



# ENVIRONMENTAL ASSESSMENT

## GRAZING PERMIT RENEWAL FOR BLIZZARD MOUNTAIN ALLOTMENT (#11007)

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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 the Blizzard Mountain Allotment (#11007).

The Blizzard Mountain Allotment is located within Butte County approximately 18 miles southwest of Arco, Idaho. The topography of the allotment is very rugged. Elevations within the allotment range from approximately 5,700 feet above sea level to 9,300 feet above sea level at the top of Blizzard Mountain. Wetland and riparian areas within the allotment consist of North Lava Creek including un-named tributaries, South Lava Creek including un-named tributaries and un-named springs.

### **Purpose and Need for Action**

The Big Lost Management Framework Plan 1983 (MFP) identifies the area within and around the Blizzard Mountain Allotment as available for domestic livestock grazing. Where consistent with the goals and objectives of the MFP and the 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 project area resource conditions and achieves the objectives and desired conditions described in the Big Lost MFP. The analysis is needed to address the operator's application for permit renewal in the Blizzard Mountain Allotment.

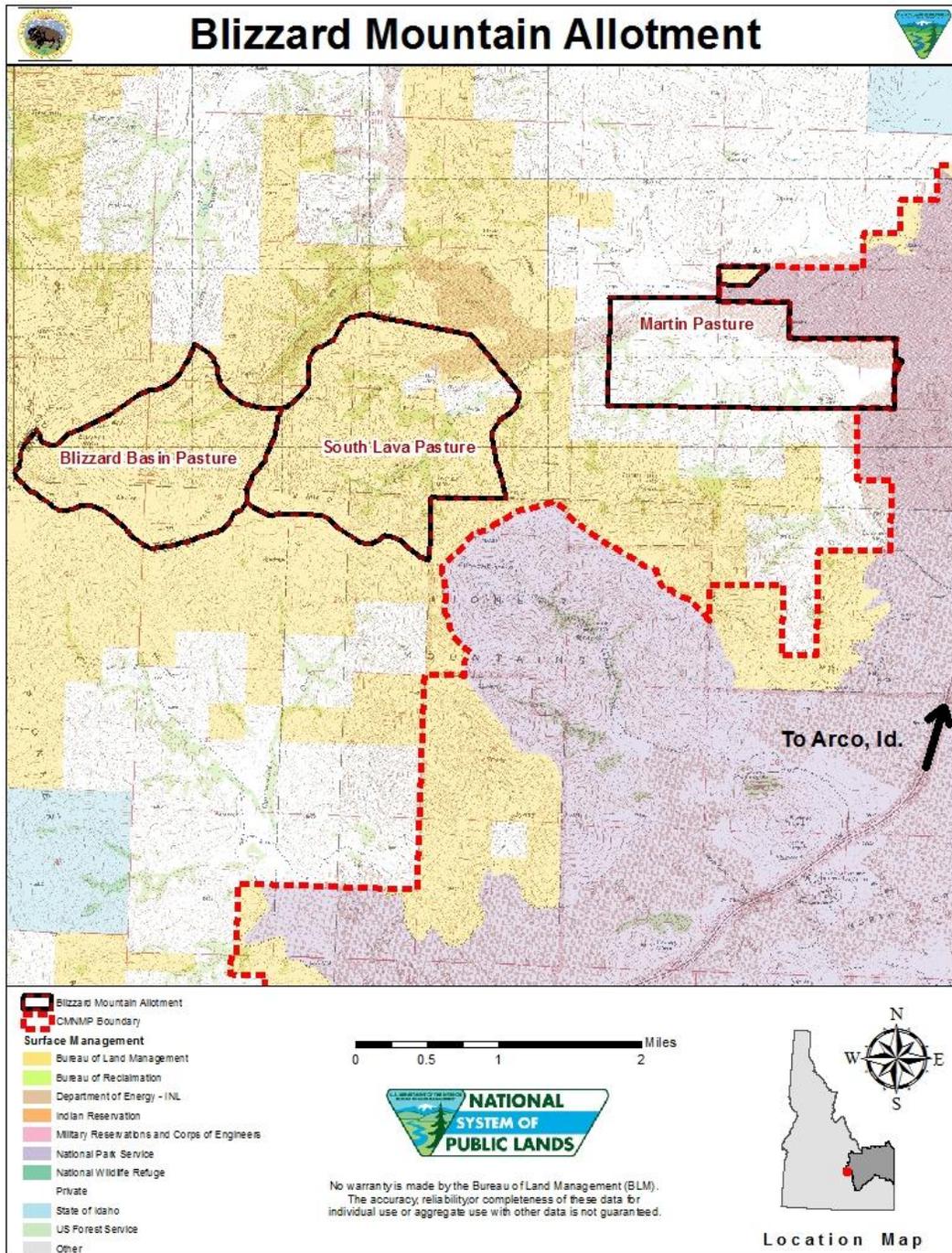
The Evaluation Report (USDI-BLM 2013) for the Blizzard Mountain Allotment concluded that the allotment is meeting all applicable standards; Standard 1 (Watersheds), Standard 2 (Riparian Areas and Wetlands), 3 (Stream Channel/Flood Plain), Standard 4 (Native Plant Communities), 7 (Water Quality) and Standard 8 (Threatened and Endangered Plants and Animals). Livestock management within the Blizzard Mountain Allotment is in conformance with Idaho Guidelines for Livestock Grazing Management.

Prior to the expansion of the Craters of the Moon National Monument and Preserve (CMNMP) in 2000, the Blizzard Mountain Allotment included more acreage. Portions of the former Martin Pastures were incorporated into the monument following the expansion and are no longer part of the allotment or available for livestock grazing. However, the permit, which was previously renewed in 1999 prior the expansion, has not been adjusted to reflect the change in allotment acreage and available grazing preference. This permit renewal process provides an opportunity to adjust the Blizzard Mountain Allotment livestock grazing permit and allotment boundary to accurately reflect the current conditions on the ground.

## Location

The Blizzard Mountain Allotment is located within Butte County approximately 18 miles southwest of Arco, Idaho (Figure 1).

Figure 1. Blizzard Mountain Allotment General Location.



### **Conformance with Land Use Plan**

The Proposed Action and alternatives for the Blizzard Mountain Allotment have been reviewed for conformance with the Big Lost MFP, approved on December 15, 1983. The actions are in conformance with the MFP decisions to:

Objective: Maintain and/or improve quantity and quality of the vegetative resources through selective range management. (RM Obj. 1)

The Proposed Action and alternatives have also been reviewed for conformance with the CMNMP MP, approved on September 12, 2006.

### **Relationship to Statutes, Regulations 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.

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.

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 Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management, created in 1997, established that livestock management practices must be in conformance with the approved standards and guidelines.

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.

North Magic Valley Local Working Group's Plan (NMVLWG 2011). This plan provides local and state specific guidance to manage sage-grouse and sage grouse habitats in the Local Working Group area.

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.

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.

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).

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.).

An Evaluation Report (USDI-BLM 2014) assessing conformance with the ISRH was issued for the Blizzard Mountain Allotment in January of 2014. The report found that Standards 1, 2, 3, 4, 7 and 8 are being met in the allotment. Standards 5 and 6 are not applicable to the allotment.

## **Public Contact and Issue Identification**

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 the Blizzard Mountain Allotment. Participation and contributions throughout the process were only received by the grazing permittees and the Idaho Fish and Game (IDFG). In December of 2014, the USFO sent an Allotment Assessment (USDI-BLM 2013) 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 and identified alternatives were sent to the parties. The parties were asked to reply if they had any questions or concerns regarding the report or identified alternatives. Comments were received from the grazing permittees and the IDFG and incorporated into the EA as appropriate. 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):

Issue an Unmodified Grazing Permit. Under Alternative A, the field manager would authorize continued livestock grazing under the same mandatory terms and conditions as the previous permit, which was approved in the Field Manager's Final Decision dated 8/2/1999. Allotment boundary adjustments resulting from the expansion of the CMNMP in 2000 would be incorporated into this alternative.

#### Authorized Use Changes

- 1) Adjust the Blizzard Mountain Allotment boundary by removing portions of the allotment which have been incorporated into the CMNMP. Boundary adjustments would be consistent with those portrayed in Figure 1.

#### Projects

- 2) None.

#### Grazing Plan

- 3) Turnout into the Martin Pasture would not be prior to June 1 and no later than November 30 each year. No turnout would be allowed in the Blizzard Basin/South Lava Pastures prior to July 1. Turnout areas in the Blizzard Basin/South Lava Pastures are to be alternated between North and South Lava every other year. The cattle would be allowed to drift between the two areas (Blizzard Basin/South Lava Pastures) after turnout. Table 1 outlines the grazing plan for the Blizzard Mountain Allotment.

Table 1. Blizzard Mountain Allotment Grazing Plan (Alternative A).

<b>Livestock number/kind</b>	<b>Pasture</b>	<b>Season</b>	<b>%PL</b>	<b>Type Use</b>	<b>AUMs</b>
150 Cattle	Martin	6/1-11/30	100	Active	102
150 Cattle	Basin/S. Lava	7/1-10/20	100	Active	552

## Mandatory Terms and Conditions

Table 2. Blizzard Mountain Allotment (#11007) Mandatory Terms and Conditions (Alternative A).

