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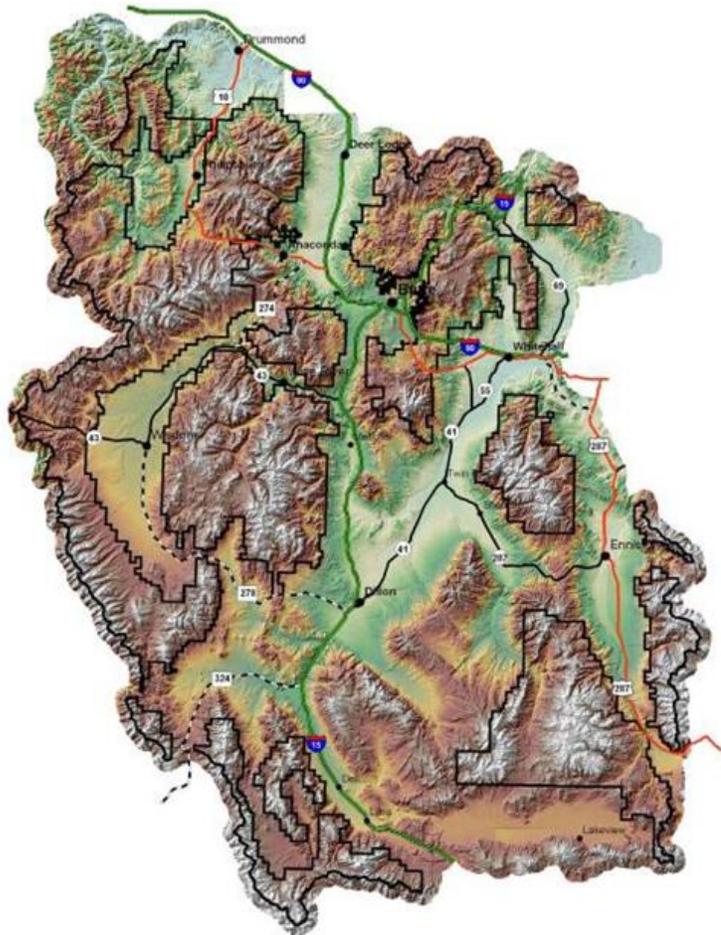


# Draft Supplemental Environmental Impact Statement

For the

## Beaverhead-Deerlodge National Forest Land and Resource Management Plan to Comply with the District Court Order (Bighorn Sheep)

**Beaverhead, Deer Lodge, Granite, Jefferson, Madison,  
Powell, Silver Bow, and Gallatin counties, Montana**



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**Draft Supplemental Environmental Impact Statement**  
**for the**  
**Beaverhead-Deerlodge National Forest Land and Resource**  
**Management Plan**  
**To Comply with the District of Montana**  
**Court Order (Bighorn Sheep)**  
**Beaverhead, and Madison County, Montana**

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**Abstract:** In a June 14, 2016 Order, the U.S. District Court for the District of Montana directed the Forest Service to supplement the 2009 Beaverhead-Deerlodge National Forest Land and Resource Management Plan (Forest Plan) FEIS with an evaluation of potential environmental consequences from MOUs signed in 2002 and 2008. The MOUs, signed by the Beaverhead-Deerlodge National Forest, Bureau of Land Management, Montana Fish, Wildlife and Parks and two domestic sheep producers, describe how the parties would cooperate to facilitate reintroduction of bighorn sheep into the Greenhorn Mountains south of Alder, Montana. After evaluating potential environmental consequences of the 2002 and 2008 MOUs and a modification completed in 2016, the responsible official will consider the analysis in this SEIS and public comment to determine whether an amendment to Forest Plan direction is needed.

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## Introduction

This Supplemental Environmental Impact Statement (SEIS) to the January 2009 Beaverhead-Deerlodge National Forest Land and Resource Management Plan Corrected Final Environmental Impact Statement (2009 FEIS<sup>1</sup>) evaluates potential environmental consequences of the 2002 and 2008 MOUs between grazing permittees, the Bureau of Land Management (BLM), Montana Fish, Wildlife and Parks (MFWP) and the Beaverhead-Deerlodge National Forest (BDNF) as part of MFWP's proposal to reintroduce bighorn sheep into the Greenhorn Mountains. The SEIS also evaluates the potential environment consequences of the 2016 modification of the 2008 MOU.

This SEIS is being prepared to comply with a June 14, 2016, US District Court for the District of Montana Order (Case 2:15-cv-00027-BMM) requiring the BDNF to "...issue a supplemental EIS for the 2009 Revised Forest Plan that evaluates the potential environmental consequences of the 2000<sup>2</sup> MOU and the 2008 MOU" (Order<sup>3</sup>, pg. 37).

## Purpose of this SEIS

The purpose of this supplement is to comply with the June 14, 2016, US District Court for the District of Montana Order by evaluating "...the potential environmental consequences of the 2000<sup>4</sup> MOU and the 2008 MOU" (Order, pg. 37).

In 2002, two grazing permittees, BLM, MFWP and BDNF entered into a Memorandum of Understanding (MOU) as part of MFWP's proposal to reintroduce bighorn sheep into the Greenhorn Mountains. In 2008, the 2002 MOU was replaced with a similar MOU expiring January 31, 2018. The 2002 MOU is included with this document as Appendix A. The 2008 MOU is included as Appendix B. The 2016 MOU Modification is included as Appendix C.

After evaluating potential environmental consequences of the 2002 and 2008 MOUs, as well as the current 2016 MOU, the responsible official, BDNF Supervisor Melany Glossa, will consider the analysis in the SEIS and public comment and determine whether an amendment to Forest Plan direction is needed.

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<sup>1</sup> As part of the BDNF Plan revision process, an FEIS was published in February, 2008 followed by a 90-day public comment period. In response to public comments, the 2008 FEIS was modified and published as the Corrected FEIS in January, 2009. In this SEIS, quotations from and page numbers for the Forest Plan FEIS refer to the 2009 Corrected FEIS for the BDNF Land and Resource Management Plan – not the 2008 FEIS.

<sup>2</sup> The District Court Order (pg. 37) directs the agency to evaluate potential environmental consequences of the 2000 MOU. The reference to 2000 appears to be a typographical error. The MOUs discussed during the complaint were signed in 2002 and 2008. This SEIS assumes the Court Order applies to the 2002 MOU included with this document as Appendix A. The 2008 MOU replaced the 2002 MOU and altered some terms, specifically providing an expiration date of January 31, 2018 and allowing any party to terminate prior the agreement, in whole or in part, prior to expiration. (Order, pg. 16). The 2008 MOU is included as Appendix B.

<sup>3</sup> For the reader's convenience, The U.S. District Court Order is electronically available on the BDNF webpage at: <http://www.fs.usda.gov/project/?project=50067>.

<sup>4</sup> Refer to footnote 2.

## Background

This section of the SEIS provides readers background information about the Forest Plan revision process (culminating with approval of the 2009 Forest Plan), subsequent litigation resulting in the court-ordered need to supplement the 2009 FEIS, summary of the 2009 FEIS analysis and Forest Plan direction specific to bighorn sheep and domestic sheep grazing and the re-introduction process for bighorn sheep into the Greenhorn Mountains.

### 2009 Forest Plan

In a Record of Decision (ROD) dated January 14, 2009, Regional Forester Thomas Tidwell selected Modified Alternative 6 and approved the Forest Plan<sup>5</sup> for the BDNF. The Forest Plan provides broad programmatic management direction for activities on the 3.38 million acre BDNF for 10-15 years, including direction on eight revision topics (vegetation, wildlife, aquatic resources, recreation and travel management, fire management, livestock grazing, timber and recommended wilderness). This direction revised previous management direction from the 1986 Beaverhead National Forest Plan and the 1987 Deerlodge National Forest Plan.

The 504-page Forest Plan established forestwide management goals, objectives and standards for 17 specific resources and additional direction specific to 86 management areas. While the 2009 ROD approved the Forest Plan, it did not make site-specific project level decisions; rather direction in the Forest Plan applies to subsequent projects and decisions.

The Forest Plan is directed by the National Forest Management Act (NFMA 1976), specifying that National Forest System (NFS) lands be managed to provide for diversity of plant and animal communities to meet multiple-use objectives. The "specified land area" (scale) for providing diversity is established in the framework as the area covered by a Forest Plan (36 CFR 219.3). The regulations also indicate that Forests "must ensure well distributed habitat" to provide for viable populations of native and desired non-native plants and vertebrate species (36 CFR 219.19). Although not exclusive to bighorn sheep, the Forest Plan (pg. 45-49) contains wildlife goals, objectives and standards which collectively manage for the quality and quantity of habitat to provide for the biological needs (i.e. cover, forage, security, and habitat connectivity) of resident species.

The Forest Plan, through 86 different management area prescriptions, identifies where specific wildlife habitat components are emphasized on the BDNF. For example, the Forest Plan (pg. 137) identifies winter motorized closures to protect winter range for elk, moose and bighorn sheep in the Greenhorn Mountains Management Area. The 2009 ROD describes the rationale for providing (1) habitat security, connectivity and linkage with year-round and seasonal management of motorized and non-motorized use, (2) cover and forage for animals with a mosaic of species and age classes of native trees, shrubs, grasses and forbs, and (3) vegetation structure for maintaining or restoring forested ecological communities of sufficient diversity including old growth and snags (ROD, pgs. 10-12). The Forest Plan prescribes standards for areas exceeding open motorized road and trail density objectives, retaining snags and downed woody debris during mechanical vegetation treatments, removing sagebrush near sage grouse leks, permitting domestic sheep use at current levels (or less) in the Gravelly

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<sup>5</sup> The Court references the Forest Plan as the "Revised Forest Plan" to distinguish between the 2009 Forest Plan and the 1986 Beaverhead and 1987 Deerlodge Forest Plans. In this SEIS, the 2009 BDNF Land and Resource Management Plan is referenced as the "Forest Plan". It is electronically available at: <http://fs.usda.gov/goto/bdnf/forest-plan>. Electronic copies of the FEIS and ROD are available at the same web address by scrolling to the bottom of the page and clicking on "Corrected FEIS and Supplemental Analysis".

Landscape, mitigating actions around active nest sites of some bird species and providing access for bats when closing abandoned mine entrances (Forest Plan, pg. 48-49).

The Forest Plan, through 86 different management area prescriptions, also identifies where livestock grazing occurs on the BDNF. For example, the Forest Plan (pg. 151) identifies limited livestock grazing in portions of the Ruby-Horse Creek Management Area to protect wildlife habitat. The 2009 ROD describes the rationale for identifying 802,000 acres of the BDNF as suitable for livestock grazing under Revision Topic #6: Livestock Grazing (ROD pgs. 17-18). The Forest Plan prescribes interim standards for livestock grazing (Forest Plan, pg. 25-26) until specific long-term objectives, prescription or allowable use levels have been designed through individual allotment management plans and site-specific NEPA decisions. It also strengthened forest-wide standards for grazing and riparian management and addressed issues of grizzly bear predation on livestock.

## U.S. District Court Case

On June 11, 2015, Gallatin Wildlife Association filed a complaint in US District Court for the District of Montana (Case 2:15-cv-00027-BMM) claiming the BDNF failed to protect bighorn sheep and grizzly bears in the Gravelly Mountains. On September 18, 2015, Gallatin Wildlife Association, joined by WildEarth Guardians, Western Watersheds Project and Yellowstone Buffalo Foundation amended the June 11<sup>th</sup> complaint.

Gallatin<sup>6</sup> challenged three aspects of the U.S. Forest Service (USFS) decision under the National Environmental Policy Act (NEPA): (1) the USFS's alleged failure to explain adequately its use of the habitat-as-proxy/coarse filter methodology in the Forest Plan relating to bighorn sheep analysis; (2) the USFS's alleged failure to disclose the 2002 and 2008 MOUs relating to the reintroduction of bighorn sheep into the Greenhorn Mountains in its Forest Plan NEPA analysis; and (3) the USFS's alleged failure to supplement the domestic sheep grazing Allotment Management Plans in the Gravelly Range (Court Order, pg. 9).

