ENVIRONMENTAL ASSESSMENT
GRAZING PERMIT RENEWAL FOR ALLOTMENT IV (#06046) AND SPRING CREEK (#05060) ALLOTMENTS

DOI-BLM-ID-I010-2014-0021-EA

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CHAPTER 1 – INTRODUCTION

Background

There are several authorities which mandate or allow the Bureau of Land Management (BLM) to authorize livestock grazing on public lands as part of multiple-use management of natural resources. Livestock grazing is an accepted and valid use of public lands under the Taylor Grazing Act of 1934, the Federal Land Policy and Management Act (FLPMA) of 1976, and the Public Rangelands Improvement Act (PRIA) of 1978. This Environmental Assessment (EA) is prepared, pursuant to the National Environmental Policy Act (NEPA) of 1969, to address the request for continued livestock grazing on public lands in Allotment IV (#06046) and Spring Creek (#05060) Allotments.

Allotment IV lies approximately six miles north of Hamer, Idaho in Jefferson County. The allotment includes 824 acres of BLM land and 156 acres of private land. The private land is fenced separately from the public land (Figures 1 and 2). The average annual precipitation ranges from eight to 12 inches. The topography is mostly undulating, punctuated by lava outcrops and low buttes. The elevation ranges from 4,780 feet to 4,900 feet above sea level. The authorized season of use in Allotment IV is from November 1 to November 16, for a total of 113 active cattle AUMs.

The Spring Creek Allotment lies approximately 12 miles north of St. Anthony, Idaho in Fremont County. The allotment consists of 484 acres of BLM land and 601 acres of private land (Figures 1 and 3). The general topography of the allotment consists of low rolling lava outcrops. The elevation in the Spring Creek Allotment is approximately 5,320 feet above sea level. The average annual precipitation in the area ranges from 12 to 16 inches, with most of it occurring between the months of April and September. The authorized season of use in the Spring Creek Allotment is from August 15 to October 30 for a total of 100 active cattle AUMs.

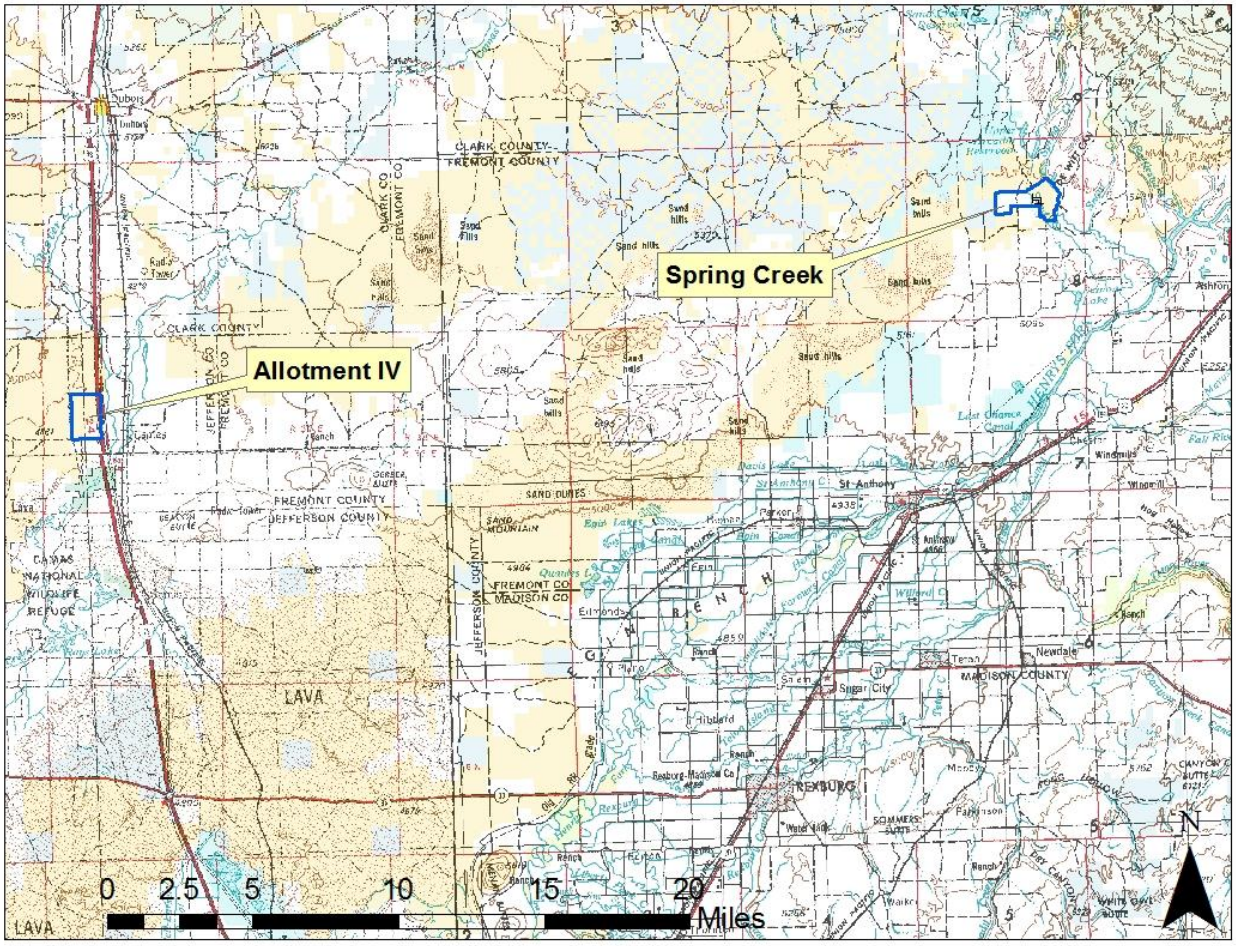
Purpose and Need for Action

The Medicine Lodge Resource Management Plan (RMP) identified the public lands in the allotments as available for domestic livestock grazing. Where consistent with the goals and objectives of the RMP and Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management (ISRH), the BLM authorizes allocation of forage for livestock grazing to qualified operators. The purpose of the proposed action is to authorize livestock grazing consistent with BLM policy and in a manner that maintains or improves resource conditions and achieves the objectives and desired conditions described in the Medicine Lodge RMP. The analysis is needed to address the operator's application for grazing authorization on the public lands currently identified as Allotment IV and Spring Creek Allotments.

Location

Allotment IV is located in Jefferson County, about five miles north of Hamer, Idaho (Figure 1), in Township 8 North, Range 36 East, Sections 17 and 20 (Boise Meridian). Spring Creek Allotment lies approximately 12 miles north of St. Anthony, Idaho in Fremont County (Figure 2), in Townships 9 North, Ranges 41 East, Sections 11 and 14.

Figure 1. General Location of Allotment IV and Spring Creek Allotments.



Conformance with Land Use Plan

The alternatives for public lands in Allotment IV and Spring Creek have been reviewed for conformance with the Medicine Lodge RMP. Allotment IV is located within Management Unit 2 (Table Butte/Twin Buttes) of the RMP, and Spring Creek Allotment is located within Management Unit 5 (Sand Creek) of the RMP. The actions are in conformance with the RMP decision to:

"Maintain or improve existing perennial forage plants, maintain soil stability, stabilize areas currently in downward trend, and increase availability of perennial forage plants (RMP 1985)."

Relationship to Statutes, Regulations, Guidance, or Other Plans

The 1868 Fort Bridger Treaty, between the United States and the Shoshone and Bannock Tribes, reserves the Tribes right to hunt, fish, gather, and exercise other traditional uses and practices on unoccupied federal lands. Under this treaty the federal government has a unique trust relationship with the Shoshone-Bannock Tribes. BLM has a responsibility and obligation to consider and consult on potential effects to natural resources related to the Tribes treaty rights or cultural use.

Grazing administration exclusive of Alaska is governed under the Federal Code of Regulations 43 CFR 4100 – Grazing Administration. The purpose is to provide uniform guidance for administration of grazing on public lands.

The Taylor Grazing Act of 1934 provides for the regulation of domestic livestock grazing on public lands (excluding Alaska) to improve rangeland conditions and regulate their use. The law provided for the establishment, protection and administration of grazing districts, permitted livestock use within the districts, provided for rangeland improvement projects, established grazing fees and distribution of fees, required management cooperation and required a process allowing decisions to be contested.

The Public Rangeland Improvement Act of 1978 requires inventory of public rangeland conditions and trends with the intent of managing, maintaining and improving public rangelands in accordance with management objectives and uses specified in land use plans. The law also set the grazing fee and the formula for calculating the fee.

On August 12, 1997, ISRH were approved by the Secretary of the Interior. Subsequently, livestock management practices must be in conformance with the approved standards and guidelines.

Under the Migratory Bird Treaty Act of 1918 (MBTA), it is illegal to "take" migratory birds, their eggs, feathers, or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof (without a USFWS depredation permit).

6840 – Special Status Species Management Manual. This manual establishes policy of management of species listed or proposed for listing pursuant to the Endangered Species Act and Bureau sensitive species which are found on BLM-administered lands.

Greater Sage-Grouse Interim Management Policies and Procedures (Instruction Memorandum No. 2012-043). The IM provides interim conservation policies and procedures to the BLM field officials to be applied to ongoing and proposed authorizations and activities that affect the Greater Sage-Grouse and its habitat.

A Report on National Greater Sage-Grouse Conservation Measures: To ensure BLM management actions are effective and based on the best available science, the National Policy Team created a National Technical Team (NTT) in August of 2011. The BLM's objective for chartering this planning strategy was to develop new or revised regulatory mechanisms, through Resource Management Plans (RMPs), to conserve and restore the greater sage-grouse and its habitat on BLM-administered lands on a range-wide basis over the long term.

A Report from U.S. Fish and Wildlife Service titled: *Greater Sage-grouse Conservation Objectives*. This report delineates reasonable objectives, based upon the best scientific and commercial data available at the time of its release, for the conservation and survival of greater sage-grouse. The report also serves as guidance to federal land management agencies, state sage-grouse teams, and others in focusing efforts to achieve effective conservation for this species.

The Idaho Sage-Grouse Conservation Strategy of 2006 provides pertinent information regarding Greater sage-grouse and sagebrush ecology in Idaho, a summary of sage-grouse status in Idaho, identifies threats to sage-grouse and their habitats, provides conservation measures and guides research, monitoring and evaluation of sage-grouse in Idaho.

The Upper Snake Local Working Group's Plan for Increasing Sage-Grouse Populations (USLWG 2009) and the Conservation Plan for Greater Sage-Grouse in Idaho (ISGAC 2006). These plans provide local and state specific guidance to manage sage-grouse and sage-grouse habitats.

The Archaeological Resource Protection Act of 1979 governs the excavation of archaeological sites on federal and Native American lands in the United States, and the removal and disposition of archaeological collections from those sites.

National Historic Preservation Act of 1966 was passed to preserve historical and archaeological sites in the United States of America. The act created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation Offices. The act requires federal agencies to evaluate the impact of all federally funded or permitted projects on historic properties (buildings, archaeological sites, etc.).

The Evaluation Report (USDI-BLM 2012) for Allotment IV concluded that the allotment was meeting Standard 1 (Watersheds), Standard 4 (Native Plant Communities), and Standard 8 (Threatened and Endangered Plants and Animals). Standards 2 (Riparian Areas/Wetlands), 3 (Stream channels/Floodplains), 5 (Seedings), 6 (Exotic Plant Communities) and 7 (Water Quality) were not applicable in Allotment IV. Livestock management within Allotment IV was in conformance with Idaho Guidelines for Livestock Grazing Management.

The Evaluation Report (USDI-BLM 2011) for Spring Creek Allotment concluded that the allotment was meeting Standards 1, 2, 3, 4, 7, and 8. Standards 5 and 6 were not applicable in the Spring Creek Allotment. Livestock management within Spring Creek Allotment was in conformance with Idaho Guidelines for Livestock Grazing Management.

Public Contact and Issue Identification

In the spring of 2010, the Upper Snake Field Office sent a letter to the permittee, interested publics, and other agencies inviting them to participate in the field assessment for the Spring Creek Allotment. In December 2010, the allotment assessment was sent to the aforementioned parties requesting comments and any additional data. Comments were received from the permittee and Idaho Department of Fish and Game. In January 2011, the Upper Snake Field Office sent the allotment Evaluation Report and potential alternatives for the Spring Creek Allotment to the parties and they were invited to identify issues and alternatives. IDFG provided general comments about delaying livestock turnout until mid -June, maintaining sage and sharptail grouse habitat, treating noxious weeds, and maintaining mule deer, elk, moose transition habitat. Their comments were considered and incorporated into an Environmental Assessment (#ID-I010-2011-0025-EA) and subsequent grazing decision which renewed the grazing permit with changes described in the decision on Spring Creek Allotment.

In the spring of 2013, the USFO sent a letter to permittees, lessees, interested publics, and other agencies inviting them to participate in the allotment assessments planned in 2013, which included Allotment IV. Participation in and contributions to the Allotment IV assessment were received only from the grazing permittees. In November of 2013, the USFO sent an Allotment Assessment (USDI-BLM 2013a) to the parties above, which summarized the results of the field assessment and other monitoring information available for the allotment. The parties were asked to provide any other allotments specific information they may have which would be considered in the Evaluation Report. No other information was provided. In January of 2014, the Evaluation Report (USDI-BLM 2014) for Allotment IV and identified alternatives were sent to the parties. The permittee in Allotment IV had recently acquired the grazing permit in Spring Creek Allotment through a base property lease, and requested minor changes to its season of use that were agreed upon by both permittees. These changes were identified in the alternatives sent to interested publics and other agencies in January of 2014. The parties were asked to reply if they had any questions or concerns regarding the report or identified alternatives. No other comments were received.

Climate Change is an issue that is considered but not analyzed in detail. The science on predicting future climate conditions is continuously evolving. Land management actions may contribute to changes in atmospheric greenhouse gas levels, which can affect global climate. Addressing effects on greenhouse gas (GHG) levels within the scope of NEPA is difficult due to the lack of explicit regulatory guidance on how to meaningfully apply existing NEPA regulations to this evolving issue, and due to the continuously evolving science available at varying levels.

The BLM's 2008 NEPA Handbook, H-1790-1, explains that a topic must have a cause-and-effect relationship with the proposed action or alternatives to be considered an issue (H-1790-1, p. 40). Climate change does not have a clear cause-and effect-relationship with the proposed action or alternatives. It is currently beyond the scope of existing science to identify a specific source of greenhouse gas emissions or sequestration and designate it as the cause of specific climate or resource impacts at a specific location. The proposed action and alternatives, when implemented, would not have a clear, measurable cause-and-effect relationship to climate change because the available science cannot identify a specific source of greenhouse gas emissions such as those from livestock grazing and tie it to a specific amount or type of changes in climate. Therefore, the effects of livestock grazing to the global climate will not be analyzed in detail in this EA.

CHAPTER 2 - NO ACTION AND OTHER ALTERNATIVES

Alternative A (No Action) – Renew Unmodified Grazing Permits

Under a No Action alternative, the Upper Snake Field Manager would authorize continued livestock grazing under the same mandatory terms and conditions as the current permits. Under Alternative A, no additional improvements or projects would be authorized in Allotment IV or Spring Creek Allotments.

Alternative A Mandatory Terms and Conditions:

Allotment IV #06046

# / class of livestock	Season	%PL	Type	AUMs*
250 cows	11/01 – 11/16	84	ACTIVE	113

*Allotment IV contains 113 total BLM AUMs of active use.

Spring Creek Allotment #05060

# / class of livestock	Season	%PL	Type	AUMs*
40 cows	8/15 – 10/30	100	ACTIVE	100

*Spring Creek Allotment contains 100 total BLM AUMs of active use.

Other Terms and Conditions for Allotment IV and Spring Creek Allotments:

Range Improvements must be maintained to BLM Standards by the turnout dates for each allotment on this permit. All livestock water troughs must have a functional wildlife escape ramp and be appropriately floated. Installation and maintenance of wildlife escape ramps are the responsibility of the permittee.

The Allotment(s) listed on this grazing permit is subject to requirements 43 CFR Subpart 4180 – Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration. This permit shall be modified, if necessary, to meet these requirements upon completion of a standards and guidelines assessment and determination as scheduled by the authorized officer.

Livestock grazing management practices shall result in Spring Creek Allotment meeting or making significant progress towards meeting applicable rangeland health standards as demonstrated by an allotment assessment and evaluation, and/or monitoring using grazing indicators such as but not limited to those identified in DOI-BLM-ID-2011-0025-EA.

Figure 2. Allotment IV Existing Fences, Water Source, Corral, and County Road.