<b>Livestock number/kind</b>	<b>Pasture</b>	<b>Season</b>	<b>%PL</b>	<b>Type Use</b>	<b>AUMs</b>
150 Cattle	Martin	6/1-6/30	100	Active	102
150 Cattle	Basin/S. Lava	7/1-10/20	100	Active	552

Table 3. Blizzard Mountain Allotment (#11007) Permitted Use (Alternative A).

<b>Active AUMs</b>	<b>Suspended AUMs</b>	<b>Permitted Use</b>
654	0	654

## **Other Terms and Conditions**

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

1. Grazing use within the Blizzard Mountain Allotment must be in accordance with the Blizzard Mountain Allotment Management Plan which is incorporated into and made part of your permit.
2. The allotment shown on this permit shall meet the requirements as described in 43 CFR subpart 4180 – Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration. Any changes in management will be based upon the resource evaluations and analysis as scheduled and completed by the Field Manager.
3. The grazing system will be reviewed annually to evaluate compliance with habitat recommendations and guidelines with the Idaho Sage-grouse Management Plan. Livestock utilization of key wildlife forage and security cover will be minimized to assure conformance with the land use plan wildlife objectives.
4. Utilization will be no more than 50% of the annual growth of key upland species.
5. No more than 20 percent of the streambanks will be sheared by livestock hoof action annually.
6. Salting locations must be established at least ¼ mile away from riparian areas.
7. Key herbaceous riparian and wetland vegetation must have a minimum stubble height of 4 inches on the stream bank, along the green line, and in the key riparian and wetland areas at the end of the grazing season.
8. Key riparian browse vegetation must not be used more than 30 percent of the current annual twig growth that is within reach of domestic livestock.

## **Alternative B (Proposed Action):**

Issue a Modified Grazing Permit with range improvements. Allotment boundary adjustments resulting from the expansion of the CMNMP in 2000 would be incorporated into this alternative.

### Authorized Use Changes

- 1) Remove 99 AUMs from the permit as a result of the 2000 CMNMP expansion and subsequent loss of acreage available for livestock grazing (see Figure 1).
- 2) Establish pasture rotation in the Basin and South Lava Pastures and add a Term and Condition to require pasture rotation between the South Lava and Basin Pasture, while still providing some flexibility to adapt to yearly climatic and vegetative conditions. In a sequence of years with normal precipitation the pastures would rotate regularly according to the schedule.
- 3) Specify that 3 AUMs are authorized on the small portion of public lands in the Martin Pasture. There will be a separate permit line for the Martin Pasture identifying the Type Use as Custodial which recognizes that nearly all of the available forage is provided by private property. The season of use will be between 6/1 and 11/30.
- 4) The Basin Pasture boundary would be adjusted in BLM records and GIS layer files to more accurately reflect fences on the ground. In addition, the MFP acreage of 2,284 for the Blizzard Mountain Allotment would be updated to reflect changes associated with the CMNMP expansion. Blizzard Mountain Allotment would include approximately 2,228 acres of public land.

### Projects

- 5) Authorize construction of a permanent allotment boundary fence on the southern boundary of the allotment to prevent livestock drift between the Blizzard Mountain Allotment and BLM Allotments administered by the Shoshone Field Office.

The fence would be a wildlife friendly let-down fence; up to 3.5 miles long and it would partially follow terrain contour and the Butte/Blaine County line (see Figure 3). Actual location of the fence may vary based on wildlife clearances, cultural clearances and survey and design. The fence would be upright between (06/01-10/20) when livestock are on either side of the boundary. When livestock are not in the area, the fence would be dropped to the ground to reduce impeding wildlife movement. The fence would be a four-strand fence consisting of 3 strands of barbed wire spaced at 42 inches, 30 inches and 24 inches from ground level, and 1 smooth wire located 16 inches from ground level. Green metal fence posts would be used between the braces and would be spaced 16.5 feet apart. A wire stay would be placed on the fence wire midway between steel "T" posts. Fence wire would be marked to alert wildlife of the hazard. The fence would be constructed outside of the migratory bird nesting season (April 1 to June 30) to minimize the potential impacts to nesting birds.

Grazing Plan

- 6) The basic schedule for the Blizzard Basin and South Lava Pasture would be as outlined in Table 4. Any changes to the basic schedule would be made through application prior to livestock turnout. The permittee would be allowed 2 days to gather livestock from the pasture upon rotation. Each pasture would only be used once per year:

Table 4. Basin and South Lava Schedule (Alternative B).

1	South Lava	07/01 – 08/25	276
	Basin	08/26– 10/20	276
2	Basin	07/01 – 08/25	276
	South Lava	08/26– 10/20	276

Mandatory Terms and Conditions

Table 5. Blizzard Mountain Allotment (#11007) Mandatory Terms and Conditions (Alternative B).

Livestock number/kind	Pasture	Season	%PL	Type Use
150 Cattle	Martin	06/01 to 11/30	100	Custodial
150 Cattle	Basin/S. Lava	07/01 to 10/20	100	Active

Table 6. Blizzard Mountain Allotment (#11007) Permitted Use Summary

Active AUMs	Suspended AUMs	Permitted Use
555	0	555

**Other Terms and Conditions**

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

1. Turnout into the Basin Pasture during the early use period (07/01-08/25) would be limited to two consecutive years in a three year period to provide periodic rest during this time.
2. The south boundary fence would be upright between 06/01-10/20 while livestock are utilizing the area. Outside of this period the fence is required to be let down.

3. Riparian and Wetland Utilization – Utilization studies would be conducted using the stubble height method. Minimum stubble height in key areas would be 4 inches at the end of the growing season.
4. No more than 20 percent of the streambanks would be sheared by livestock hoof action annually.
5. Average livestock utilization would be no more than 50% of the annual growth of available forage species.
6. Distribution of livestock salt and mineral supplements shall be at least ¼ mile away from the nearest water source.
7. 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 by the AO.
8. 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 the requirements upon completion of a standards and guidelines assessment and determination as scheduled by the authorized officer.
9. The permittee shall provide reasonable administrative access across private land to the BLM for the orderly management and protection of the public lands.
10. A certified actual use report is due within 15 days of completing your authorized annual grazing use..

### **Alternative C (No Grazing):**

Under Alternative C, the Upper Snake Field Manager would not authorize livestock grazing within the Blizzard Mountain Allotment for a 10 year period from 2014 to 2024. The current operators would retain grazing preference within the allotment and may apply for grazing permit renewal after 2024.

### **Grazing Use Indicators and Criteria for all Alternatives**

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

1. *Browse Utilization* – Browse utilization studies would be conducted in key areas. Browse utilization by livestock should be no more than 30 percent of the annual growth of the key browse species (Technical Reference 1734-3, 1999).

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 (Technical Reference 1734-4, 1999).
3. *Streambank Alteration* – Alteration would be measured using an approved BLM method with an objective of no more than 20% of the streambank disturbed by livestock hoof action annually (Idaho Technical Bulletin 2007-01).
4. *Sage-grouse Habitats* – Grazing use levels in pastures with 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 North Magic Valley Sage-grouse Local Working Group Sage-grouse Conservation Plan (NMV LWG, 2011), the 2006 Conservation Plan for Greater Sage-grouse in Idaho (ISGAC, 2006) and habitat assessments would also be conducted using the protocol established by Stiver et al. (2010) for assessing sage-grouse habitat.
5. *Riparian Trend* – Riparian trend would be measured using the Montana Riparian Association health assessment method.
6. *Riparian and Wetland Utilization* – Utilization studies would be conducted using the stubble height method. Minimum stubble height in key areas would be 4 inches at the end of the growing season.

## 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

The Blizzard Mountain Allotment is comprised of approximately 2,228 acres of public land. There is one authorization for livestock grazing use within the allotment. The nearest Western Regional Climate Center (WRCC) weather station reports an average annual precipitation of approximately 15 inches for the area. The station is located in the area of the Craters of the Moon visitor's center four miles to the south of the Blizzard Mountain Allotment and while some variability may exist it is likely a good estimate of precipitation for 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 Chapter 3.

<b>Resource</b>	<b>Resource Status</b>	<b>Rationale</b>
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.
Stream Channel/Floodplains	Present, Impacted	Impacts are disclosed under Floodplains.
Water Quality	Present, Impacted	Impacts are disclosed under Water Quality.
Migratory Birds	Present, Impacted	Impacts are disclosed under Migratory Birds.
Threatened, Endangered, and Sensitive Animals	Present, Impacted	Impacts are disclosed under Threatened, Endangered, and Sensitive Animals
Wildlife Resources	Present, Impacted	Impacts are disclosed under Wildlife.
Cultural Resources	Present, Impacted	Impacts are disclosed under Cultural Resources.
Economic and Social Values	Present, Impacted	Impacts are disclosed under Economic and Social Values.
Access	Present, Not Impacted	The alternatives would not result in changes in access to the project area.
Air Quality	Present, Not Impacted	The alternatives would not result in the production of emission or particulate matter above incidental levels.
Areas of Critical Environmental Concern (ACEC's)	Not Present	There are no ACEC's within the Blizzard Mountain Allotment.
Environmental Justice	Not Present	There are no minority or low income populations residing near the proposed project area.
Existing and Potential Land Uses	Present, not Impacted	None of the alternatives would affect the lands current and likely future use as grazing allotments.
Fisheries	Not Present	There are no fisheries within the project area.
Forest Resources	Present, Not Impacted	The alternatives would not impact the limited forest resources within the allotment.
Mineral Resources	Present, Not Impacted	There would be no impacts to Mineral Resources.