The 2009 Forest Plan was developed in accordance with the 1982 planning rule (36 CFR § 219 [2000]) requiring the management of fish and wildlife habitat to sustain viable populations of existing species in the planning area. The coarse filter approach assumes that the USFS can maintain viability for species that evolved and became adapted to local habitat conditions by maintaining historic patterns, size class structure and acreage of habitat necessary for species survival. The USFS applies a fine filter analysis to federally-listed species or species considered "sensitive" by the Regional Forester. In the 2009 FEIS, the BDNF also applied the fine filter analysis to species on the BDNF that qualified as high priority species of concern. When the 2009 Forest Plan was approved, bighorn sheep did not require a fine filter analysis because the species was not listed as a sensitive species by the Regional Forester. In a June 14, 2016 Order, the U.S District Court concluded "...that the USFS's bighorn sheep viability analysis for the Revised Forest Plan proves sound and complies with NEPA" (Order, pg. 35).

Concerning Gallatin's challenge to the Forest Plan analysis of the MOUs, the MOUs document the USFS's attempt to cooperate with BLM and MFWP and grazing permittees and set forth potential strategies to avoid contact between domestic sheep and bighorn sheep. The Court found "The USFS's failure to disclose the MOUs [in the 2009 Forest Plan FEIS] hindered the public's ability to comment on their impacts and, in turn, hindered the USFS's decision-making process." (Order, pg. 25). Further, the Court found "The USFS fell short of its obligation to take

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<sup>6</sup> Because the June 14, 2016 Court Order collectively refers to plaintiffs Gallatin Wildlife Association, WildEarth Guardians, Western Watershed Project, and Yellowstone Buffalo Foundation as "Gallatin", this SEIS adopts the same term when referring to the plaintiffs.

a ‘hard look’ at the effects of the 2002 and 2008 MOUs” (Order, pg. 26). The Court concluded “The USFS violated its obligations under NEPA, however, when it failed to disclose the existence of the 2002 MOU and the 2008 MOU in its EIS for the Revised Forest Plan” (Order, pg. 35). This SEIS is being prepared to comply with the Court’s Order to evaluate potential environmental consequences of the MOUs.

This SEIS for the Forest Plan is distinct from a separate Court Order (issued in the same decision) requiring the Forest Service to consider new information in relation to the allotment NEPA analysis. In compliance with the Court Order, the BDNF will prepare a review (separate from this SEIS) of the new information as identified in the Court Order to determine whether supplementation of Allotment Management Plans environmental analysis is warranted for the Barnett, Black Butte Bench, Coal Creek, Cottonwood, Fossil-Hellroaring, Lyon-Wolverine and Poison Basin Allotments. The BDNF plans to have the court-ordered new information review available for a 30-day comment period in December, 2016.

## **Summary – 2009 Forest Plan FEIS**

This SEIS supplements analysis in the 1,454-page Forest Plan FEIS – specifically, this SEIS discloses environmental consequences of MOUs signed in 2002 and 2008 for reintroducing bighorn sheep into the Greenhorn Mountains and a modification completed in 2016. This section of the SEIS summarizes the overall context of the 2009 FEIS analysis for the selected alternative (Alternative 6 Modified) which set forth forest-wide management direction for wildlife, including bighorn sheep, and livestock grazing.

Reviewers are reminded, when placing this SEIS in context with the 2009 FEIS, that Forest Plan level analysis and alternatives for managing livestock and wildlife habitat on the BDNF are a subset within the far larger context of allocations for all resources across the entire Forest. This section of the SEIS attempts to assist reviewers in placing forest-wide livestock and wildlife habitat management direction within the broader context of the Forest Plan and then point reviewers towards the 2009 FEIS discussions concerning these specific resources with the intent of setting the context for how 2009 Forest Plan direction influences the subsequent discussion of management of the Greenhorn bighorn sheep herd and domestic sheep permitted in the Gravelly Mountains.

The 2009 Forest Plan:

- Guides all natural resource management activities on the BDNF for at least 15 years,
- Addresses changed conditions and directions that have occurred since the original plans were approved in 1986 and 1987,
- Meets federal laws, regulations, and policies, and
- Provides consistent direction for the BDNF (2009 FEIS, pg. 2).

The 2009 Forest Plan provides forest-wide management direction for eight key issues (vegetation, wildlife, aquatic resources, recreation and travel management, fire management, suitable rangeland, suitable timberland and recommended wilderness) analyzed in detail in the 2009 FEIS (pg. 14-18) and an additional 15 topics ranging from oil and gas leasing to American Indian rights and interests (2009 FEIS, pg. 18-21).

## 2009 FEIS Key Issue and Forest Plan Direction for Wildlife Management, Including Bighorn Sheep

The forest-wide key issue for wildlife management was split into two issues – wildlife security and elk habitat effectiveness. To address these concerns, the 2009 FEIS (pg. 23-30) considered six alternatives with varying levels of road densities (miles of road per square mile) and different approaches for managing secure habitat.

In considering management direction, the 2009 FEIS disclosed the following regarding bighorn sheep:

- Consideration of preventing *Pasturella* pneumonia transmission from domestic sheep to Rocky Mountain bighorns is highest in the Gravelly and Tendoy Mountains (2009 FEIS, pg. 504).
- MFWP monitors local bighorn populations for possible disease transmission from domestic sheep (2009 FEIS, pg. 504),
- MFWP has managed local bighorn sheep populations without advocating reductions in the BDNF sheep-grazing program (2009 FEIS, pg. 504),
- Alternatives analyzed in the FEIS proposed varying levels of motorized vehicle closures on bighorn sheep winter range, reducing impacts from motor vehicle use (2009 FEIS, pg. 509-510),
- The preferred alternative would not restock sheep allotments that become vacant in the Gravelly Mountains (2009 FEIS, pg. 685),
- Lethal control of bighorns to control disease by MFWP has taken place (2009 FEIS, pg. 692-693). None of these lethal controls occurred on the BDNF.

Specific to wildlife, the Forest Plan (pg. 11) identifies the following forestwide desired conditions:

- Conditions for self-sustaining or viable populations of native and desired non-native plant and animal species are supported within the natural capability of the ecosystem, and
- Issues involving species with needs that go beyond Forest boundaries and authority are identified and resolved in conjunction with other federal agencies, state, county, tribal, and city governments.

The Forest Plan (pgs. 45-49) provides for wildlife security, including bighorn sheep, by prescribing goals for motorized road and trail densities by landscape and a standard prohibiting a net increase in designated open motorized road and trail mileage in landscapes exceeding the objectives. In addition, the Forest Plan provides the following goals and standards applicable to bighorn sheep and livestock grazing discussed further in this SEIS:

**Wildlife Goal - Habitat:** Cover and forage for animals is provided by a mosaic of species and age classes of native trees, shrubs, grasses and forbs. See Vegetation Goals for details.

**Vegetation Goal<sup>7</sup> – Biodiversity:** A variety of disturbance processes are managed or allowed to occur that produce resilient vegetation communities able to sustain diversity in the face of uncertain future climate-influenced disturbances. Resilient vegetation communities will have a mosaic of species and age classes of trees, shrubs, grasses, and forbs for animal forage and cover...

**Vegetation Objective – Grassland/Shrubland/Riparian:** Reduce conifer encroachment on 74,000 acres of riparian areas, shrublands and grasslands.

**Wildlife Standard 5:** Sheep allotments in the Gravelly Landscape which become vacant will be

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<sup>7</sup> Forest-wide direction for management of vegetation is found on pages 43-44 of the Forest Plan.

closed to sheep grazing or the vacant allotment may be used by an existing Gravelly Landscape sheep permittee, with no increase in permitted use.

### **2009 FEIS Key Issue and Forest Plan Direction for Livestock Grazing**

To address the key issue of suitable rangeland, the 2009 FEIS (pg. 23-30) considered six alternatives with varying levels of suitable rangeland from the 938,000 acres of land capable of providing livestock grazing on the BDNF. With the selection of Alternative 6 Modified, the Forest Plan identified 802,000 acres of the BDNF as suitable for livestock grazing, a reduction of 44,000 acres from the 1986 and 1987 plans (2009 ROD, pg. 17). The 2009 FEIS (pg. 45-50) depicts the location of allotments with suitable rangeland considered in the analysis. Changes (from the 1986 and 1987 plans) in allotments with suitable rangeland can be obtained by comparing 2009 FEIS pages 44 and 50.

Specific to livestock grazing, the Forest Plan (pg. 11) identifies the following forestwide desired conditions:

- People and communities benefit from programs and infrastructure that support livestock grazing and an array of forest products and services, and
- National Forest land ownership patterns contribute to the open rural landscape and scenery of southwestern Montana. Forest managers act in partnership with adjacent landowners to capitalize on the contribution all lands make to this unique quality.

In addition to identifying allotments with suitable rangeland, the Forest Plan (pg. 25-26) provides forestwide direction for livestock grazing through the following goals and standards:

**Goal – Grazing Opportunities:** Sustainable grazing opportunities are provided for domestic livestock from lands suitable for forage production.

**Goal – Forage Use:** Use of forage by domestic livestock will maintain or enhance the desired structure and diversity of plant communities on grasslands, shrub lands, and forests. Use will be managed to maintain or restore riparian function as defined in the allotment management plan.

**Livestock Standard 1:** The interim standards in Table 6 apply to livestock grazing operations unless or until specific long-term objectives, prescriptions, or allowable use levels have been designed through individual resource management plans or site-specific NEPA decisions; for example, revised allotment management plans...The maximum utilization, minimum stubble height or minimum streambank standards may be incorporated in livestock annual operation plans...

### **Reintroduction of Bighorn Sheep into the Greenhorn Mountains**

Management of Montana's fish and wildlife populations, including transplants, is conducted by MFWP under their legislated authority. Beginning in July 1997, MFWP held five public field trips and meetings to assist in identifying a list of issues and concerns to be analyzed in an Environmental Assessment (EA) considering reintroducing bighorn sheep to the Greenhorn Mountains south of Alder, Montana. In February 2001, MFWP sought public comment on a draft EA analyzing potential environmental effects of the proposed reintroduction. The EA describes the area proposed for reintroduction as the Greenhorn Mountains – a 69,000-acre area located between the Ruby Reservoir and the Gravelly Mountains. Of this area, about 46,000 acres is managed by the BDNF, 23,000 acres by the BLM and the remaining lands are a combination of private and Montana Department of Natural Resources and Conservation properties (MFWP 2001 EA, pg. 6). The Greenhorn Mountains were expected to support 150 to

200 bighorn sheep.

The EA addressed two major issues and four additional issues related to the proposed bighorn sheep reintroduction project. The major issues can be summarized as the potential impacts from the reintroduction on activities occurring on federal lands including motorized travel and livestock allotments as well as potential impacts on domestic sheep (e.g. disease transmission between species; consequences to sheep permittees; interbreeding) permitted to graze in the nearby Gravelly and Snowcrest Mountains. These issues helped develop alternatives addressed in the EA while four additional issues, titled: 3) Competition for Forage; 4) Range Condition; 5) Private Land; and 6) Recreational Opportunities; were analyzed as part of the action alternative.

In considering these issues MFWP's EA made clear that MFWP would purposely constrain the sheep reintroduction to the Greenhorn Mountains not allowing the distribution of the bighorns to expand outside the Greenhorn Mountains without further analysis. Specifically, the EA stated: "If bighorns expand beyond the Greenhorn Mountains, an amendment to this EA will be initiated to determine if populations should be allowed to expand. This review would evaluate both whether the bighorns should be allowed to expand their distribution and whether the population objective should be raised" (MFWP 2001 EA, pg. 11). Further, the EA recognized some possibility of disease transmission if bighorn sheep come in contact with domestic sheep and MFWP specifically provided, as part of the their reintroduction, that bighorns risking contact with domestic sheep may be dispatched or removed. This management action is taken to benefit the Greenhorn bighorn herd by reducing or eliminating the potential for disease to be transmitted to the overall Greenhorn Mountain population of bighorn sheep. In addition, management provided for post-release monitoring including: annual flight surveys, radio-collars for selected bighorn sheep to monitor movement, relocation flights, a public information campaign to obtain observations of bighorn and hunting when feasible and approved by the Fish, Wildlife and Parks Commission (MFWP 2001 EA, pgs. 11 and 22).

Based on analysis disclosed in the EA and consideration of public comment, MFWP Regional Supervisor, Patrick J. Flowers issued a Decision Notice on September 26, 2001 recommending the MFWP Commission approve the reintroduction as outlined in Alternative B. In this recommendation, Regional Supervisor Flowers informed the MFWP Commission:

"Based on my assessment, I think there is a relatively low likelihood of contact. For perspective, that risk appears to be much less than past successful reintroductions of sheet [sic] in other locations around the state. In addition the radio collar monitoring that we will conduct will help us prevent potential contact between domestic and wild sheep should the wild sheep wander further than we expect. In my final analysis, it is my clear conclusion that the value of reintroducing bighorn sheet [sic] in the Greenhorn Mountains far outweighs the limited risks and potential negative impacts associated with the reintroduction" (MFWP 2001 Decision Notice, pg. 9).

