat for recovered populations of threatened and endangered species
- Strive to prevent human caused grizzly bear losses
- Maintain or improve forage resources

## **Grizzly Bear Management Situation (MS) Designations**

Occupied grizzly bear habitat in the Greater Yellowstone area is divided into five MS categories based on grizzly habitat value and population distribution. Like Management Area designations, they help determine the range of management actions that are appropriate in a given area in terms of grizzly bear conservation. Those relevant for this analysis are MS1, MS2, and MS3. Most of the Gardiner Basin is designated MS1, including nearly all public land and the areas above the valley floor. The Yellowstone River Valley, including the area for the intended fence corridor, is MS 2. MS 3 habitat was never mapped on the Gallatin National Forest. However, areas fitting the description of MS 3, including the Highway 89 corridor, are managed commensurate with the definition.

Ms 2: this area lacks distinct grizzly population centers. Highly suitable habitat does not generally occur, although some grizzly habitat components exist and grizzlies may be present occasionally. Habitat resources in MS2 are either unnecessary for survival and recovery of the species or the need had not yet been determined but habitat resources may be necessary. The effects of major federal activities or programs on the conservation and recovery of the species are not generally predictable.

## **Interagency Grizzly Bear Committee Access Standards**

After the Gallatin Forest Plan was written, new data on the effects of access (roads and trails) on bears and new technology for analyzing these effects became available. In response to this, in 1995 the US Fish and Wildlife Service amended their biological opinion for the Gallatin Forest Plan and directed the use of the new Interagency Grizzly Bear Committee standards for addressing the impacts of access issues on grizzlies. Because of these concerns and the availability of the Interagency Grizzly Bear Committee Access report, it was decided to amend the Forest Plan on the issue of access within the grizzly bear recovery zone. This removed the previous standards for analyzing the impacts of roads and trails and replaced them with the new access definitions and interim standards. Therefore, in this analysis, direction given in the amended biological opinion of 1995 is relevant.

The direction is as follows:

- No increase in open motorized access route density over current levels

- No increase in total motorized access route density over current levels
- No decrease in the amount of core (secure) area from the current level

The computer program known as moving windows analysis is used for calculations related to the Interagency Grizzly Bear Committee access standards and the biological opinion. A series of definitions provides the basis for determining if the above standards are achieved in a given area.

### **Gallatin National Forest Management Area (MA) Designation**

Management goals have been established in the Forest Plan. They are described for each designated MA and determine what activities and projects are possible. Conservation of threatened and endangered species was a priority in the formation of the standards and guidelines for each MA description.

The project area is in MA14, which includes big game winter ranges within occupied grizzly bear habitat. The management goal for MA14 is to maintain or enhance big game winter range. Specific relevant management goals are to:

- Maintain or enhance big game habitat
- Meet grizzly bear mortality reduction goals as established by the IGBC
- Provide forage for livestock consistent with goal 1

## **SPECIES ASSESSMENT**

### **1. Canada Lynx (*Lynx canadensis*)**

#### **Population and Habitat Status**

On March 24, 2000 the U.S. Fish and Wildlife Service (USFWS) published its determination on the status of the Canada lynx (*Lynx canadensis*) population within the contiguous U.S. It has been listed as a "threatened" species within the defined geographic area.

#### Lynx habitat requirements

Prey availability, especially snowshoe hares, appears to be a primary limiting factor for lynx in the Northern Rockies. The main cause of lynx mortality is starvation (USDA Forest Service 2007a, page 141). Therefore, lynx habitat conservation measures are currently focused on maintaining adequate quantities of winter snowshoe hare habitat.

Primary forest types that support snowshoe hare are subalpine fir, Engelmann spruce, and lodgepole pine (Ruediger et al. 2000, page 1-3). Secondary foraging habitat includes aspen, willow, and moist, cool, Douglas-fir stands (Ruediger et al. 2000, page 1-3). The key component of snowshoe hare habitat is dense understory vegetation. In winter, lynx forage for hares in vegetation that provides high densities of young conifer stems or

branches that protrude above the snow (Ruediger et al. 2000, p. 1-4 and 1-7). Snowshoe hares avoid clear-cuts and very young stands (Ruediger et al. 2000, p. 1-7).

Studies conducted in Yellowstone National Park and the Targhee National Forest showed that snowshoe hares generally occur at low densities in the Greater Yellowstone Ecosystem. However, higher densities of snowshoe hares have been found in dense stands of regenerating lodgepole pine saplings tall enough to protrude above the snow line in winter (McKelvey and McDaniel 2001, page 15; Hodges and Mills 2005), along with mature Douglas-fir and lodgepole pine/spruce-fir stands with well-developed understories and good canopy cover (Hodges and Mills 2005). Research in other portions of the Northern Rockies has shown similar results with winter snowshoe hare habitat often found in the stand initiation, understory re-initiation, and old forest multi-storied structural stages (USDA Forest Service 2007a, page 145).