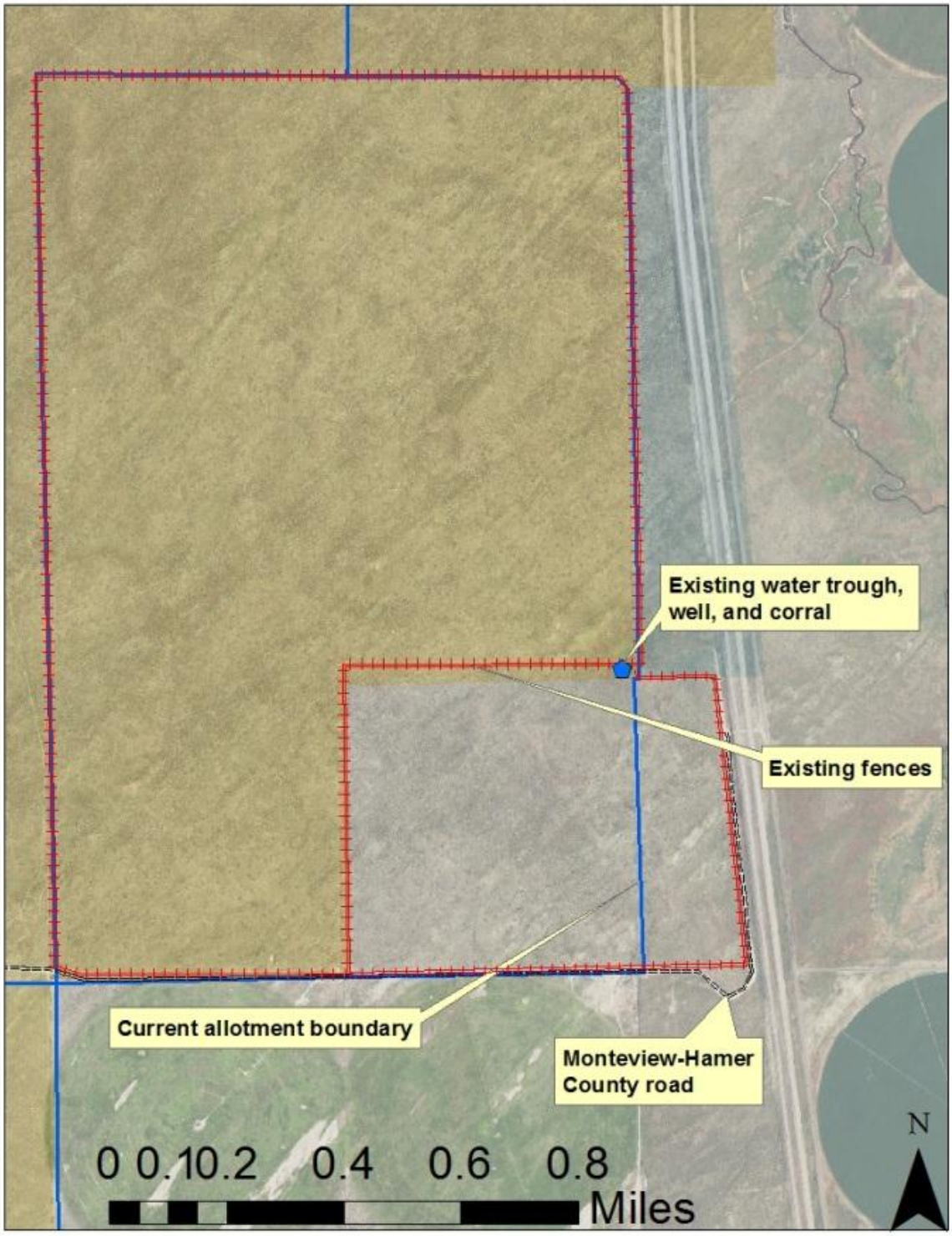
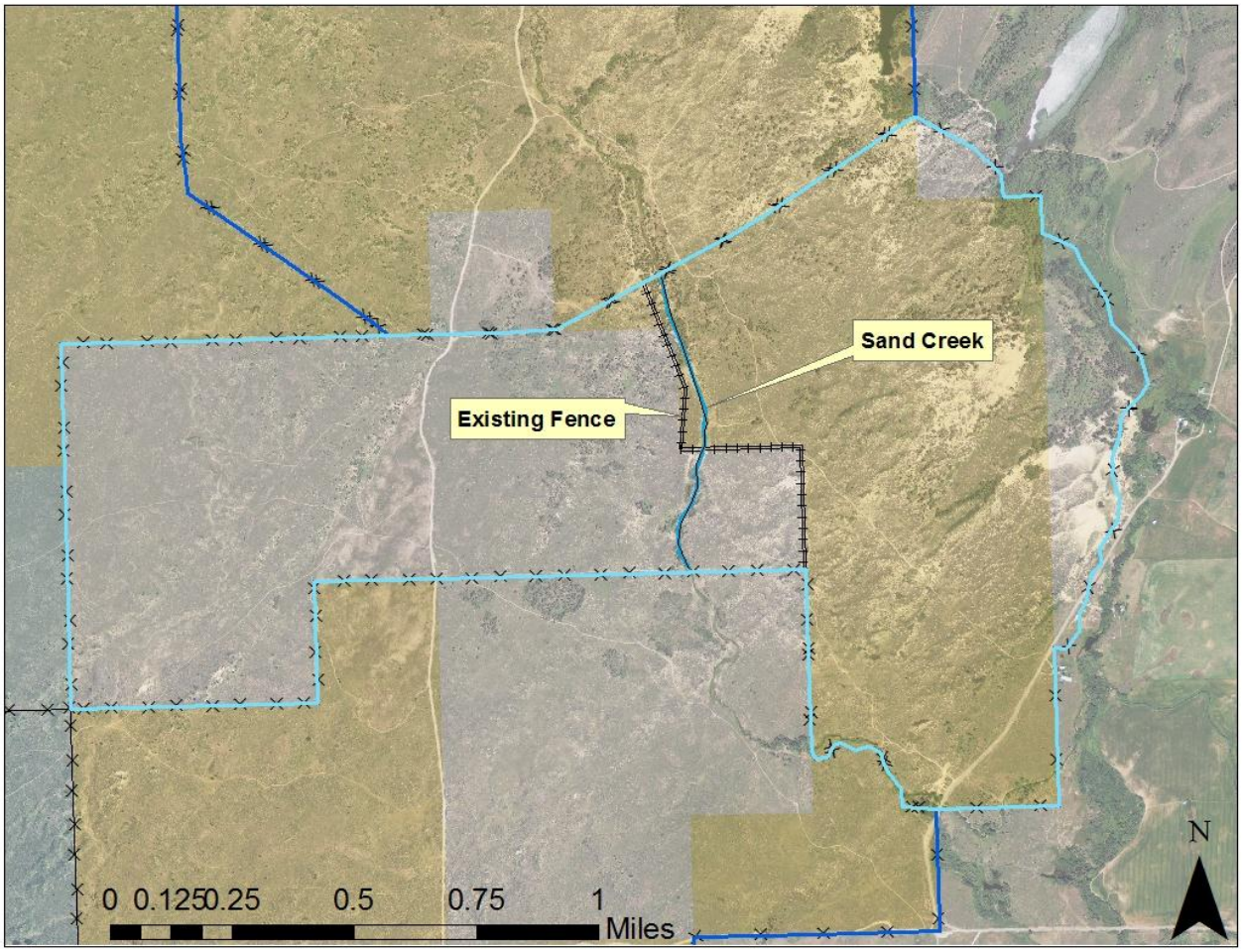


Figure 3. Spring Creek Allotment Existing Fences and Water Source.



Alternative B (Proposed Action) –Adjust Grazing Seasons, Construct a Riparian Exclosure and Water Gap

The permittees have requested changes in management as described below to meet the purpose and need for action. Under the Proposed Action, the Upper Snake Field Manager would authorize continued grazing within the allotments with changes discussed below. Under Alternative B, one riparian exclosure project would be authorized in Spring Creek Allotment.

Alternative B Grazing Use Changes:

1. Adjust the boundary of Allotment IV to remove the private lands that are fenced out of the allotment (Figure 4). The allotment boundary adjustment would result in 824 BLM acres remaining within Allotment IV. The Medicine Lodge RMP assigned 800 BLM

acres to Allotment IV. The allotment acres are increased by 24 to 824 to more accurately reflect the actual acres in the allotment.

2. The percent public land (%PL) on Allotment IV would be changed from 84 percent to 100 percent as a result of the boundary adjustment.

3. Adjust the permitted season of use on Allotment IV from 11/01 – 11/16 to 10/01 – 12/15.

4. The basic billing schedule for Allotment IV would be 245 cows, from 10/15 to 10/28 each year. The permittee would need prior approval from the BLM to change this basic schedule from year to year. Grazing use would remain within the permitted season of use listed in the Mandatory Terms and Conditions, below.

5. Adjust the boundary of Spring Creek Allotment to remove the private lands that are fenced out of the allotment (Figure 5). The allotment boundary adjustment would remove eight BLM acres from the allotment, and would result in 476 BLM acres and 79 private acres remaining within Spring Creek Allotment.

6. Adjust the permitted season of use on Spring Creek Allotment from 08/15 – 10/30 to 08/15 – 11/15.

7. The basic schedule for Spring Creek Allotment would be 250 cows from 11/1 to 11/12 each year. The permittee would need prior approval from the BLM to change this basic schedule from year to year. Grazing use would remain within the permitted season of use listed in the Mandatory Terms and Conditions, below.

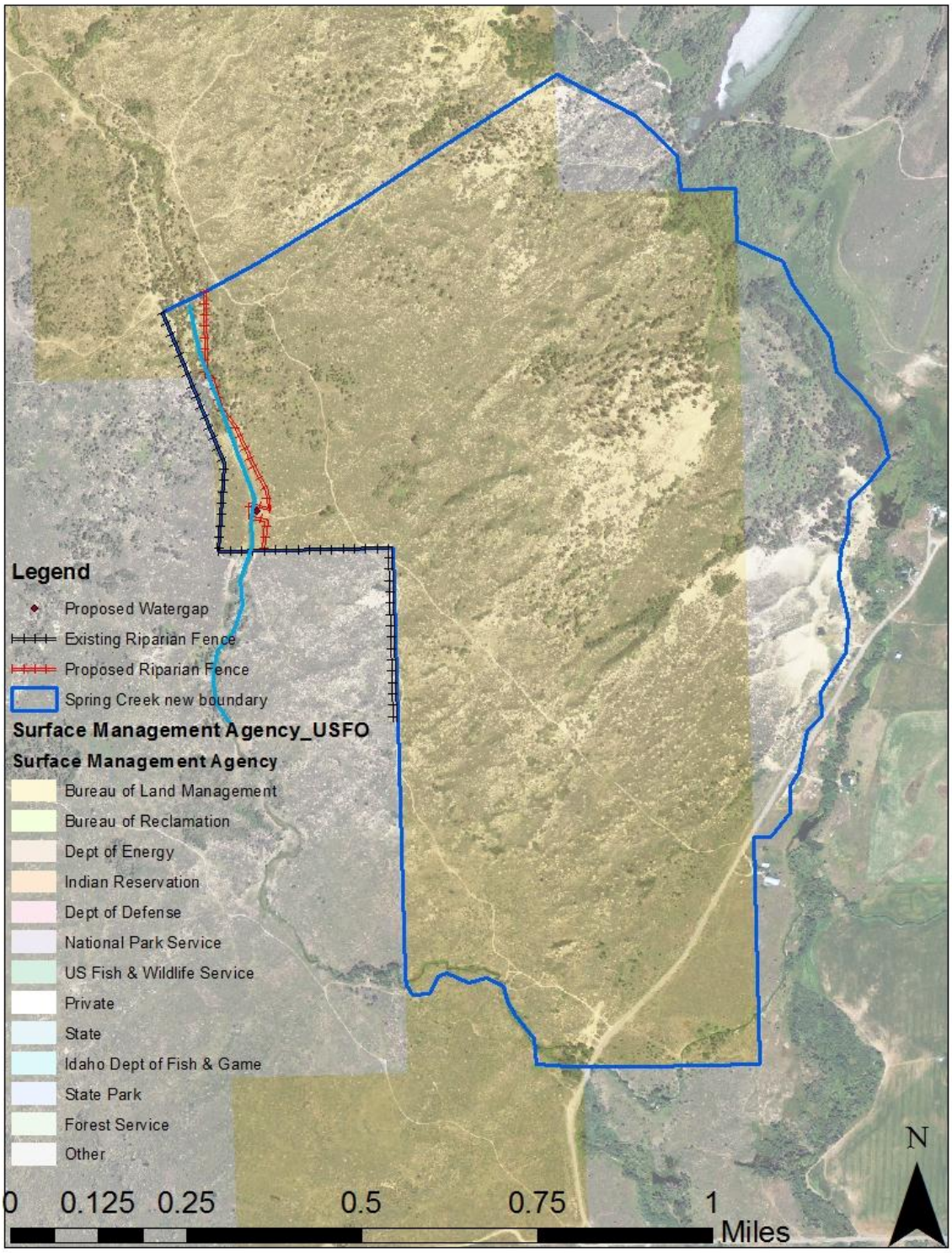
Alternative B Project:

1. Construct a 0.3 mile fence on Spring Creek Allotment, on the east side of Sand Creek in order to create a riparian exclosure. The combination of building the east side fence and using an existing fence on the west side of the creek would create the riparian exclosure. A hardened water gap would be constructed where the road crosses Sand Creek. Coarse material such as gravel and rocks would be used along the banks and in the stream channel in order to reduce the amount of sedimentation caused by livestock. The exclosure would be closed to livestock grazing (Figure 5). Once constructed, maintenance of the exclosure would be the responsibility of the permittees.

2. Construction of riparian exclosure on Spring Creek Allotment would not take place between April 15th and June 30th.

Figure 4. Allotment IV Proposed Boundary Adjustment.

Figure 5. Spring Creek Allotment Proposed Boundary Adjustment, Riparian Exclosure and Water Gap.



Alternative B Mandatory Terms and Conditions:

Allotment IV #06046

# / class of livestock	Season	%PL*	Type	AUMs*
245 cows	10/01 – 12/15	100	ADAPTIVE	113

*Allotment IV contains 113 total BLM AUMs of active use and 824 BLM acres.

Spring Creek #05060

# / class of livestock	Season	%PL*	Type	AUMs*
250 cows	08/15 – 11/15	100	ADAPTIVE	100

*Spring Creek Allotment contains 100 total BLM AUMs of active use and 476 BLM acres.

Other Terms and Conditions under Alternative B:

The following other Terms and Conditions would be included as part of the grazing permits under Alternative B, in accordance with 43 CFR 4130.3-2.

1. Authorized use would be made as described under the approved grazing plans for Allotment IV and Spring Creek Allotments.

2. Range improvements must be maintained to BLM standards. All livestock water troughs must have a functional wildlife escape ramp and be appropriately floated. Installation and maintenance of wildlife escape ramps and maintenance of range improvements are the responsibility of the permittee.

3. Distribution of livestock salt and mineral supplements would be at least ¼ mile from the nearest water source, unless prior approval is given by the authorized officer.

4. In connection with allotment operations under this authorization, if any human remains, cultural, archaeological, historical, paleontological, or scientific objects and sites are discovered, the permittee shall stop operations in the immediate area of the discovery, protect such resources, and immediately notify the BLM Authorized Officer (AO) of the discovery. The immediate area of the discovery must be protected until the operator is notified to resume operations by the AO.

5. If sage grouse fence strikes are documented on fences in the allotments, the fences would be modified using approved BLM methods to minimize sage grouse strikes.

6. A certified actual use report is due within 15 days of completion of the authorized annual grazing use.

7. Riparian exclosures located within the allotments are closed to all domestic livestock grazing.

Grazing Use Indicators and Criteria for Alternative B:

The following Grazing Use Indicators identify applicable monitoring methods and criteria used to indicate whether the allotments are meeting or making progress toward meeting the ISRH. Grazing Use Indicators and Criteria are not terms and conditions of the authorizations, rather they are informative points used to gauge the effectiveness of the terms and conditions of the authorizations.

1. *Upland Utilization* – Utilization studies would be conducted in key upland areas and use areas would be mapped. Average utilization should be no more than 50 percent of the annual growth of key native upland species.

2. *Upland Trend* – Trend studies would be conducted in the uplands in key areas. One photo plot would be established at each key area. Long-term trend studies would be conducted using approved BLM methods.

3. *Sage Grouse Habitats* – Grazing use levels in pastures with key or priority sage grouse habitat would be monitored to evaluate if the grazing system is resulting in maintenance or improvement of vegetative characteristics needed for suitable habitat in accordance with the Upper Snake Local Working Group's Plan for Increasing Sage Grouse Populations (USLWG, 2009), the 2006 Conservation Plan for Greater Sage Grouse in Idaho (ISGAC, 2006), and the BLM's Greater Sage-Grouse Interim Management Policies and Procedures (USDI-BLM, 2011a).

4. *Riparian Condition* – Functioning condition of riparian areas would be assessed using riparian health assessments and Multiple Indicator Monitoring to determine status relative to the overall objective of achieving proper functioning condition (PFC) (U.S. Lotic and Lentic Wetland Health Assessment User's Manual, 2005). Long – and short-term indicators of riparian vegetation, streambank, and stream channel conditions would be monitored to determine parameters that are achieving or making progress towards desired conditions as determined by the Multiple Indicator Method (MIM) (Idaho Technical Bulletin 2007-01).

Alternative C (No Grazing)

Under a No Grazing alternative, the Upper Snake Field Manager would not authorize livestock grazing in Allotment IV and Spring Creek Allotments for a 10 year period from 1/1/2015 to 12/31/2024. The permittees would retain the preference in the allotment, but would not be authorized to graze.

CHAPTER 3 - AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter provides a description of the general environmental setting and resources within that setting that could be affected by the alternatives. In addition, the section presents an analysis of the direct and indirect impacts likely to result from the implementation of the alternatives.

General Setting

Allotment IV is located approximately five miles north of Hamer in Jefferson County, Idaho. The allotment includes 824 acres of BLM land. The soils in the area are sands or loamy sands with the exception of lava rock outcroppings. These sands form minor dunes or swells that make up the majority of the topography. Elevations range from 4820 to 4900 feet. Annual average precipitation is between 8 and 12 inches, with most coming in the form of snow or early spring rains. A well-travelled county road runs from west to east along the southern boundary of the allotment.

Spring Creek Allotment is located about 12 miles north of St. Anthony in Fremont County, Idaho. The general topography of the allotment consists of low rolling lava outcrops. The elevation in the Spring Creek Allotment is approximately 5,320 feet above sea level. The average annual precipitation in the area ranges from 12 to 16 inches, with most of it occurring between the months of April and September. A well-travelled county road runs from west to east along the southern boundary of the allotment.

Resources Considered in the Impact Analysis

The results of the site-specific assessments indicate that not all of the resources considered are present and/or would be impacted by the alternatives. Direct and indirect impacts on those resources that are present and impacted are discussed in the following narratives within Table 1.