<b>Table 7. Blizzard Mountain - Resources Considered in the Impact Analysis</b>		
<b>Resource</b>	<b>Resource Status</b>	<b>Rationale</b>
Native American Religious Concerns	Not Present	There are no Native American Religious Concerns within the project area.
Paleontological Resources	Not Present	There are no known significant fossils occurring in Copper Basin formation or in Challis Volcanics formation, which encompass the allotment.
Prime and Unique Farmlands	Present, Not Impacted	Prime farmland and prime farmland if irrigated is present within the allotment boundary, but occurs on private land.
Recreational Use	Present, not Impacted	The proposal would not impact recreational use.
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.
Threatened, Endangered, and Sensitive Plants	Not Present	There are no special status plants within the allotment.
Threatened, Endangered, and Sensitive Fish	Not Present	There are no waters in the project area that support threatened, endangered, or sensitive fish.
Tribal Treaty Rights and Interests	Present, Not Impacted	The alternatives would have no effect on the tribes' access to use the area to exercise their treaty rights and would have no known effects on resources they use for traditional purposes.
Visual Resources	Present, Not Impacted	Blizzard Mountain allotment is located within a Visual Resource Management (VRM) Class III. The VRM Class III objective determines that "changes may attract attention but would not dominate the view." The proposed boundary fence would be constructed on the southern portion of the allotment, approximately 4.5 miles north of US Highway 93/26/20. The Key Observation Point (KOP) for this project would be located along this highway. At this KOP, the fence would not be noticed due to the distance, topography, the speed of travel, and vegetative screening. There are no other feasible KOPs to view this potential project. Therefore, VRM Class III objectives would be met for the proposed boundary fence.
Wastes, Hazardous and Solid	Not Present	There are no solid or hazardous wastes in the project area and none would be created during the implementation of the alternatives.
Wild and Scenic Rivers	Not Present	There are no wild and scenic rivers near the project area.
Wild Horse and Burro HMA's	Not Present	There are no wild horse and burro HMA's in the region.
Wilderness	Not Present	There are no wilderness resources within the project area.

## **Vegetation**

### Affected Environment

Vegetation in the Basin Pasture is dominated by subalpine big sagebrush (*Artemisia tridentate spiciformes*)/Idaho fescue (*Festuca idahoensis*) and Douglas-fir (*Pseudotsuga menziesii*)/mountain snowberry (*Symphoricarpos oreophilus*) ecological sites. Average annual production of the native plant communities in the Basin Pasture is highly variable depending on the amount and timing of precipitation, among other factors. Annual production for the subalpine big sagebrush/Idaho fescue ecological site ranges from 1,000 lbs/acre in unfavorable years, 1,425 lbs/acre in average years and up to 1,600 lbs/acre in favorable years. Annual production for the Douglas-fir/mountain snowberry ecological site ranges from 500 lbs/acre in

unfavorable years, 900 lbs/acre in average years and up to 1,400 lbs/acre in favorable years.

Vegetation in the Lava Creek Pasture is dominated by mountain big sagebrush (*Artemisia tridentata vaseyana*)/Idaho fescue and subalpine big sagebrush/Idaho fescue ecological sites. Average annual production of the native plant communities in the Lava Creek Pasture is highly variable depending on the amount and timing of precipitation, among other factors. Annual production for the mountain big sagebrush/Idaho fescue ecological site ranges from 1,000 lbs/acre in unfavorable years, 1,300 lbs/acre in average years and up to 1,625 lbs/acre in favorable years. Annual production for the subalpine big sagebrush/Idaho fescue ecological site ranges from 1,000 lbs/acre in unfavorable years, 1,300 lbs/acre in average years and up to 1,600 lbs/acre in favorable years.

Vegetation in the Basin Pasture is dominated by subalpine big sagebrush/Idaho fescue and mountain big sagebrush/Idaho fescue ecological sites, which have production estimates described for the Lava Creek Pasture. Production estimates are based on Natural Resource Conservation Service (NRCS) ecological site descriptions.

Grass and grass like plants are the preferred forage for cattle and the average grass production of each ecological site discussed above is used in Table 8 to calculate a potential grass (forage) production of 975,875 pounds annually for Blizzard Mountain Allotment. This would equate to approximately 610 AUMs of potential forage for livestock based on the assumption that the amount of forage needed to support an AUM is 800 pounds ((975,875/800)/2). This calculation assumes production on an average year with all ecological sites at potential and with livestock distributed equally throughout the allotment utilizing exactly 50% of the forage. Actual average grass production available to livestock is expected to be less due to not all ecological sites being at potential natural condition, vegetation removed by native herbivores, including insects, and unequal distribution of livestock due to such factors as topography and distance to water.

Table 8 – Potential Cattle Forage Production in Blizzard Mountain Allotment

Ecological Site	Average Grass Production (Forage) (a)	Range site acres (b)	Ave. Pounds of Forage (a) x (b)	AUMs (a)x(b)/800
Idaho Fescue/Mountain Sage	650	820	533,000	666
Idaho Fescue/Subalpine sage	325	1,105	359,125	449
Bluebunch wheatgrass/ Mountain Sage	450	98	44,100	55
Other Sites	325	122	39,650	50
<b>Total</b>		<b>*2,145</b>	<b>975,875</b>	<b>1,220</b>
50% Use Factor				610

\*Figure does not include areas of lava flow and other unsuitable sites.

The interdisciplinary team observed conditions throughout the allotment and completed four site evaluations, which were representative of native plant community conditions observed. No native vegetation indicator was rated higher than a slight to moderate departure from potential

expected for the site, with the exception of gullies in the Basin Pasture. Overall, gullies in the Basin Pasture were uncommon, but those observed were moderate in extent. Annual production and functional/structural groups had slight-moderate departure over the allotment.

Vegetation cover data was collected at two locations (Basin Pasture and Lava Creek Pasture) within native plant communities in the allotment. There was no vegetation cover data collected in these areas previously that would allow for a trend comparison. When compared to the Ecological Site Descriptions, these areas are generally consistent with what is expected for the various ecological sites. Perennial grass cover was reduced in the Lava Creek Pasture, but forb and shrub cover was good and the overall vegetation cover was providing for site stability. In the Basin Pasture vegetative cover was even greater.

Utilization data was collected in the Lava Creek Pasture in 2011 and in the Basin Pasture in 2012. Utilization was completed in both pastures in 2013. In general, utilization levels averaged light to moderate across the allotment during these times. The highest average utilization (Moderate - 51%) recorded during the assessment period occurred in the Basin Pasture in 2012.

The health of the native plant communities was previously assessed in 1999 and was meeting the standard in the Blizzard Mountain Allotment. Based on the indicators for native plant community health and monitoring data, and considering the issue of scale relative to specific sites with alteration in one or more indicators, the allotment is meeting the standard to maintain populations of native plants and provide healthy, productive, and diverse native animal habitat.

### 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 (30-40% 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 there would be no change in the existing livestock grazing management for the Blizzard Mountain Allotment (150 cattle and 654 Active AUMs). Turnout in either Martin Pasture would not be prior to June 1 each year. The East Martin Pasture would be rested completely from grazing every three years. No turnout would be allowed in the Blizzard Basin/South Lava Pastures prior to July 1. Turnout areas in the Blizzard Basin/South Lava Pastures would be alternated between the Basin and South Lava Pastures every other year. The cattle would be allowed to drift between the two areas (Blizzard Basin/South Lava Pastures) after turnout.

From an administrative standpoint Alternative A would not provide orderly administration of public lands. The Blizzard Mountain Allotment boundary would be adjusted to reflect the expansion of CMNMP, but the AUMs associated with this area would remain on the permit. These AUMs, while appearing on the permit would not be available for use by livestock in other areas of the allotment. The livestock management system that is outlined under Alternative A would not be feasible or orderly as a result of the Monument expansion.

The vegetative cover data, utilization data and observations within the allotment indicate that native habitat standards are being met under the current livestock use levels. Under Alternative A, the allotment would continue to meet the standard for native plant communities as long as current use levels were maintained.