Vegetation management can affect habitat suitability for lynx. Pre-commercial thinning reduces stem density in the dense, young stands that often provide high-quality snowshoe hare habitat. Reductions in stem density alter food and cover availability so that these stands have little or no value for snowshoe hares. Understory thinning in older, multi-storied stands with understory vegetation dense enough to support snowshoe hares has a similar effect. Removal of only larger diameter overstory trees may have little effect upon snowshoe hare habitat, and can even improve snowshoe hare habitat by creating small openings that stimulates understory growth (USDA Forest Service 2007a, page 153-154).

In January 2000 the *Canada Lynx Conservation Assessment and Strategy* (LCAS) was published, which established early conservation measures for lynx habitat. It recommended that Lynx Analysis Units (LAU's), which contain all components of lynx habitat and approximate the size of an area used by an individual lynx, be delineated (Ruediger et al. 2000, page 7-4). The Gallatin National Forest reviewed lynx habitat and re-delineated LAU's across the Forest in 2005. The project area is within the Gardiner-Tom Miner LAU.

Current guidance for management of lynx habitat is provided by the recent Northern Rockies Lynx Forest Plan Amendment. This document contains standards and guidelines specific to vegetation management and other Forest Service land management activities. The standards and guidelines in the Forest Plan amendment place more emphasis on conservation of old, multi-storied forests with adequate understory density to provide food and cover for snowshoe hares during winter as a result of recent research showing increased importance of these stands. There is much less emphasis on denning habitat compared to the direction in the Lynx Conservation Assessment and Strategy, because denning habitat is no longer believed to be limiting. Forest Plan Amendment standards and guidelines are discussed in the cumulative effects analysis portion of this document.

## **Methodology for Analysis**

The proposed project will essentially have no impact on lynx habitat. Moreover, managing the project site for lynx is not a reasonable conservation goal; the analysis area consists of sagebrush/grasslands. Consequently, the standard required analysis for assessing impacts to lynx habitat was not conducted for this project.

Generally, to analyze the effects of proposed activities on lynx habitat, stands in the structural re-initiation and old, multi-storied stages that currently provide snowshoe hare habitat are identified. Also, queries of the Timber Stand Management Record System (TSMRS) database are conducted along with field observation of proposed treatment units to identify old, multi-storied stands that are currently in suitable condition for snowshoe hare habitat. The queries include late successional lodgepole pine and subalpine fir stands with well-developed subalpine fir understories because these stands have the characteristics to provide snowshoe hare habitat.

In addition, required cumulative effects analysis involves determining the current amount of lynx habitat in the stand initiation stage in the analysis area, and the amount of lynx habitat converted to this status by management activities within the past 10 years. This allows comparisons to be made with the allowable amount of habitat in the stand initiation stage from standards VEG S1 and S2 (described below). Lynx habitat currently in the stand initiation stage was defined in the LCAS as, "areas within identified/mapped lynx habitat that are in early successional stages as a result of recent fires or vegetation management, in which the vegetation has not developed sufficiently to support snowshoe hare populations during all seasons. Management-created openings would likely include clearcut and seed tree harvest units, and might include shelterwood and commercially-thinned stands depending on unit size and remaining stand composition and structure (Ruediger et al. 2000, page G-5)."

### **Direct, Indirect, and Cumulative Effects Analysis**

The analysis area is in the Gardiner-Tom Miner Lynx Analysis Unit. Lynx Analysis Units (LAU's) contain all components of lynx habitat and approximate the size of an area used by an individual lynx (Ruediger et al. 2000, page 7-4). They were delineated for the purpose of evaluating project effects on lynx habitat.

Cumulative effects analysis for proposed federal actions involves contrasting a baseline or existing condition against changes that have occurred or will occur within the LAU. Because the proposed project does not involve vegetation manipulation, it was not relevant to perform a cumulative effects analysis regarding changes in lynx habitat. In this case, no management activities within several miles of the proposed project site have converted lynx habitat to the stand initiation stage. Moreover, the amount of lynx habitat in the stand initiation stage would not change under the preferred alternative because no clearcuts, shelterwood, or seed tree harvest would occur.

When a cumulative effects analysis is performed, all forested stands classified as subalpine fir types are considered to be primary lynx habitat. Moist Douglas-fir types are considered secondary lynx habitat. Sagebrush, willow, and aspen stands in proximity to conifer stands can also provide habitat for lynx (Ruediger et al. 2000, pages 2-13 and 2-14). Therefore, sagebrush, willow, and aspen stands within 200 meters of primary or secondary habitat are considered secondary lynx habitat.