The MFWP Commission first considered approval of the recommended transplant during their October 12, 2001 meeting. As recorded in the Commission meeting notes (pgs. 13-20), input was sought by Commissioners from numerous people attending the meeting. The Commission tentatively approved the transplant with further consideration of issuing sheep operators a "kill permit" should bighorn sheep and domestic sheep mix.

The MFWP Commission again considered approving the recommended transplant during their May 9, 2002 meeting. Commission meeting notes (pg. 22-24), document review of a proposed MOU allowing continued domestic sheep grazing on public land allotments, commitment by MFWP to issue annual kill permits for bighorn sheep to domestic sheep producers in the event of incidental contact, and providing a satellite phone for sheep operators to contact MFWP

wardens or biologists if wild sheep are in close proximity to domestic sheep. Following review and public discussion of the MOU, the MFWP Commission approved reintroducing bighorn sheep into the Greenhorn Mountains. The MOU was signed by the BDNF, BLM, MFWP and two sheep operators May 21, 2002 (see Appendix A).

In February 2003, 30 bighorn sheep were transplanted from the Missouri River Breaks near Winnett, Montana. In February 2004, another 39 bighorn sheep were transplanted from the Rocky Mountain Front near Augusta, Montana. From 2003-2008, MFWP lethally dispatched 16 bighorn sheep that wandered west and north of the Greenhorn Mountain transplant area and risked contact with domestic sheep. MFWP removed 17-18 bighorn sheep during winter in 2006 or 2007 from the Greenhorn herd for transplant to the Highland Mountains (Undated MFWP report – Greenhorn Mountains Bighorn Sheep Reintroduction Status, February 2003-January 2010). No Greenhorn Mountain bighorn sheep have been observed within the domestic sheep allotments on the BDNF nor have bighorn sheep been dispatched/removed due to contact or the risk of contact with domestic sheep grazing the BDNF allotments.

## Existing Condition

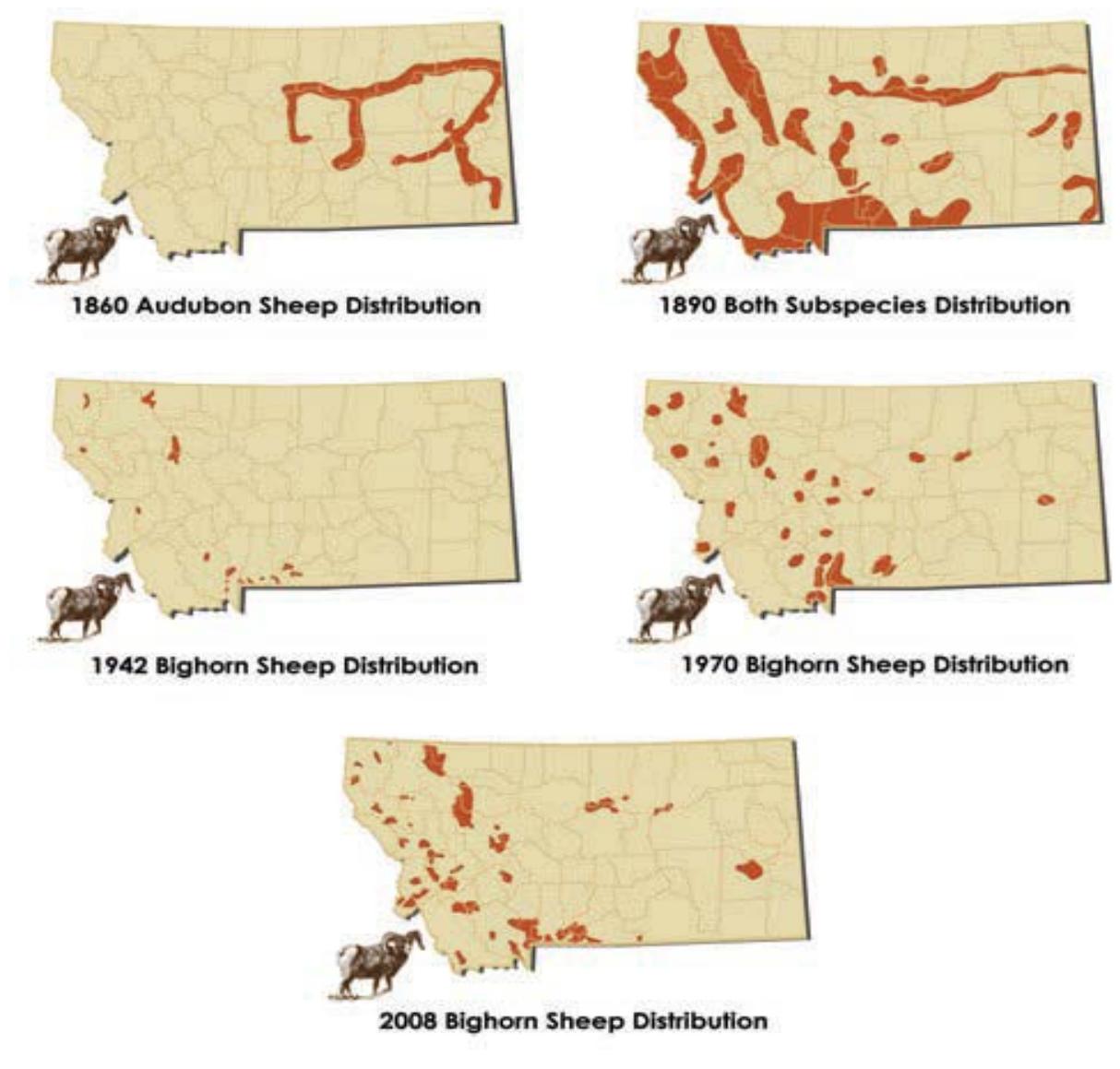
### Bighorn Sheep in Montana and on the BDNF

The Montana Bighorn Sheep Conservation Strategy (MFWP 2010) provides a summary of the historic migration and early distribution of the bighorn sheep to North America. According to Clark (1964 as appearing in the strategy), bighorn sheep are believed to have descended from the wild sheep of Asia which migrated to North America by way of the Bering Sea land bridge. These sheep were later isolated by glaciation, eventually resulting in the native species recognized today as Dall's sheep (*Ovis dalli*) and Rocky Mountain bighorn sheep (*Ovis canadensis*). Seton (1929 as appearing in MFWP 2010 and within Schmidt and Gilbert 1978) estimated bighorn sheep populations between one-half and two million individuals prior to European settlement of the west. Based on Seton's estimate, bighorn sheep numbers for Montana were upwards of 100,000 (MFWP 2010).

Historical accounts in Montana began with early explorers including Lewis and Clark as well as Audubon, resulting in some present-day disagreement over the existence of an Audubon subspecies. Regardless of the existence of an Audubon sub-species, a chronological distribution of bighorn sheep is illustrated in Figure 1.

Bighorn sheep numbers are believed to have peaked in Montana prior to westward expansion in the late 1800's and early 1900's. During this time, bighorn sheep were excessively hunted by expansionist/settlers, exposed to domestic sheep and goats and viewed as range competitors of domestic sheep and goats (MFWP 2010; Schmidt and Gilbert 1978). By the late 19<sup>th</sup> Century, bighorn sheep numbers had been greatly reduced enough to prompt widespread hunting closures in the western U.S. with transplant programs already initiated in the 1920's (Schmidt and Gilbert 1978). A 1950 estimate (MFWP 2010) had Montana bighorn sheep numbers around 1,100 while estimates rose to between 2,700-3,100 individuals by 1974 (Schmidt and Gilbert 1978). As of 2008, bighorn sheep numbers have increased to approximately 5,700 within Montana (MFWP 2010).

Figure 1: Distribution of bighorn sheep in Montana 1860–2008, from Picton and Lonner (2008) as appearing in MFWP 2010.



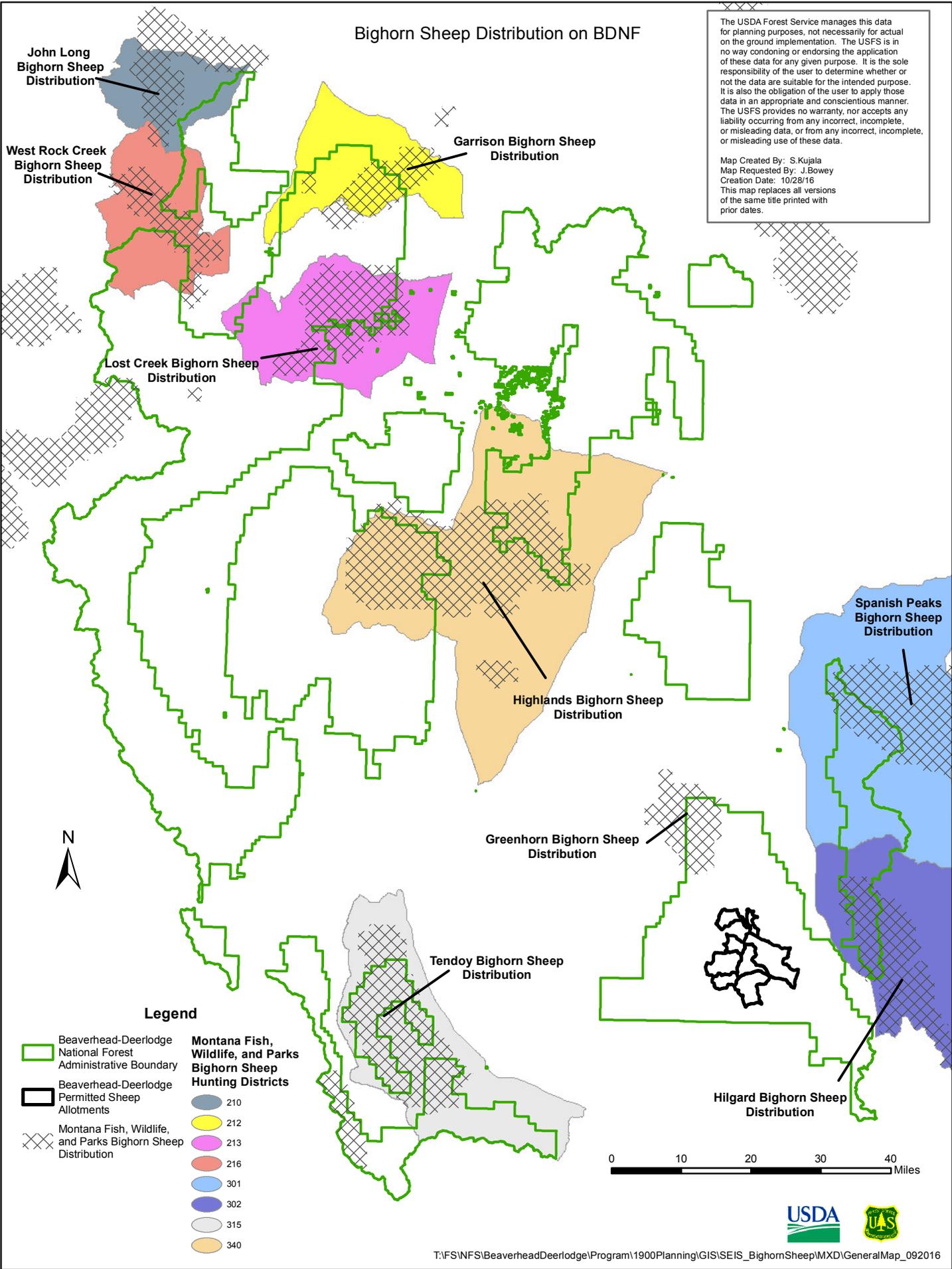
MFWP estimates over 1,000 bighorn sheep in nine herds and eight hunting districts located, in part, on the BDNF (MFWP, 2015) with nine herds and eight hunting districts (see Figure 2). Eight of these nine herds were open for hunting in 2015<sup>8</sup> (Greenhorn not open to hunting) indicating viable populations well distributed across the BDNF.

<sup>8</sup> The Tendoy bighorn herd is being extirpated by MFWP using special hunting regulations due to chronic disease. After lethal removal of existing bighorn sheep that have been exposed to disease, MFWP plans to reintroduce bighorn sheep that have not risked disease exposure and establish a healthy herd.