Table 1. Resources Considered in the Impact Analysis

Resource	Resource Status	Rationale
Vegetation	**Present, Impacted**	**Impacts are disclosed under Vegetation.**
Invasive, Non-Native Species	**Present, Impacted**	**Impacts are disclosed under Invasive, Non-Native Species.**
Soil Resources	**Present, Impacted**	**Impacts are disclosed under Soil Resources.**
Wetlands and Riparian Zones	**Present, Impacted**	**Impacts are disclosed under Wetlands and Riparian Zones.**
Floodplains	**Present, Impacted**	**Impacts are disclosed under Floodplains.**
Water Quality	**Present, Impacted**	**Impacts are disclosed under Water Quality.**
Wildlife Resources	**Present, Impacted**	**Impacts are disclosed under Wildlife.**
Threatened, Endangered, and Sensitive Animals	**Present, Impacted**	**Impacts are disclosed under Threatened, Endangered, and Sensitive Animals**
Migratory Birds	**Present, Impacted**	**Impacts are disclosed under Migratory Birds.**
Economic and Social Values	**Present, Impacted**	**Impacts are disclosed under Economic and Social Values.**

Table 1. Resources Considered in the Impact Analysis		
Resource	**Resource Status**	**Rationale**
Access	Present, not Impacted	None of the alternatives would result in changes to public access in the vicinity of either allotment.
Air Quality	Present, not Impacted	None of the alternatives would result in the production of emission or particulate matter above incidental levels.
Cultural Resources	Present, not Impacted	Programmatic consultation under the National Historic Preservation Act of 1966 (as amended) has been conducted in accordance with the BLM National Programmatic Agreement and the implementing Protocol agreement between Idaho BLM and the Idaho State Historic Preservation Office (ID-SHPO). Permit renewal in Allotment IV and Spring Creek allotments would have no effect on known historic properties listed or eligible for listing on the National Register of Historic Places (NRHP). If eligible properties are discovered within the allotment boundaries in the future, mitigation measures to avoid impacts would be developed in consultation with the ID-SHPO. Prior to the implementation of any ground-disturbing activities, potentially affected areas would be surveyed for cultural resources as mandated by Section 106 of the National Historic Preservation Act (NHPA).
Environmental Justice	Present, not Impacted	None of the alternatives would disproportionately affect minority or low income populations or individuals in the area or region.
Existing and Potential Land Uses	Present, not Impacted	None of the alternatives would affect the lands current and likely future use as grazing allotments.
Mineral Resources	Present, not Impacted	None of the alternatives would disturb any mineral resources in the areas.
Recreational Use	Present, not Impacted	None of the alternatives would affect the allotments' current and likely future use for recreationists.
Tribal Treaty Rights and Interests	Present, not Impacted	None of the Alternatives would have an effect on the tribes' access to use the area to exercise their treaty rights and would have no known effect on resources they use for traditional purposes.
Visual Resources	Present, not Impacted	The proposed action and alternatives are consistent with the existing VRM class management objectives.
Areas of Critical Environmental Concern (ACEC's)	Not Present	The allotments are not located within or near an ACEC.
Fisheries	Not Present	The water resources in Spring Creek Allotment have naturally high water temperatures, which creates very marginal habitat. There are no streams or fisheries habitat on Allotment IV.
Forest Resources	Not Present	There are no forest resources within the allotments.
Native American Religious Concerns	Not Present	There are no known ceremonial sites or resources associated with ceremonial practices in the allotments.
Paleontological Resources	Not Present	There are no known paleontological resources located in within or near the allotments.
Prime and Unique Farmlands	Not Present	There are no prime or unique farmlands located within the allotments.
Threatened, Endangered, and Sensitive Fish	Not Present	There are no waters in the Spring Creek Allotment area that support threatened, endangered, or sensitive fish. There are no streams or fisheries habitat on Allotment IV.
Threatened, Endangered, and Sensitive Plants	Not Present	There are no known Threatened, Endangered, or Sensitive plants or their habitat within the allotments.
Wastes, Hazardous and Solid	Not Present	There are no known locations of solid or hazardous wastes within Allotment IV or Spring Creek Allotment.

Table 1. Resources Considered in the Impact Analysis		
Resource	**Resource Status**	**Rationale**
Wild and Scenic Rivers	Not Present	There are no rivers or streams eligible for designation as Wild and Scenic within the allotments.
Wild Horse and Burro HMAs	Not Present	There are no wild horse and burro HMAs in the region.
Wilderness	Not Present	There are no wilderness areas or WSAs near the allotments.

Vegetation

Affected Environment

Allotment IV

The primary ecological site on Allotment IV is basin big sagebrush *(Artemisia tridentata* ssp. *tridentata)* / Indian ricegrass *(Oryzopsis hymenoides*)/ Needle-and-Thread (*Hesperostipa comata*), which is found on sandy soils. Other common species across the allotment include green rabbitbrush (*Chrysothamnus viscidiflorus*), winterfat (*Ceratoides lanata*), squirreltail (*Elymus elymoides*), sand scurfpea (*Psoralidium* sp.), sand or yellow wildrye (*Leymus flavescens*), western wheatgrass (*Pascopyrum smithii*), and cheatgrass (*Bromus tectorum*). Based on the NRCS ecological site description, the allotment produces about 750 pounds per acre of biomass each year. On all ecological sites, the annual production varies with soil depth and current year precipitation.

A field assessment conducted in Allotment IV in 2013 rated eight of the nine indicators for Biotic Integrity at none to slight departure from site potential. The relative amounts and proportions of shrubs, forbs, and grasses were similar to ecological site potentials. Large bunchgrasses were well represented, with many preferred species present and reproducing. The amounts of bare ground, litter and microbiotic crust were all appropriate for site potential. Invasive Plants was rated as a slight to moderate departure from site potential. Spotted knapweed (*Centaurea stoebe L.*) was found in the southern end of the allotment along the Monteview-Hamer Road. The size of the infestation is about one acre and old seed stalks are present. The knapweed occurs in an area where a neighboring irrigation pivot overshoots and waters along the road. Cheatgrass (*Bromus tectorum*) was also scattered throughout the area, but the amount of cheatgrass found was similar to the reference areas for the ecological site.

Other than the spotted knapweed and cheatgrass found in the allotment, the native plant community shows no meaningful departure from what is expected for this site based on the NRCS site description. The main factor affecting the plant communities is the instability of the sandy dune topography on portions of the allotment. The plants found on the tops and sides of less stable dunes include more annual vegetation and sprouting shrubs than the rest of the area. The areas that are more stable sands are dominated by perennial bunchgrasses and sagebrush.

Ecological Site Inventory (ESI) is a long term trend monitoring method that uses vegetation composition by weight to determine a site's ecological condition. ESI sites are rated as early seral (zero to 25 percent), mid-seral (26 to 50 percent), late seral (51 to 75 percent), or potential

natural community (76 to 100 percent), based on how closely a given site matches its corresponding ecological site description. A change of five percent or more from the previous ESI is considered a downward or upward trend in ecological condition, depending on the direction of the change. Changes of less than five percent are considered a static trend. However, Holochek et al. (2001) noted that recent climatic conditions can greatly influence apparent trend. They found that changes in production were consistent across ungrazed, lightly grazed, and heavily grazed areas, varying with annual precipitation amount. Therefore, climatic fluctuations at the time the ESI is conducted need to be taken into account before trend can be determined.

An ESI was conducted in Allotment IV in 1982 and 2013. The climatic conditions between 1980 and 1982 were relatively wet as compared to the long-term averages, and conditions have been very dry relative to the averages between 2011 and 2013 (WRCC, 2013). Table 2 shows the long term and short term climate averages for the Hamer 4 NW climate station.

Table 2. Hamer 4 NW Climate Station Data (WRCC, 2013).

	Inches	Percent of Average
1948-2013 Average Annual Precipitation	8.62	100%
1948-2013 Average January-June Precipitation	4.89	100%
1980-1982 Average Annual Precipitation	10.61	123%
1980-1982 Average January-June Precipitation	6.24	128%
2011-2013 Average Annual Precipitation	5.76	67%
2011-2013 Average January-June Precipitation	2.71	55%

In 1982, the site was at its potential natural community (PNC), at 83 percent similarity to site potential. In 2013, the site was in late seral condition, at 72 percent similarity to site potential. Although the apparent trend is downward, the actual trend is likely stable, at or near the site potential when recent climatic conditions are considered. Notes at the time the 2013 ESI was conducted indicate that most of the Indian ricegrass plants were lacking seed heads, which normally make up a substantial amount of the total production for this species.

A point-intercept cover transect following the Habitat Assessment Framework protocol (Stiver, 2010) was conducted on the allotment during the 2013 field assessment. This transect represents the more stable areas of the allotment, as opposed to the active dune areas. The point-intercept cover data collected during the field assessment are summarized in Table 3.

Table 3. Ground Cover, Foliar Cover, and Relative Dominance of Functional/ Structural Groups Compared to Site Potentials.

	Ground Cover %	Foliar Cover %	Actual Dominance or Cover	Expected Dominance or Cover
Perennial Bunchgrasses		26	1st	1st
Nonsprouting Shrubs		15	2nd	2nd
Sprouting Shrubs		9	3rd	3rd
Perennial Forbs		1	5th	4th
Rhizomatous Grasses		2	4th	5th
Annual Forbs		1	5th	6th
Annual Grasses		1	5th	Not ranked
Litter	27			10 to 25%
Bare Ground	21			10 to 20%
Microbiotic Crust	0			0 to 5%
Rock	0			

A permanent trend plot was established in the allotment in August 2013, and vegetative cover of the native plant community was measured. A portion of the trend plot crossed active dunes, and may be used to track whether the unstable areas are moving or increasing. The areas of active dunes tend to have more early seral colonizing plants, such as cheatgrass, green rabbitbrush, and sand scurfpea than the more stable areas in the allotment. The results of the step-point trend plot are shown in Table 4, below.

The results of the trend plot measurements are similar to the description of the functional/ structural groups, and the degree of departure from site potential noted during the field assessment. The trend plot also reflects the higher cover of colonizing species found on the more active dune areas within the allotment.

Table 4. Ground Cover and Foliar Cover Summary Measured at the Trend Plot (2013).

	Ground Cover %	Foliar Cover %	Actual Dominance or Cover	Expected Dominance or Cover
Perennial Bunchgrasses		41	1st	1st
Nonsprouting Shrubs		21	2nd	2nd
Sprouting Shrubs		16	3rd	3rd
Perennial Forbs		8	4th	4th
Rhizomatous Grasses		3	5th	5th
Annual Forbs		1	6th	6th
Annual Grasses		3	5th	Not ranked
Litter	13			10 to 25%
Bare Ground	13			10 to 20%
Microbiotic Crust	0			0 to 5%
Rock	0			

The 2013 cover surveys that have been conducted in Allotment IV indicate sufficient large perennial bunchgrass cover to maintain the existing populations on the allotment. Native plant communities (flora and microbiotic crusts) are being maintained to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species. The diversity of native species is maintained. Plant vigor (total plant production, seed and seedstalk production, cover, etc.) is adequate to enable reproduction and recruitment of plants when favorable climatic events occur. Adequate litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Perennial Grass Density Measurements

The density of perennial bunchgrasses was inventoried to determine the relative number of bunchgrass species present, in terms of the number of plants per acre, on the allotment. Two species were measured; needle-and-thread (STCO4) and Indian ricegrass (ORHY). The density counts were separated into either mature plants (basal diameter of 0.5 inches or greater) or seedlings (basal diameter less than 0.5 inches). The results of the grass density inventory are shown in Table 5, below.

Table 5. Perennial Bunchgrass Species Densities and Basal Areas Found near the Trend Plot in Allotment IV (2013).

	STCO4	ORHY	TOTAL
Total Plants per Acre	44,515	18,211	62,726
Mature Plants per Acre	20,923 47%	7,284 40%	28,207 44%
Seedlings per Acre	23,592 53%	10,927 60%	34,519 55%
Average Basal Area of Mature Plants	3.5 in^2	2 in^2	-----
Basal area of Mature Plants/ Acre	155,803in^2 2.5% basal cover	36,422 in^2 0.6% basal cover	192,225 in^2 3.1% basal cover

These density and basal area measurements are comparable to an adjacent area that has received minimal incidental grazing in recent decades.

Utilization Studies

Utilization is usually mapped within two weeks of the end of the grazing season for any given pasture or allotment. Utilization is mapped into the following categories based upon livestock use or removal of available forage species: No use (zero to five percent), Slight use (six to 20 percent), Light use (21 to 40 percent), Moderate use (41 to 60 percent), Heavy use (61 to 80 percent), and Severe use (81 to 100 percent).

Utilization was mapped on Allotment IV after the fall 2013 grazing season. Most of the allotment showed moderate grazing use, and a small area showed heavy use. The average utilization on the allotment was about 52 percent.

Spring Creek Allotment

The primary ecological site in the Spring Creek Allotment is antelope bitterbrush / needle-and-thread grass (*Hesperostipa comata*). Other common species across the allotment include basin big sagebrush, green rabbitbrush (*Chrysothamnus viscidiflorus*), chokecherry (*Prunus virginiana*), Indian ricegrass (*Achnatherum hymenoides*), Sandberg bluegrass (*Poa secunda*), and western wheatgrass (*Pascopyrum smithii*). Approximately 40 to 50 percent of the composition by weight on these ecological sites is dominated by grasses, 10 to 20 percent by forbs, and 35 to 45 percent by shrubs. Annual production varies from 500 lbs/acre in unfavorable years, 900 lbs/acre in average years, to 1,200 lbs/acre in favorable years based on Natural Resource Conservation Service (NRCS) ecological site descriptions.

A field assessment was conducted across the Spring Creek Allotment using techniques described in Interpreting Indicators of Rangeland Health – Technical Reference 1734-6 (BLM 2005). All of the indicators assessed exhibited none to slight departure from site potential, except Invasive Plants. Small isolated pockets of leafy spurge (*Euphorbia esula)* were observed in the allotment. The small, isolated pockets of leafy spurge are located in or near pockets of quaking aspen and juniper. Overall, desired ecological processes are occurring, and the amount of microbiotic crust found was appropriate for the area.

Environmental Consequences

Direct impacts to vegetation from livestock grazing result from removal of vegetation and/or damage by foraging animals and indirect impacts occur as plant community composition and structure are altered by grazing. Appropriate grazing or utilization levels can have the effect of stimulating plants, resulting in increased plant production if energy reserves are adequate. If the amount of grazing use or utilization is high for a given year, or especially for a sequence of years, the composition of the vegetative community may become modified as the more desirable, and more utilized species lose vigor and decrease in density throughout the site. The Evaluations for the allotments found that the native upland plant communities were meeting standards for rangeland health.

Rangeland livestock eat grass-dominated diets in all seasons of the year, although forbs make up a higher percentage of sheep diets compared to cattle and horses. Sheep have been documented to consume greater amounts of shrubs in the winter, when other more nutritious forage sources are not as readily available. Generally, livestock diet of sagebrush is less than ten percent (Crawford et al. 2004, Ngugi et al. 1992). Poorly managed livestock grazing can negatively impact soil and site stability, biotic integrity and hydrological function in sagebrush-steppe rangelands. Properly managed livestock grazing can allow rangeland plants to build their root systems and increase nutrient storage, leading to increased survival and more robust plants, as well as increased forage production (McGinty et al. 2009). Davies et al. (2014) concluded that long-term rest compared with properly managed livestock practices generally produce similar or

indistinguishable results. Strand et al. (2014) found that livestock grazing at low to moderate levels (less than 50 percent utilization) generally has little influence on the cover of perennial grasses and forbs.

Native sagebrush grassland communities that have been altered by wildfire and/or non-native seedings can benefit from livestock grazing. Livestock grazing can facilitate sagebrush establishment and proliferation, particularly in non-native seedings (Frischknecht and Harris 1968, Angell 1997). Livestock can be an effective tool used to promote shrub establishment in rangelands impacted by wildfire. Densities of sagebrush and other shrubs can be increased when sagebrush communities are grazed in the spring and summer (Launchbaugh 2012).
Livestock grazing can act to reduce fuel accumulations, continuity, and height which can lessen the impacts of wildfire within sagebrush ecosystems. Long-term rest causes an accumulation of fine fuels that increases wildfire risk, increases fire severity and subsequently the cost of fire suppression efforts and increases the likelihood of conversion to exotic annual grasslands (Davies et al. 2014). Livestock grazing focuses primarily on herbaceous grasses and forbs which directly affect the source of fuels for wildland fires (Launchbaugh 2012). Davies et al. 2009 found that grazed sagebrush steppe (30 to 40 percent utilization of available forage) had greater perennial bunchgrass and forb cover, and decreased cheatgrass cover post-fire than areas that had not been grazed. Additionally, areas with long-term protection from livestock grazing followed by fire resulted in substantial increases in cheatgrass and annual forbs, resulting in a shift from perennial vegetation dominance to annual vegetation dominance (Davies et al. 2009). Spring livestock grazing of cheatgrass can reduce and modify fuel loads and fuel bed depth in a way that can moderate flame lengths and rates of spread of wildfires, thus reducing the potential spread and extent of wildfires (Diamond et al. 2009).

Alternative A (No Action)

Under Alternative A, livestock grazing would continue under the same terms and conditions as the current permits. No new projects would be implemented under this alternative.

Alternative A has allowed upland native habitats within both allotments to achieve the ISRH Standard 4. The seasons of use are favorable to native vegetation because it occurs after vegetation has completed the yearly growth and reproductive cycles. Because of this, vegetation is able to dedicate all energy resources to its annual life cycle without disturbance by livestock grazing, which may cause vegetation to acquire additional energy or allocate energy stores to new growth in order to recover from grazing disturbance. The season of use occurs when most vegetation is entering dormancy and foraging livestock are less likely to negatively impact vegetation.

Under Alternative A, vegetation within the allotments would continue to meet the standards for rangeland health. Existing data suggests that the physiological needs of native vegetation are being met, which aids site stability and promotes water, nutrient and energy cycle functionality.

Alternative B (Proposed Action)

Alternative B proposes to change the season of use in Allotment IV from 11/1 – 11/16 to 10/1 – 12/15 each year. The season of use would provide a longer window of opportunity for the livestock operator to make use of vegetation within the allotment compared to Alternative A. As proposed, the operator would only be authorized to graze for about two weeks within the proposed season of use. The basic schedule for Alternative B would allow 14 days of livestock use, which is the same as Alternative A. The Active AUMs would remain at 113. Changes to the number of livestock and period of use (within the proposed season of use) could be made as long as authorized AUMs were not exceeded. The basic schedule for this system would be 245 cows from 10/15 – 10/28 each year.

Alternative B also proposes to adjust the allotment boundaries in Allotment IV and Spring Creek to officially remove private lands from the allotments, as shown in Figures 4 and 5. The percent public land (%PL) in Allotment IV would be changed from 84% to 100% as a result of this boundary adjustment. These are largely administrative actions. Since the private boundary fences are already in place, no new physical impacts to the BLM lands in the allotments would be expected.

Alternative B proposes to change the season of use on Spring Creek Allotment from 8/15 – 10/30 to 8/15 – 11/15 each year. The season of use would provide a longer window of opportunity for the livestock operator to make use of vegetation within the allotment compared to Alternative A. As proposed the operator would only be authorized to graze for about three weeks within the proposed season of use. The basic schedule for Alternative B would allow 19 days of livestock use compared to 14 days in Alternative A and Active AUMs would remain at 100. Changes to the number of livestock and period of use (within the proposed season of use) could be made as long as authorized AUMs were not exceeded. The basic schedule for this system would be 250 cows from 11/1 – 11/12 each year.

The livestock use under Alternative B would occur in the fall each year on both allotments, just as the use occurring with Alternative A. The dates may vary, but the impacts associated with livestock use of vegetation in the fall would be the same as those already addressed in Alternative A. More livestock would be present on Spring Creek Allotment for a shorter period of time under Alternative B compared to Alternative A, but the authorized use (AUMs) would be the same.

Under Alternative B, vegetation within both the allotments would continue to meet the standards for rangeland health.

Alternative C (No Grazing)

Under Alternative C, all livestock grazing would be discontinued in Spring Creek Allotment and Allotment IV for a ten year period. This would increase the vigor and productivity of the native herbaceous plants in those areas of the allotments where livestock grazing has influenced the vegetative community, and allow them to increase in cover and density. This in turn would

allow the ecological condition on the allotments to continue to meet Standards for native plant community health and threatened, endangered, and sensitive species habitat health.

Livestock grazing can act to reduce fuel accumulations, continuity, and height which can lessen the impacts of wildfire within sagebrush ecosystems. The effects of removing livestock grazing on fuel accumulations and cheatgrass would be as described under general environmental consequences, above.