### **Adherence to the Northern Rockies Lynx Amendment Standards and Guidelines**

Project adherence to the Northern Rockies Lynx Amendment Standards and Guidelines is assessed for all proposed Federal actions by comparing project effects against established criteria. Because the proposed project does not negatively impact lynx habitat, this species will not be compromised by implementation of the proposal. Standards and Guidelines that require adherence for all projects are:

- VEG S1: If more than 30% of the lynx habitat in an LAU is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat, no additional habitat may be regenerated by vegetation management projects.
- VEG S2: Timber management project shall not regenerate more than 15% of lynx habitat on National Forest System lands within an LAU in a 10-year period.
- VEG S5: Precommercial thinning projects that reduce snowshoe hare habitat may occur from the stand initiation structural stage until the stands no longer provide winter snowshoe hare habitat only: (1) within 200' of administrative sties, dwellings, or outbuildings; (2) for research studies or genetic tree tests evaluating genetically improved reforestation stock; (3) based on new information...where a written determination states that a project is not likely to adversely affect lynx, or that a project is likely to have short term adverse effects on lynx or its habitat but would result in long-term benefits to lynx and its habitat; (4) for conifer removal in aspen, or daylight thinning around individual aspen trees where aspen is in decline; (5) for daylight thinning of planted rust-resistant white pine where 80% of the winter snowshoe hare habitat is retained; or (5) to restore whitebark pine. The above standard is to be applied to all vegetation management projects except for fuel treatment projects within the wildland-urban interface as defined by the Healthy Forests Restoration Act. For fuels treatment projects that do not meet the above standards, no more than 6% (cumulatively) of the lynx habitat on a National Forest can be subject to fuels treatments (USDA Forest Service 2007, Attachment 1, page 4).
- VEG S6: Vegetation management projects that reduce snowshoe hare habitat in multi-story mature or late-successional forests may occur only: (1) within 200' of administrative sites, dwellings, outbuildings, recreation sites, and special use permit improvements, including infrastructure within permitted ski area boundaries; (2) for research studies or genetic tree tests evaluating genetically improved reforestation stock; or (3) for incidental removal during salvage harvest

(e.g., removal due to location of skid trails). The above standard is to be applied to all vegetation management projects except for fuel treatment projects within the wildland-urban interface as defined by the Healthy Forests Restoration Act. For fuels treatment projects that do not meet the above standards, no more than 6% (cumulatively) of the lynx habitat on a National Forest can be subject to fuels treatments (USDA Forest Service 2007, Attachment 1, page 4).

- VEG G10: Fuel treatment projects within the WUI as defined by the Healthy Forests Restoration Act should be designed considering Standards VEG S1, S2, S5, and S6 to promote lynx conservation.

### **Applicable terms and conditions from the Biological Opinion for the Northern Rockies Lynx Amendment**

Project adherence to the Fish and Wildlife Service Biological Opinion provided in response to the Forest Service Record of Decision requires that the effects of all proposed Federal actions be assessed using a series of Terms and Conditions. Because the proposed project will not negatively impact lynx habitat, this species will not be compromised by implementation of the proposal. Terms and Conditions that require adherence for all projects are:

- Fuels management projects conducted under the exemptions from standards VEG S1, S2, S5 and S6 in occupied habitat shall not occur in greater than 6% of lynx habitat on any Forest
- Fuels management projects conducted under the exemptions from standards VEG S1, S2, S5 and S6 in occupied habitat shall not result in more than 3 adjacent LAUs not meeting the VEG S1 standard of no more than 30 percent of an LAU be in stand initiation structural stage.
- Fuels management projects conducted under the exemptions from standards VEG S1, S2, S5 and S6 in occupied habitat shall not result in more than 3 adjacent LAUs not meeting the VEG S1 standard of no more than 30 percent of an LAU be in stand initiation structural stage.
- In occupied lynx habitat, precommercial thinning and vegetation management projects allowed per the exception listed under VEG S5 and S6, shall not occur in any LAU exceeding VEG S1, except for protection of structures.

## **2. Grizzly Bear (*Ursus arctos horribilis*)**

On April 30, 2007, the Yellowstone grizzly bear was removed from the list of federally protected species; i.e., at that point it was no longer a threatened species as described in the Endangered Species Act. However, even without its former legal standing, specific species conservation requirements were still applicable. Adherence to these standards

was required as explained in the appropriate Recovery Plan. Moreover, by court order the grizzly bear was relisted in September, 2009.