# Bighorn Sheep Distribution on BDNF

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## Legend

- Beaverhead-Deerlodge National Forest Administrative Boundary
  - Beaverhead-Deerlodge Permitted Sheep Allotments
  - Montana Fish, Wildlife, and Parks Bighorn Sheep Distribution
- |     |     |
|-----|-----|
| 210 | 212 |
| 213 | 216 |
| 301 | 302 |
| 315 | 340 |
- Montana Fish, Wildlife, and Parks Bighorn Sheep Hunting Districts**



The BDNF 2011 Bighorn Sheep Report to the Chief provides detailed information on the bighorn sheep populations on and near the BDNF, domestic sheep grazing on the BDNF, and considers potential bighorn sheep interaction with domestic sheep. It also provides detailed information, as of 2011, on the Greenhorn Mountain herd. The 2011 Report found that the BDNF Forest Plan along with allotment specific management provides sufficient direction for overall sheep management on the BDNF. See Appendix D.

## **Bighorn Sheep – Gravelly Landscape**

Bighorn sheep were likely extirpated from the Greenhorn Mountains in the early 1900s. Prior to 2003, the closest present-day bighorn herd (Hilgard) occupied the Madison Mountains 30 miles to the southeast (MFWP 2001). The MFWP Commission approved reintroduction of bighorn sheep into the Greenhorn Mountains in 2002. As previously described (see Reintroduction of Bighorn Sheep into the Greenhorn Mountains), 69 bighorn sheep were released at the forks of Greenhorn Creek in 2003 and 2004. In 2001, MFWP set a population recovery goal of approximately 150 to 200 individuals based on the estimated carrying capacity of the Greenhorns, which may be adjusted based on subsequent vegetation monitoring (MFWP 2001). The updated recovery goal for the Greenhorn Mountain bighorn sheep herd is 125 (MFWP 2010).

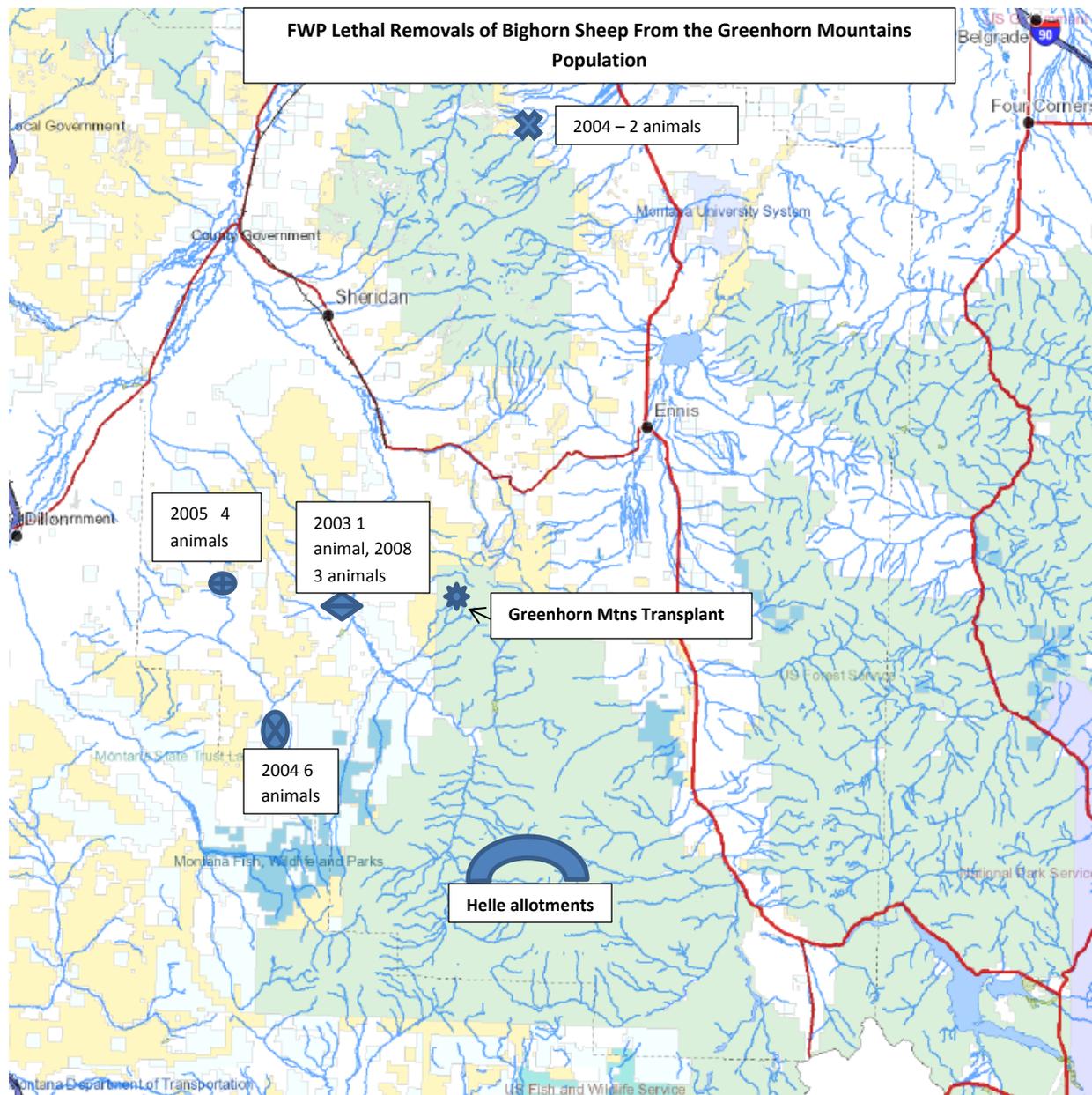
Six individuals of the first 30 transplanted bighorn sheep died from various causes including one sheep that was lethally dispatched by MFWP personnel. Another 39 bighorn sheep were transplanted to the Greenhorn Mountains in the winter of 2004 from the Rocky Mountain Front. Several individuals from this group immediately moved from the Greenhorns to adjacent state and private lands several miles from the transplant site. Overall the relocation project has met with moderate success given the fact that between 2003 and 2008, 16 of the transplanted bighorn sheep were lethally dispatched by MFWP personnel for venturing away from the Greenhorns onto adjacent private lands.<sup>9</sup> However, none of the 16 sheep lethally dispatched from the herd were taken off BDNF lands (see Figure 3). MFWP also trapped 18 of the Greenhorn bighorn sheep and moved them to supplement the Highland herd.

In the 2010 Montana Bighorn Sheep Conservation Strategy, MFWP stated:

“The population objective for bighorn sheep in the Greenhorn Mountains is 125 sheep. A large number of sheep have been removed from this population prior to enough time passing to allow for population growth. From the original 69 sheep released, there have been known mortalities of 15 radioed sheep (13 were from unknown causes and 2 were dispatched). There have also been 14 other sheep dispatched for a total of 29 mortalities out of the original 69. In addition, 18 sheep were removed in February 2006, eight of which were from the original 69 and 10 others born since the last transplant in February 2004. Of the 69 sheep originally released, 34 have died or been removed from the population, leaving a maximum of 35 of the original sheep to grow the population. At the current rate of removal, this population is not likely to establish as viable. Even in the absence of further removals, it is not known whether the remaining number of sheep will be sufficient to establish a viable population. Time will tell whether the population becomes viable and will approach the population objective” (MFWP 2010, pg. 221).

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<sup>9</sup> Some potential for exposure to pathogens by any of the herds occupying the BDNF exists if individual bighorn sheep wander into close proximity to domestic sheep and goats on private property and return to the existing bighorn herd or come in contact with a different herd. As of January 1, 2016, 23,800 domestic sheep and goats exist in the 8-county area surrounding the BDNF (USDA 2016, pg. 63). Of this number, only 7,800 domestic sheep are permitted to graze the BDNF.



There are slight discrepancies in the reporting numbers from MFWP of bighorn sheep transplanted from the Greenhorn herd to supplement the Highland herd. An undated status report records removal of 18 bighorns for transplant to the Highland Mountains in January 2007. The 2010 Montana Bighorn Sheep Conservation Strategy records 17 sheep transplanted from the Ruby Mountains (located immediately west of the Greenhorn Mountains) in February, 2007 to Soap Gulch in the Highland Mountains (MFWP 2010, pg. 203) and 18 sheep removed in February 2006 (MFWP 2010, pg. 221) from the Greenhorn herd. We believe these separate references document a one-time removal of 17-18 bighorn sheep from the Greenhorn herd to supplement the Highland herd in 2006 or 2007. There have been no removals since 2008.

It is important to note that neither the 2010 Montana Bighorn Sheep Conservation Strategy nor subsequent MFWP monitoring identify the presence of disease in the Greenhorn bighorn herd.

Monitoring efforts for the Greenhorn herd (ground surveys) by MFWP during the past two springs (2015-2016), tallied 59 sheep and 48 sheep, respectively (Waltee, 2016 email). Lamb recruitment for these years totaled eight and six respectively demonstrating reproduction is continuing. Although the 2010 Conservation Strategy lists wild and domestic sheep conflict potential as a main management challenge for this herd, to date, it acknowledges disease transmission has not become an issue that has materialized for this herd. The strategy also discloses that habitat condition is not an issue in that prescribed burning or other habitat altering techniques are not necessary at this time (MFWP 2010, p. 222). Based on the strategy, it appears both ground and aerial monitoring on this herd will continue annually in an effort to document the population objective (125 individuals) for this herd.

MFWP monitoring of the Greenhorn bighorn sheep herd since the initial reintroduction in 2003 indicates no movement of bighorn sheep into the Gravelly Mountains where domestic sheep are permitted on the BDNF. During a species transplant, it is common for some animals to leave the transplant area as the transplanted animals adjust to an abrupt change in location – in the case of the Greenhorn bighorn herd, animals were trapped in the Missouri Breaks and Rocky Mountain Front and moved to a new and unfamiliar (to them) mountain range. However, it is important to note that, as the transplanted Greenhorn bighorn sheep adapted to their new home range, no bighorn sheep traveled south out of the Greenhorn Mountains and into the Gravelly Mountains. Rather, those bighorn sheep leaving the transplant area traveled west and north onto BLM land and private property.

The primary purpose and reasoning behind the MFWP proposal of re-establishing bighorn sheep in native habitat, adding to the biodiversity of the area and providing benefit to the public through both huntable and watchable wildlife opportunities (MFWP 2001) has been partially met in the Greenhorn Mountains. The Greenhorn herd of bighorn sheep has been established and provides watchable wildlife opportunities, especially from the Upper Ruby Road near the Ruby Reservoir and Upper Canyon Ranch during the winter. MFWP indicates they are continuing to monitor this herd to determine if hunting will be recommended. The 2010 Montana Bighorn Conservation Strategy (pg. 222) recommends hunting when the following four criteria have been met for a minimum of three successive years:

1. The population is at least 75 observable sheep.
2. There are at least 30 rams:100 ewes
3. More than 30% of the rams are at least  $\frac{3}{4}$ -curl
4. There are at least 30 lambs:100 ewes.

While these criterion have not been met yet for the Greenhorn Mountains herd, the overall population is reproducing and moving towards providing hunting opportunities. (Waltee, 2016 email).

## **2009 Forest Plan Direction Specific to Bighorn Sheep in the Gravelly Landscape**

The Forest Plan provides wildlife security, including security for bighorn sheep, by managing the density of open motorized roads and trails. For the Gravelly Landscape (including the Greenhorn Mountains), the desired open motorized road and trail density is limited to 0.7 miles/square miles. The Forest Plan (pg. 46-48) restricts a net increase in open motorized road and trail mileage above 0.7 miles/square mile in the Gravelly Landscape. In addition, the Forest Plan (pg. 136-137 & 140-141) closed the Greenhorn Mountains to winter motorized use (snowmobiles) to protect bighorn sheep winter range.

## **Livestock Grazing – BDNF**

With the formation of the public reserves in the early 1900's, grazing lands for domestic livestock were separated between private and public land. In 1934, the Taylor Grazing Act created the organization and process for developing allotments on BLM and National Forest System (NFS) lands. The Taylor Grazing Act also gave direction for management of public lands, both BLM and NFS. Inventory of the condition and grazing potential of the land led to the first long term allotment management plans. Permitted livestock grazing on public lands has generally decreased over time. Permitted numbers have been reduced or grazing seasons adjusted to improve rangeland ecological conditions and reduce conflicts with other uses of those public lands. Table 69 (page 305) in the 2009 FEIS displays the decrease in permitted livestock numbers since 1945.