Under Alternative C, no livestock grazing would be authorized within the Spring Creek Allotment and Allotment IV for a period of 10 years, from 2015 through 2024. The potential impacts, including removal of vegetation and/or damage by livestock, would be removed from the allotment for a ten year period. The potential for higher than desired utilization levels in preferred areas, which may lead to changes in composition of the vegetative communities, would be removed. Increased biomass would be left on-site throughout both the allotments, increasing the amount of residual cover and litter. Over time, abundant residual biomass can decrease plant vigor if it is not removed by grazing or some other manner. However, this would not be anticipated to occur within the 10 year permit term. Vegetation throughout both the allotments was meeting standards and would continue to meet standards for native plant community health under Alternative C. Alternative C would provide for the physiological needs of vegetation to a larger degree than Alternatives A and B.

Invasive, Non-Native Species

Affected Environment

Spotted knapweed (*Centaurea stoebe L.*) was found in the southern end of Allotment IV along the Monteview-Hamer Road. The size of the infestation is about one acre and old seed stalks are present. The knapweed occurs in an area where a neighboring irrigation pivot overshoots and waters along the road. Cheatgrass (*Bromus tectorum*) was also scattered throughout the area, but the amount of cheatgrass found was similar to the reference areas for the ecological site. Occurrences of musk thistle (*Carduus nutans)* and Russian knapweed (*Acroptilon repens)* have also been observed near Allotment IV.

Noxious weed monitoring and treatment records for the public lands within the Spring Creek Allotment report occurrences of small isolated pockets of leafy spurge (*Euphorbia esula).* The small, isolated pockets of leafy spurge are located in or near pockets of quaking aspen (*Populus tremuloides)* and juniper (*Juniperus osteosperma).*

The USFO actively inventories, monitors, and treats occurrences of invasive non-native species within the field office area using the Standard Operating Procedures outlined in the Programmatic Environmental Assessment for Integrated Weed Management for the USFO and Pocatello Field Office (USDI-BLM 2009b).

Environmental Consequences

Alternative A (No Action)

The potential impacts of invasive, non-native species found near Allotment IV and Spring Creek Allotment include degradation of native and non-native vegetative habitats. Seeds of undesirable species may be dispersed by wind, water, animals, or humans. The native upland habitats were found to be meeting ISRH, which reduces the potential for invasion from undesirable species. Alternative A would continue current livestock management, which would continue to provide for healthy native habitats (see Vegetation). By maintaining and/or improving the ecological health of the current native plant communities in allotments, the opportunity for expansion of invasive, non-native species would be reduced. Under Alternative A, infestations within the allotments would continue to be treated following an integrated weed management approach (USDI-BLM 2009b).

Alternative B (Proposed Action)

Under Alternative B, there would be no change in the authorized use levels and the impacts on native habitats would be similar to Alternative A in terms of use levels. Non-native, invasive species would continue to be resisted by healthy native habitats. Alternative B proposes to adjust dates on the seasons of use on Allotment IV and Spring Creek, but the grazing use would continue to be made in the fall each year. This action would have little effect on native habitats compared to the current situation (see **Vegetation**). Under Alternative B, vegetative communities in the area would continue to be healthy and infestations within the allotments would continue to be treated following an integrated weed management approach (USDI-BLM 2009b).

Alternative C (No Grazing)

Livestock grazing is one activity in Allotment IV and Spring Creek Allotment that could aid in the dispersal of invasive, non-native species. Other potential vectors in the areas include but are not limited to vehicles, wind, recreationists, waterways, and a wide variety of wildlife including birds. Under Alternative C no livestock grazing would be authorized in the allotments for 10 years. Under Alternative C, the potential establishment or expansion of invasive, non-native species would be less than Alternative A or B due to the removal of this vector under Alternative C. Under Alternative C, all new and existing infestations within the project areas would continue to be treated following an integrated weed management approach (USDI-BLM 2009b).

Soil Resources

Affected Environment

The topography of both allotments is flat to rolling hills. Overall the soils, in both allotments are similar in depth, drainage, and profile, comprised mainly of sand. The primary soil series found

on Allotment IV are Grassy Butte, Diston, and Matheson all mixed with rock outcrops. In general, these soils formed from eolian deposits over basalt. The soils are moderately to very deep and well to excessively drained. The Juniperbute soil series is the dominate soil type found in the Spring Creek Allotment. The Juniperbute series is typically found on basalt plains and stabilized dunes. This type of soil is very deep, excessively drained, fine sand. Permeability is very rapid and available water capacity is low. Water runoff on both allotments is slow due to the permeable nature of the soils and water erosion is of little concern. Erosion occurs primarily via wind action and the threat is relatively high. Most soils have a sandy texture and compaction is not common. Both allotments have sufficient vegetative cover to stabilize the soil surfaces and prevent excessive erosion by wind.

Microbiotic crusts are an important component of the ecological sites in the allotments. They function as living mulch by retaining soil moisture and discouraging annual weed growth. By occupying interspatial areas between larger plants, these crusts reduce wind and water erosion, and they enhance soil stability, soil moisture retention, and site fertility by fixing atmospheric nitrogen and contributing soil organic matter (Belnap, et al., 2001). Microbiotic crusts primarily affect processes at the soil-air interface including, soil stability and erosion control, atmospheric N-fixation, nutrient contributions to plants, soil-plant-water relations, infiltration, seedling germination, plant growth, and invasive annuals control (Belnap & Gillette, 1998).

Within Allotment IV there is approximately one mile of road, five miles of fence and one livestock watering trough. Soil compaction and reduced ground cover are more likely to occur along livestock trails, roads, fences and troughs as a result of livestock use. Assuming livestock impact an average area of 12 feet around roads, four feet around fences and 0.5 acres around troughs the total impacted area of Allotment IV would be 4.4 acres, which is less than one percent of the entire area of the allotment. Within Spring Creek Allotment there are approximately three miles of road and three miles of fences. Using the above assumptions about average livestock impacts, the total area of Spring Creek Allotment directly impacted by livestock would be 5.9 acres, which is about one percent of the entire area of the allotment. Livestock trails have not been quantified within the allotments, but would likely fall within the impact areas made in the assumptions above.

All of the 12 Soil and Site Stability and Hydrologic Function indicators showed none to slight departure from site potential on both allotments. The bare ground percentage in the crested seeding area was higher than the amount of bare ground expected in native reference sites. Generally, the soil surfaces on Allotment IV and Spring Creek Allotments have adequate vegetative cover to protect against wind and water erosion.

Both Allotment IV and Spring Creek Allotment provide for adequate infiltration, retention, and water release appropriate to soil types, vegetative cover, and landforms to provide for proper nutrient cycling, hydrologic cycling, energy flow, and site stability. Evidence of soil erosion is within the natural range for the sandy soil types and landforms found on the allotments.

Environmental Consequences

The potential impacts to soils from livestock grazing include soil compaction and a reduction in the amount and distribution of ground cover resulting in accelerating erosion as evidenced by rills, pedestals, wind-scoured blowouts and/or deposition areas and flow patterns. Soil compaction by heavy objects, including trailing by livestock, has the potential to penetrate and compact soil material to depths of 15 to 20 inches, depending upon soil composition, particle size, and moisture content. The majority of the soil units have limited potential for compaction due to gravelly nature of the soils. Generally, the soils in the allotment will have increased moisture levels in the spring compared with the summer or fall. The soil from the surface to a depth of four to six inches is typically released from compaction by frost action. Deeper soil compaction that is not affected by frost action may remain in the soil for years. Deep soil compaction restricts root growth reducing plant vigor and community composition and reduces soil productivity. Soil compaction resulting from intensive livestock use, such as along trails and next to water sites, is estimated to occur on less than one percent of the allotment area.

Mechanical impacts from livestock activities can negatively affect biological soil crusts that function as living mulch, retain soil moisture, provide stability, influence nutrient cycling, and discourage annual weed growth. Biological soil crust condition and spatial extent can be indicators of the ecological health of the plant community; thus, disturbance that results in losses of biological crusts can reduce site fertility and soil productivity and soil moisture retention, and further reduces soil surface stability and soil organic matter (Eldridge & Greene, 1994) (Belnap & Gillette, 1998).

Season of use by livestock has an effect on biological soil crust cover and species richness (Marble & Harper, 1989). Microbiotic crusts are only metabolically active when wet, and as they dry out during the summer season they become brittle. Dry periods combined with physical disturbance tend to be the most destructive combination for crust. Microbiotic crust can also be disturbed in wet seasons, although biological soil crusts are not as fragile during moist periods and may continue to grow from late winter through early spring with favorable soil water conditions. Growth can be disrupted if excessive livestock surface disturbance persists during that time.

Alternative A (No Action)

Under Alternative A, soil surface disturbance and compaction would not increase beyond current levels. Soil compaction resulting from intensive livestock use, such as along trails, roads or next to water sites, is estimated to occur on less than one percent of the allotment areas. Under Alternative A, soil conditions on both allotments would continue to support water infiltration and permeability rates appropriate to site potentials. The generally sandy texture of most soils within the allotments decreases the likelihood of compaction, as sandy soils are less susceptible to compaction. Native habitat standards are being met within the allotments and vegetative cover on the allotments under Alternative A would continue to be sufficient to protect against wind and water erosion.

Alternative B (Proposed Action)

Under Alternative B, the level of existing soil disturbance in Allotment IV would not increase above the levels expected under Alternative A. The primary difference between Alternatives A and B is the season of use change allowing a larger window of opportunity for use. Changing the timing of use in the fall as proposed under Alternative B, would have little impact on soils. The amount of AUMs utilized would not change between the alternatives. Overall the amount of soils impacted by livestock activity would be less than one percent of the allotment area. Under Alternative B, soil conditions would continue to support water infiltration and vegetative cover would be sufficient to protect against wind and water erosion.

The riparian project on Spring Creek would result in slightly increased impacts to soil resources under Alternative B, as compared to Alternative A. Under this alternative, there would be slightly more soil surface disturbance and compaction than Alternative A in areas of livestock concentration at the new water gap along Sand Creek. There would also be some minimal soil surface disturbance and compaction in a narrow area adjacent to the east side of riparian fence, as livestock commonly trail along fences more intensively. The increase in compaction would occur on a small area of the total acreage of public lands and would not be a critical factor in maintaining rangeland health.

Alternative C (No Grazing)

Under Alternative C, the impacts to soil resources would be less than under Alternatives A and B. Under Alternative C, no livestock would be authorized in the allotment for a period of 10 years. The limited soil compaction related to livestock use in the portion of the soil profile which is typically released annually through frost action, would not be subject to repeated compaction. Areas where soil is exposed due to removal of vegetative cover by grazing livestock would begin to provide cover to soils. Overall, Alternative C would continue to achieve soil and watershed standards within both allotments.

Floodplains

Affected Environment

There are no Floodplains in Allotment IV.

In 2010, a total of 0.25 miles of Sand Creek was assessed in the Spring Creek Allotment. The channel/floodplain indicators on Sand Creek were rated as proper functioning condition (PFC). The overall condition of the streambanks are stable (average of 98% streambank rootmass protection) with an adequate cover of riparian vegetation graminoids (grasses, sedges and rushes). Bare ground was less than one percent. There was little alteration to the channel and floodplain and the stream was not incised. Sand Creek was previously assessed in 2000 and the condition of the channel/floodplain was rated functioning at risk (FAR). Between 2000 and 2010, channel/floodplain along Sand Creek has exhibited an upward trend.

Environmental Consequences

Alternative A – No Action

Under Alternative A, the current grazing permit would be renewed and the channel and floodplain characteristics along Sand Creek would continue to be PFC. Although Sand Creek is PFC, the potential for some hot season grazing on the riparian areas in August and September could occur, although the basic schedule would authorize use in November.

Alternative B – Proposed Action

Under Alternative B, a dormant season grazing system would be authorized where the permittee would use the allotment in November each year. Although the AUMs would be the same under Alternative A and B, the riparian area in Alternative B would be enclosed inside a riparian exclosure. Currently, there is an existing fence on the west side of Sand Creek. In order to complete the exclosure, a fence would be constructed on the east side of the creek. Under this alternative, Sand Creek would be excluded from livestock grazing, with the exception of a watergap at an existing road crossing. Without the construction of the riparian fence, the potential impacts associated with livestock grazing during the hot season would be greater. Limiting the duration of use in riparian/wetland areas, removing grazing during the hot season, and using facilities to remove or reduce livestock access to riparian areas are recognized best management practices (BMPs) for managing livestock use on streams and riparian systems (Ehrhart and Hansen, 1997; Ehrhart and Hansen, 1998; Leonard et al, 1997; Mosley et al, 1997). Under the proposed action, the channel and floodplain on Sand Creek would continue to maintain PFC. Overall, the proposed action would be more beneficial to the channel and floodplain characteristics of Sand Creek compared to Alternative A because the riparian area, with the exception of the water gap, would be closed to cattle grazing.

Alternative C – No Grazing

Under Alternative C, no livestock grazing would be authorized in the Spring Creek Allotment for a 10 year period. The channel and floodplains would continue to be PFC and meet standards for rangeland health.

Water Quality

Affected Environment

There are no streams or flowing water on Allotment IV.

Sand Creek is not on the Idaho Department of Environmental Quality's (DEQ) 303(d) list of water quality-limited streams. BLM assessed water quality standard indicators in 2010 and found that most of the indicators were in the "plus" condition. Surface sediment was rated not

functional because constant stirring and suspension of sand particles were observed, providing some turbidity, but this is a natural condition of this sand-bottom stream. The streambanks, being stable and fairly densely-covered with vegetation, did not appear to have much livestock-induced sediment impacts. There is no unnatural streambank erosion except for one road crossing. Sediment input and depositional areas along Sand Creek appeared to be natural features. There was no excess of nutrients in the system and macroinvertebrate presence and abundance were appropriate for a warm water spring system. High water temperatures measured in Sand Creek are due to the upstream reservoirs (one of which is Arcadia Reservoir) contributing to this thermal load.

Environmental Consequences

Alternative A – No Action

Under the present grazing system, water quality in the allotment would continue to meet the necessary chemical, physical, and biological qualities needed to meet beneficial uses for Sand Creek. Under this alternative, bank stability and riparian vegetation would continue to increase, and decrease fine sediment addition to the stream would continue to decrease, and the water quality would continue to meet the standard on this allotment. It is likely water temperature would not improve given the upstream reservoir.

Alternative B – Proposed Action

Under Alternative B, the majority of Sand Creek would be excluded from livestock grazing. The only area along the stream reach that would be assessable to livestock would be a small watergap. A small amount of sedimentation into Sand Creek could occur at the watergap. The potential impacts associated with Alternative B would be less than Alternative A.

Alternative C – No Grazing

Under Alternative C, cattle grazing in the Spring Creek Allotment would not be authorized for a period of ten years. Riparian vegetation along the stream reach would improve at a faster rate than either Alternative A or B because livestock grazing would not be authorized in the allotment for a ten year period. Improving the riparian vegetation on Sand Creek would in turn improve the stream reaches bank stability and sediment loading capabilities. Under all three alternatives, the recorded high water temperatures should remain constant because of the influences of the upstream reservoirs. Sand Creek would continue to meet water quality standard indicators, under Alternative C.

Wetlands and Riparian Zones

Affected Environment

There are no wetlands or riparian zones on Allotment IV.

Approximately 0.3 miles of Sand Creek flows through the public land portion of the Spring Creek Allotment, forming about 0.5 acres of riparian-wetland vegetation. The vegetation is a sedge meadow community dominated by Baltic rush (*Juncus balticus*), Nebraska sedge (*Carex nebrascensis*), and beaked sedge (*Carex utriculata*). A few young willows (*Salix* spp.) are also present along the reach.

Riparian health assessments conducted in 1995 and 1997 indicated that the riparian vegetation along this reach was nonfunctional (NF). A 2000 survey showed an upward trend to functional at risk (FAR) condition, while the 2010 assessment indicates that the area has greatly improved and has attained proper functioning condition (PFC).

This is a low-gradient stream with a sandy bottom and stable, undercut banks. In 2010, no current livestock impacts were noted, nor were any noxious weed species observed. Old livestock trailing is evident, but these areas are healing well and are almost completely revegetated. The overall vegetative cover is nearly 100 percent, and although the potential for a dense willow canopy is limited, over 15 percent of the willows present are seedlings or saplings. Browse utilization of the young willow is moderately high as a result of wildlife use, but overall, the willows present are healthy with only about five percent being dead or decadent. Undesirable herbaceous species such as Kentucky bluegrass make up about eight percent of the vegetative cover.

Environmental Consequences

Alternative A – No Action

Under Alternative A, the existing grazing permit would be reissued with the same terms and conditions. Sand Creek would be grazed in the late summer and fall each year. Under this alternative, the riparian vegetation on Sand Creek would continue to maintain a PFC rating.

Alternative B – Proposed Action

Under Alternative B, the only segment of Sand Creek that would be authorized to livestock grazing would be a small water gap. Impacts associated with livestock grazing on the willow seedlings and saplings would be greatly reduced with the construction of the riparian exclosure. Since the allotment is located in a wintering area for big game species, wildlife browsing during the fall and winter months on the willows may continue regardless of the riparian fence. The riparian vegetation, under this alternative, would continue to maintain a PFC rating because it would be excluded from all livestock use.

Alternative C – No Grazing

Under Alternative C, the riparian vegetation on Sand Creek would continue to maintain a PFC rating. Other than the small hardened water gap, Alternative B and C would have the same

impacts associated with livestock grazing. Of the three alternatives, livestock grazing would only be authorized in the riparian area under Alternative A.

Migratory Birds

Affected Environment

Migratory bird species associated with shrub-steppe that typically breed within the Upper Snake Field Office include species such as Brewer's sparrow, sage sparrow, sage thrasher, vesper sparrow, western meadowlark, Bullock's oriole, and loggerhead shrike. Inventory and monitoring data are limited or absent for many migratory species, including sagebrush obligates associated with these allotments. Little is known about their population status or trends. Shrub-steppe birds that require sagebrush as nest sites would benefit from mostly intact mature sagebrush stands within the allotments. The allotments are also used for foraging during different seasons by migratory raptors such as rough-legged hawk, ferruginous hawk, Swainson's hawk, northern harrier, red-tailed hawk, prairie falcon, and short-eared owl. However, there is likely little raptor nesting occurring within these allotments due to limited nesting substrate. Native habitats were rated in late-seral ecological condition and provide for a diversity of bird species associated with shrub-steppe communities.