**Population and Habitat Status** – Grizzly bears use a wide variety of habitats and have a highly diverse diet, including various plants and animals. Riparian areas, snow chutes, meadows, subalpine forests, alpine tundra, boulder fields, mixed shrub fields, seeps, grasslands, timbered side hill parks, and burns are used for feeding and resting. Dense timbered habitats are often used for denning and daytime bed sites. In summary, moist open-land habitats in combination with timbered areas are essential for optimum grizzly bear habitat.

Grizzly bears are now found in small numbers in the lower 48 states. Today, the grizzly mainly occupies high mountain wilderness areas and associated foothills in western and south central Montana. Grizzlies are known to use low-elevation habitats, notably along the east front of the Rocky Mountains and along the base of the Mission Mountains. Grizzlies in the Cabinet-Yaak area are being augmented by the Canadian and Northern Continental Divide Ecosystem (NCDE) populations. NCDE populations are also connected to Canada. The best information suggests that the grizzly bear population in the NCDE is expanding its range outside of the recovery zone and has a population beyond recovery plan levels (USDA-FS 2006). The Yellowstone grizzly population is also increasing and expanding their range (Schwartz et al. 2006a, b) and was delisted on April 30, 2007.

**Threats** - Grizzly bears require large areas of undisturbed habitat. Their population and habitat decline is primarily associated with excessive mortality and human encroachment on habitat. Improper livestock grazing, poaching, mistaken identity during the hunting season for black bears, encounters with humans during game carcass retrieval, food conditioning and habituation, collisions with trains at grain spills along railroad beds, highway vehicle collisions, excessive road access, recreational development, oil and gas development, and poorly designed timber harvests are all factors believed to be responsible for the grizzlies' previous threatened status. Grizzly bear habitat use is affected by roads densities. Bears tended to avoid roads, especially those open to motorized traffic. Bears are most vulnerable to human conflicts in areas with many roads and limited cover and escape habitat (Claar et al. 1999). Snowmobiling can disturb and/or displace bears after den emergence. Fire and vegetation management can eliminate cover for security and thermal regulation and create short-term changes in food availability (Claar et al 1999).

**Environmental Consequences** - The following indicators were used to evaluate the potential effects on grizzly bear numbers and habitat from implementing the proposal to fence and restore native vegetation on former agricultural land within the Gallatin Forest.

- Whether grizzly bear habitat quality would be degraded.
- Whether the risk of mortality would be increased.

**Direct and Indirect Effects Analysis** - The site proposed for fence construction and bison management is within spring, summer, and fall grizzly bear habitat. However, habitat value specifically associated with these fields during all seasons is nominal. Bears do frequent the area in the fall because of the occasional gut pile available from harvest of big game species. In addition, adjacent apple orchards on private land are a major attraction. These two food sources bring bears into juxtaposition to private homes and state and county roads, which is undesirable to agency managers. Again, the fields and road corridor identified in the proposal, with or without the proposed treatment, have no inherent value to bears.

Denning habitat is characterized by steep, relatively inaccessible slopes on northern and western aspects at high elevation. Habitat meeting this description is not immediate to the proposed project site, and, consequently, impacts to denning habitat are not an issue.

Any human use has some possibility of attracting bears because of the potential availability of food items. However, this proposal does not have any connection to generating human related attractants.

The proposed project would not require construction of any new roads nor allow sustained use of any currently restricted roads. Consequently, it will not result in a proliferation of human activity in the Basin outside of previously impacted areas.

**Cumulative Effects Analysis** - Past land management activities in the area, including timber harvesting, road construction, and residential development have decreased and/or fragmented hiding cover and forage for wildlife species. Increased human activity has decreased security levels for most wildlife species, including Canada lynx, and grizzly bear. However, the conversion of mature forest to early successional habitats has generally provided increased levels of forage and higher population potentials for ungulates. The increased emphasis on road closures over the last 15-20 years has had a generally positive effect on all wildlife species.

The current level of human activity within and adjacent to the Forest generates the chance for disturbance or displacement of threatened, endangered, and Forest Service sensitive species. However, implementation of this proposal will have only minimal additional cumulative effects over the current baseline because no vegetation alteration involving removal of cover, road construction, or livestock use is authorized. The proposed action will create a minimal and ephemeral increase in the amount of human activity on federal land.

**Determination of Effects – Grizzly Bear**- Implementation of the proposed project may impact individual grizzly bears, but will not likely result in reduced viability for the population or species. That is, in current terms, the project determination is “no effect”. This determination is based on the above discussion and the following rationale:

1. The proposed project will occur in grizzly bear habitat.
2. Habitat security is not impacted because the project does not authorize vegetation alteration involving cover or road construction.