At the time of Forest Plan revision, the BDNF grazing program permitted 49,498 cattle, 159 bison and 9,000 sheep on 238 allotments. Of the 238 allotments, nine were permitted to domestic sheep.

Currently the BDNF administers 225 active grazing allotments. Within these allotments, 45,802 cattle, 159 bison and 7,800 sheep are permitted to graze NFS lands during the summer months. The 7,800 permitted domestic sheep graze the BDNF on seven sheep allotments located in the Gravelly Mountains. All other allotments on the BDNF permit grazing by cattle or bison. A change in type of livestock permitted to graze a specific allotment can only occur following site-specific NEPA analysis of potential environmental effects from converting from one type of livestock to another. The Forest Plan specifically prohibits any increase in permitted numbers of domestic sheep grazing in the Gravelly Mountains.

## **Domestic Sheep Grazing – Gravelly Landscape**

Domestic livestock were introduced in the Gravelly Landscape shortly after discovery of gold in Alder Gulch in 1863. Agriculture, and ranching in particular, were introduced to support the mining industry. Prior to establishment of the National Forests and passage of the Taylor Grazing Act, these lands were grazed at extreme levels and rangeland ecological conditions deteriorated rapidly.

A 1920 Grazing Report for the "Madison National Forest", indicates 25,399 cow/calf pairs and 130,933 ewe/lamb pairs were permitted. These numbers included permits in the Tobacco Root portion of the Forest. It is not possible to separate out just the Gravelly landscape permit numbers, but we do know that 80% of these acres (467,000 acres) are in the Gravelly range (114,000 acres in the Tobacco Roots). Eighty percent of the cattle numbers would be 20,000 cow/calf pairs. Eighty percent of the sheep numbers would be 104,700 ewe/lamb pairs.

The current permitted Forest Service grazing program in the Gravelly Landscape is 12,829 Cow/calf pairs, 159 Buffalo and 7,800 Ewe/lamb pairs on 37 active allotment (of which seven

allotments permit domestic sheep grazing). As with the trend in livestock numbers there has been a reduction in the number of allotments open to grazing over the years. Currently 81.4% of the NFS lands in the Gravelly Landscape are open to livestock grazing. The bulk of the land closed to livestock grazing were historically sheep allotments. The most recent allotment closures were completed in 2008 and included four sheep allotments located on the southern end of the Gravelly/Snowcrest Ranges.

The large reduction of sheep numbers is not solely attributed to closing allotments. Starting in the 1940's, many ranchers converted from sheep to cattle operations. With this conversion came requests to convert Forest Service sheep allotments to cattle. This is what occurred in the Greenhorn Mountains<sup>10</sup>. Most of the west side of the Greenhorn Mountains was included in the Baldy Mountain S&G<sup>11</sup> allotment. Records show the area was grazed by sheep as early as 1909 and, most likely, prior to that. In 1948, the sheep allotment was converted to cattle and included in the Greenhorn C&H<sup>12</sup> allotment. At the same time the southern portion of the Baldy Mountain allotment was closed to livestock grazing.

In addition to the Greenhorn Mountains, the north end of the Gravelly Mountains was historically grazed by sheep. Starting in 1946 the north end allotments were converted to cattle. The last allotment on the north end to convert from sheep to cattle occurred in 1966.

There are seven active sheep allotments in the Gravelly Mountains located along the mountain crest in the south central portion of the range. These allotments have been grazed by sheep since prior to the establishment of the National Forest. Current allotment boundary configurations are a result of various allotment combinations. As allotments were combined, the number of permitted sheep were reduced. Current active sheep allotments, permitted season of use and numbers are disclosed in Table 1.

Table 1: Permitted Domestic Sheep on the BDNF (all located in the Gravelly Mountains)

Allotment	Permitted Season (Season of Use)	Permitted Livestock Numbers.
Barnet S&G	7/11-9/21	1350 e/l <sup>13</sup>
Coal Cr. S&G	7/1-7/18 9/21-10/6	1350 e/l
Fossil Hellroaring S&G <sup>14</sup>	7/19-9/20	1350 e/l
Lyon Wolverine S&G	7/11-9/21	1350 e/l
Poison Basin S&G Upper Ruby Middlefork Pasture <sup>15</sup>	7/17-10/6 7/1-7/16	1350 e/l
Black Butte S&G	7/12-9/16	1400 e/l
Cottonwood S&G	7/12-9/16	1000 e/l

Sheep allotments are divided into camp units to facilitate a deferred rotation grazing system where each camp unit is grazed by domestic sheep at different times from year to year, allowing plant recovery and mostly uninterrupted plant development and reproduction. Each band is accompanied by a herder that manages the sheep throughout the grazing season. Specific

<sup>10</sup> The Greenhorn Mountains are 1 of 6 mountain ranges (Greenhorn, Gravelly, Snowcrest, Ruby, Centennial and Blacktail) in the Gravelly Landscape.

<sup>11</sup> S&G refers to an allotment permitted to sheep and goats.

<sup>12</sup> C&H refers to an allotment permitted to cattle and horses.

<sup>13</sup> e/l = Ewe/Lamb

<sup>14</sup> The Coal Creek and Fossil-Hellroaring allotments are grazed by the same band of sheep.

<sup>15</sup> This grazing use by sheep on the Upper Ruby C&H allotment focuses on tall larkspur - a poisonous plant to cattle – prior to cattle entering the pasture.

grazing practices are followed when grazing and moving bands across an allotment. Primary grazing practices followed on all seven domestic sheep allotments in the Gravelly Mountains include:

- A. "Once over lightly" grazing will be practiced. Maximum forage utilization for "once over lightly" grazing is considered 35%.
- B. Sheep will be open herded and dogs will be used to a minimum to prevent heavy trampling and over grazing.
- C. Sheep will not be bedded within 300 yards of any stream or spring. There may be some exceptions due to topography. Sheep will not be shaded near water.
- D. Salting of livestock will be at least 100 yards away from roads and trails and at least ¼ mile from water unless authorized by the Forest Officer in charge.
- E. Sheep will be trailed to water using different routes. Trailing will be kept to a minimum.
- F. Bed grounds will not be used more than one night.

The six permitted bands of sheep are trailed to and from their respective allotments along a designated route. This trailing route begins on the west side of the Snowcrest Range coming through the Notch, a relatively low pass located in the middle of the mountain range. From the Notch, the bands trail southward along ridges and then drop down into the Beaver Bench area, cross the Ruby River and move up to the assigned allotment. At the end of the grazing season the trailing route is reversed. This trailing route has been used since sheep grazing was initiated in the area. All trailing on the BDNF to and from the grazing allotments, occurs within the period of use specified in the term grazing permit. The approximate location of the trailing route is displayed in Figure 4.

#### **2009 Forest Plan Direction Specific to Livestock Grazing in the Gravelly Landscape**

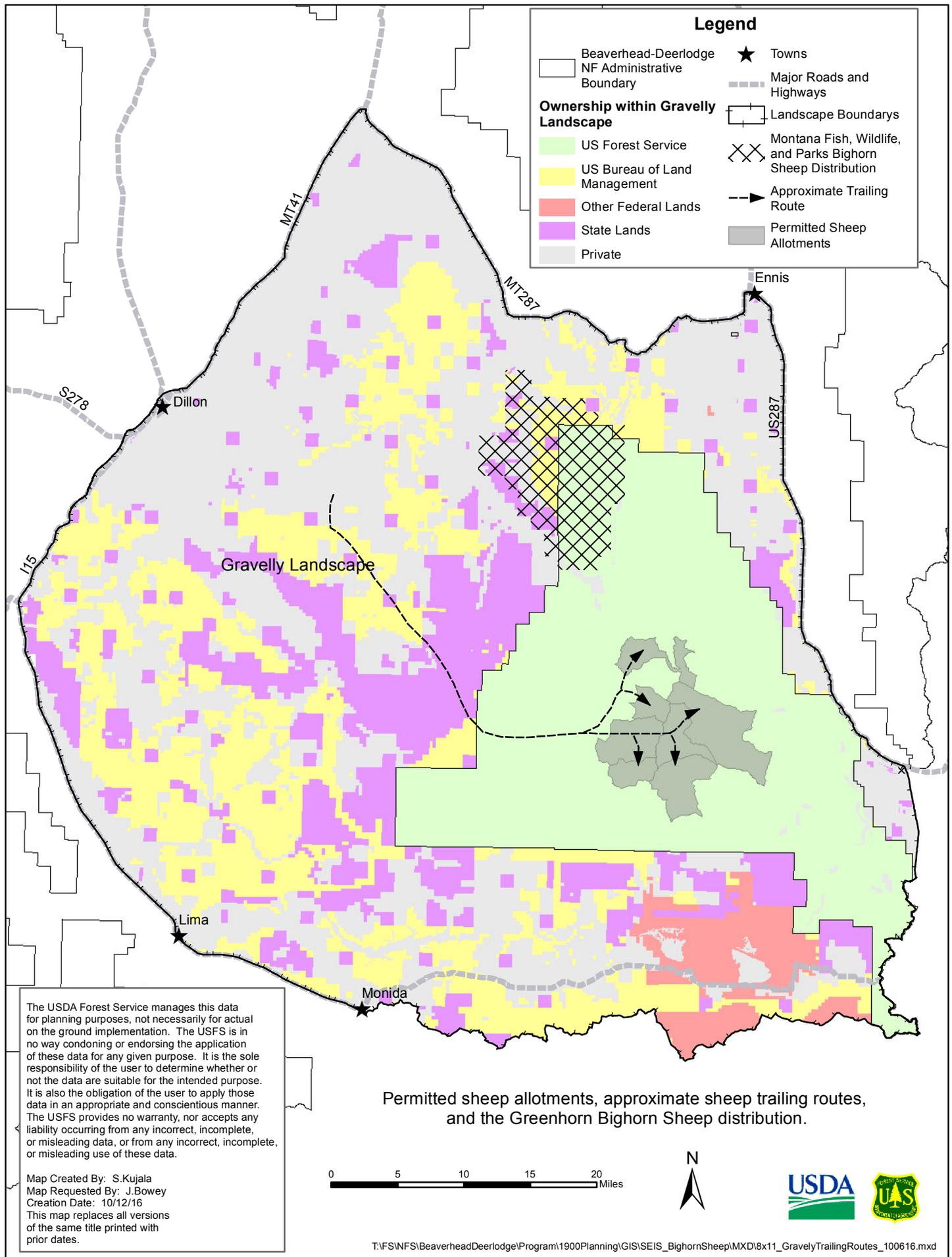
Suitable rangeland provides sustainable grazing opportunities for domestic livestock (see Forestwide Goal, Forest Plan, pg. 25). Suitable rangeland identified in the Gravelly Landscape by the 2009 Forest Plan is displayed in Figure 5. In contrast to suitable rangeland identified in the 1986 Beaverhead Forest Plan (see Figure 6), the 2009 Forest Plan decreased rangeland suitable for livestock grazing within the mapped distribution area for the Greenhorn bighorn sheep herd by 5,689 acres<sup>16</sup>.

The required grazing practice of "once over lightly grazing" resulting in a maximum forage use level of 35% is substantially less than the maximum utilization level ( $\leq 55\%$ <sup>17</sup>) that could be allowed by the interim standards in the Forest Plan (pg. 26). As a result, Annual Operating Instructions for domestic sheep grazing in the Gravelly Mountains specify "once over lightly grazing" instead of the less restrictive forage use prescribed by the 2009 Forest Plan.

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<sup>16</sup> Areas of suitable range displayed in Figure 5 are permitted to cattle.

<sup>17</sup> Because big game winter range is not present on the domestic sheep allotments, the winter range standard of  $\leq 35\%$  forage utilization does not apply.



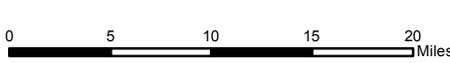
**Legend**

- Beaverhead-Deerlodge NF Administrative Boundary
- Ownership within Gravelly Landscape
  - US Forest Service
  - US Bureau of Land Management
  - Other Federal Lands
  - State Lands
  - Private
- Towns
- Major Roads and Highways
- Landscape Boundaries
- Montana Fish, Wildlife, and Parks Bighorn Sheep Distribution
- Approximate Trailing Route
- Permitted Sheep Allotments

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Permitted sheep allotments, approximate sheep trailing routes, and the Greenhorn Bighorn Sheep distribution.