Environmental Consequences

Migratory birds generally do not respond to the presence of grazing livestock, but to the impacts on vegetation as a result of grazing. The principal means by which livestock grazing impacts migratory bird populations is by altering habitat structure and food availability. Livestock have the potential to directly impact migratory bird species by reducing, at least temporarily, required understory grasses and forbs used for foraging, nesting and cover from predators. Livestock grazing impacts include compaction of soil by hoof action, removal of plant materials, and indirect reduction of water infiltration, all of which can result in decreased vegetation density (Saab et al. 1995). Productive habitats are important for migratory birds to hide from predators, forage, mate and nest; especially during spring. However, songbirds may respond differently to livestock grazing impacts, primarily due to their forage and nesting requirements. For example, sage sparrow appear to respond positively to grazing; while vesper sparrow, Savannah sparrow and western meadowlark appear to respond negatively; and mourning dove, loggerhead shrike, lark sparrow, sage thrasher and Brewer's blackbird may be unresponsive or show mixed responses to grazing impacts (Bock et al. 1993).

Similar to songbirds, migratory raptors also show a range of responses to grazing with some species (i.e., northern harrier) requiring increased ground cover and other species (i.e., burrowing owl) responding positively to reduced ground cover or bare ground (Saab et al. 1995).

Alternative A (No Action)

Under a No Action alternative, the Upper Snake Field Manager would authorize continued livestock grazing under the same terms and conditions as the current permits. Under Alternative A, no additional improvements or projects would be authorized in Allotment IV or Spring Creek Allotments. Allotment IV was evaluated in 2013 and Spring Creek was evaluated in 2011, the native plant communities were found to be meeting rangeland health standards in both allotments. There is little trend information on migratory birds available for these allotments. However, as the allotments are meeting rangeland health standards it is expected that habitat requirements (e.g., cover, food, space) of migratory birds are being met and would continue to be met under Alternative A.

Alternative B (Proposed Action)

Grazing impacts on migratory birds from Alternative B would be similar to those of Alternative A. Under Alternative B, the fall grazing season would be lengthened by 30 days in Allotment IV and 15 days in the Spring Creek Allotment, but the total amount of use would remain the same as measured by authorized AUMs. Most migratory birds leave the area in the fall and are not directly impacted by fall grazing. The fall livestock grazing use indirectly impacts migratory birds by reducing the amount of residual herbaceous vegetation available as forage or cover for migratory birds and their prey bases during the following spring. Because these allotments are currently meeting rangeland health standards and there would be no increase in the amount of authorized AUMs, the herbaceous species in these allotments would be expected to maintain their vigor and productivity to provide suitable foraging and cover habitat for migratory birds.

Also proposed in Alternative B is to construct a 0.3 mile fence on the east side of Sand Creek in the Spring Creek Allotment to create a riparian exclosure. The combination of building the east side fence and using an existing fence on the west side of the creek would create the riparian exclosure. The exclosure would be closed to livestock grazing (Figure 5). Direct impacts from fencing would be increased perches for hunting, singing and territorial displays which may increase fitness and mating potential, but it may also increase their visibility to potential predators. Further impacts would be potential fence strikes resulting in injury or possible mortality of individual birds, more likely larger birds such as hawks and owls. As fences would be built outside of the nesting season there is little concern of disturbance or destruction of nests or nestlings. As this portion of the creek would be excluded from cattle grazing, the riparian habitat condition would improve, creating a richer environment for migratory birds.

Alternative C (No Grazing)

Under Alternative C, no livestock grazing would be authorized within Allotment IV or Spring Creek Allotments for a period of 10 years, from 2015 through 2024. Impacts to migratory birds from no grazing would vary by species as discussed under the Environmental Consequences. In general, understory cover (e.g., grasses and forbs) would increase in size and vigor and provide habitat critical to migratory bird life cycles. The increase in understory vegetation, and lack of disturbance and competition, would allow the allotments to continue to meet rangeland health

standards and provide suitable habitat for migratory birds. There would be no displacement or disturbance of migratory birds during crucial breeding, nesting and brood-rearing seasons. No riparian exclosure would be needed, and negative impacts described above would not occur.

As residual herbaceous and litter cover increases, the continuity of fine fuels would increase, thereby increasing the risk of a larger and more severe wildfire than would likely occur if the allotments were grazed. Wildfires would reduce the sagebrush cover in the allotments which could be detrimental to sagebrush obligate species.

Threatened, Endangered, and Sensitive Animals

All data known to the Upper Snake Field Office, including data from U.S. Fish and Wildlife Service, Idaho Department of Fish and Game, and the Idaho Natural Heritage Program has been considered to identify any plant or animal species currently listed under the Endangered Species Act (ESA). There are no threatened or endangered species within these allotments. There is one candidate species, greater sage-grouse, within Allotment IV and Spring Creek Allotments.

Table 8 lists special status species that have been identified as occurring or potentially occurring within the allotments. BLM includes the following as special status species:

(1) Species officially listed or proposed for listing as threatened or endangered under the ESA or candidates for listing as threatened or endangered under the ESA.
(2) Species listed by a State in a category such as threatened or endangered implying potential endangerment or extinction.
(3) Species designated by the BLM State Director as sensitive.

The probability of species occurring and rationale for occurrence are listed in Table 6. Species not occupying seasonal ranges or not expected to occur within these allotments are not discussed in the assessment.

Table 6. Special Status Species and Occurrence within Allotment IV and Spring Creek Allotments.

Species	Status[a]	Occurrence	Rationale
Greater sage-grouse (*Centrocerus urophasianus*)	C	Present in both allotments	Preliminary Priority and General Habitat.
Prairie falcon (*Falco mexicanus*)	S	Potential in both allotments	Potential habitat within allotment. Nest sites not identified.
Ferruginous hawk (*Buteo regalis*)	S	Potential in both allotments	Potential habitat within allotment. Nest sites not identified.
Brewer's sparrow (*Spizella breweri*)	S	Potential in both allotments	Potential breeding habitat present.
Sage sparrow (*Amphispiza belli)*	S	Potential in both allotments	Potential breeding habitat present.

Table 6. Special Status Species and Occurrence within Allotment IV and Spring Creek Allotments.

Species	Status[a]	Occurrence	Rationale
Loggerhead shrike (*Lanius ludovicianus*)	S	Potential in both allotments	Potential breeding habitat present.
Piute ground squirrel (*Spermophilus mollis artemisae*)	S	Potential in both allotments	Potential habitat present.
Pygmy rabbit (*Brachylagus idahoensis*)	S	Potential in both allotments	Potential habitat present.
Columbian sharp-tailed grouse (Tympanuchus phasianellus columbianus)	S	Present only in Spring Creek Allotment	Breeding habitat.

Status Codes: C=Federal Candidate Species, S=BLM Sensitive Species, T=Federal Threatened Species

On March 23, 2010 the US Fish and Wildlife Service determined that listing the Greater sage-grouse was warranted, but precluded by higher listing priorities (USFWS 2010). Currently considered a Candidate species by the USFWS, greater sage-grouse are strongly correlated with the distribution of sagebrush habitats as they depend on a variety of shrub steppe habitats throughout their life cycle, and are considered obligate users of several species of sagebrush (USFWS 2010). They exhibit strong site fidelity to seasonal habitats (USFWS 2010). Habitat for sage-grouse within the BLM is currently managed under Instruction Memorandum No. 2012-043 - Greater Sage-Grouse Interim Management Policies and Procedures. Local management actions also follow the Upper Snake Local Working Group's Plan for Increasing Sage-Grouse Populations (USLWG 2009) and the Conservation Plan for Greater Sage-Grouse in Idaho (ISGAC 2006).

Sage-grouse require large tracts of relatively continuous sagebrush cover throughout the entire year (Pehrson and Sowell 2011). In general, the Preliminary Priority Habitat (PPH) designation is based on sage-grouse populations as identified in *Sage-grouse Priority and General Areas in Idaho* (BLM 2011 and Makela and Major 2011). In particular, PPH is based on combined high male lek attendance, high lek density and high lek connectivity. Impacts in these areas result in impacts to sage-grouse population centers and movement corridors. In addition, these allotments are identified as key sage-grouse habitat (Makela and Major 2011) which is described as large-scale, intact sagebrush steppe areas with the potential for small inclusions of perennial grasslands, either native or introduced, or other habitats (e.g., mountain mahogany) to be present.

Sage-grouse within these allotments are considered part of the Snake-Salmon-Beaverhead ID population whose trend, as indicated by average number of males per lek, has declined by 57 percent from 1965–1969 to 2000-2007 (Garton et al. 2011). However, this population has been stable since 1992, fluctuating around 5,000 males (Garton et al. 2011). Garton et al. (2011) conclude through their population analysis that the Snake-Salmon-Beaverhead ID population has a zero percent chance of dropping below a minimum viable population of 500 males in the next 100 years.

There are no sage-grouse leks within Allotment IV, and three occupied leks within five miles of the allotment. The Table Butte area, which includes the Allotment IV, provides habitat for sage-grouse during critical portions of the year including breeding, brood-rearing, and winter use. Between the dates 1997-2002, a sage-grouse telemetry project was conducted on the table butte area. The sample size included 37 birds, which were collared and movement patterns recorded. While some use by sage-grouse are expected, the study showed the use by collared birds to be very limited within the Allotment IV, with only one data point over the entire study period.

Like Allotment IV, the Spring Creek Allotment has no known sage grouse leks within the allotment, but multiple leks are located near the allotment. There are 12 leks within five miles of the allotment. Of these, three are of occupied status and nine are of undetermined status due to lack of recent surveys. The allotment meets standards as suitable breeding habitat; however the tall sagebrush growth form may diminish breeding habitat suitability for sage grouse nesting. Results of the assessment for Standard 8 (sensitive species habitats) would indicate suitable conditions as late-brood rearing habitats in both riparian and uplands.

West Nile virus has been identified as a threat to sage-grouse populations (USFWS, 2010). Incidences of West Nile virus peaked in eastern Idaho in 2007. There has been a very low incidence of West Nile Virus in the counties within or adjacent to the Upper Snake Field Office area in the last four years (USDI-USGS, 2013). West Nile virus is spread primarily through contact with infected mosquitoes. Livestock water sources (i.e. trough locations) may increase the distribution and abundance of mosquitoes that contribute to the spread of the West Nile virus if they have attributes beneficial to mosquitoes. These attributes include those that create shallow water depths, shade during the heat of the day, and vegetation and debris cover that provides shelter from predators of mosquitoes (Zau et al. 2006). Livestock watering facilities can become breeding habitat for mosquitoes if water is left stagnant long enough to become warm, and grow algae or other vegetation. While in use, livestock watering troughs do not hold standing water. Instead, there is a regulated flow of cold water from a well or storage tank, which livestock drink from throughout the day. The potential for standing water at livestock troughs occurs once the livestock leave, and fresh water is not being added to the trough.

Two sage-grouse habitat assessments were conducted within the Allotment IV in 2013, using the protocol established by Stiver et al. (2010) for assessing sage-grouse habitat. Breeding habitat indicators are as follows: (1) sagebrush canopy cover, (2) sagebrush height, (3) sagebrush growth form for nesting, (4) grass and forb heights, (5) perennial grass cover, (6) forb canopy cover, and (7) forb diversity. Winter habitat indicators are as follows: (1) sagebrush canopy cover, and (2) sagebrush height. According to WRCC (2012), the highest snow depth in the Hamer, ID area (approximately five miles from the allotment) occurs in the month of December. These snow depths were recorded from 1948 to 2005 and yield an average of 7.7 inches (19.5 cm). This data was used to determine winter habitat suitability based on sagebrush height above snowpack.

Overall, the allotment's breeding, late brood-rearing and winter habitats for sage-grouse are ranked as suitable. Table 7 includes the habitat assessment results and overall suitability rankings for Allotment IV.

Table 7. Allotment IV Sage-Grouse Habitat Assessment and Suitability Rankings, 2013.

Habitat Indicators	Suitable	Marginal	Unsuitable
Breeding Habitat			
Average Sagebrush Canopy Cover	1	2	
Average Sagebrush Height – Arid Site	2	1	
Sagebrush Growth Form	1	2	
Average Grass and Forb Height	1,2		
Average Perennial Grass Canopy Cover – Arid Site	1		2
Average Forb Canopy Cover – Arid Site			1,2
Preferred Forb Abundance and Diversity	1,2		
Overall Rank	**X**		
Upland Sumer Habitat			
Average Sagebrush Canopy Cover	1,2		
Average Sagebrush Height	2	1	
Average Perennial Grass and Forb Canopy Cover	1,2		
Preferred Forb Abundance and Diversity	1,2		
Overall Rank	**X**		
Winter Habitat			
Sagebrush Canopy Cover	1,2		
Sagebrush Height (availability during winter)	1,2		
Overall Rank	**X**		

1-Allotment IV Stop #1, **2**-Allotment IV Stop #2

One sage-grouse habitat assessment was conducted within Spring Creek Allotment in 2010. Breeding habitat indicators are as follows: (1) sagebrush canopy cover, (2) sagebrush height, (3) sagebrush growth form for nesting, (4) grass and forb heights, (5) perennial grass cover, (6) forb

canopy cover, and (7) forb diversity. Upland summer habitat indicators are as follows: (1) sagebrush canopy cover, (2) sagebrush height, (3) perennial grass and forb cover, and (4) preferred forb abundance and diversity.

The allotment meets standards as suitable breeding habitat; however the tall sagebrush growth form may diminish breeding habitat suitability for sage grouse nesting. Results of the assessment for Standard 8 (sensitive species habitats) would indicate suitable conditions as late-brood rearing habitats in both riparian and uplands.

Columbian Sharp-tailed grouse have declined significantly throughout their range during the 20th century. Idaho currently supports a larger population than any other state. Sharp-tailed grouse habitat generally consists of dense stands of herbaceous cover and a mixture of shrubs and they often rely on riparian areas or deciduous hardwood shrub stands during winter (Idaho Department of Fish and Game, 2005). There are several active sharp-tailed leks near the Spring Creek Allotment and several grouse were seen during the assessment.

Prairie falcons inhabit dry environments of western North America where cliffs or bluffs punctuate open plains and shrub-steppe deserts (Steenhof 1998). Prairie falcon use of the two allotments is likely flying, perching, foraging and migration.

Ferruginous hawks inhabit grasslands, shrub steppes, and deserts of North America and use sparse riparian forests, canyon areas with features such as cliffs and rock outcrops, and isolated trees and small groves of trees in grassland and shrub steppe areas for nesting (Bechard and Schmutz 1995). Natural features in these two allotments provide potential foraging habitat for this species.

Brewer's sparrows breed in shrub steppe, transitions between shrub steppe and shortgrass prairie, and semi-desert shrub steppe habitats (Walker 2004). Brewer's sparrows are gleaners, consuming small insects, gleaned from foliage and bark of shrubs or dwarf trees and seed taken from the ground (Rotenberry et al. 1999). Reduced occupancy, nest success and season-long productivity in fragmented shrub steppe habitats suggest smaller patches of habitat are of marginal suitability (Walker 2004). Brewer's sparrows are known to occur in both areas but have not been documented within either allotment.

Sage sparrows are dependent on stands of sagebrush for nest sites, food, and cover (Vander Haegen 2003). They prefer semi-open habitats with evenly spaced shrubs three to six feet high (Martin and Carlson 1998) and are found more frequently in extensive areas of continuous sage (Vander Haegen 2003). Sage sparrows are ground foragers that eat insects, spiders, seeds, small fruits and succulent vegetation (Martin and Carlson 1998). Sage sparrows are known to occur in both areas but have not been documented within either allotment.

Loggerhead shrikes are passerines that prey upon reptiles, mammals, other birds and a wide array of invertebrates (Woods and Cade 1996). They appear to be widely distributed throughout southern Idaho and are often locally abundant where they occur (Woods and Cade 1996). Loggerhead shrikes are known to use a variety of habitats including prairies, pastures, sagebrush

desert, fencerows or shelterbelts of agricultural fields, orchards, riparian areas, open woodlands, farmsteads, suburban areas, mowed road rights-of way, abandoned railroad rights-of-way, cemeteries, golf courses, and reclaimed strip mines (Dechant, et al. 2002). Habitat must include suitable nesting shrubs or small trees and hunting perches interspersed over a grassy or herbaceous ground cover with some bare areas, where shrikes find most of their prey (Cade and Woods 1997). There is little information available on loggerhead shrikes within these allotments. However, suitable habitat does exist and it is likely shrikes nest and breed there during the summer months.

The Piute ground squirrel is widespread and found in Utah, California, Idaho, Oregon, and Washington (O'Hare et al. 2006). Currently, Idaho is the only state that has initiated concern for this species identifying it as a protected nongame species (IDFG 2004). Piute ground squirrels are found in arid high desert habitats such as sagebrush, shadscale or greasewood communities (Rickart 1987) and are known to burrow even in areas of shallow soil. The area may provide potential habitat for the Piute ground squirrel, however none have been documented within these allotments.

Pygmy rabbits are sagebrush obligate species inhabiting dense, tall stands of big sagebrush growing on deep, friable soils that allow them to dig extensive burrow systems (Janson 2002). Landscape features include alluvial fans and hillsides, swales within rolling topography, floodplains, brushy draws, riparian channels, edges of rock and lava outcroppings, and mima mounds (IDFG 2005). The area may provide potential habitat for the pygmy rabbit, however sandy soils within both allotments likely preclude the formation of burrows. No pygmy rabbits have been documented within either allotment.

Environmental Consequences

Direct impacts of livestock grazing on habitat used by special status species include nest or burrow trampling and the removal of vegetation that could otherwise be used for food or cover. Indirect impacts on habitat used by wildlife can occur if livestock grazing alters the vegetation composition, which can be beneficial or adverse depending upon the specific special status species and results of the impact. In general, native vegetation communities in late-seral to potential natural community (PNC) condition provide habitat conditions suitable to the largest number of native special status species.

Livestock grazing can have direct and indirect impacts on sage-grouse during nesting. Direct impacts may include flushing or disturbing hens incubating eggs or trampling of nests or grouse, which is considered rare (Beever and Aldridge 2011). Indirect impacts include the removal of vegetation used for scent, visual and physical barriers to potential predators by nesting sage-grouse (DeLong et al. 1993). Poorly managed livestock grazing can alter plant community composition and distribution of desirable vegetation species and facilitate invasive species establishment. Livestock management practices that provide for the sustainability of perennial grasses and forbs generally maintain or minimally impact sage-grouse habitat (ISGAC 2006).

Grass height and cover are considered important factors for sage-grouse nest sites (Connelly et al. 2000). Taller herbaceous vegetation surrounding a nest likely influences the success of nesting sage-grouse (Wik 2002, DeLong et al. 1995). Livestock grazing can remove herbaceous vegetation used for cover by nesting sage-grouse. In sagebrush habitats cattle graze herbaceous vegetation in shrub interspaces, and begin foraging on vegetation beneath shrubs as interspace plants are depleted. Under light to moderate utilization levels, cattle use of sub-canopy vegetation has been documented as negligible (France et al. 2008). The degree of impact that livestock grazing has on sage-grouse nesting habitat is dependent on timing, intensity of use, vegetation composition, and other factors (ISGAC 2006). Nest success is not considered to be a widespread problem in Idaho with an average success rate of 49 percent (Connelly et al. 2004).