### *Alternative B (Proposed Action)*

Alternative B would adjust the grazing permit by reducing 99 AUMs from the total authorized use as a result of the decrease in public lands available for grazing associated with the 2000 CMNMP expansion. Alternative B would also establish a pasture rotation in the Basin and South Lava Pastures similar to the existing rotation plan for these pastures (Alternative A). Under Alternative B the permittee would be allowed 2 days to gather livestock from the pasture upon rotation and each pasture would only be used once per year. Under Alternative A the operator would rotate the pasture of livestock turnout, but then livestock are allowed to drift between pastures after turnout. Under Alternative A vegetation would be more susceptible to livestock grazing throughout the period of use for the Basin and Lava Creek Pastures. This increases the possibility that preferred area could be over utilized throughout the season. Alternative B better provides for the physiological needs of plants by ensuring that livestock are removed completely from a pasture after the period of use. This would allow plants more time to recover from grazing disturbance than currently provided under Alternative A.

There are two ponds fed by springs and melted snow runoff that provide water to livestock in higher elevations of the Basin Pasture. These ponds can have a large influence on livestock distribution in the pasture. The ponds are highly dependent on annual precipitation and in some years the ponds may be dry when livestock are scheduled to be in the pasture during the latter period of use. A Term and Condition was included in Alternative B that would provide flexibility from the scheduled rotation to make use of the ponds while they are holding water. This would be particularly beneficial in dry years when vegetation can lose vigor due to the combination of drought and grazing disturbance. In order to provide regular rotation and periodic rest for vegetation the Term and Condition ensures that turnout into the Basin Pasture would not occur more than two consecutive years in a three year period. This stipulation would provide improved livestock distribution and utilization of vegetation would be more uniform across the Basin Pasture. More preferred areas of use would receive less use as livestock are better distributed; being influenced by water availability and confined by fencing relative to Alternative A. It would also provide periodic rest for vegetation during the earlier use period (7/1-8/25). In a sequence of years with normal precipitation the pastures would rotate regularly according to the schedule. The combination of orderly pasture rotation and requirement to use only one pasture at a time per year would be more beneficial for vegetation in both pastures than the current system (Alternative A), resulting in increased vigor and improved opportunity for reproductive success.

Alternative B proposes an Active permitted use of 555 AUMs for the Blizzard Basin and South Lava Pastures (55 AUMs less than the estimated carrying capacity (see Affected Environment)). The remaining public land adjacent to private lands within the Martin Pasture would receive limited use by livestock. Private lands in this area provide the bulk of forage for livestock and use would be concentrated to these areas. Vegetation on public lands would be expected to continue to meet standards.

The administrative boundary adjustments mentioned under Alternative B would provide for more orderly administration of vegetation by more accurately portraying the location of

vegetation within the allotment. Monitoring and planning for vegetation and management would be more accurate throughout the permit term.

The boundary fence proposed along the southern border of the Blizzard Basin and South Lava Pastures would be beneficial to vegetation within the pastures. In recent history livestock drift across this boundary has been common. Livestock permitted in the Blizzard Mountain Allotment would frequently cross into public lands to the south, which are under management of the BLM's Shoshone Field Office. Livestock from the Shoshone side also crossed into the Blizzard Mountain Allotment. This has been a continual administrative challenge. This situation along with the relaxed pasture rotation system provided little protection from vegetation being utilized continually within the Basin and South Lava Pastures as long as livestock were in the vicinity. The fence would prohibit livestock drift between allotments and also enhance the management capabilities of the pastures by ensuring that livestock were located according to the schedule. This would reduce potential for continuous grazing disturbance pressure on vegetation in the area. Plant vigor would be expected to enhance and community composition and structure would be more stable.

Alternative B would allow for vegetation standards to be maintained within the allotment. There are also administrative provisions within Alternative B, which would better provide for the needs of native habitats within the allotment.

#### *Alternative C (No Grazing)*

Under Alternative C, no livestock grazing would be authorized within the allotment for a period of 10 years, from 2014 to 2024, and no new range improvement projects would be implemented. 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. 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 were described under general environmental consequences, above. Increased biomass would be left on-site throughout the allotment, 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. The allotment was meeting standards and would continue to meet standards for native plant community health. Alternative C would provide for the physiological needs of native plant species and habitats to a larger degree than Alternatives A and B.

### **Invasive, Non-Native Species**

#### Affected Environment

Spotted knapweed (*Centaurea stoebe*) was observed on private lands on the lower elevations of the allotment (Martin Pasture). The weed was observed in irrigated pasture lands and in some areas it appeared to be establishing densely. This provides a potential seed source for weed

establishment on public lands. Canada thistle (*Cirsium arvense*) was documented in springs and streams throughout the allotment, but did not dominate the sites where it was observed. 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

The potential impacts of invasive, non-native species found in the allotments include the degradation of native habitat, loss of biodiversity, and decrease of available forage. Seeds of these undesirable species may be dispersed through a variety of vectors including wind, water, animals, or humans. Removing or controlling undesirable species and limiting the interaction between specific vectors of dispersal and undesirable species can reduce the potential for spread.

#### *Alternative A (No Action)*

The potential impacts of invasive, non-native species found in or near the Blizzard Mountain Allotment include degradation of native habitat. Seeds of undesirable species may be dispersed by wind, water, animals, or humans. The native riparian habitat was evaluated and found to be meeting ISRH and the native upland habitats were found to be meeting ISRH. Canada thistle was documented at each spring and stream site within the allotment and spotted knapweed was observed on private lands within the allotment. Alternative A would continue current livestock management, which would continue to provide for healthy native habitats overall (see **Vegetation**). The Blizzard Mountain Allotment boundary would be adjusted to reflect the expansion of CMNMP, but the AUMs associated with this area would remain on the permit. These AUMs, while appearing on the permit would not be available for use by livestock in other areas of the allotment. By maintaining and/or improving the ecological health of the current native plant communities in allotment, the opportunity for expansion of invasive, non-native species would be reduced. According to Standard Operating Procedures (SOPs) of weed management, weed establishment would be monitored and treated appropriately. Under Alternative A, all new infestations in both upland and riparian areas would continue to be treated following an integrated weed management approach (USDI-BLM 2009b).

#### *Alternative B (Proposed Action)*

The potential for establishment and expansion of invasive, non-native species would be less under Alternative B compared to Alternative A. The improved grazing management system and southern boundary fence would provide for better control of livestock movements in the area of the Basin and Lava Creek Pastures. This would benefit native habitats (see **Vegetation**) and make them more resilient to invasive species establishment. Soils would receive higher levels of disturbance due to the construction of the proposed boundary fence, which would increase the potential area for invasion in the area immediately adjacent to the fencing. Riparian areas where Canada thistle has been documented would likely improve and become more resistant to its spread. According to Standard Operating Procedures (SOPs) of weed management, weed establishment would be monitored and treated appropriately. Under Alternative B, all new

infestations in both upland and riparian areas would continue to be treated following an integrated weed management approach (USDI-BLM 2009b).

### *Alternative C (No Grazing)*

Livestock are one of several vectors for dispersal of invasive, non-native species, and under Alternative C no livestock grazing would be authorized in the allotment 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 and the reduced soil disturbance as no projects would be constructed under Alternative C. According to Standard Operating Procedures (SOPs) of weed management, weed establishment would be monitored and treated appropriately. Under Alternative C, all new infestations in both upland and riparian areas would continue to be treated following an integrated weed management approach (USDI-BLM 2009b).

## **Soil Resources**

### Affected Environment

There are approximately eight different soil mapping units within the Blizzard Mountain Allotment. Two of the soil series comprise approximately 72% of the allotment area. These units vary widely in depth, drainage, and profile. Units composing large areas of the allotment include Lavacreek-Dollarhide (approximately 50% of the allotment), Lavacreek-Dollarhide-Grassy (approximately 22% of the allotment), Hal-Moonville Association (approximately 8% of the allotment), Lavacreek-Vitale Association (approximately 7% of the allotment) and Ketchum-Povey (approximately 5% of the allotment). Lavacreek-Dollarhide complex soils form along mountain slopes from parent materials including volcanic ash and/or eolian deposits mixed with colluvium and/or residuum derived from sandstone, conglomerate, siltstone and/or quartzite. Depths range from 10-60 inches to a lithic bedrock layer. The soils are well drained with an available water holding capacity ranging from very low (1 inch) to moderate (6 inches). Lavacreek-Dollarhide-Grassy soils form on mountain slopes from parent materials including volcanic ash, cinders and/or eolian deposits mixed with colluvium and/or residuum derived from sandstone, conglomerate, siltstone, granodionite and/or quartzite. Depths range from 10-60 inches to a lithic bedrock layer or an abrupt textural change. The soils are well drained with an available water holding capacity ranging from low (4 inches) to moderate (6 inches). Hal-Moonville Association soils form on mountain slopes from parent materials including volcanic ash and/or cinders. Depths range from 40-60 inches or more to an abrupt textural change. The soils are well drained with an available water holding capacity ranging from moderate (6 inches) to very high (12 inches). Lavacreek-Vitale Association soils form on mountain slopes from parent materials including volcanic ash and/or eolian deposits mixed with colluvium derived from sandstone, conglomerate, welded tuff, rhyolite, siltstone and/or quartzite. Depths range from 20-60 inches to lithic bedrock. The soils are well drained with an available water holding capacity ranging from low (2 inches) to moderate (6 inches). Ketchum-Povey soils form on mountain slopes from parent materials including mixed colluvium and/or alluvium over igneous, sedimentary and/or metamorphic rock. Depths range from 40-60 inches or more to lithic bedrock. The soils are well drained with an available water holding capacity ranging from low (2 inches) to moderate (6 inches).