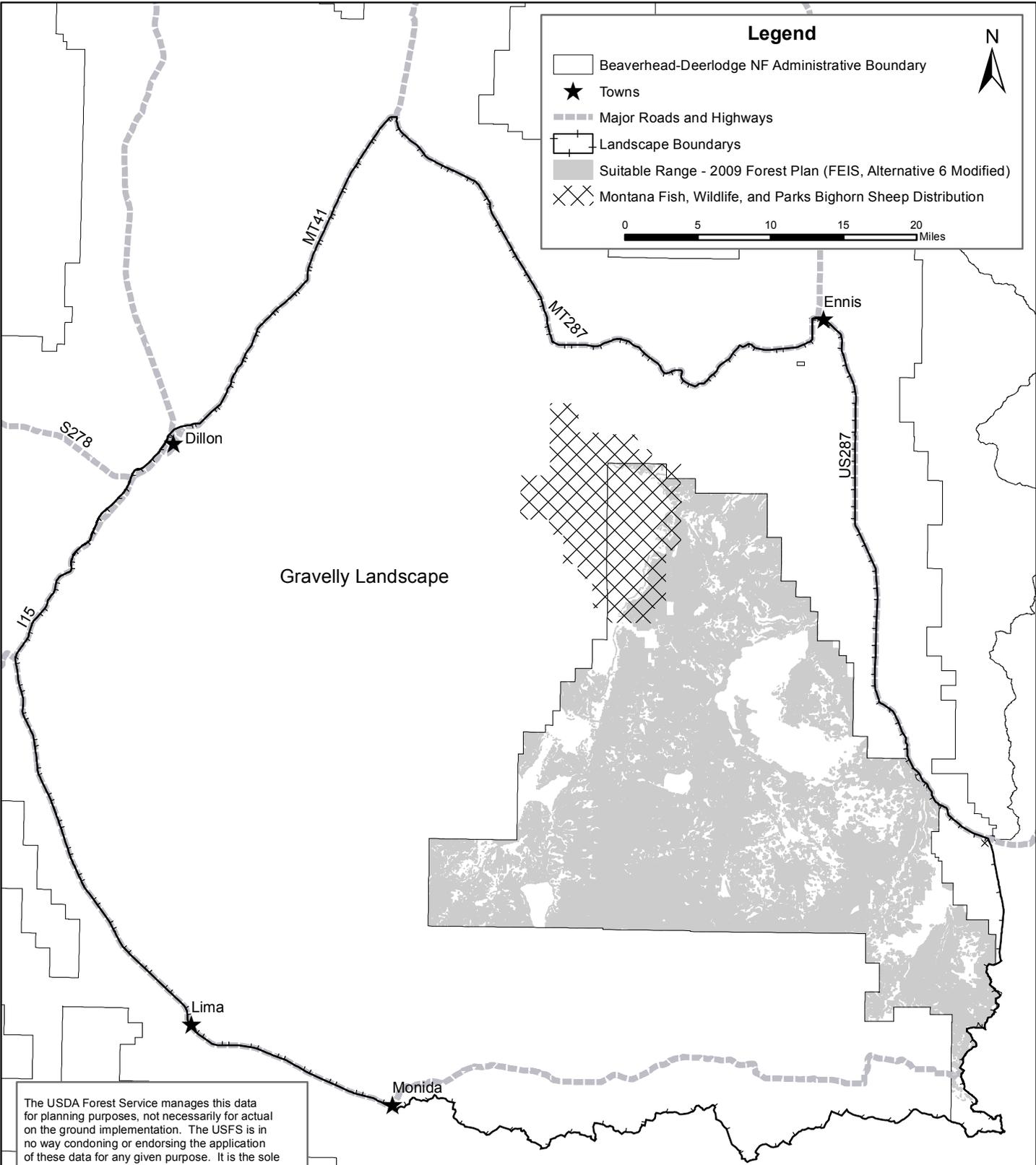


**Legend**

- Beaverhead-Deerlodge NF Administrative Boundary
- Towns
- Major Roads and Highways
- Landscape Boundaries
- Suitable Range - 2009 Forest Plan (FEIS, Alternative 6 Modified)
- Montana Fish, Wildlife, and Parks Bighorn Sheep Distribution

0 5 10 15 20 Miles

N



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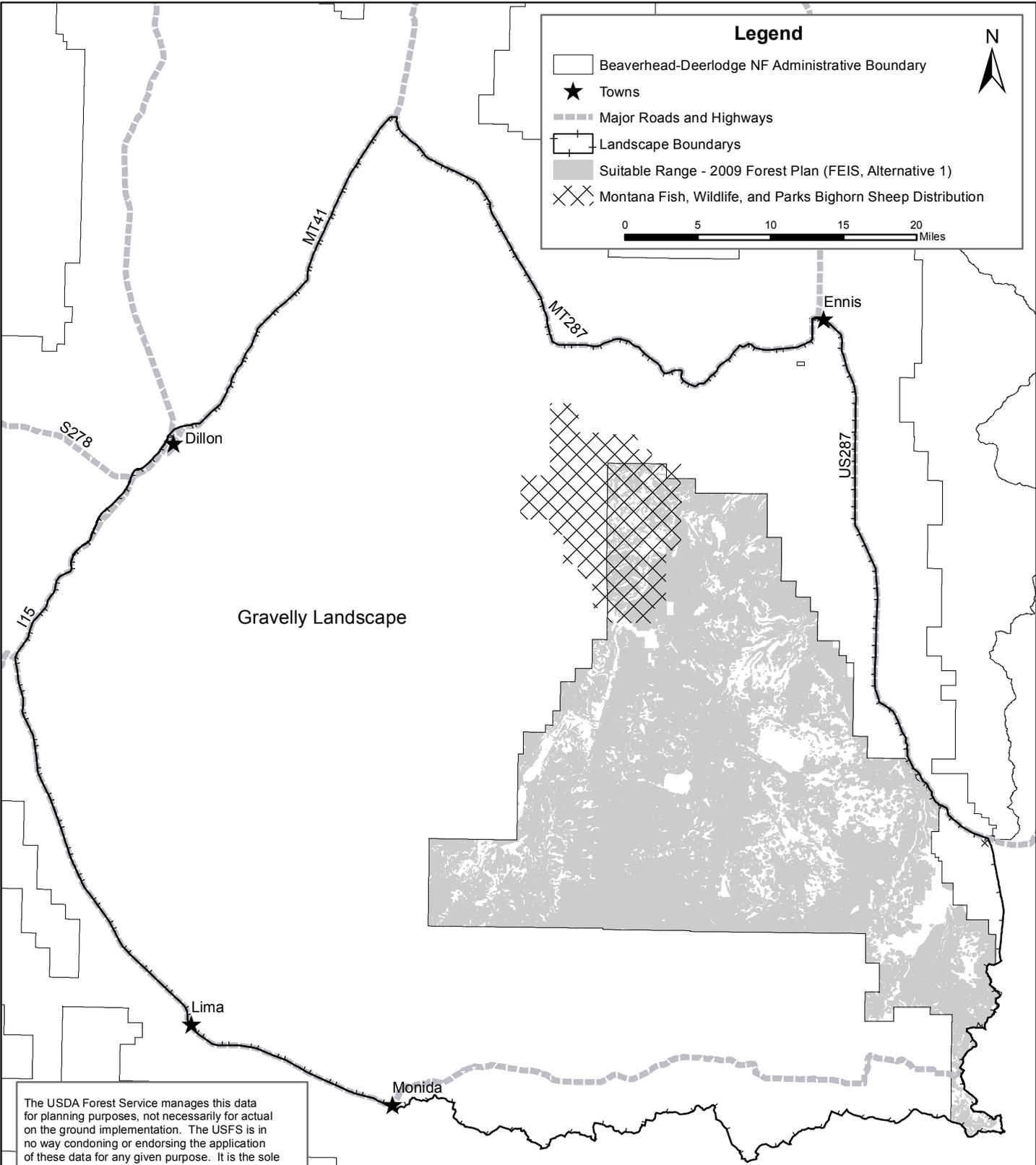
Suitable Livestock Range in Gravelly Landscape after the 2009 Forest Plan and the Greenhorn Bighorn sheep distribution.



**Legend**

-  Beaverhead-Deerlodge NF Administrative Boundary
-  Towns
-  Major Roads and Highways
-  Landscape Boundaries
-  Suitable Range - 2009 Forest Plan (FEIS, Alternative 1)
-  Montana Fish, Wildlife, and Parks Bighorn Sheep Distribution

0 5 10 15 20 Miles

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Suitable Livestock Range in Gravelly Landscape prior to 2009 Forest Plan and the Greenhorn Bighorn sheep distribution.



## Environmental Consequences

As ordered by the District Court, this section of the SEIS discloses potential environmental consequences of the 2002 and 2008 MOUs on the Greenhorn bighorn sheep herd. To conduct this analysis, BDNF consulted with MFWP about their processes for reintroducing and managing bighorn sheep. These discussions are reflected in the following disclosure of potential environmental consequences. It also became evident that an understanding of potential environmental consequences had the 2002 MOU not been approved is needed so reviewers may place actual consequences of the MOUs in context in terms of existence of the present Greenhorn bighorn sheep herd.

In addition, all parties to the current 2008 MOU (signed in 2008 and expiring January 31, 2018) discussed revising the MOU to more clearly describe cooperative management of bighorn sheep and domestic sheep and to recognize that MFWP has transitioned from transplanting a new herd to managing an established herd. The 2008 MOU was modified in November, 2016. As a result, the following disclosure of potential environmental consequences is split into three sections: (1) No MOU, (2) 2002/2008 MOUs, and (3) 2016 MOU Modification.

### No MOU

As previously discussed, consideration of the Greenhorn Mountains bighorn sheep transplant by the MFWP Commission initiated an MOU in 2002 between the BDNF, BLM, MFWP and domestic sheep grazing operators, which in turn facilitated implementation of the transplant. Without the MOU, it is highly unlikely any reintroduction of bighorn sheep into the Greenhorn Mountains would have occurred. The October, 2001 and May, 2002 MFWP Commission meeting notes clearly show a reluctance to approve the transplant if affected landowners did not agree (MFWP Commissioner Meeting Minutes, October 12, 2001 [pg. 13-20] and May 9, 2002 [pg. 22-24]). The public meeting discussions did not dwell on whether or not bighorn sheep were desirable in the Greenhorn Mountains. Rather, the discussions focused on how the desired reintroduction could successfully occur through cooperation of affected land managers and private domestic sheep producers. MFWP Commission approved the reintroduction of bighorn sheep into the Greenhorn Mountains at the May 2002 meeting based on the environmental analysis and review of the MOU.

Reintroduction efforts are typically only successful when all involved parties are in agreement because many species, such as bighorn sheep, often spend a significant portion of the year on private lands in order to meet their biological needs. More often than not, the portion of the year where wild sheep and other species, such as elk, utilize private lands is during the winter. Winter range on private lands can be critical to ensuring herd survival where such habitat is limited on public lands. Therefore, without an MOU providing private landowner support, wildlife relocation efforts such as the Greenhorn Bighorn Sheep Reintroduction Project would be largely ineffective, if even initiated.

To our knowledge, the MFWP Commission has not approved a species transplant when presented with unresolved issues from private landowners. In fact, the Commission has denied approval of proposed transplants when landowner concerns were not adequately addressed. Pertinent to the topic at hand, are two separate proposals to reintroduce bighorn sheep in the vicinity of Lewis and Clark Caverns near Cardwell, Montana (two mountain ranges north of the Greenhorn Mountains). Neither transplant proposal came to fruition based on unresolved concerns by a single landowner.

Based on past reluctance of the MFWP Commission to approve species transplant with unresolved landowner concerns, the amount of discussion at public meetings about the need to

resolve concerns with affected landowners prior to approval of the Greenhorn bighorn sheep reintroduction by the MFWP Commission and the improved likelihood of successful species establishment when landowners cooperate to provide for biological needs, it is reasonable to assume bighorn sheep would not have been reintroduced into the Greenhorn Mountains in 2003 and 2004 in the absence of the 2002 MOU.