Livestock grazing may impact prairie falcons and ferruginous hawks indirectly by changing the vegetative composition in ways that influence prey species. Grazing reduces vegetative cover, at least temporarily, which increases exposure of prey species resulting in increased predation. Periodic rest or deferment of grazing allows small rodent populations to recover and produce increased numbers when compared to continuous grazing, thereby increasing the prey base (Douglass and Frisina 1993).

Impacts to pygmy rabbits could be positive or negative, while impacts to Piute ground squirrels are likely negative. Livestock use may result in increased sagebrush cover or density that would provide additional forage and cover for pygmy rabbits; however this may also result in decreased grass and forb cover that are important components of both species' diets (Thines et al. 2004). The potential for loss of habitat diversity and productivity is high in areas that receive repeated heavy utilization. Pastures receiving heavy use during the growing season would result in reduced forbs and grasses reducing habitat quality for both pygmy rabbits and Piute ground squirrels during the spring and summer.

Impacts to other special status species such as Brewer's sparrow, sage sparrow, and loggerhead shrike are discussed under the **Migratory Bird** section of this analysis.

Alternative A (No Action)

Under a No Action alternative, the Upper Snake Field Manager would authorize continued livestock grazing under the same mandatory terms and conditions as the current permits. Under Alternative A, no additional improvements or projects would be authorized in Allotment IV or Spring Creek Allotments. Impacts to special status species from grazing would be minimal. Potential impacts to Piute ground squirrels and pygmy rabbits would be potential crushing or collapsing of burrows. The fall livestock grazing use indirectly impacts special status species by reducing the amount of residual herbaceous vegetation available as forage or cover for these species and/or their prey bases during the following spring. Because both allotments are currently meeting rangeland health standards, the herbaceous species in both allotments would be expected to maintain their vigor and productivity to provide suitable foraging and cover habitat for special status species. No projects would be authorized and negative impacts of the proposed fence would not exist. Sand Creek would be accessible to cattle and would be expected to remain in PFC. Allotment IV was evaluated in 2013 and Spring Creek was

evaluated in 2011, the native plant communities were found to be meeting rangeland health standards in both allotments. Under this alternative, it is expected that habitat conditions and native plant composition would be maintained and continue to meet the needs for special status species within both allotments.

Alternative B (Proposed Action)

Grazing impacts on special status species from Alternative B would be similar to those of Alternative A. Under Alternative B, the fall grazing season would be lengthened by 30 days in Allotment IV and 15 days in the Spring Creek Allotment, but the total amount of use would remain the same as measured by authorized AUMs. The fall livestock grazing use indirectly impacts special status species by reducing the amount of residual herbaceous vegetation available as forage or cover for these species and/or their prey bases during the following spring. Because these allotments are currently meeting rangeland health standards and there would be no increase in the amount of authorized AUMs, the herbaceous species in the allotments would be expected to maintain their vigor and productivity to provide suitable foraging and cover habitat for special status species. Due to the option of grazing later in the season on both allotments, there would be no displacement or disturbance of special status species, including sage-grouse and sharp-tailed grouse, during critical breeding or nesting seasons. There is still potential for livestock grazing to cause temporary displacement or disturbance of wintering special status species. However, impacts would be less crucial during this life stage because special status species would have the ability to move freely to different areas, without the high fidelity to nesting or brood-rearing areas.

Also proposed in Alternative B is to construct a 0.3 mile fence on the east side of Sand Creek in the Spring Creek Allotment in order to create a riparian exclosure. Direct impacts from fencing would be increased perches for hunting, singing and territorial displays which may increase fitness and mating potential, but it may also increase their visibility to potential predators. Further impacts would be potential fence strikes resulting in injury or possible mortality of individual birds, more likely larger birds such as sage grouse, sharp-tailed grouse, hawks and owls. Stevens (2012) recommended marking new fences within about one mile of active leks to greatly reduce the possiblility of sage-grouse collision. The proposed fence is about four miles from the nearest active sage-grouse lek, which is over two miles outside the boundary for low risk, using the NRCS collision risk model (2012). Therefore, the potential is very low for sage-grouse injury resulting from collision with the proposed fence. The fence would also be built outside of the nesting season, so there is little concern of direct disturbance or destruction of nests or nestlings. As this portion of the creek would be excluded from cattle grazing it would be expected that functioning condition would improve, creating a richer environment for special status species.

Alternative C (No Grazing)

Impacts to special status bird species from no grazing would vary by species as discussed under **Migratory Birds**. The potential impacts on vegetation from livestock grazing would be removed. In general, understory cover (e.g., grasses and forbs) would increase in size and vigor

providing increased cover and forage for special status species and/or their prey base. Some species like the ferruginous hawk and prairie falcon may be negatively impacted by a reduction in prey availability due to increased vegetative cover (Douglass and Frisina 1993). Species such as the sage sparrow and Brewer's sparrow prefer patchy habitat that is often associated with livestock grazing. Other species such as the sage-grouse and sharp-tailed grouse would benefit from the additional residual herbaceous available in the spring. There would be no displacement or disturbance of special status bird species during critical breeding, nesting and brood-rearing seasons. Impacts to burrowing species would consist of a lack of disturbance or potential crushing or collapsing of burrows.

Impacts to special status species from an increase in fuel load would be similar to those discussed under **Migratory Birds.**

Wildlife Resources

Affected Environment

Habitats on public lands within both allotments are important to a wide range of native wildlife species which seasonally occupy a variety of habitat types. Allotment IV lies in the northern portion of IDFG Game Management Unit (GMU) 63 and is crucial winter and spring habitat for pronghorn. Pronghorn populations in Idaho have densities considered low to moderate relative to surrounding states. In general, Idaho's pronghorn habitats do not support population levels characteristic of high-quality habitats found in Wyoming and Montana (IDFG 2009). Low annual precipitation and habitat fragmentation may be factors contributing to population differences. Other big game species observed in or near Allotment IV include elk and mule deer.

The Spring Creek Allotment is identified as crucial spring and summer range for elk, as well as providing some spring, summer, and fall foraging habitat for moose, deer, and antelope. Within areas that were represented by mountain big sagebrush, indicators for community diversity, structure, and productivity showed none to slight departure from site potential. Allotments maintained in good ecological condition produce mixtures of grasses, forbs, and shrubs which provide for both livestock and native wildlife. While ESI monitoring has not been conducted, vegetation cover transects results and field observations indicate that the allotment is being maintained in a good ecological condition and meet habitat requirements for native wildlife.

Resident bird species found in the allotments include horned lark, American kestrel, common raven, and black-billed magpie. Other small mammals such as bats, voles, ground squirrels, coyote and badger as well as reptiles such as short-horned lizard and western fence lizards are also likely to use the allotments. However, there is no trend data available for resident birds, small mammals or reptiles within the area.

Environmental Consequences

The principal means by which livestock grazing impacts wildlife species is by altering habitat structure and food availability. Grazing reduces the height and ground cover of grasses, at least temporarily, reducing cover and forage sought by some wildlife species. Vegetation attributes may change in response to livestock grazing; these attributes include plant community composition, distribution, production and plant species diversity (USDI-BLM 2006) which in turn, can affect the health and viability of native wildlife species. The presence of livestock could also potentially impact wildlife through livestock-wildlife interactions that may result in wildlife displacement or disease transmission.

Alternative A (No Action)

Under Alternative A, grazing on the allotments would continue under the same mandatory terms and conditions as the current permit. Fall cattle grazing may affect wildlife by removing vegetation which species such as pronghorn, elk, and mule deer utilize during the critical winter season. Late-season grazing can also indirectly impact wildlife by reducing the amount of residual herbaceous vegetation available as forage or cover for various wildlife species and/or their prey bases during the following spring. However, Allotment IV was evaluated in 2013 and Spring Creek was evaluated in 2011, the native plant communities were found to be meeting rangeland health standards in both allotments. Evaluation of these allotments indicate that native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species. The diversity of native species is maintained. The amount and distribution of ground cover, including litter, for the identified ecological site are appropriate for site stability. While excessive grazing during the late season would reduce residual cover and forage for wintering big game, the available data indicates that this is not occurring on these allotments. In general, habitat is currently providing for the needs of wildlife within these allotments and it is expected that renewing the grazing permit at the existing levels would continue to provide habitat for a wide range of native wildlife species.

Alternative B (Proposed Action)

Impacts from Alternative B on wildlife would be similar to those of Alternative A. Under Alternative B, the fall grazing season would be lengthened by 30 days in Allotment IV and 15 days in the Spring Creek Allotment, but the total amount of use would remain the same as measured by authorized AUMs. The lengthening of the fall grazing season, however, may potentially allow for livestock to be present in the allotment at the same time as wintering big game. Wildlife species sensitive to the presence of livestock and associated human activity may be temporarily displaced. Because both allotments are currently meeting rangeland health standards and there would be no increase in the amount of authorized AUMs, the herbaceous species in both allotments would be expected to maintain their vigor and productivity to provide suitable foraging and cover habitat for wildlife species under Alternative B.

Also proposed in Alternative B is to construct a 0.3 mile fence on the east side of Sand Creek in the Spring Creek Allotment in order to create a riparian exclosure. Direct impacts from fencing would be increased perches for hunting, singing and territorial displays which may increase fitness and mating potential, but it may also increase their visibility to potential predators. Further impacts would be potential fence strikes resulting in injury or possible mortality of individual birds, more likely larger birds such as, hawks and owls. These fences may also pose a physical barrier to big game. Thus, the fence would be built to BLM wildlife friendly standards which would mitigate impacts to movement of big game. As fences would be built outside of the nesting season, there is minimal potential for disturbance or destruction of nests or nestlings. As this portion of the creek would be excluded from cattle grazing, it would be expected that the riparian condition would improve, creating a richer environment for wildlife species.

Alternative C (No Grazing)

Under Alternative C, no livestock grazing would be authorized within the allotment for a period of 10 years, from 2015 through 2024. In general, understory cover, composed of grasses and forbs, would continue to provide habitat necessary in sustaining wildlife populations. Improved seed production would increase potential for establishment of native or seeded species. These changes would result in slightly increased diversity, cover, and height of grasses and forbs, which would slightly improve habitat quality for a wide variety of wildlife species. There would be no competition between big game and livestock for forage, cover and space; and there would be no potential displacement or disturbance to wildlife species by livestock during important breeding, nesting, calving, fawning, wintering, and brood-rearing seasons. Browsing of woody plant species would be minimal and potentially increase browse for big game and nesting habitat for various bird species.

Impacts to wildlife from an increase in fuel load would be similar to those discussed under **Migratory Birds.**

Economic and Social Values

Affected Environment

Two measures of economic impacts used in studies exploring impacts to livestock operations due to changes in federal grazing permits and leases, are herd reduction and forage substitution (Rowe and Bartlett, 2001). Herd reduction may be a better indicator of operation efficiency rather than direct economic impact at the level of the individual operator (Rowe and Bartlett, 2001). The impact on any single ranch operation of a reduction in public land AUMs may be enormous, depending on the flexibility of its nonfederal forage base and other factors (Harp et al, 2000). The impacts of herd reductions resulting from federal land management policy changes that reduce federal land AUMs have been estimated at the community and county level (Harp et al, 2000), however, these estimates are based on evenly distributed federal land AUM reductions at a scale beyond the allotment level. Based on recent USDA cattle market reports (USDA, 2013) the average recent market steer (800lbs) price was $1,000 or $100 per AUM assuming a

10 AUM input. The average recent market price for replacement cows was $1,400 or $116 per AUM assuming 12 AUMs input. Therefore the change in gross revenue for the operators may range from $100 to $116 per AUM. Forage replacement has also been used as a proxy indicator of economic impact. Forage replacement values may range in cost from replacement from private pasture to replacement from hay versus the annual cost of forage on public land which was $1.35 per AUM in 2014. Average private pasture cost in Idaho in 2014 was $15.50/AUM and average local hay prices were $85/AUM. Therefore the forage substitution cost annually would range from $14.15 to $83.65 per AUM.

Additional costs to livestock operations associated with public lands grazing may include construction and maintenance of range improvement projects, transportation costs, and operating cost associated with herd maintenance and management. The cost or impact on the individual operator is difficult to quantify and is highly variable depending upon their specific situation. Some costs would occur on private grazing lands as well and are therefore not associated specifically with public land grazing.

Environmental Consequences

Alternative A (No Action)

Alternative A would result in no changes in the mandatory terms and conditions for livestock grazing in the allotments. There would be no impact from Alternative A, which is the baseline for addressing economic and social values relative to the operators.

Alternative B (Proposed Action)

Under Alternative B, there would be no change in the authorized use levels and the economic and social effects would be similar to Alternative A.

Alternative C (No Grazing)

Under Alternative C, no grazing would be authorized in Allotment IV and Spring Creek Allotment for a period of ten years. The forage substitution cost to replace the 213 Active AUMs on both allotments would range from approximately $3,014 to $17,817 annually. If the herds are reduced as a result of decreased forage availability, the decreased gross revenue for the operators through herd reductions would range from approximately $21,300 to $24,708 annually. There would be no additional cost for project maintenance.

CHAPTER 4 - CUMULATIVE IMPACTS

This section of the document discloses the incremental impact that Alternatives A, B, and C are likely to have when considered in the context of impacts associated with past, present, and reasonably foreseeable future actions that have occurred, or are likely to occur, in the area.

The Cumulative Impact Assessment Area (CIAA) for this analysis includes Medicine Lodge, the front range of the Beaverhead Mountains, the Table Butte area, the area west of the Menan Buttes, the sands/Juniper Mountain area, the Red Road area, and Sand Creek (Figure 6). This CIAA contains approximately 1,356,406 total acres. Unless otherwise noted, this landscape unit defines the bounds of the cumulative analysis for the resources affected by the alternatives.

This landscape unit is actually made up of two sub-units (Medicine Lodge and Sand Creek), which were selected as units of analysis based on 4th level hydrologic unit boundaries within the Upper Snake Field Office area, then modified using major highways and ownership boundaries to create a continuous unit of associated land uses and plant communities. Allotment IV is located in the central southern portion of the Medicine Lodge/Sand Creek CIAA, and makes up less than one percent of the total acres and less than one percent of the BLM acres in the CIAA. Spring Creek Allotment is located in the eastern portion of this CIAA, and also makes up less than one percent of the total acres and less than one percent of the BLM acres in the CIAA (Table 8).

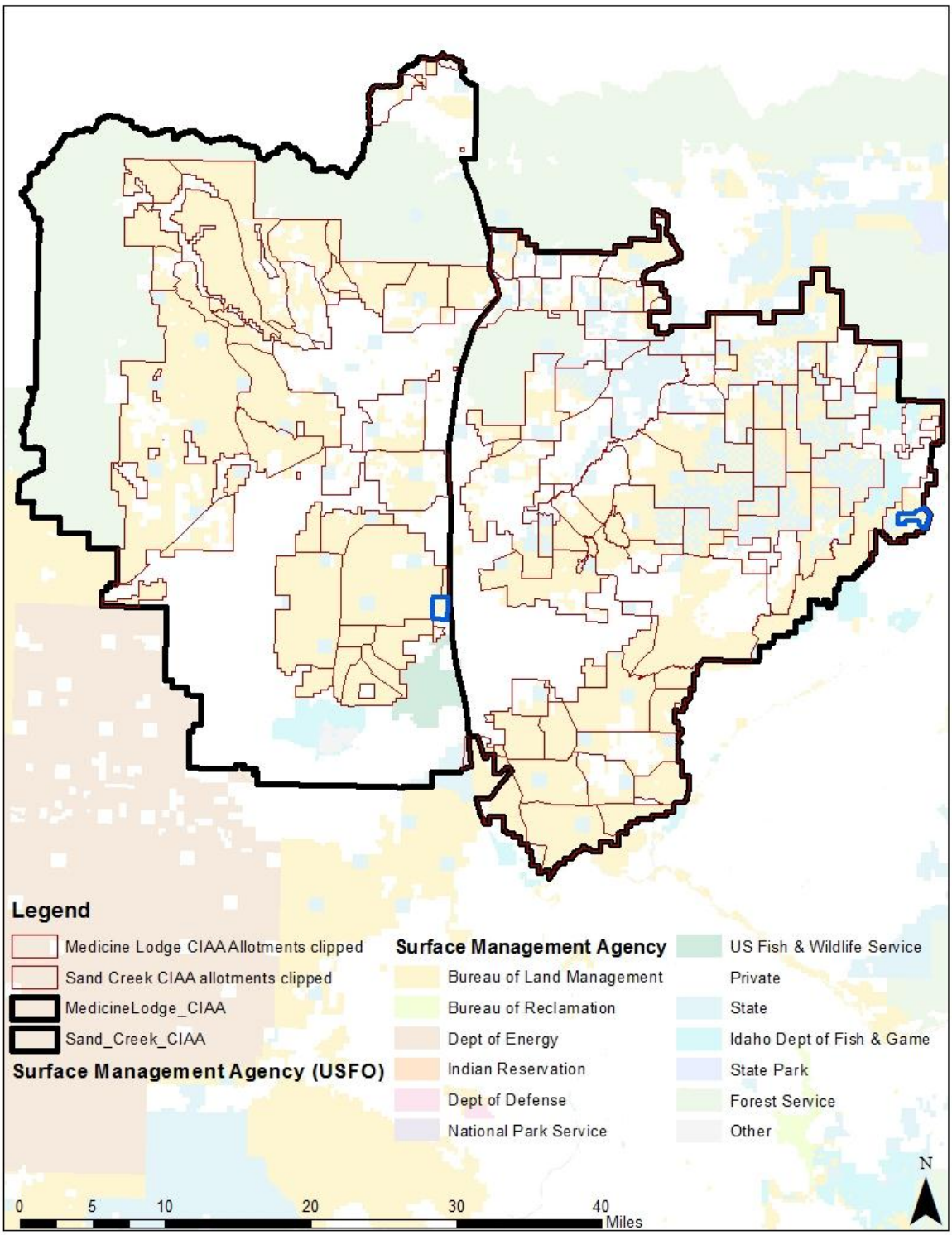
Table 8. Surface Management Status within the Medicine Lodge/Sand Creek CIAA.