3. The project will not increase the number of authorized facilities that generate sustained human use.
4. The proposed project will not increase the availability of attractants.
5. The risk of increasing grizzly bear mortalities is minimal with the implementation of mitigation measures.
6. No adverse cumulative effects were identified.
7. Specific standards and guidelines for grizzly bear conservation specified in the Gallatin Forest Plan and its amendments will not be violated.

#### **MITIGATION (COORDINATION) MEASURES)**

1. No storage or distribution of bear attractants will occur at the site.
2. Overnight camping at the site will not occur associated with project implementation.
3. The seed mix for and site restoration efforts will not include vegetation types that attract bears (such as clover).
4. Project work will cease for the duration of any observed bear activity.

#### **ANALYSIS SUMMARY**

The Record of Decision (ROD) for the Northern Rockies Lynx Management Direction (NRLMD) became effective July 16, 2007 (USFS 2007) and incorporates Terms and Conditions (T&C's) of the Biological Opinion and Incidental Take Statement (FWS 2007). The Northern Rockies Lynx Amendment provides Standards and Guidelines that need to be adhered to when implementing any Federal action. Implementing this decision will not compromise any of the listed Terms and Conditions or Standards and Guidelines.

Similarly, implementing this proposal will not compromise grizzly bear conservation Standards and Guidelines identified in the Gallatin Forest Plan and its amendments.

This project would involve about a 7-mile linear corridor of habitat that is not suitable for lynx or snowshoe hares and has nominal value to grizzlies. Although forested areas within the Gardiner Basin are suitable lynx and grizzly bear habitat, the project site does not contribute. The fence will be in place on a seasonal basis to coincide with bison movements. Consequently, the spatial and temporal effects for listed species are minimal. Indirect effects will not compromise the federally protected species considered.

## Determination of Effects

Implementation of the proposed Federal action will have “no affect” on the Canada lynx or grizzly bear. That is, it is not likely to compromise the continued existence of threatened or endangered species.

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**BIOLOGICAL EVALUATION FOR EFFECTS TO  
FOREST SERVICE SENSITIVE SPECIES**

**GARDINER BASIN BISON MANAGEMENT FENCE  
CONSTRUCTION AND MAINTENANCE**

**GARDINER RANGER DISTRICT  
GALLATIN NATIONAL FOREST**

**November, 2009**

## INTRODUCTION

### Proposal

This Biological Evaluation was prepared to evaluate the effects to Forest Service sensitive species of constructing and maintaining 7-miles (or less) of fence in the Gardiner Basin. The fence would be located, in part, on National Forest system lands along the west side of the Yellowstone River between Yellowstone Park and Yankee Jim Canyon. The fence is designed to direct bison movements after they leave Yellowstone Park and enter Montana. The Gallatin National Forest is assessing the environmental consequences of permitting this activity as proposed by Montana Fish Wildlife and Parks (FWP). The following description of the project was forwarded by FWP:

*In the IBMP, the Royal Teton Ranch (RTR) was identified as one of the areas where the bison's presence could be tolerated after the cattle were removed from the area. The ranch's properties lie within the Reese Creek to Yankee Jim Canyon management area north of YNP's boundary and west of the Yellowstone River.*

*In the plan's adaptive approach, three steps were defined in order to decrease the probability of brucellosis transmission to cattle and allow a limited number of bison to roam north into Montana during winter months. During step 1, cattle would still be using ranch property and bison movement would be restricted to areas south of Reese Creek and would be hazed back into YNP. If the hazing were unsuccessful, NPS would capture all bison attempting to leave the park to be tested, processed, and monitored per the IBMP.*

*Step 2 would be implemented when cattle no longer graze on the RTR. In this phase of the IBMP, a limited number bison would be allowed north beyond Reese Creek through RTR to Forest Service lands near Yankee Jim Canyon that have been tested and found seronegative for brucellosis. This corridor will provide bison a safe avenue to winter forage areas on public lands thusly providing bison more natural free-ranging movement opportunities and allowing the IBMP partner agencies meet their brucellosis management goals.*

*In step 2 of the IBMP, initially only 25 seronegative bison would be allowed to roam in designated "bison use areas" north of the Park on RTR lands. As per the IBMP and the RTR Bison Management Plan, if the of the pilot bison group and the initial implementation of step 2 is successful, the number of bison allowed to move through the RTR could be increased to 100 animals.*

*FWP proposes to implement its' part of the step 2 of the IBMP by 1) entering into a 30-year grazing agreement with the Royal Teton Ranch, 2) contributing \$300,000 to the costs of the agreement, and 3) constructing and maintaining fences, cattle guards, and related structures as necessary to manage bison moving through the bison use areas per the RTR grazing agreement. Fence construction and maintenance would be contracted to a second party by FWP.*

*Obtaining this grazing agreement is one of the wildlife management goals identified in the Bison Management Plan EIS to establish a bison-tolerant zone north of the YNP boundary where bison could emigrate in the winter for forage. The goals of the proposed action are:*

- To ensure tested and non-tested bison are appropriately segregated;*
- To move seronegative bison through the RTR to a more suitable grazing lands on public lands north of the ranch; and*

- Prevent damage to persons and property.