Associated effects of not obtaining an MOU for the Greenhorn Bighorn Sheep Reintroduction Project include those on the species diversity of the landscape if the project failed to initiate. In turn, the lack of reintroduction, affects wildlife viewing and eventual hunting opportunities for the species in the area and the general experience of visiting the overall Gravelly Landscape. These benefits can improve both the ecology and economy of the local area.

From the entire BDNF perspective, the likely effect of not having an MOU in 2002 would have led to the presence of eight bighorn sheep herds on the Forest instead of nine. The MOU as signed in 2002 facilitated the reintroduction of bighorn sheep into the Greenhorn Mountains. However, if reintroduction had occurred without a MOU, there would not exist an agreed upon monitoring system and actions in place to protect the Greenhorn bighorn population, if contact were to occur or when bighorns were found within the vicinity of the Forest Service domestic sheep allotments. This could be potentially to the detriment of the entire herd. Regardless of whether the MOU was adopted or not, domestic sheep grazing on the seven allotments in the Gravelly Range would have continued.

## **2002/2008 MOUs**

In 2008, the 2002 MOU was replaced because the original MOU (2002) did not contain an expiration date and some representatives of the signature parties had since changed. An expiration date of January 31, 2018 was established under the 2008 replacement MOU. The 2002 and the 2008 MOUs differed as well in terms of not preventing Permittees from engaging in similar activities with other agencies, not creating any trust responsibility enforceable by a party against the United States, removing a provision allowing the Permittees to transfer the agreement to subsequent landowners and allowing any part to terminate the MOU. The 2002 MOU is included as Appendix A. The 2008 MOU is Appendix B.

### **Effect of 2002/2008 MOUs, including the kill permit provision, on bighorn sheep populations and contacts/interactions between bighorn and domestic sheep**

Following the establishment and signing of the 2002 MOU, the Greenhorn Mountains Bighorn Sheep Relocation Project commenced. Specifics of the transplant history and subsequent monitoring were previously described under the existing condition for bighorn sheep as the project has been fully implemented. It is important to note that following the reintroduction efforts of 2003 and 2004, several bighorn sheep were lethally removed by MFWP from the newly established Greenhorn herd, not because of conflict with domestic sheep grazing the BDNF or agreements made in the MOU, but because several of the wild sheep wandered onto private lands and risked comingling with domestic sheep and possible disease transmission back to the Greenhorn bighorn herd or another herd. This management removal is within MFWP legislated authority (whereas species removal is outside USFS authority) and was fully described above and within the 2010 Montana Bighorn Sheep Conservation Strategy. Additionally, management and permittee removal (dispatch) of wandering wild sheep is recommended by the Western Association of Fish and Wildlife Agencies (WAFWA 2012) as a tool to be utilized to help prevent comingling.

Since the initial setbacks immediately following reintroduction, the Greenhorn herd appears to have stabilized based on MFWP monitoring with no documented outbreaks of pneumonia

occurring in the herd. The effect of implementing the 2002 and 2008 MOUs is that some of the anticipated benefits (e.g. ecological diversity, wildlife viewing) of the wild sheep reintroduction have materialized enriching the local landscape. However, because the number of sheep in the herd has not met all criteria for hunting for three consecutive years, a hunting quota/season has not been authorized.

As occasionally happens with recently transplanted animals, some individual bighorn sheep moved out of the Greenhorn transplant area following relocation from the Rocky Mountain Front and the Missouri Breaks. As these bighorn sheep risked exposure to disease pathogens by coming within close proximity of domestic sheep bands (none of which were on or trailing to/from BDNF allotments), they were removed by MFWP as part of their normal legislated authority. The removals prevented the potentially exposed bighorn sheep from returning to the Greenhorn bighorn herd or proceeding on to a different herd and possibly exposing other bighorn sheep to disease pathogens. None of the removals occurred as a result of agreements made in the 2002 or 2008 MOU.

As agreed in the MOUs, MFWP provided the sheep operators a satellite phone for several years so they could contact MFWP if bighorn sheep came in close proximity to domestic sheep. This is the only MOU provision that has been implemented to date. However, due to improved cell phone coverage, MFWP no longer provides the sheep operators with a satellite phone. Because MFWP employees were monitoring, and able to timely manage potential conflicts, kill permits were never needed by the sheep operators, on the BDNF or elsewhere.

The 2008 MOU provided provisions to protect the Greenhorn bighorn sheep herd from infection by managing individual bighorn sheep when they risked comingling with domestic sheep by coming into close proximity<sup>18</sup>. In the 13 years since bighorn sheep were reintroduced to the Greenhorn Mountains, bighorn sheep and permitted domestic sheep on the BDNF have not been found in close proximity. During the few years following the transplant, some individuals did risk comingling with domestic sheep (but not on the BDNF) and some individuals were removed by MFWP (under their normal legislative authority, not agreements in the MOU) preventing potential pathogen exposure of the larger bighorn sheep herd. Such action has not been necessary since 2005. In short, the kill permit provision in the 2002 and 2008 MOUs was a preventative measures designed to protect the Greenhorn bighorn sheep herd from disease when bighorn risked exposure by comingling with domestic sheep that was never needed.

### **Effect of 2002/2008 MOUs on management of bighorn sheep habitat in the Greenhorn Mountains**

With the implementation of the 2009 BDNF Forest Plan, the acres of suitable rangelands on the BDNF reduced by approximately 44,000 acres. Previous livestock allotments/rangelands in the Greenhorn Mountains were part of this overall reduction. While issuance of the 2002/2008 MOUs had no effect on the quantity of suitable rangelands in the Greenhorn Mountains, they did facilitate translocation of bighorn sheep into the area in the recent absence of domestic livestock and subsequently assist in highlighting the need for bighorn sheep habitat management in the area.

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<sup>18</sup> Refer to Footnote 9.

### **Effect of 2002/2008 MOUs on availability and use of habitat on nearby BDNF lands by bighorn sheep**

The 2002/2008 MOUs focused on providing an avenue to translocate bighorn sheep onto the most biologically appropriate habitat identified by MFWP in the Gravelly Landscape, which in this case was the Greenhorn Mountains. In the MOUs, addressing the potential for wild and domestic sheep comingling and spreading disease was emphasized, including the authority of the state to lethally remove wandering wild sheep as well as issuing permittees and sheep operators kill permits in support of the state's translocation efforts. These agreements assist in protecting bighorn sheep habitat in the Greenhorn Mountains by ensuring bighorn sheep potentially exposed to disease pathogens do not return to the herd.

The MOUs did not affect the use by bighorn sheep of habitat existing on other BDNF lands in the landscape for a couple of reasons. In the 13 years since the initial transplant, bighorn sheep did not move south out of the Greenhorn Mountains and into the high elevation areas in the Gravelly Mountains where the domestic sheep allotments are located. Based on conversations with the local MFWP biologist, this likely occurred for several reasons. First, sufficient habitat exists in the Greenhorn Mountains to support the population objective of 125 individuals. The 2001 EA estimated sufficient habitat in the Greenhorn Mountains for 150-200 bighorn sheep. While the population is gradually expanding, it remains well below the carrying capacity of available habitat so individuals did not leave the area in search of additional habitat.

Second, if individuals were to leave the existing occupied habitat sometime in the future, they would likely move the same direction as the individuals initially leaving the area following the transplants – indicating a preference for travel corridors and habitat to the west and north of the Greenhorn Mountains, away from BDNF lands and domestic sheep allotments in the Gravelly Mountains.

Lastly, bighorn sheep habitat is comprised of three essential elements; (1) escape terrain (slopes greater than 60% with occasional rock outcroppings) with abundant, adjacent open foraging areas, (2) high visibility to detect and avoid predators and access forage efficiently and (3) winter range areas which tend to be low-elevation, south-facing slopes with escape cover in proximity to foraging areas. Winter range is defined as all escape terrain, which receives less than 25 cm (10 inches) of snowpack. In the Southern Mountains ecological region (east of the Gravelly Mountains), some bighorn sheep winter on high elevation windswept slopes and migrate to lower elevations prior to lambing (MFWP 2010, pg. 71).

The terrain between the Greenhorn Mountains and the top of the Gravelly Mountains, while frequently meeting the 60%+ slope habitat characteristic, generally lacks occasional rock outcroppings, especially between the Ruby River and the top of the mountain range. In addition, lodgepole pine forests dominate the north facing slopes beginning at Warm Springs Creek and subsequent drainages to the south. These forests do not provide desirable bighorn sheep foraging habitat (grass and shrubs) in the understory and are so dense visibility for detection and avoidance of predators is limited. The presence of these bands of dense, forested vegetation likely deter southerly movement of individual bighorn sheep.

Based on annual measurements since 2000, the maximum average annual snow depth at the Clover Meadows snow survey site (located at 8,600 feet elevation on top of the Gravelly Mountain Range) is 63 inches (NRCS, 2016). Even on windswept slopes at this elevation, it is likely snow depth often exceeds the preferred 10 inch or less. Snow is slow to melt at this elevation. Even assuming bighorn sheep could successfully winter on windswept slopes in the vicinity of the domestic sheep allotments and migrate to lower elevation escape habitat (as occurs for some herds in the Southern Mountains ecological region located east of the Gravelly Mountains), maximum snow depth in May averaged 52 inches (as measured annually since

2000 on May 1) when ewes would attempt to migrate to lower elevation escape habitat for lambing.

In summary, the MOUs did not limit use of habitat on BDNF lands adjacent to the Greenhorn Mountains because the Gravelly Mountains, especially at high elevations where domestic sheep allotments are located, do not provide sufficient year-round habitat needed for a bighorn sheep herd of 125 individuals or larger, additional habitat is not needed to support the desired population objective for the Greenhorn bighorn sheep herd and bighorn sheep are unlikely to travel and have not travelled to and occupy BDNF lands in the Gravelly landscape located adjacent to the Greenhorn Mountains.

However, if bighorn sheep had wandered to the domestic sheep allotments on the BDNF lands their use of the BDNF lands would be affected as these bighorn sheep risked exposure to disease pathogens by coming within close proximity of domestic sheep bands. They would likely have been removed by MFWP as part of their normal legislated authority. The removals would prevent the potentially exposed bighorn sheep from returning to the Greenhorn bighorn herd or proceeding on to a different herd and possibly exposing other bighorn sheep to disease pathogens. Further, as discussed above, MFWP purposely constrains bighorn sheep to the Greenhorn Mountains and stated that it would initiate further environmental analysis to determine if the population should be allowed to expand its range.

#### **Effect of 2002/2008 MOUs on BDNF management of domestic sheep allotments without permittees' consent**

As mentioned above the MOUs as signed in 2002 and 2008 facilitated the reintroduction of bighorn sheep into the Greenhorn Mountains. The MOUs included the provision "Reintroduction of bighorn sheep will not cause the Agencies to adjust the operation of management of the Grazing Permittees' domestic sheep grazing operations without the Grazing Permittees' consent." However, the Forest Service's position remains that the term grazing permits authorizing domestic sheep grazing in the Gravelly Mountains along with the AMPs and AOIs were not modified by the MOU. As such, the Forest Service's permit administration and on-the-ground grazing administration were not affected by the MOUs. If management of the domestic sheep did not meet Forest Plan standards, AMP and AOI requirements, permit action would have been initiated to correct the deficiencies. However, permit administration and on-the-ground management of domestic sheep have not changed since 2002 because (1) annual grazing use complied with terms and conditions in the permits and (2) a need to alter grazing practices to avoid comingling of bighorn sheep and domestic sheep in close proximity to the permitted allotments never occurred. The lack of a need to alter grazing practices to avoid comingling also applies to the trailing route depicted in Figure 4. In addition to bighorn sheep not being present in close proximity to domestic sheep trailing to and from the permitted allotments, livestock trailing involves a lot of physical activity and noise (commotion) that wild animals, including bighorn sheep, naturally avoid.