Ownership	Acres
Bureau of Land Management	503,045 acres
Private Property	490,777 acres
U.S. Forest Service	192,233 acres
Idaho Department of Lands	119,838 acres
Idaho Fish and Game Lands	23,047 acres
United States Sheep Experiment Station	25,751 acres
Camas National Wildlife Refuge Lands	1,203 acres

The CIAA includes BLM lands with special designations, including two Areas of Critical Environmental Concern (ACECs), a Research Natural Area (RNA), a Wilderness Study Area (WSA), and two Special Recreation Management Areas (SRMAs). The Snake River ACEC and Snake River SRMA encompass the same acreage within the CIAA. The Nine Mile Knoll ACEC, the St. Anthony Sand Dunes RNA, the Sand Mountain WSA, and the St. Anthony Sand Dunes SRMA all overlap somewhat. The Snake River ACEC includes a large acreage along the length of the South Fork and Henry's Fork of the Snake River, and the Snake River downstream of the confluence of the South and Henry's Forks. There are about 1,326 acres of the Snake River ACEC in the southern end of the CIAA. The Nine Mile Knoll ACEC includes the area between the sands and the Henry's Fork of the Snake River. There are about 40,135 acres of the Nine Mile Knoll ACEC within the CIAA. The St. Anthony Sand Dunes RNA also lies within the CIAA, encompassing about 1,823 acres of unconsolidated sands. The Sand Mountain WSA also covers about 20,308 acres of the area around the sand dunes. The Snake River SRMA

includes about 1,331 acres in the southern end of the CIAA, and the St. Anthony Sand Dunes SRMA includes about 28,610 acres around the sand dunes within the CIAA.

Figure 6: Medicine Lodge/Sand Creek Cumulative Impact Assessment Area.



Except for the sand dunes and the areas that have been cultivated for agriculture, this landscape unit includes a large continuous, ecologically unique landscape consisting of a substantial proportion of vegetation influenced by sandy to loamy soil textures, punctuated by lava flows with basin, Wyoming, and mountain big sagebrush, low sagebrush, black sagebrush, and threetip sagebrush vegetative communities. There are four NRCS major land resource areas (MLRAs) within the CIAA. The southern portions of the CIAA around Table Butte, Menan Buttes, and west and south of Juniper Mountain are within the Snake River Plains MLRA (B11b), and are dominated by sandy soils with lava buttes and outcrops. These sandy ecological sites are dominated by basin big sagebrush with an understory of needle-and-thread and Indian ricegrass. As the sandy substrates give way to gravelly outwash plains and loamy benches to the northwest, the basin big sagebrush gives way to low sagebrush, black sagebrush, and Wyoming big sagebrush vegetation, with an understory of bluebunch wheatgrass. The northwest portion of the CIAA in Medicine Lodge and its outwash plains and benches are within the Lost River Valleys and Mountains MLRA (B12). As the sands gradually shift to broken lava flows and pressure ridges to the east and north, the MLRA shifts to the Eastern Idaho Plains (B13). The north-central portion of the CIAA has a substantial component of threetip sagebrush vegetation over loamy or gravelly loam soils, with an understory of bluebunch wheatgrass, needle-and-thread, and Indian ricegrass. The northwestern and northeastern portions of the CIAA are dominated by mountain big sagebrush and bitterbrush vegetation on loamy soils, with an understory of Idaho fescue and bluebunch wheatgrass, which yields to heavy shrubs and forested vegetation at higher elevations. These high forested elevations in the CIAA include the Central Rocky Mountains MLRA (E43b).

A number of general habitat types or classifications are found across the CIAA. Table 9 lists the acres within each cover classification based on the landscape classification map used for the Upper Snake Field Office Analysis of Management Situation (AMS).

Table 9. Habitat Types or Vegetation Classifications within the Medicine Lodge/Sand Creek CIAA

Habitat Type or Vegetation Classification	Acres
Agriculture	186,755 acres
Annual Grasslands	6,599 acres
Bedrock-Cliffs-Scree	6,672 acres
Forest	64,939 acres
Perennial Grasslands	118,533 acres
Riparian-Wetland, including open water	33,635 acres
Sagebrush and Desert Shrublands	883,628 acres
Shrublands, including juniper and mountain mahogany	11,131 acres
Unconsolidated Sands	21,391 acres
Urban and industrial/excavation areas	18,298 acres

This area ranges widely in its actual and available precipitation coinciding with the range in soil textures and elevation gradient from the south end to the north and west ends of this CIAA. The lowest precipitation areas occur near Monteview, Mud Lake, Terreton, and Hamer, at 8-10

inches of precipitation per year. The highest precipitation areas in the CIAA occur on the higher elevation northern edges of the CIAA, on the Beaverhead Mountains, Centennial Mountains, and Big Bend Ridge. These uppermost edges of the CIAA receive 24 to 28 inches of precipitation per year. About 31 percent of the CIAA receives 12 inches or less per year, about 27 percent of the CIAA receives between 12 and 16 inches of precipitation per year, about 23 percent of the CIAA receives between 16 and 20 inches of precipitation per year, and about 19 percent of the CIAA receives more than 20 inches of precipitation per year.

Past and Present Actions

Past and present actions that have occurred in the CIAA have impacted the environment to varying degrees. These actions include agricultural development, infrastructural development, vegetation management, wildfire, and livestock grazing (Table 10). Although these actions probably do not account for all of the impacts that have or are likely to occur in the Medicine Lodge/Sand Creek CIAA, GIS analysis, agency records, and professional judgment suggest that they have contributed to the vast majority of cumulative impacts that have occurred in the assessment area.

Table 10. Past and Present Actions within the Medicine Lodge/Sand Creek CIAA.

Type of Activity	Past and Present Actions
Agricultural Development	
Cultivated crop agriculture, both dryland and irrigated	186,755 acres
Urban Development	
Buildings and other structures, concrete and asphalt pads	18,192 acres
Infrastructural Developments	
Roads- paved, maintained gravel, and 2-track	3,896 miles with a 12 foot right of way, affecting 5,667 acres. Road density is 1.8 road miles/mile^2 in CIAA
Railroads	64 miles of track with a 200 foot right of way, affecting 1,551 acres.
High Voltage Transmission Lines	90 miles with a 200 foot right of way, affecting 2,181 acres.
Mineral Material Sites	17 active pits with a 40 acre footprint each, affecting 680 acres.
Communication Towers	14 towers with ¼ acre right of way each, affecting 3.5 acres.
Recreation Facilities	Two designated campsites on BLM lands, affecting 10 acres One developed campground on USFS lands, affecting 10 acres Four developed trailheads on USFS lands, affecting 4 acres About 20 dispersed campsites on BLM lands, affecting about 40 acres About 170 dispersed campsites on USFS lands, affecting about 120 acres About 15 dispersed campsites on private lands, affecting 30 acres One parking area on BLM lands, affecting about 2 acres Total Disturbance: About 216 acres

Table 10. Past and Present Actions within the Medicine Lodge/Sand Creek CIAA.	
Range Improvements	Fences: 1,577 miles Assuming 4 feet of disturbance along fence lines, there are 765 acres disturbed as a result of the existing fence lines in the CIAA. Troughs: 199 Assuming ½ acre of direct soil disturbance and vegetation removal per trough, there are 100 acres disturbed as a result of watering troughs in the CIAA. Total disturbance: 865 acres
Wildfire	
89 Recorded Wildfires between 1980 – 2013	188,921 acres
6 Wildfire Rehabilitation Projects	62,002 acres
Vegetation Management	
Non-Native Grass Seeding	13,773 acres
Sagebrush Seeding	19,401 acres
Prescribed Fire	88,832 acres
Chemical Brush Thinning	2,081 acres
Mechanical Brush Thinning	1,990 acres
Invasive Species	
Noxious weeds	14,301 acres
Annual grasses	6,599 acres
Livestock Grazing	
Number of Allotments	116 BLM grazing allotments comprising 781,781 acres. 24 active USFS grazing allotments comprising 172,674 acres.
Rangeland Health Assessments (BLM Allotments)	• 713,146 allotment acres (91%) are currently meeting all Idaho Standards for Rangeland Health. • 5,535 allotment acres (<1%) are currently making significant progress towards meeting Standards. • 63,674 allotment acres (8%) currently not meeting one or more Standards, current livestock grazing management is a causal factor. All allotments not meeting one or more standards because of livestock grazing management problems have seen changes to the livestock grazing management during the last ten years to ensure the allotments would make significant progress towards meeting the standards. Reductions in AUMs were made on 31,240 acres not meeting one or more standards in 2009 and 2011. • 6,807 allotment acres (<1%) are not meeting one or more Standards, but not due to current livestock grazing management.

Agricultural development has a long history in the area. Today, irrigated agricultural development dominates the south half of the CIAA, and is a substantial and important use of the area. Before the private lands were irrigated for agricultural use, they were dominated by sagebrush vegetation, and used for grazing livestock. There are several irrigation wells and

canals that irrigate crops, hay fields, and pastures within the CIAA. The agricultural development on the private lands in the south half of the CIAA has resulted in blocks of public land separated by several miles of irrigated crop fields, with little connectivity to adjacent blocks of public land. The north half of the CIAA contains agricultural development, but not at the levels seen in the south half of the CIAA. The north half of the CIAA contains large continuous blocks of public land with connectivity to public and USFS lands to the north and west.

Urban and infrastructure development has increased over time, and a substantial portion of the CIAA has been developed for agricultural activities, roads, railroads, irrigation, power lines, and small buildings. Some permanent residential development exists near Terreton, Mud Lake, Monteview, Small, Spencer, and Hamer. Most of this development is associated with farming and ranching in the area. The Monteview-Hamer Road and the Egin-Hamer Road are developed gravel roads maintained by Jefferson and Fremont Counties that connect the communities of Monteview to Hamer and to the Egin Lakes/St. Anthony areas. Medicine Lodge Road, Eighteen Mile Road, Spencer-Kilgore Road, Dubois-Spencer Road, the Red Road, and Sand Creek Road are all paved county and state roads that provide access to public lands and adjacent communities and highways. State Highways 22 and 33 run in an east-west direction across the CIAA. Interstate 15 runs in a north-south direction, and essentially divides the area in half. Other developed county roads cross the lands on all sides of the Medicine Lodge and Sand Creek areas, providing access to public land. There is a railroad line running between Montana and Idaho Falls that runs through the middle of the CIAA, and a large (230 kV) power line that crosses through Medicine Lodge valley and turns west through the CIAA.

Livestock grazing has a long history in the region dating back to the late 1800's. Livestock grazing remains a primary use in the CIAA, although at lower levels of use than the first half of the 20th century. Ranching and livestock grazing are generally dispersed activities with areas of more intensive use near water and livestock handling facilities. Livestock grazing remains a primary use of the CIAA. There are occasional fences, water tanks, and troughs used to manage livestock grazing across the landscape.

Drought is a recurring, unpredictable, environmental feature. Drought has been defined by the Society of Range Management as: "(1) a prolonged chronic shortage of water, as compared to the norm, often associated with high temperatures and winds during spring, summer, and fall; and (2) a period without precipitation during which the soil water content is reduced to such an extent that plants suffer from lack of water" (Bedell, 1988). Impacts associated with drought can be widespread. All plants and animal species depend on water. When drought occurs, available forage for consumption as well as habitat can be damaged. Potential environmental impacts include but are not limited to: loss or destruction of fish and wildlife habitat, lowering of water levels in reservoirs, lakes and ponds, loss of wetlands, and increased threat of wildfires. Some additional impacts include wind and water erosion of soils, reduced shoot and leaf growth, reduced reproductive potential, induced senescence, and plant death (National Drought Mitigation Center, 2013).

Recreation use of the area has increased over time. Recreation use in the CIAA is primarily a dispersed activity with areas of more intensive use along Medicine Lodge Creek and several

smaller creeks in the west half of the CIAA. Motorized vehicle use, fishing, hunting, target shooting, caving, and trail use on the National Forest trail system are the main recreational pursuits in the CIAA. The Medicine Lodge area is popular with big game and upland bird hunters, as there are relatively large populations of elk, moose, deer, antelope, and sage-grouse in the area. A BLM dispersed campground has been developed along a portion of Medicine Lodge Creek, and the landowner that owns much of the Medicine Lodge Creek riparian zone allows dispersed camping, fishing, and hunting at several access points along the valley. The U.S. Forest Service maintains a developed campground in Medicine Lodge, at the Webber Creek trailhead. Numerous undeveloped and dispersed camp sites are present in the valley as well. Common recreation pursuits include fishing, camping, hunting, hiking, and motorized vehicle use. As the popularity of all-terrain vehicles has increased over the last 15 years, new roads and trails have been created across the CIAA. The CIAA includes the St. Anthony Sand Dunes Special Recreation Management Area (SRMA), which sees about 250,000 visitors, mostly OHV riders, each year.

The Medicine Lodge/Sand Creek area is important habitat for elk, deer, moose, antelope, sage-grouse, and sharp-tailed grouse. There is designated bighorn sheep habitat (112,121 acres) on the west side of the CIAA. Several of the streams in the Medicine Lodge area provide habitat for Yellowstone cutthroat trout, a BLM sensitive species. In 1997, to protect wintering big game, local, state, and federal officials created the Egin-Hamer Winter Closure Area. This closure restricts human entry during crucial winter and spring months for wildlife (January 1st through April 30th). There is also a small amount of designated grizzly bear habitat (1,886 acres) in the northeastern edge of the CIAA.

Sage-grouse Preliminary Priority Habitats (PPH) are those areas of highest conservation value due to high male lek attendance, high lek density and high lek connectivity (Makela and Major 2011). There are approximately 905,752 acres of PPH within the CIAA. Preliminary General Habitats (PGH) are habitats occupied by sage-grouse not contained within PPH. PGH areas are characterized by lower lek densities that may serve as important connectivity corridors between PPHs (Makela and Major 2011). There are approximately 91,925 acres of PGH within the CIAA.

The U.S. Fish and Wildlife Service identified primary and secondary threats to Greater sage-grouse in 2010. Primary threats include fragmentation of sagebrush habitats due to: conversion of habitat for agriculture or urbanization, inadequate regulatory mechanisms, infrastructure (roads, power lines, energy development, etc.), invasive species and wildfire. Secondary threats included: climate change, collisions (with fence, power lines, etc.), conifer invasion, contaminants, disease (West Nile virus), poorly managed livestock grazing, hunting, mining, predation, prescribed fire/vegetation treatments and water developments (USFWS 2010).

Although livestock grazing was not identified as a primary threat, it is one of the more widespread uses occurring in sage-grouse habitat (Connelly et al. 2004). There is limited evidence to suggest direct impacts to sage-grouse by livestock, but livestock grazing does affect sage-grouse habitats by removing vegetation through foraging or changing species composition under poor management practices (Connelly and Braun 1997). The PPH and PGH areas occur

on about five percent of the area of public lands identified as not meeting ISRH and livestock grazing was identified as a factor.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions include continuation of the past and present actions as described above, and the possible expansion of power line corridors. The level and character of livestock grazing and agricultural development are anticipated to remain consistent into the foreseeable future. Recreational use is expected to continue to increase. Motorized recreation has continued to increase in popularity in Idaho and there is local access to a number of designated motorized trails. The potential exists for expansion of the BLM dispersed campground to address resource impacts from dispersed campsites along the creek. The BLM has planned a cheatgrass reduction project in two areas to reduce the amount of cheatgrass that has colonized areas where heavy equipment worked during the 2003 Deep Fire. The BLM is planning conifer thinning projects on the foothills of the Beaverhead and Centennial Mountains to improve sagebrush communities and aspen stands. The BLM is also evaluating areas for possible brush reduction in areas where it would be compatible with sage-grouse habitat needs.

Infrastructure development is anticipated to continue to increase in the foreseeable future. The existing power line route through Medicine Lodge valley was considered in 2008 as an alternative route for the Mountain States Transmission Intertie 500 kV Project (MSTI), but this route was dropped from consideration. The latest proposed MSTI route would travel over Monida Pass, then cross east to west near Highway 22 for a total of 44 miles of new power line within the CIAA. However, the MSTI project was halted in 2013, so there are no immediate plans for new large power lines within the CIAA.

Besides the MSTI Project, there are no other known primary threats such as conversion of sage-grouse habitat for agriculture or urbanization, or infrastructure (roads, energy development, etc.) proposed on public lands in the CIAA. In addition, no such plans or proposals are known for nearby lands under other ownership (private, NPS, USFS, DOE or State of Idaho lands) in the CIAA. Invasive species and wildfire continue to be primary threats that cannot be anticipated in frequency or intensity. Impacts associated with wildfire are the greatest threat (USFWS 2010) to sage-grouse in the CIAA. Managing for healthy habitats in the CIAA provides the most protection against invasive species and resiliency to disturbances such as wildfire.

Changes in greenhouse gas levels affect global climate. Ring et al. (2012) reviewed scientific information on greenhouse gas emissions and climate change, including the four Assessment Reports of the Intergovernmental Panel on Climate Change between 1990 and 2007, and recognized a growing consensus within the scientific community that most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.

The BLM's 2008 NEPA Handbook, H-1790-1, explains that a topic must have a cause and effect relationship with the proposed action or alternatives to be considered an issue (H-1790-1, p. 40).

Climate change does not have a clear cause and effect relationship with a proposed action or alternative, because it is not currently possible to identify a specific source of greenhouse gas emissions or sequestration and designate it as the cause of specific climate changes (USGS, 2008). Land management actions might contribute to changes in atmospheric greenhouse gas levels, which can affect global climate. Addressing effects on greenhouse gas levels within the scope of NEPA is difficult due to the lack of explicit regulatory guidance on how to meaningfully apply existing NEPA regulations to this evolving issue, and due to the continuously evolving science available at varying levels. The proposed action and alternatives do not have a clear, measurable cause and effect relationship to climate change because the available science cannot identify a specific source of greenhouse gas emissions or storage and tie it to a specific amount or type of climate change. In spite of these cause and effect NEPA limitations for GHG analysis, BLM nevertheless recognizes that climate change aggravated by GHG may result in individual and compounding adverse impacts to plants and animals.

Impacts Associated with Past, Present, and Foreseeable Future Actions

Past and present actions have resulted in varying degrees of impact to the resources considered in the analysis. Observable impacts are higher for agricultural development and infrastructure which have resulted in direct habitat loss and fragmentation on most of the private lands in the CIAA. These actions have altered the native vegetation and introduced non-natural elements of form, line, and color that have altered and would continue to alter the characteristics of the visual landscape.

Today, irrigated agricultural development is found on a substantial portion of the CIAA, and is a substantial and important use of the assessment area. Before the private lands were irrigated for agricultural use, they were dominated by sagebrush vegetation, and used for grazing livestock. This has resulted in a direct loss of about 186,755 acres of sagebrush habitat in the CIAA in the last 30 to 40 years. Although many species of wildlife forage in the agricultural fields at different times of the year, the loss of large blocks of sagebrush habitat has reduced the connectivity of the remaining sagebrush habitats within the CIAA.

Urban and infrastructure development has increased over time, and a portion of the CIAA has been developed for agricultural activities, roads, railroads, irrigation, power lines, and small buildings. These developments have resulted in a direct loss of about 28,387 acres of sagebrush habitat, and a loss of connectivity between remaining sagebrush habitats within the CIAA. These structures have increased the perching habitat for avian predators in the area. The proposed MSTI route would impact 1,067 additional acres within the CIAA. The existing roads and trails create a small amount of soil compaction and erosion, and may be vectors for the spread of noxious weeds. However, they provide access for the public to large expanses of public lands for hunting and all-terrain vehicle riding in the CIAA.