*As part of the terms of the RTR grazing agreement, FWP will contract the construction and maintenance of the electrical fence along the 7-mile bison corridor primarily parallel to the RTR property line and county road right-of-way. The fencing was designed, in consultation with bison ranchers and wildlife fencing experts, to be a strong enough deterrent to bison movement but to be easily traversed by other wildlife and easily collapsed when the bison have been moved back into YNP.*

*The electric fence will be only as high as necessary (approximately 48"), to keep bison out, but will allow most deer, elk and bighorn sheep to cross by jumping over the top. Only the minimum number of wires (4; 2 electrified, 2 ground) will be used to keep bison out, but also allow smaller animals to cross under or through fewer wires. Spacing distance of the 4 wires from the ground (20" high, 27" high, 38" high, and 48" high) will keep bison in, but allow smaller animals (particularly antelope) to cross under or through the wires more easily. Only two wires (the second from the bottom and the top) will be electrified, which will facilitate smaller animals (antelope, small to medium sized mammals) crossing under the bottom wire. All wires will be 12.5 gauge high tensile strength smooth wires. No barbed wire will be used. The use of smooth wire greatly reduces the risk of animals accidentally catching and twisting a leg between two wires. Fence posts will be equipped with "take-down" stays over large distances or the entire fence length. The take down feature will allow for seasonally removing (lowering) fence wires. Furthermore, the fence will only be operational (either electrified or in place) for about 12-14 weeks from approximately January 15 to April 20, when needed to restrict bison movements. For the remaining 38-40 weeks of the year the power will be turned off and the wires for large selected distances or its entire length will be dropped to the ground.*

*Wherever possible steep natural topography is used to form the western boundary of the bison corridor, eliminating the need for fencing for large distances in several areas south of Mulherin Creek. Utilizing natural barriers reduces the length of fence construction.*

*The power required for the hot wires will be provided by small solar panels that store electricity in batteries located periodically along the fence line. Stored electricity will provide enough high voltage power 24 hours a day to discourage bison from crossing the fence without causing permanent harm to them.*

*In addition to the new fencing, FWP plans to install approximately eight cattle guards and six metal gates at various locations throughout the bison corridor, primarily at intersections along the Yellowstone Trail Road where access to RTR residences and ranch operation buildings are required. The cattle guards is expected to allow normal vehicle traffic through the ranch and deter the bison from moving out of the designated bison corridor. Like the cattle guards, the gates will allow ranch employees access to all areas of the RTR property while discouraging bison movements from the corridor. The gates are expected to facilitate the directed movement of the bison during herding operations.*

#### **Fence Description:**

*1) Type: Four stand smooth wire electric fence with wire let down capability and powered by high voltage, low amperage solar powered fence chargers.*

2) *Basic fence design\**: 8 foot wooden fence posts (3 ft below ground, 5 ft above ground) spaced at 20 foot intervals supporting 4 12.5 gauge high tensile strength smooth wires spaced as indicated from the ground: bottom wire (20" high), 2<sup>nd</sup> wire (27" high), 3<sup>rd</sup> wire (38" high), and top wire (48"). The 2<sup>nd</sup> and top wire will be electrified "hot wires". Wires will be supported by insulators.

*\* In places the basic fence design may be altered or modified to suit the terrain and/or site specific fencing needs (e.g., on steep or rocky terrain, fence post spacing and/or type of post may be changed, temporary fiber glass stand up posts may be incorporated in the fencing that crosses the irrigated hay field, the short length of drift fencing in the Spring Creek Area may or may not be electrified).*

3) *A few standard metal ranch gates will be located along the fence to allow for controlled passage of bison and riders during bison herding operations (see map for potential gate locations). During the non-operation time period the gates will be left open.*

4) *Where necessary cattle guards will be installed to allow vehicle passage along major roads while prohibiting the passage of bison onto or across the roadway. Two standard cattle guards will be installed side by side to insure that bison do not cross them (see map for cattle guard locations).*

**Fence location:**

1) *The location of the fence was designed to meet the concerns, needs, and requirements of the Royal Teton Ranch with regard to farming operations, property protection, and human safety issues (see map for the location of the fence).*