Four field sites were evaluated in the allotment in 2013 (USDI-BLM 2013a) which were representative of the watershed integrity condition and site stability across the allotment. Only one indicator at one site was rated higher than none-slight departure from site potential. The indicator for gullies within the subalpine big sagebrush/Idaho fescue site was rated as moderate departure. While gullying within the Basin Pasture was uncommon, there was some occurring on the steeper slopes that were moderately active. Watersheds within the allotment generally provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

### *Microbiotic Crusts*

Microbiotic crusts 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 Crust 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).

### 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, 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 allotments 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. 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. Deep soil compaction restricts root growth reducing plant vigor and community composition and reduces soil productivity.

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)*

Within the Blizzard Mountain Allotment there are approximately 6 miles of road and 6 miles of fence. With abundant water available in streams in the upper elevations, there are no troughs located on public lands within the allotment. Soil compaction and reduced ground cover are more likely to occur along livestock trails, roads, fences and troughs as a result of increased livestock use. Assuming increased livestock use impact soil resources through compaction an average area of 12 feet around roads and 4 feet along fences, the area impacted would be 12 acres, which is less than 1% of the entire area of the allotment. Livestock trails have not been quantified within the allotment, but would likely fall within the impact areas made in the assumptions above.

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 and next to water sites, is estimated to occur on less than one percent of the allotment area. Under Alternative A, soil conditions on the allotment as a whole would continue to support water infiltration and permeability rates appropriate to site potential. Those areas in the Basin Pasture affected by gully action would continue have active gullies in localized areas, due to livestock drift and possible unauthorized use by livestock authorized in the adjacent allotment. These areas may expand under current management. The Blizzard Mountain Allotment boundary would be adjusted to reflect the expansion of CMNMP, but the AUMs associated with this area would remain on the permit. These AUMs, while appearing on the permit would not be available for use by livestock in other areas of the allotment. Overall, vegetative cover on the allotment 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 would be comparable to existing disturbance (Alternative A). The grazing management plan outlined under Alternative B would provide better control of livestock movements and the timing of such movements. Although the boundary fence proposed would create soil disturbance associated with construction activities the increased control of livestock movements in the area would provide greater benefits to soils within the allotment. Soils on either side of the new fence would be prone to livestock trailing impacts. Prolonged livestock use in the Basin Pasture where gullies have formed would be eliminated as the boundary fence would reduce livestock drift and potential of unauthorized

livestock use. Overall the amount of soils impacted by increased livestock activity expected to result in deep compaction 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.

#### *Alternative C (Preferred Alternative)*

Under Alternative C, the impacts to soil resources would be less than under Alternatives A or B. Under Alternative C, no livestock would be authorized in the allotment for a period of 10 years. No projects would be constructed. 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.

### **Wetlands and Riparian Areas**

#### Affected Environment

Approximately three miles of streams and springs are present in the Blizzard Mountain Allotment, supporting approximately 26 acres of riparian-wetland habitat. Five unnamed springs consist primarily of willow-dominated (*Salix* spp) communities, while the stream reaches consist primarily of communities dominated by quaking aspen (*Populus tremuloides*), willow, mountain alder (*Alnus incana*), Douglas fir (*Pseudotsuga menziesii*), Rocky Mountain maple (*Acer glabrum*), common chokecherry (*Prunus virginiana*), red-osier dogwood (*Cornus sericea*), and woods rose (*Rosa woodsii*).

The Montana Riparian and Wetland Association (MRWA) completed an initial inventory and evaluation of riparian-wetland vegetation conditions in the Blizzard Mountain Allotment in 1997. This included stream reaches along South Lava Creek and the north tributary of South Lava Creek. Subsequent assessments conducted by the Upper Snake Field Office (USFO) in 1999, 2004, and 2013 included the same stream reaches. In 2004 and 2013, additional new assessments were completed on North Lava Creek and two unnamed tributaries to North Lava Creek. The 2013 assessment also included an unnamed tributary to South Lava Creek and five unnamed springs. In total, streams and springs assessed in 2013 comprise approximately 26 riparian-wetland acres. The most recent assessments, conducted in 2013, indicate that approximately 23 acres (88%) of riparian-wetland vegetation are in proper functioning condition (PFC), and three acres (12%) are functional at risk (FAR). The trend is 44% upward, 7% downward, 3% static, and 46% unknown.

The sites with “unknown” trend have no previous assessments for determining trend, and include the unnamed tributary to South Lava Creek (rated as PFC) and the five unnamed springs (all rated as FAR). The downward trend was documented on a 0.5-mile reach of the unnamed tributary (north) to North Lava Creek, which includes 1.8 acres of riparian-wetland habitat. Though this reach is in a slight downward trend compared to the previous assessment, the reach was rated at the upper range of FAR. Contributing factors to the downward trend include the presence of invasive species (less than 1% of the site), increased browse utilization of preferred trees and shrubs (attributed to both wildlife and livestock), and downed timber as a result of a

wind shear event. Improvements along this reach compared to the previous assessment include higher tree and shrub establishment and fewer dead or decadent trees and shrubs.

### Environmental Consequences

Livestock grazing can directly and indirectly affect wetland and riparian area conditions. Vegetation attributes may change in response to livestock grazing. These attributes include plant community composition, distribution, and production; plant species diversity; rooting characteristics such as deep rooted vs. shallow rooted; amount of bare ground; and woody plant size, age class, and abundance (USDI-BLM 2006).

#### Alternative A (No Action)

Under Alternative A, no change in the existing livestock grazing management would occur in the Blizzard Mountain Allotment. Approximately 88% of riparian-wetland vegetation in the allotment has achieved PFC, while the remaining 12% are FAR (7% downward trend; 3% static; 2% unknown). Under Alternative A the Blizzard Mountain Allotment boundary would be adjusted to reflect the expansion of CMNMP, but the AUMs associated with this area would remain on the permit. These AUMs, while appearing on the permit would not be available for use by livestock in other areas of the allotment. At current use levels riparian areas would maintain their current condition, and the areas with static or downward trends would not be expected to make progress towards PFC. Livestock use would continue to occur for approximately 110 days in the Blizzard Basin and South Lava Pastures (7/1-10/20), and cattle would be allowed to drift between the two pastures. Both pastures have the potential to be grazed on an annual basis throughout the grazing season without any periods of rest. As a result, certain riparian-wetland communities would be protected from potential livestock impacts (e.g., introduction or spread of invasive species/noxious weeds or other undesirable herbaceous species, increased bare ground, reduced vegetative cover, reduced establishment/regeneration of preferred trees and shrubs, browse utilization on woody plants, reduced bank stability, and reduced overall vigor), but others would likely remain static without improvement or continue on a downward trend.

Currently, livestock are able to drift between the Blizzard Mountain Allotment and adjacent BLM-administered lands managed by the Shoshone Field Office, which potentially allows unauthorized grazing to occur on associated riparian-wetland areas during the grazing season and outside of the season. This situation has the potential to result in negative impacts on riparian habitat, although the allotment is currently meeting wetland/riparian habitat standard.

#### Alternative B (Proposed Action)

Alternative B would adjust the grazing permit by reducing 99 AUMs of authorized use associated with the loss of public lands available for livestock grazing resulting from the 2000 CMNMP expansion. Active AUMs would remain consistent with current use levels under Alternative A, and the grazing season would be the same. However, livestock would no longer be authorized to drift between the Blizzard Basin and South Lava Pastures, and each pasture would be used once per year, for a total of approximately 55 days. Under Alternative B the

permittee would be allowed 2 days to gather all livestock from the pasture upon rotation. Unlike Alternative A, this would afford each pasture a 55-day period of rest that would alternate each year between 7/01-8/25 one year and 8/26-10/20 the next year. As a result, associated riparian-wetland communities would be protected from potential livestock impacts (e.g., introduction or spread of invasive species/noxious weeds or other undesirable herbaceous species, increased bare ground, reduced vegetative cover, reduced establishment/regeneration of preferred trees and shrubs, browse utilization on woody plants, reduced bank stability, and reduced overall vigor) to a greater extent compared to Alternative A, which would allow livestock to drift between pastures, and potentially access riparian resources throughout the duration of the grazing season (7/01-10/20).

Under Alternative B, a permanent allotment boundary fence would be authorized along the southern boundary of the Blizzard Basin and South Lava Pastures. This would prevent livestock drift between the Blizzard Mountain Allotment and adjacent BLM-administered lands managed by the Shoshone Field Office. As a result, the potential for unauthorized livestock grazing on associated riparian-wetland areas would be removed, thus reducing possible compounded livestock-related impacts. Impacts to riparian-wetland areas would be lower compared to Alternative A, which would not authorize construction of a boundary fence. Alternative B would better provide for the long term maintenance and improvement of riparian standards within the allotment compared to alternative A.