Documented fires have impacted approximately 188,491 acres or 14 percent of the CIAA from 1980 to the present. Although wildfires have repeatedly burned in the area, there are five areas with reduced sagebrush cover relative to site potential. The first is the Deep Fire area, which

burned in 2003. The mountain big sagebrush vegetation in the Medicine Lodge area recovers relatively quickly after fires. The largest burn previous to the Deep Fire burned the Indian Creek bench in 1981. Within about 20 years, the sagebrush cover in the burned area matched the amount of sagebrush cover in adjacent unburned areas, and the fire scar was no longer apparent on the ground or in aerial images. The second area is around Camas Butte, which burned in 1986 and in 2000. The basin big sagebrush vegetation has been slow to return to these burned areas. Sagebrush seed was aerially applied to the areas burned in 2000 during post-fire rehabilitation activities. A pilot project funded by the Idaho Office of Species Conservation included planting sagebrush plugs on these burned areas in 2011 to increase the sagebrush cover in important sage-grouse habitats. The third area is between Highway 33 and Juniper Mountain, where the Menan Fire burned in 2003. Much of this area was drill seeded with herbaceous species and aerially seeded with sagebrush. The herbaceous cover has recovered well, and the sagebrush cover continues to improve in the area. The most recent large fires were north and east of Juniper Mountain, where the Snowshoe Butte and Dune Fires burned in 2007. This area was dominated by mountain big sagebrush, and both burns are successfully recovering without intensive rehabilitation efforts. There have also been other scattered smaller fires in the CIAA that have not warranted intensive rehabilitation efforts.

Periods of extended drought likewise impact the CIAA. Based on climatic data collected near Hamer, Idaho, precipitation has been reported below the long-term average in 10 of the past 20 years, with 7 of those 10 years reporting greater than 20 percent below average. Climatic data collected near the U.S. Sheep Experiment Station north of Dubois, Idaho found that precipitation was below the long-term average in 9 of the past 20 years, with 6 of those 9 years reporting greater than 20 percent below average.

Unmanaged livestock (horses, cows, and sheep) grazing in the first half of the 20th century resulted in altered ecological conditions in the riparian areas and the uplands in Medicine Lodge CIAA. As livestock grazing became more carefully managed in the area, the ecological health of the rangelands and riparian areas improved. Today, about 78 percent of the riparian acres on public lands in the CIAA are either in PFC or making significant progress towards PFC. About 91 percent of the upland acres in the CIAA are being maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species. These healthy uplands are providing suitable habitat to support a wide variety of wildlife species, including several game and nongame species, special status species and migratory birds. About eight percent of the public land acres in the CIAA have recently completed the grazing permit renewal process, and substantial changes to the livestock grazing management were made to allow the upland vegetation and wildlife habitat to improve and make progress towards the proper functioning of ecological process and improved productivity and diversity of native plant species.

A number of researchers, including Lapage et al. (2012) while recognizing the inherent variability within and appropriate application of global and regional climate models, have recognized the potential impact to agricultural production that climate change scenarios, including altered temperature and precipitation regimes at the regional level may induce. Neilson et al. (2005) in summarizing output from seven models and possible scenarios of

regional climate change in the Great Basin identified long-term trends toward greater precipitation and warmer temperatures, although noted inter-annual and inter-decadal variability that could account for short-term records that may differ. A similar summary of the available studies and models is presented by Chambers and Pellant (2008).

Possible consequences to vegetation communities resulting from climate change in the Great Basin include a dramatic increase and expansion of woody frost-sensitive species at the expense of shrubland and a corresponding increase in fire. Bradley (2009) modeled the consequences that altered summer precipitation and winter temperature could have on the potential risk of cheatgrass expansion or contraction, noting that climatic change will affect the potential geographic distribution of cheatgrass and will likely affect other plant invaders as well. Ash et al. (2012) identified that adaptation options will be required in different rangeland regions in response to climate change to enhance the development of sustainable livelihoods with both social and ecological resilience. Technical input to the 2013 National Climate Assessment identified the process of adjustment to actual and expected climate and its effects in order to moderate harm or exploit beneficial opportunities on biodiversity, ecosystems, and ecosystem services (Staudinger, et al., 2012).

With consideration for anticipated stressors induced by climate change, appropriate livestock management and other land use practices that improve and maintain healthy and functioning vegetation communities which provide for proper nutrient cycling, hydrologic cycling, and energy flow remains the primary adaptation against changing precipitation and temperature regimes.

Within the planning area, sage-grouse are a migratory species occupying hundreds of square miles annually and sometimes making seasonal movements that exceed 40 miles. The health of the species is directly tied to maintaining habitat diversity and quality. Altered fire regimes influenced by non-native cheatgrass, loss of sagebrush cover due to wildfires, and habitat fragmentation from roads, development, and agriculture are a cumulative influence on the species. Proposals for energy corridors further threaten habitats. Livestock grazing occurs on the vast majority of sagebrush lands range-wide (Knick et al. 2003, Connelly et al. 2004.); however there is little information directly linking livestock management practices to sage-grouse population levels (Braun 1987, Connelly and Braun 1997, Mosely 2001). The implementation of improved grazing management practices since the 1950's has improved or maintained healthy vegetative conditions on nearly all the remaining rangelands in the CIAA.

The status of the sage-grouse population in the Snake-Salmon-Beaverhead area was described in the *Greater Sage-grouse Conservation Objectives Final Report* (2013), written by the USFWS. The report states that: "Recent data indicates this large population extends into southwestern Montana. This area contains a large amount of publicly managed land (largely BLM and USFS). Within the southern portion of this population, wildfires and invasive species have continued to reduce the quality of habitats. The mountain valley portions of this population appear to have relatively stable habitats. Thus far, energy development is very limited and there are few wild horses. A recent rate of change analysis indicates that this population has been stable to increasing from 2007 to 2010. Garton *et al.* (2011) indicated that this population had virtually no

chance of declining below 500 in the next 100 years. Population analysis indicates that sage-grouse have fluctuated around 5,000 males since 1992. Because of relatively large numbers of birds and stable to increasing populations, this population is considered to be at low risk of extirpation.

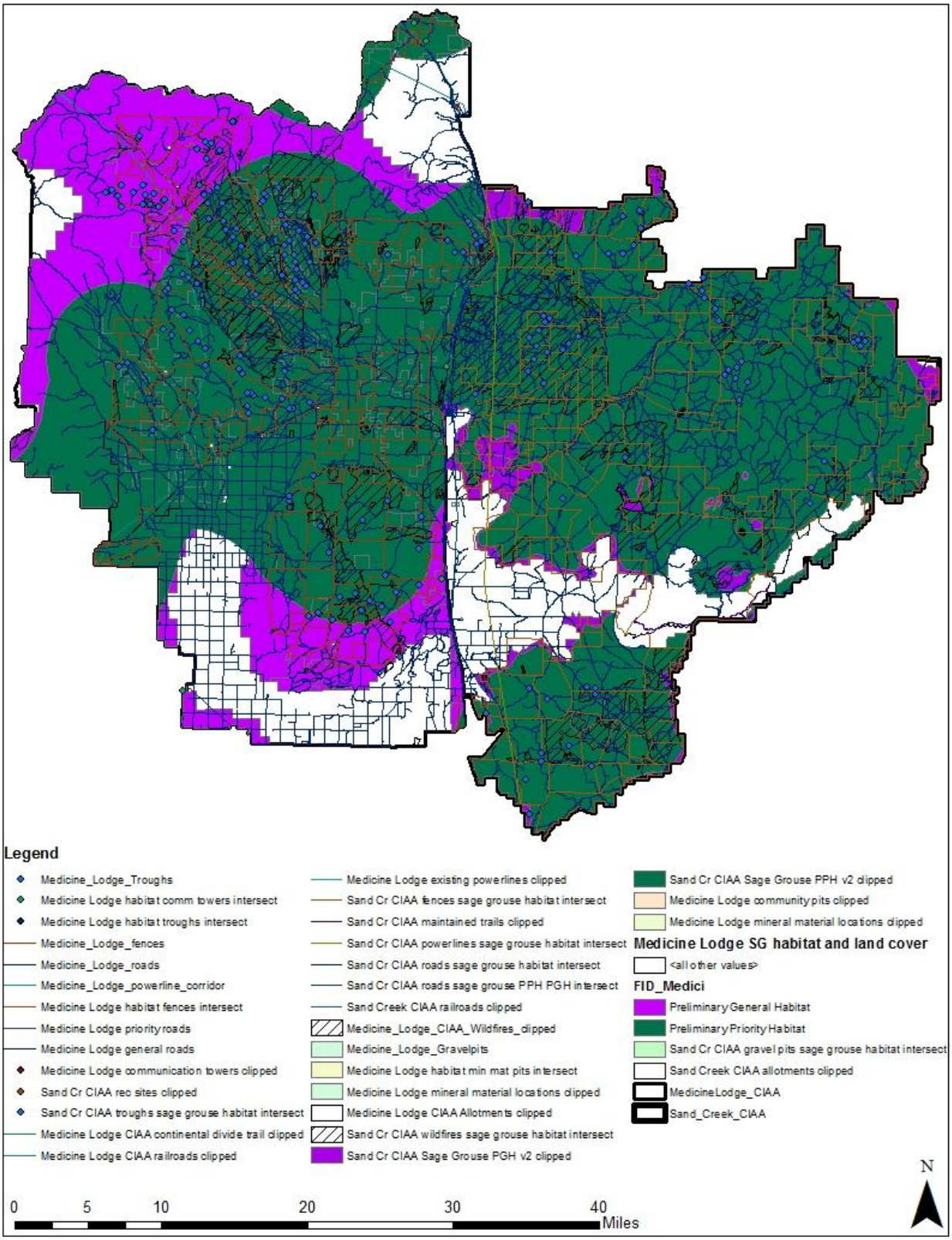
The U.S. Fish and Wildlife Service (USFWS) identified primary and other threats to Greater sage-grouse in its 12-Month Findings for Petitions to List the Greater Sage-Grouse as Threatened or Endangered (USFWS 2010). The primary cause of sage-grouse population decline identified by the USFWS was fragmentation of sagebrush habitats due to: habitat conversion for agriculture or urbanization, infrastructure within sagebrush habitats (powerlines, communication towers, fences, roads, railroads, etc.), wildfire and energy development (specifically roads and energy related infrastructure). Other important threats included: inadequate regulatory mechanisms, invasive plants (annual grasses and noxious weeds), climate change, collisions (with fence, powerlines, etc.), conifer invasion, contaminants, disease (West Nile virus), poorly managed livestock grazing, hunting, mining, predation, prescribed fire/vegetation treatments, recreation (OHV use) and water developments (USFWS 2010). It is often the cumulative impact of various disturbances that have the greatest effect on sagebrush ecosystems, rather than any single disturbance (Knick et al. 2011). Table 11 includes the known impacts occurring within sage-grouse PPH and PGH areas within the Medicine Lodge CIAA.

Table 11. Known Impacts within Sage-Grouse PPH and PGH in the CIAA

Impacts	PPH Acres Affected	% of PPH Acres in the CIAA	PGH Acres Affected	% of PGH Acres in the CIAA
Agricultural Development	3,026	<0.1%	25,624	27.9%
Urban Development	3,667	<0.1%	9,918	10.8%
Infrastructure*	5,489	<0.1%	1,010	1.1%
Range Improvements*	618	<0.1%	145	<0.1%
Wildfire	128,629	14.2%	13,446	14.6%
Invasive species*	8,980	0.1%	3,997	4.3%
Livestock Grazing*	54,851	6.1%	13,754	15.0%

*Note: Infrastructure is a combination of roads, power lines, and communication tower right-of-ways. Range Improvements is a combination of fences and water trough sites. Invasive species includes noxious weed sites and annual grass dominated areas. Livestock grazing impacts include those acres that are not meeting the Idaho Standards of Rangeland Health and livestock grazing management is a causal factor. Substantial changes to the livestock grazing management, including stocking rate reductions and changes to seasons and/or duration and timing of use have been made in the last ten years to ensure these acres will make significant progress towards meeting the Standards.

Figure 7. Sage-grouse PPH and PGH areas and Primary Impacts to PPH and PGH.



Impacts to sage-grouse caused by livestock grazing were likely greatest during the time that unregulated grazing occurred, from the late 1800s into the early 1900s. The Taylor Grazing Act (1934) was the foundational law for livestock management on public lands, and although it was intended to regulate livestock use, it also benefited sage-grouse habitat within the CIAA. Since then other laws, improved science, improved management cooperation (interagency and with private landowners) and improving adaptive management have provided further protection for sage-grouse habitats. The acres shown as impacted by livestock grazing in Table 11 were determined to not be meeting one or more of the Idaho Standards for Rangeland Health during the last ten years. As a result of that determination, substantial changes to the livestock grazing management have been made on those acres, including stocking rate reductions, changes in the season of use, and/or changes in the timing or duration of grazing use. All the changes were made in order to ensure that the acres not meeting standards would make significant progress towards meeting the standards.

Wildfire provides the greatest cumulative impact to sage-grouse within the CIAA. When combined with all other identified impacts, about 29 percent of PPH and PGH in the CIAA have been disturbed by one or more activities. Aside from the direct impacts of habitat alteration, these disturbances may alter sage-grouse behavior causing them to avoid impacted habitats or displace populations to more suitable areas.

Contribution of the Alternatives to the Cumulative Impacts in the CIAA

Alternative A – No Action

Alternative A would contribute very little to the collective impact associated with past, present and reasonably foreseeable future actions. Livestock use would remain at current levels, and there would be no new structural developments which would contribute no change to the collective impact relative to non-natural elements of form, line, and color within the landscape. The number of road miles within the area would not increase as a result of implementing Alternative A. The amount of suitable habitat for wildlife species that occur in the CIAA would remain about the same. The actions described in Alternative A would not substantially alter the current or expected future conditions of natural resources in the CIAA.

Alternative B – Proposed Action

Alternative B would also contribute very little to the collective impact associated with past, present and reasonably foreseeable future actions. Livestock use would be the same as a result of implementing Alternative B. There would be one small new structural development which would contribute a slight change to the collective impact relative to non-natural elements of form, line, and color within the landscape. The number of road miles within the area would not increase as a result of implementing Alternative B. The amount of suitable habitat for wildlife species that occur in the CIAA would remain about the same. The actions described in

Alternative B would not substantially alter the current or expected future conditions of natural resources in the CIAA.

Alternative C – No Grazing

Alternative C would also contribute very little to the collective impact associated with past, present and reasonably foreseeable future actions. Livestock use would decrease very slightly as a result of implementing Alternative C. There would be no new structural developments which would contribute no change to the collective impact relative to non-natural elements of form, line, and color within the landscape. The number of road miles within the area would not increase as a result of implementing Alternative C. The amount of suitable habitat for wildlife species that occur in the CIAA would remain about the same or increase slightly. The actions described in Alternative C would not substantially alter the current or expected future conditions of natural resources in the CIAA.

CHAPTER 5 – SUMMARY AND CONCLUSIONS

The assessment indicates that Alternative A, which includes no changes in the current mandatory terms and conditions, would continue to meet the applicable Idaho Rangeland Health Standards in the allotments. Overall, the allotments would continue to provide habitats suitable to maintain viable populations of native wildlife species, including special statues species. Under Alternative A, there would be no impact on economic or social values.

The assessment indicates that Alternative B would have essentially the same impacts as Alternative A. Authorized use would be the same as Alternative A under this alternative. The seasons of use would be adjusted to provide a more flexible fall use period, but use levels would not change. Alternative B includes a short riparian exclosure fence and water gap which would improve the riparian conditions in Spring Creek and reduce livestock impacts to the stream. Any substantial impacts to vegetation, soils, and wildlife species as a result of constructing the riparian fence are expected to be neutral to positive overall. Under Alternative B, there would be no impact on economic or social values. Both allotments would continue to meet the applicable Idaho Standards for Rangeland Health under Alternative B.

The assessment indicates that Alternative C, which includes no livestock grazing in the allotment for a 10 year period, would continue to meet standards and continue to provide habitats suitable to maintain viable populations of special statues species and improvement in habitat condition. Under Alternative C, there would be economic and social impacts on the operators. The forage substitution cost to replace the 213 Active AUMs on both allotments would range from approximately $3,014 to $17,817 annually. If the herds are reduced as a result of decreased forage availability, the decreased gross revenue for the operators through herd reductions would range from approximately $21,300 to $24,708 annually. Under Alternative C, there would be no additional cost for project maintenance.

CHAPTER 6 - CONSULTATION AND COORDINATION

Persons and Agencies Consulted

Scott and Stan Neville – Permittees
Blake Bowman – Permittee
Idaho Department of Fish and Game
Idaho Department of Lands
Idaho Department of Agriculture
Chairman, Land Use Policy Committee, Shoshone-Bannock Tribes
Chairman, Tribal Business Council, Shoshone-Bannock Tribes
U.S. Fish and Wildlife Service
Western Watersheds Project

List of Preparers

Juley Hankins Smith:	Vegetation / Invasive, Non-Native Species / Soils / Economic and Social Values
Scott Minnie:	Vegetation / Invasive Nonnative Species / Soils
Devin Englestead:	Migratory Birds / Threatened, Endangered, and Other Special Status Species / Wildlife Resources
Deena Teel:	Wetlands and Riparian Zones
Dan Kotansky:	Floodplains / Water Quality
Marissa Guenther:	Cultural Resources
Shannon Bassista:	Recreation / Visual Resources

CHAPTER 7 - REFERENCES

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APPENDIX A – DETERMINATION DOCUMENT FOR ALLOTMENT IV

SECTION 1 –DETERMINATION REQUIRED

_X_ All Standards are met or making significant progress towards meeting and there is conformance with the guidelines. **No Determination is required, review is complete.**

___ One or more Standards is not being met or there is non-conformance with the guidelines. **An Authorized Officer's Determination is required; continue with Section 2.**

SECTION 2 –DETERMINATION

The Determination documents the authorized officer's finding that existing grazing management practices or levels of grazing use on public lands either are or are not significant factors in failing to achieve the standards and conform to the guidelines within a specified geographic area. (H-4180-1 page I-3)

APPENDIX B – DETERMINATION DOCUMENT FOR SPRING CREEK ALLOTMENT

SECTION 1 –DETERMINATION REQUIRED

_X_ All Standards are met or making significant progress towards meeting and there is conformance with the guidelines. **No Determination is required, review is complete.**

___ One or more Standards is not being met or there is non-conformance with the guidelines. **An Authorized Officer's Determination is required; continue with Section 2.**

SECTION 2 –DETERMINATION

The Determination documents the authorized officer's finding that existing grazing management practices or levels of grazing use on public lands either are or are not significant factors in failing to achieve the standards and conform to the guidelines within a specified geographic area. (H-4180-1 page I-3)