**Fence operation/management plan:**

1) *Period of operation: The period of operation will be restricted to coincide with typical dates when bison are present. Anticipated dates of electrification are January 15 – April 20. End date is 5 days following current mandated return of bison to Yellowstone National Park under the Interagency Bison Management Plan. Actual use period may be modified based on experience, field circumstances, or changes in bison management policies.*

2) *Period of non-operation: Anticipated dates of non-operation/non-electrification are April 21 – January 14. Actual non-use period may be modified based on experience, field circumstances, or changes in bison management policies. During periods of non-use the electric fencing will be disconnected and the wire will be dropped to the ground or down to the lowest (20") stay either A) over a large portion of the fence length where wildlife are likely to cross or B) over the entire length of the fence.*

3) *At least one month prior to January 15 the fence will be physically inspected along its entire length and tested by activating the fence chargers. Any minor or major repairs will be completed before January 15 to insure the proper functioning of the fence.*

4) *During the anticipated period of operation (January 15 – April 20) the fence will be periodically monitored to make sure that it is properly functioning to keep bison out of designated areas. Necessary repairs or modifications will be made as needed.*

5) *Shortly after April 20<sup>th</sup> the electricity will be disconnected, the fencing wires will be dropped to the ground or down to the lowest (20") stay either A) over a large portion of the fence length where*

wildlife are likely to cross or B) over the entire length of the fence, and the fence gates will be left opened.

## SUMMARY OF CONCLUSION OF EFFECTS- ANIMALS

### Relevant Species

Sensitive wildlife species occurring on the Gallatin National Forest.

Wildlife Species	No Action Determination	Proposed Action	Habitat Comments Related to Project Area
Gray wolf	NI	NI	Wolves are highly mobile and generally avoid areas with human activity. They may hunt or travel in the area of the fence corridor but no adverse effects are expected from project implementation. Given the spatial and temporal context of the project, it is not consequential to this species.
Bald Eagle	NI	NI	No known nesting occurs at the project site. Birds use the area for foraging year-around. Disturbance impacts from project implementation should be of short duration and, therefore, not consequential. The presence of the fence will not negatively alter habitat conditions.
Black-backed Woodpecker	NI	NI	High quality habitat created by recent fires is not present at the site, but it is in the Gardiner Basin. Human activity associated with the project will not alter habitat conditions. Short and long-term disturbance impacts will be minimal.
Flammulated Owl	NI	NI	Habitat includes single-story ponderosa pine or Douglas-fir old growth with open understory, which is not found at the project site. Consequently, no impacts are expected due to human activities related to project implementation.
Harlequin Duck	NI	NI	Nesting habitat includes lakes or small streams, which does not occur at the project site. The Yellowstone River is nearby, but the project does not involve the riverbank or associated riparian area. Therefore, no impacts are expected due to human activities related to project implementation.
Peregrine Falcon	NI	NI	Nesting activity has not been documented in or near the proposed project site although peregrines nest and foraged in the Gardiner Basin. No impacts to this species are expected from project implementation.
Townsend's Big-eared Bat	NI	NI	Snags, bridges and buildings provide roosting habitat and wetlands provide feeding habitat. The project is not likely to create an impact for this species considering that its presence in or near the site has not been verified.
Wolverine	NI	NI	No denning habitat is associated with the project site. Although it is unlikely, individual animals may travel through the area moving between higher quality habitat. Human activity within the project is not expected to alter habitat conditions and should create very little disturbance impacts.
Trumpeter Swan	NI	NI	Wintering and nesting habitat is not found at the project site. Human activity associated with the project is not expected to impact trumpeter swans.
Boreal Toad	NI	NI	This species is relatively common on the Forest. Breeding habitat is found in lakes, ponds, slow streams, and ditches. This project does not involve alteration to riparian areas. Consequently, implementation will not impact boreal toads.
Northern Leopard Frog	NI	NI	This species is very rare in Western Montana. No reports of occurrence in or near the project area have been made, although it may have been found in the area historically. Potential habitat is scattered across the Forest. No impacts from project implementation are expected due to the nature of the proposal and its apparent absence from the area.

NI = No Impact; MIIH = May impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species, WIFV = Will impact individuals or habitat with a consequence that the action may contribute to a trend towards federal listing or cause a loss of

viability to the population or species, **BI** = projects or activities that are designed to benefit, or that measurably benefit a sensitive species

### **Determination of Effects**

Implementation of this proposal will have "no impact" (NI) on Forest Service listed species.