#### Alternative C (*No Grazing*)

Under Alternative C, no grazing would be authorized for 10 years and no projects would be completed in the Blizzard Mountain Allotment. The potential for authorized livestock grazing impacts associated with riparian-wetland areas would be removed during the 10-year period. Unauthorized use associated with potential livestock drift from the adjacent allotment over the unfenced boundary would persist. Under this alternative, riparian-wetland areas would receive fewer impacts, and would thus, maintain or make faster and more sustained progress towards PFC compared to Alternatives A and B.

### **Stream Channel/Floodplain**

#### Affected Environment

##### North Lava Creek

In 2004, North Lava Creek was rated FAR for channel and floodplain characteristics and in 2013 the 0.5 mile reach remained FAR. The upper portion of this reach is more exposed with high elevation meadows containing rush and some sedge but no shrubs. There is adequate rock-armor along the banks and channel. The middle portion the stream has dense willow and rock cover which provides channel stabilizing armor. The lower portion of the stream flows through a Douglas fir forest. Overall, streambank rootmass protection was rated at 70-75% with only 1-5% of the area having exposed bare ground. Streambank structural alternations were estimated at 10% and alterations in riparian areas adjacent to banks were estimated at 10-15%. The stream

channel was downcut along the lower half of the stream, but this appears to be mostly due to steep topography.

### Unnamed Tributaries to North Lava Creek

Two perennial, high elevation streams combine to form an unnamed tributary to North Lava Creek. The upper reach #640 (0.3 miles) was assessed separately from the rest of the unnamed tributary. Reach #639 (0.5 miles) consists of one contributing fork and the remaining reach below the confluence of reach #640. Both of these reaches were assessed in 2013 and rated FAR for channel and floodplain characteristics. In 2004, both reaches rated PFC for stream channel and floodplain characteristics.

The upper reach (#640) had streambank rootmass protection of approximately 80%. The upper half of this reach is an open, high elevation meadow stream with steep slopes (estimated at 4%-6% gradient). The stream channel in this area is stabilized by rush and sedge cover and rock armoring. The upper portion of the reach transitions into a dense cover of willow along the banks before the lower portion of the reach flows through a thick Douglas fir forest. Large and small woody debris stabilize the banks through the forested portion of the reach. Under the forest canopy, a lack of sunlight precludes the occurrence of sedge, rush and riparian shrubs and some bare ground exists from mass wasting hillslopes, livestock trails and shaded forest floor. Approximately 5-10% of the riparian area is altered, and the stream is slightly incised. Localized areas where trails cross the stream have bank alteration.

The upper portion of reach #639 has few riparian shrubs but rush and boulders are stabilizing the banks and channel. The remaining portion of reach #639 occurs at the confluence with reach #640 and flows for approximately 0.25 miles through a Douglas fir forest. Streambanks along the forested portion of the reach have small and large woody debris that stabilized the banks. Portions of this forest had recently experienced an intense windstorm and freshly fallen fir trees were scattered all around the lower end of the reach. Reach #639 rated FAR for channel characteristics. In 2004 this reach was rated PFC for the same characteristics. As a whole, the reach contained an estimated 75-80% streambank rootmass protection. There was approximately 3% bare ground, which occurred on the forest floor and snow-loaded, rocky high elevation portions of the reach. About 10% of the streambanks were structurally altered, which was partially due to livestock trailing on banks and adjacent hillsides. Approximately 15% of the riparian area surrounding the stream was altered and the stream is slightly incised. Large rock and woody debris dams and tree roots stabilize the channel and most of the banks. The stream is very steep (4-10% slope). Approximately 60% of the streambank is considered accessible to livestock.

### South Lava Creek

South Lava Creek is a perennial stream with an upper reach (0.4 miles) and a lower reach (0.4 miles) and two small perennial tributaries. Reach #351 joins South Lava Creek from the south near the old Silver Bell Mine. At the lower end of South Lava Creek, reach #352 joins in from the north.

The upper reach of South Lava Creek rated PFC in 2013 for channel and floodplain characteristics. This reach rated FAR for channel characteristics in 1997 and PFC for these characteristics in 1999 and 2004. The channel had approximately 95-100% streambank stability due to rootmass protection from willow, aspen, alder, chokecherry, Rocky Mountain maple and dogwood. Small and large woody debris also contributed to streambank stability. This reach had less than 5% bank alterations and alterations to the rest of the riparian area and the stream was not incised.

The lower reach of South Lava Creek rated PFC in 2013 for channel and floodplain characteristics. This reach rated non-functional (NF) for channel characteristics in 1997, FAR in 1999 and PFC in 2004. The channel had approximately 95-100% streambank stability due to rootmass protection from willow, aspen, alder, chokecherry, Rocky Mountain maple and dogwood. Small and large woody debris also contributed to streambank stability. This reach has less than 5% in both structural bank alterations and alterations to the rest of the riparian area and the stream was not incised.

#### Unnamed Tributaries to South Lava Creek

The south unnamed tributary #351 (0.3 miles) that joins South Lava Creek was assessed in 2013 and rated PFC for channel and floodplain characteristics. The channel had approximately 95-100% streambank stability due to rootmass protection from willow, aspen, alder, chokecherry, Rocky Mountain maple and dogwood, and also from small and large woody debris. This reach had less than 5% structural bank alterations and alterations to the rest of the riparian area, and the stream was not incised. This stream had about 5% alterations to the surrounding riparian area due to a road and abandoned mine reclamation activities.

The north unnamed tributary (#352, 0.6 miles) to South Lava Creek was assessed in 2013 for channel and floodplain characteristics and was rated PFC. Previous assessments rated channel and floodplain characteristics NF in 1997, FAR in 1999 and PFC in 2004. Streambank stability was approximately 90% due to willow, alder, aspen, chokecherry, Rocky Mountain maple and rush. Woody debris and small and large cobble also help anchor the banks and channel. The stream had less than 5% structural bank alterations and no bare ground. The stream was vertically stable.

#### Environmental Consequences

Livestock can directly and indirectly affect stream conditions through soil compaction, bank shearing, or severing of roots of riparian vegetation, which are needed for plant survival and bank stability (Behnke and Raleigh 1978). Depending on site, soil, and substrate characteristics, channel degradation may take one of two forms. If a restrictive soil layer is in the channel bed, bank erosion causes channel widening and stream depth decreases. Conversely, if the restrictive soil layer is lower, the channel can downcut, and the stream gradient and energy can increase and move excessive sediment downstream (USDI-BLM 2006).

*Alternative A (No Action)*

North Lava Creek and the Unnamed Tributaries to North Lava Creek

Under Alternative A livestock use would continue to occur for approximately 110 days in the Blizzard Basin and South Lava Pastures (7/1-10/20), and cattle would be allowed to drift between the two pastures. Both pastures have the potential to be grazed on an annual basis throughout the grazing season. Under this alternative North Lava Creek and the two unnamed tributaries would remain in the current state of FAR or continue on a downward trend for stream channel and floodplain characteristics. Currently streambank rootmass protection is lacking, which would be expected to remain FAR or decrease further. The percent of structural bank alterations and alterations to the remainder of the riparian area would be expected to continue at current levels or increase. The current situation of livestock being able to utilize this stream throughout the grazing season has likely contributed to the FAR rating and trend in this area. Alternative A would not provide a viable management change that would reverse the condition of these stream reaches, though on the scale of the allotment as a whole it is meeting the standard for stream channel/floodplain characteristics.

The Blizzard Mountain Allotment is meeting stream channel and floodplain standards as a whole. However, specific concerns exist on North Lava Creek and its tributaries. The ability for livestock to utilize these areas throughout the grazing season and potential for compounded trespass use has likely contributed to the concerns identified in the Basin Pasture. Alternative A would likely continue to provide for stream channel and floodplain standards to be met overall, but would not provide the needed management adjustments to reverse trend on North Lava Creek.

South Lava Creek and the Unnamed Tributary to South Lava Creek

Under Alternative A South Lava Creek and its unnamed tributary would continue to remain in PFC for stream channel and floodplain characteristics. In the South Lava Pasture, the complex of streams has reached 95-100% streambank stability under the current situation (Alternative A). Bank alterations and alterations to the surrounding riparian areas were estimated at 5% under this alternative.

*Alternative B (Proposed Action)*

North Lava Creek and the Unnamed Tributaries to North Lava Creek

Alternative B would adjust the grazing permit by reducing 99 AUMs of authorized use associated with the reduction in public lands available for livestock grazing in the allotment resulting from the 2000 CMNMP expansion. Active AUMs would remain consistent with current use levels under Alternative A, and the grazing season would be the same. However, livestock would no longer be authorized to drift between the Blizzard Basin and South Lava Pastures, and each pasture would be used once per year, for a total of approximately 55 days. Under Alternative B the permittee would be allowed 2 days to gather all livestock from the pasture upon rotation. This would result in a 55-day period of rest for each pasture, which would

alternate each year between 7/01-8/25 and 8/26-10/20 in a sequence of two years. From the 2013 assessment, it appeared that livestock were making disproportionate use of the Basin pasture, resulting in a downward trend for this pasture while the South Lava pasture was maintaining PFC. Balancing use between the pastures and restricting drift between pastures throughout the grazing season would be beneficial for North Lava Creek and its tributaries.