For the sake of disclosure of *potential* environmental consequences we briefly speculate about possible permit actions that might have occurred had bighorn sheep been found in close proximity to domestic sheep grazing permitted allotments or while trailing to and from the allotments. Based on the behavior of dispersing young rams (Schmidt and Gilbert 1978), it is reasonable to assume, the presence of bighorn sheep on the allotments or near the trailing route would initially have involved only a few (most likely an individual wandering ram) bighorn sheep. Assuming the location of bighorn sheep was not detected until domestic sheep were already in close proximity, rather than risk an individual bighorn sheep's return to the herd after possible pathogen exposure, the individual bighorn would likely have been lethally removed. Had the location of bighorn sheep been known prior to the presence of domestic sheep, the

agencies and livestock permittees would have discussed options such as altering trailing routes or methods, altering grazing rotations, temporarily permitting domestic sheep elsewhere for the grazing season or hazing/trapping the bighorn sheep, all of which would reduce the risk of the species comingling. After the first immediate steps were taken, the agencies and permittees would have discussed longer term options including whether or not MFWP desired establishment of a bighorn herd at whatever location was being occupied by the initial individuals. The presence of bighorn sheep in close proximity to the domestic sheep allotments was thought unlikely in the 2001 EA. The presence of a few individuals in an area where previous analysis indicated they were unlikely to occur, would have initiated additional analysis to determine if occupancy by a larger herd was desired. Had MFWP determined occupancy of the area by a bighorn herd was desired and the BDNF determined changes in domestic sheep management or removal of domestic sheep was needed to accommodate bighorn sheep occupancy, the BDNF had the authority to terminate the MOU, if necessary (see Appendix B, pg B-4, Item I) and alter the grazing permits.

The information in the previous paragraph is speculative. No need to alter terms and conditions of the grazing permits occurred because bighorn sheep have not come in close proximity to domestic sheep grazing on permitted allotments on the BDNF. Perhaps some individuals conceptualized a small herd of a dozen or so bighorn sheep suddenly leaving the Greenhorn Mountains and travelling to the Gravelly Mountains. Bighorn sheep do not travel in such a manner. Once established, bighorn sheep populations gradually expand into adjacent habitat as the carrying capacity of the occupied habitat is exceeded. For an entire herd, this is gradual process. Some individuals, especially smaller sized rams, have the potential to wander. At the time of the 2001 EA, it was thought possible that an individual or a few bighorns might risk contact with domestic sheep on permitted allotments. The intent of the MOU was to immediately manage for these few bighorn sheep to protect the health of the overall bighorn herd and address landowner concerns so the transplant could proceed. Had habitat in the Greenhorn Mountains been found unsuitable by the overall transplanted bighorn sheep herd and they occupied unanticipated habitat in a different location, MFWP and affected landowners would have re-evaluated the program.

### **Effect of Other Provisions of the 2002/2008 MOUs.**

In the June 14, 2016 Opinion, the Court expressed concern about language in the MOUs that separate agreements or modification were made leading to potential environmental consequences needing disclosed in the 2009 FEIS. Term F of the 2002 MOU (Appendix A, pg A-4) allows "Modifications within the scope of the agreement shall be made by mutual consent of the parties, by the issuance of a written modification, signed and dated by all parties, prior to any changes being performed". A modification to the 2002 MOU was never made. Had a modification been made, it would have been in compliance with the MFWP Commission's decision to authorize a bighorn sheep transplant into the Greenhorn Mountains as described in Alternative B of the 2001 EA.

The 2002 MOU was replaced by the 2008 MOU signed February 25, 2008. This MOU included an expiration date of January 31, 2018 (the 2002 MOU did not have an expiration date) and terms for modification and termination (see Appendix B, pg B-4, Section VI, Terms H, I and J). As allowed by these terms, the 2008 MOU was modified November 2, 2016. Potential environmental consequences of this modification is disclosed below.

### **2016 MOU Modification**

After receiving the adverse Court decision, the BDNF considered terminating the 2008 MOU (as allowed by Term I) since the only substantial effect of the MOU was facilitating the transplant of

bighorn sheep to the Greenhorn Mountains in 2003 and 2004 and adequate separation of wild and domestic sheep has been maintained since 2005, protecting the Greenhorn bighorn sheep from possible disease transmission without a need to implement any of the land management provisions of the MOU. However, MFWP identified concerns that cancellation may have unintended consequences for proposed transplants or recovery of bighorn sheep and other species in Montana. Coordination, cooperation and agreement by all affected landowners is integral to successful species transplants and generally viewed as a requirement by the MFWP Commission. MFWP, and others, were concerned cancellation of the 2008 MOU after successful establishment of the Greenhorn bighorn sheep herd would create distrust among potentially affected landowners in other areas of Montana and prevent proposed transplants from being implemented.

The forest-wide desired condition described in the 2009 Forest Plan (pg. 11) includes “Issues involving species with needs that go beyond Forest boundaries and authority are identified and resolved in conjunction with other federal agencies, state, county, tribal, and city governments”. Clearly, management of the Greenhorn bighorn sheep herd is within the authority of MFWP, not the BDNF, and issues for the species go beyond the BDNF boundary. In support of obtaining this desired condition and cooperatively managing the Greenhorn bighorn sheep, the BDNF met with MFWP, BLM and both domestic sheep producers holding grazing permits on the BDNF, and modified the 2008 MOU as follows. Primarily, these changes clarify legal authorities that may not have previously been clear to general members of the public not party to the MOU and recognize that the Greenhorn bighorn sheep herd is established, not proposed for transplant as described in the 2002 and 2008 MOUs. The 2016 MOU modification is included as Appendix C and expires January 31, 2018. The following discusses the primary changes made in the MOU.

- The Introduction, Purpose, and Statement of Mutual Benefit and Interests sections of the MOU were updated to recognize the successful reintroduction of bighorn sheep into the Greenhorn Mountains and the intent of all parties to assist in management, within their authorities, consistent with the 2010 Montana Bighorn Sheep Conservation Strategy.
- The language concerning the agencies adjustment of operations and management of domestic sheep grazing requiring the permittees’ consent was deleted. In its place the agencies agree to work cooperatively with the permittees to implement the 2010 Montana Bighorn Sheep Conservation Strategy with the understanding “that the agencies retain their full and independent authorities to manage grazing use under federal and state law requirements.”
- The paragraph stating that “[R]eintroduction of bighorn sheep will not preclude consideration of domestic sheep grazing on other allotments in the Gravelly or Snowcrest mountain ranges” was removed as the BDNF 2009 Forest Plan includes a management standard that domestic sheep allotments if they become vacant will not be restocked.
- The language regarding issuance of kill permits was made clear in that it is MFWP which has the sole authority to issue kill permits and that the federal agencies do not play a role in issuance of kill permits.

### **Effect of 2016 MOU modification, including the kill permit provision, on bighorn sheep populations and contacts/interactions between bighorn and domestic sheep**

While individual agency authorities were better defined under the 2016 MOU, implementation of the MOU simply continues the collaborative effort to ensure wild and domestic sheep do not commingle or if they do that potentially diseased bighorn sheep are not allowed to return to their herd. The 2016 MOU has no additional effects on management of the Greenhorn bighorn sheep herd than those described under the 2002/2008 MOU discussion.

While it is possible disease pathogen transmission could result during the 2017 grazing season,

first bighorn sheep and permitted domestic sheep would have to come into contact and disease transmission would only be of concern if an infected bighorn sheep returned to the herd. The 2016 MOU Modification provides provisions to protect the Greenhorn bighorn sheep herd from infection by managing individual bighorn sheep in the unlikely event they risk coming into contact with domestic sheep by coming into close proximity. In the 13 years since bighorn sheep were reintroduced to the Greenhorn Mountains, bighorn sheep and permitted domestic sheep on the BDNF have not been found in close proximity. During the few years following the transplant, some individuals did risk coming into contact with domestic sheep (but not on the BDNF) and some individuals were removed by MFWP (under their normal legislative authority, not agreements in the MOU) preventing potential pathogen exposure of the larger bighorn sheep herd. Such action has not been necessary since 2005.

It is reasonable to assume, based on the past 13 years of bighorn sheep presence, this trend of acceptable separation between the species will continue. If, in the unlikely circumstance acceptable separation does not occur in 2017, the MOU (as well as MFWP normal legislative authority) provides measures to limit pathogen exposure to individual bighorn sheep and prevent exposure of the entire herd<sup>19</sup>.

### **Effect of the 2016 MOU modification on management of bighorn sheep habitat in the Greenhorn Mountains**

Similar to the original 2002 and 2008 MOUs, the 2016 modification continues the collaborative effort to ensure wild and domestic sheep do not come into contact or if they do that potentially diseased bighorn sheep do not return to their herd. The modification does not alter the use, management, or availability of bighorn sheep habitat in the Greenhorn Mountains on the BDNF. Forest Plan related decisions reducing the amount of rangeland suitable for livestock grazing and limiting road densities, and prohibiting winter motorized use remain in effect.

### **Effect of the 2016 MOU modification on availability and use of habitat on nearby BDNF lands by bighorn sheep**

Similar to the original 2002 and 2008 MOUs, the 2016 modification continues the collaborative effort to ensure wild and domestic sheep do not come into contact or if they do that potentially diseased bighorn sheep do not return to their herd. The modification does not alter the likelihood of occupancy by a bighorn sheep herd in the Gravelly Mountains previously described for the 2002 and 2008 MOUs.

When the 2008 MOU was signed, MFWP management direction documented in the 2010 Montana Bighorn Sheep Conservation Strategy was not yet fully developed. The current MFWP guidance for special translocation is described here to provide readers information about the process that would likely be followed, if a bighorn sheep transplant is proposed in the Gravelly Mountains sometime in the future.

Since the issuance of earlier versions of their transplant guidelines (1986) and policy (1995), new laws and regulations affecting these earlier MFWP directions leading to the development of additional elements for translocating wild sheep were developed. The updated process for wild sheep translocation has three major elements which are described in length beginning on page 60 of the strategy (MFWP 2010). The three elements include: 1) criteria for identifying potential new transplant sites; 2) process for recommending and implementing new transplants; and 3) process for augmenting existing bighorn populations.

Briefly, the process for new site evaluation (element 1) involves assessing the site utilizing a 10

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<sup>19</sup> Refer to Footnote 9.

point filter which assists managers in quantifying the habitat. These 10 quantifiers look at, for example, historical bighorn sheep use, movement barriers, escape terrain, existence of suitable winter and summer range, lambing habitat, and proximity to domestic sheep and goats.

The process for recommending and implementing translocations of bighorn sheep to new sites (element 2) involves an 11 step strategy, again assessing the available habitat, connectivity to other wild sheep populations, amount of public land, potential conflict with domestic livestock and agricultural lands, as well as benefits to the public. The third element involves augmenting an existing bighorn sheep herd and while it lists fewer criteria, their importance are equally important and examine existing factors affecting the herd such as amount of available habitat, predator types and numbers, herd health (e.g. lungworm presence), herd genetics, and public benefit.

Following their internal evaluations described above, and prior to any translocation, however, MFWP must complete an environmental assessment and solicit public participation similar to the process previously described prior to the MFWP Commission approval of the Greenhorn bighorn sheep transplant.

### **Effect of the 2016 MOU modification on BDNF management of domestic sheep allotments without permittees' consent**

This agreement was replaced by the following statement in the 2016 modification to better clarify the intent of the original statement.

“In support of the 2010 Montana Bighorn Sheep Conservation Strategy, the Agencies agree to coordinate with, and work cooperatively with, the Grazing Permittees any adjustment in operation or management of domestic sheep grazing operations on public land based on management of the reintroduced Greenhorn bighorn sheep herd, as described in the September 26, 2001 FWP Decision Notice, Alternative B in the February 16, 2001 FWP Draft Environmental Assessment and approved by the FWP Commission May 9, 2002, with the understanding that the agencies retain their full and independent authorities to manage grazing use under federal and state law and regulations.”

The 2016 modification continues the collaborative effort to ensure wild and domestic sheep do not commingle or if they do that potentially diseased bighorn sheep do not return to their herd and makes clear the Forest Service's independent authority to modify grazing use. In the highly speculative event, individuals of the Greenhorn bighorn sheep come in close proximity to permitted domestic sheep grazing or trailing on the BDNF, the process previously described for the 2002/2008 MOUs would be followed. This includes the ability of the Forest Service to take management action such as altering trailing routes or methods, altering grazing rotations, or temporarily permitting domestic sheep elsewhere for the grazing season.

### **Effect of Other Provisions of the 2016 MOU modification**

The 2016 MOU modification recognizes successful establishment of the Greenhorn bighorn sheep herd and outlines cooperative management of this herd into the future. We do not project a need to develop a separate agreement prior to the January 31, 2018 expiration date.

However, should a modification or separate agreement become necessary before the expiration date, it would be in compliance with the MFWP Commission's decision to authorize a bighorn sheep transplant into the Greenhorn Mountains as described in Alternative B of the 2001 EA and other management direction in the 2010 Montana Bighorn Sheep Conservation Strategy. Further, if a separate agency action by the Forest Service occurs, the action would follow appropriate public process and compliance with all applicable laws.