### **Cumulative Effects for Sensitive Species**

Many forms of human activities occur on the Gallatin Forest and adjacent lands. Trends indicate that they are likely to continue or increase. A short list of these pursuits include: camping, hiking, hunting, firewood gathering, snowmobiling, motorized trail riding, cross country skiing, driving for pleasure, livestock grazing, and timber harvesting. In addition, a similar trend is expected with the subdivision of private lands to enable the development of permanent residences. In concept, these activities individually and collectively (i.e., cumulative effects) increase the risk of mortality for most sensitive species.

Specifically, impacts can include mortality or displacement of individual animals of sensitive species or associated prey. At a minimum, causative agents include: hunting, collisions on roads, the effects of domestic dogs, and many expressions of recreation activities or commodity extraction. Increased subdivision of private land has permanently altered habitats and displaced some animals from prime areas. On National Forest System land, creation of human access has stabilized over the last decade, and new roads built for logging are generally reclaimed or closed soon after use. Livestock grazing on public lands has generally been at low intensity, but it has still altered forage availability. Similarly, on private land, grazing and fencing have reduced forage and altered movement patterns for wild animals.

Past fires and timber harvest on the Forest and private lands have resulted in a complex matrix of cover types and habitats including: forest interiors, edge, ecotones, and openings in various stages of succession. Canopy removal has converted parts of the area into seedling and sapling stands. Conifers have reestablished on most disturbed sites sufficient to provide hiding cover. Timber harvest and associated temporary road construction will continue, particularly on private land. The occurrence of large scale fires seems inevitable, which has long-term consequences for vegetative condition at a landscape level.

The combination of past habitat alterations by humans (road building and timber harvest) and wildfires have created changes in habitat conditions that will affect some sensitive species requiring mature and older forest conditions. For other species that require early successional stages or riparian habitat, these changes are beneficial or neutral.

As mentioned, across the Forest, open and closed roads facilitate human access, contributing to the risk of wildlife mortality or displacement. The Forest recently (2006) completed a Forest-wide Travel Management Plan which directs current and future travel. In most areas, the amount of motorized access routes was maintained or reduced. Roads with restricted access are physically closed yearlong by a gate, berm, or through revegetation. Administrative uses of closed roads may affect sensitive species on the Forest through activities such as road and trail maintenance, watershed improvements, and measures to control weeds.

In the context of the activities listed in this description, the construction and maintenance of a 7-mile fence, with stipulations, in the Gardiner Basin related to bison management will not alter habitat beyond the existing condition in a measurable way. Though some displacement of individual animals is possible, the proposed project, in combination with all other human activities (cumulative effects), is not expected to adversely affect the sensitive species addressed (i.e., No Impact).

## SUMMARY OF CONCLUSION OF EFFECTS- PLANTS

### Relevant Species

The sensitive plant species list for the Gallatin National Forest includes the following:

Existence on GNF	Species
Suspected	<i>Adoxa moschatellina</i> (musk-root)
Known	<i>Aquilegia brevistyla</i> (short-styled columbine)
Known	<i>Balsamorhiza macrophylla</i> (large-leaved balsamroot)
Known	<i>Cypripedium parviflorum</i> (small yellow lady's slipper)
Known	<i>Drosera anglica</i> (English Sundew)
Known	<i>Eleocharis rostellata</i> (Beaked spikerush)
Suspected	<i>Epipactis gigantea</i> (Giant helleborine)
Known	<i>Eriophorum gracile</i> (Slender cottongrass)
Known	<i>Gentianopsis simplex</i> (Hiker's gentian)
Suspected	<i>Goodyera repens</i> (Northern rattlesnake plantain)
Known	<i>Haplopappus macronema</i> var. <i>macronema</i> (Discoid goldenweed)
Known	<i>Juncus hallii</i> (Halls' rush)
Known	<i>Mimulus nanus</i> (Dwarf purple monkeyflower)
Suspected	<i>Polygonum douglasii</i> spp. <i>austiniae</i> (Austin's knotweed)
Known	<i>Ranunculus jovis</i> (Jove's buttercup)
Known	<i>Salix barrattiana</i> (Barratt's willow)
Suspected	<i>Shoshonea pulvinata</i> (Shoshonea)
Suspected	<i>Thalictrum alpinum</i> (Alpine meadowrue)
Suspected	<i>Veratrum californicum</i> (California false-hellebore)

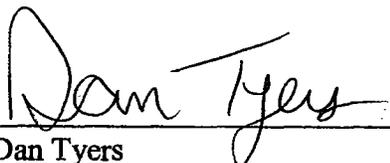
### Plant Surveys

Surveys for sensitive plant species were conducted to assess project effects. No listed plants were located that would be affected if the project was implemented.

### Determination of Effects

Implementation of the proposed action will have "no impact" on Forest Service sensitive plant species (NI)

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