The Term and Condition that would provide flexibility from the scheduled rotation to make use of the ponds in the Basin Pasture while they are holding water would be beneficial to North Lava Creek and its tributaries. The ponds can have a large influence on livestock distribution in the pasture. When the ponds hold water livestock are drawn to abundant upland vegetation on higher elevations of the pasture. This would have the effect of decreasing concentrated use on North Lava Creek and its tributaries.

The boundary fence proposed along the southern border of the Blizzard Basin and South Lava Pastures would be beneficial to North Lava Creek and its tributaries. Livestock drift across administrative boundaries combined with the relaxed pasture rotation system provided little protection from streams being utilized continually within the Basin Pasture as long as livestock were in the vicinity. The fence would prohibit livestock drift between allotments and also enhance the management capabilities of the pastures by ensuring that livestock were located according to the schedule. This would greatly reduce continuous grazing disturbance pressure on North Lava Creek and its tributaries.

#### South Lava Creek and the Unnamed Tributary to South Lava Creek

South Lava Creek and the contributing tributaries were all in PFC in 2013. Under this alternative these streams would continue to be in PFC for stream channel and floodplain characteristics. Given the apparent disproportionate use that the Basin Pasture seems to have been receiving some of the indicators would likely decrease slightly by increased livestock use. This would result in more livestock utilizing the stream channels and floodplains during the scheduled use period than appears to have occurred in recent years. However, the current stability of the streams would likely withstand the increase in pressure. In addition, Alternative B would provide the same management protections to South Lava Creek as those being implemented and previously disclosed for North Lava Creek. The scheduled pasture rotation, requirement to restrict drift between pastures and allotment boundary fence would all be beneficial for South Lava Creek and its tributaries. This would allow for standards to continue to be met in this area.

Alternative B would provide for a shift in trend and maintenance of current standards in the stream systems with the Basin and Lava Creek Pastures to a greater extent than Alternative A. In this alternative the construction of the permanent south allotment boundary fence, prohibiting drift between pastures, and ensuring frequent rotation between the two pastures would contribute to improving streambank and floodplain characteristics. More even distribution of livestock use would improve North Lava Creek and the two tributaries and allow for standards to be met.

## *Alternative C (No Grazing)*

### North Lava Creek and the Unnamed Tributaries to North Lava Creek

Under this alternative stream channel and floodplain characteristics would trend towards PFC and would likely reach PFC within the 10-year time period. Streambank stability would increase due to increased riparian vegetative cover and lack of livestock-caused bank alterations. Alterations to the rest of the riparian area would decrease also during the 10-year term.

### South Lava Creek and the Unnamed Tributary to South Lava Creek

Under this alternative stream channel and floodplain characteristics would continue to be in PFC.

By removing livestock the impacts to stream channels and floodplains would be greatly reduced allowing standards within the allotment to be met and maintained to a greater extent and at a faster rate than Alternatives A and B.

## **Water Quality**

### Affected Environment

#### North Lava Creek

Water quality indicators were assessed on one reach of North Lava Creek and two unnamed tributaries to North Lava Creek in 2013. North Lava Creek is not listed on the Idaho Department of Environmental Quality (DEQ) list of Section 303(d) water quality-limited streams. All indicators were rated “plus” except best management practices, which was rated “at risk” due to livestock use in the area. Beneficial uses was rated “plus” as the water fully meets livestock and wildlife needs. There is no fishery in North Lava Creek or its tributaries. The stream was not turbid, there was no indication of reduced dissolved oxygen concentration and algal populations in the stream were not observed. Fine sediment loads were not observed in the stream. Trailing on adjacent hillsides and eroded, naturally mass-wasting hillslopes are sediment sources that were observed, but these areas were a small percent of the total reach length. No fine silt sediment layer was observed covering the substrate. Substrate material in this stream consisted of small course gravel. Macroinvertebrates were observed in the stream.

#### South Lava Creek

Water quality indicators were assessed on two reaches of South Lava Creek and two unnamed tributaries to South Lava Creek in 2013. South Lava Creek is not listed on the Idaho DEQ’s list of Section 303(d) water quality-limited streams. All indicators were rated “plus.” Beneficial uses was rated “plus” as the water fully meets livestock and wildlife needs. There is no fishery in South Lava Creek or its tributaries. The stream was not turbid, there was no indication of reduced dissolved oxygen concentration and algal populations in the stream were not observed. Fine sediment sources were not observed. Mayflies were observed in the stream. Best

management practices were rated “plus” as the current grazing system is not impacting stream water quality. Abandoned mine areas do not appear to be having an impact on water quality.

### Environmental Consequences

#### *Alternative A (No Action)*

##### North Lava Creek and the Unnamed Tributaries to North Lava Creek

Under this alternative water quality indicators would continue to be rated “plus” except for best management practices (BMPs), which would be rated “at risk.” Allowing drift between pastures after turnout appears to facilitate disproportionate use of North Lava Creek and its tributaries. Some sediment would be contributing to these streams from livestock activity as well as from natural, mass-wasting hillslopes.

##### South Lava Creek and the Unnamed Tributary to South Lava Creek

Under this alternative all water quality indicators would continue to be rated “plus.” The grazing system would continue to have a nearly negligible impact to the streams water quality.

#### *Alternative B (Proposed Action)*

##### North Lava Creek and the Unnamed Tributaries to North Lava Creek

Under this alternative all water quality indicators would likely be rated in “plus” condition. The construction of the permanent south allotment boundary fence, restricting drift between pastures, utilizing ponds in higher elevations and ensuring frequent rotation between the two pastures would contribute to improved management in the area and livestock utilization on these streams would decrease. Improved rotation and balanced livestock use between pastures would shift BMPs from “at risk” to “plus”. Decreasing livestock utilization in this area would allow streambank stability to increase and thereby decrease potential sediment recruitment to the stream.

##### South Lava Creek and the Unnamed Tributary to South Lava Creek

Under this alternative all water quality indicators would continue to be rated “plus.” With a more balanced rotation livestock utilization of this stream system may result in an increase in some sediment sources from livestock crossings and bank alterations and an increase in sediment to the stream. However, these levels would not be expected to exceed water quality standards on this stream system and standards would continue to be met.

Alternative B would provide for water quality standards to be met and maintained to a greater extent and at a faster pace than Alternative A.

## *Alternative C (No Grazing)*

### North Lava Creek and the Unnamed Tributaries to North Lava Creek

Under this alternative all water quality indicators would be rated in “plus” condition. Without livestock grazing, livestock related sediment sources such as trails and streambank alterations would contribute less sediment to the stream. Natural mass wasting hillslopes would continue to contribute sediment to these streams. Wildlife trailing may also contribute to sediment in streams.

### South Lava Creek and the Unnamed Tributary to South Lava Creek

Under this alternative all water quality indicators would continue to be rated “plus.” Discontinued livestock grazing would reduce sediment sources and their contribution to these streams.

Alternative C would provide for water quality standards to be met and maintained to a greater extent than Alternatives A and B.

## **Migratory Birds**

### *Affected Environment*

A wide variety of habitat types exist within the Blizzard Mountain Allotment including: sagebrush-steppe, Douglas fir dominant forest, aspen stands, and riparian-wetland areas. This diversity in vegetation types provides potential habitat for a large variety of migratory bird species. Inventory and monitoring data are limited or absent for many migratory species, including sagebrush obligates, within the Blizzard Mountain Allotment. Little is known about their population status or trends. Field assessments conducted in the Blizzard Mountain Allotment in 2013 found that the native plant communities and riparian-wetland areas met Standards for Rangeland Health and provide for a diversity of bird species associated with the aforementioned habitat types.

The sagebrush-steppe habitat type supports numerous migratory bird species such as sage sparrow, Brewer’s sparrow, vesper sparrow, sage thrasher, green-tailed towhee, western meadowlark, Bullock’s oriole, and loggerhead shrike. Sagebrush obligate species, such as the Brewer’s sparrow and sage sparrow, which require sagebrush as nest sites benefit from mostly intact mature sagebrush stands found within the allotment.

Douglas fir and aspen stands provide habitat for forest dwelling migratory birds. Several studies have shown that aspen forests generally support greater bird species richness and total abundance of birds than do other North American montane habitats (Turchi et al. 1995). Stands of Douglas fir and mixed conifers also support nesting habitat for a large variety of migratory bird species. Species that may occur within these habitat types in the Blizzard Mountain Allotment include Hammond’s flycatcher, olive-sided flycatcher, Williamson’s sapsucker, red-naped sapsucker, Calliope hummingbird, warbling vireo, and golden-crowned kinglet.

The Blizzard Mountain Allotment provides approximately 26 acres of riparian-wetland habitat associated with North Lava Creek and its tributaries, South Lava Creek and its tributaries, and five un-named springs. Riparian vegetation attracts a greater number and variety of bird species, primarily those that feed on insects, during migration than during the breeding season (Knopf et al. 1988). Riparian habitats support the highest bird diversity of any western habitat type and covers less than 1% of the landscape in Idaho (Ritter 1998). Heath and Ballard (2003) found the riparian width and/or percent riparian habitat was positively correlated with breeding bird species diversity within the arid region of the eastern Sierra Nevada. Migratory birds that require riparian habitat and that may use Blizzard Mountain Allotment include the willow flycatcher, yellow warbler, Wilson's warbler, ruby-crowned kinglet, and the blue grosbeak. Other migratory birds may use riparian zones for foraging, nesting, and cover from predators. The composition and structure of the surrounding vegetation and land uses adjacent to riparian ecosystems can influence distribution and occurrence of most bird species.

The allotment is also used during different seasons by migratory raptors such as rough-legged hawk, ferruginous hawk, Swainson's hawk, northern harrier, red-tailed hawk, northern goshawk, prairie falcon, golden eagle, and short-eared owl.

### 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., prairie falcon) responding positively to reduced ground cover or bare ground (Saab et al. 1995).

### *Alternative A (No Action)*

Under Alternative A, grazing on Blizzard Mountain Allotment would continue under the same mandatory terms and conditions as the current permit. Field assessments conducted in 2013 found that the native plant communities and riparian-wetland areas were meeting rangeland health standards. There is little trend information on migratory birds available for this allotment,

however, as the allotment is meeting rangeland health standards it is expected that habitat requirements (e.g., cover, food, and space) of migratory birds are being met and would continue to be met under Alternative A.

#### *Alternative B (Proposed Action)*

Alternative B would establish a pasture rotation in the Blizzard Basin and South Lava Pastures. Under current conditions (Alternative A), livestock turnout is alternated between the two pastures each year, but following turnout the cattle are free to drift between the pastures for the duration of the season of use (07/01 – 10/20). The pasture rotation under Alternative B would limit livestock turnout in the Blizzard Basin Pasture during the early use period (07/01 – 08/25) to occur in two consecutive years during a three year period. This would provide periodic deferment of use for the vegetation within both pastures during this early use period. Additionally, the pasture rotation would ensure that each pasture is only available to livestock grazing during one period of use each year (07/01 – 08/25 or 08/26 – 10/20), as opposed to the cattle being free to drift between each pasture for the entire season of use. This would decrease the potential for areas preferred by livestock to be over utilized throughout the season of use. Periodic rest to the Blizzard Basin and South Lava Pastures would allow the herbaceous vegetation more time to recover from grazing and increase in vigor, which would better provide for the physiological needs of migratory bird habitat when compared to Alternative A.

The public lands adjacent to private lands within the Martin Pastures would have 3 authorized grazing AUMs. The majority of forage for livestock in these pastures occurs on private lands and it is expected that livestock use would be concentrated in those areas. It is expected that the native plant communities on the public lands would continue to meet Standards for Rangeland Health and provide suitable habitat for migratory bird species.

Up to 3.5 miles of fence would be constructed along the southern edge of allotment boundary. Construction of the fence would alleviate the drift of livestock from the adjacent allotment, which has been common in recent history. This would reduce unauthorized grazing disturbance to the vegetation in this area. It is expected that plant vigor would increase in the areas where unauthorized livestock tend to congregate and provide more productive habitat for migratory bird species. 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. However, as mentioned in the project design, this will be a let-down fence and would only be upright while livestock are present on either side of the boundary (06/01 – 10/20). Additionally, the top strand of the fence will be marked with reflective markers to make it more visible and reduce the risk of a collision. Human activity associated with the construction and maintenance of the fence may cause some migratory bird species to become temporarily displaced or even abandon their nest sites. The fence will be constructed outside of the migratory bird nesting season (April 1 to June 30) to minimize the potential impacts to nesting birds (Sullivan et al. 2009).

The native plant communities and wetland-riparian areas in the Blizzard Mountain Allotment were evaluated in 2013 and found to be meeting rangeland health standards. The implementation of a pasture rotation would allow for periodic rest during different seasons, further promoting herbaceous vegetation production. The installation of an allotment boundary fence would reduce the risk of unauthorized grazing disturbance to vegetative communities. Therefore it is expected that, under this alternative, vegetation communities would continue to meet standards, or improve, and provide adequate habitat conditions for migratory bird species within the allotment.

### *Alternative C (No Grazing)*

Under Alternative C, no livestock grazing would be authorized within the Blizzard Mountain Allotment for a period of 10 years, from 2014 to 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. There would be no potential displacement or disturbance of migratory birds during crucial breeding, nesting, and brood-rearing seasons. With no late-season livestock grazing occurring there would be no reduction of the amount of residual herbaceous vegetation available as forage or cover for migratory birds and their prey bases during the following spring. Some species like the ferruginous hawk and prairie falcon may be negatively impacted by a reduction in prey availability due to increased vegetative cover resulting from livestock removal (Douglass and Frisina 1993). Other migratory birds such as the sage sparrow and Brewer's sparrow prefer patchy habitat that is commonly found with livestock grazing. Overall, the increase in understory vegetation, and lack of disturbance and competition, would allow the Blizzard Mountain Allotment to continue to meet rangeland health standards and provide suitable habitat for migratory birds.

Removing grazing from forested areas and the riparian areas associated with North and South Lava Creeks and the five un-named springs would allow the vegetation influenced by livestock grazing to increase in vigor and species composition. This alternative would allow for the most vigorous and prolific forest undergrowth and riparian vegetation and provide the best habitat for migratory birds as compared to Alternatives A and B.

Impacts to migratory bird species would be less under Alternative C than under Alternatives A or B due to reduced potential disturbance and increased forage and cover.

## **Threatened, Endangered, and Sensitive Animals**

### Affected Environment

All data known to the Upper Snake Field Office, including data from U.S. Fish and Wildlife Service (USFWS), Idaho Department of Fish and Game (IDFG), 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 known within the allotment. There is one candidate species, greater sage-grouse, within the Blizzard Mountain Allotment.

Table 9 lists special status species that have been identified as occurring or potentially occurring within the Blizzard Mountain Allotment. 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. Species not occupying seasonal ranges or not expected to occur within the Blizzard Mountain Allotment are not discussed.

**Table 9 - Special Status Species and Occurrence within Blizzard Mountain Allotment**

Species	Status <sup>a</sup>	Occurrence	Rationale
Greater Sage-Grouse ( <i>Centrocercus urophasianus</i> )	C	Present	Preliminary Priority Habitat and observed within the allotment.
Prairie Falcon ( <i>Falco mexicanus</i> )	S	Present	Observed within the allotment. Nest sites not identified.
Ferruginous Hawk ( <i>Buteo regalis</i> )	S	Potential	Potential habitat present. Nest sites not identified.
Northern Goshawk ( <i>Accipiter gentilis</i> )	S	Potential	Potential breeding habitat present
Brewer's Sparrow ( <i>Spizella breweri</i> )	S	Potential	Potential breeding habitat present
Sage Sparrow ( <i>Amphispiza belli</i> )	S	Potential	Potential breeding habitat present
Loggerhead Shrike ( <i>Lanius ludovicianus</i> )	S	Potential	Potential breeding habitat present
Hammond's Flycatcher ( <i>Empidonax hammondi</i> )	S	Potential	Potential breeding habitat present
Olive-sided Flycatcher ( <i>Contopus borealis</i> )	S	Potential	Potential breeding habitat present
Willow Flycatcher ( <i>Empidonax trailii</i> )	S	Potential	Potential breeding habitat present
Lewis's Woodpecker ( <i>Melanerpes lewis</i> )	S	Potential	Potential breeding habitat present
Williamson's Sapsucker ( <i>Sphyrapicus thyroideus</i> )	S	Potential	Potential breeding habitat present
Calliope Hummingbird ( <i>Stellula calliope</i> )	S	Present	Observed within the allotment.
Piute Ground Squirrel	S	Present	Observed within the allotment

Species	Status <sup>a</sup>	Occurrence	Rationale
<i>(Spermophilus mollis artemisae)</i>			
Pygmy Rabbit <i>(Brachylagus idahoensis)</i>	S	Potential	Potential habitat present
Townsend's Big-eared Bat <i>(Corynorhinus townsendii)</i>	S	Potential	Potential habitat present

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

On March 23, 2010 the US Fish and Wildlife Service determined that listing of the greater sage-grouse range-wide was warranted but precluded by higher listing actions (USFWS 2010). Habitats for sage-grouse within the BLM are currently managed under Instruction Memorandum No. 2012-043 - Greater Sage-Grouse Interim Management Policies and Procedures. Locally management actions also follow the North Magic Valley Local Working Group's Sage-Grouse Conservation Plan (NMVLWG 2011) and the Conservation Plan for Greater Sage-grouse in Idaho (ISGAC 2006). Greater sage-grouse occurrence is 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).

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* (USDI-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. Key Habitat 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 (Makela and Major 2011). The Blizzard Mountain Allotment consists of approximately 2,200 acres of BLM managed land, all of which is identified as both PPH and Key Habitat.

In Idaho, based on long term averages, greater sage-grouse shows a declining population trend (Connelly et al. 2004). Although populations in the Upper Snake Region have shown increases in the past 10 years they have not reached levels attained in the late 1960s or early 1970s (Connelly et al. 2004). There is one known sage-grouse lek within the allotment, and an additional 13 leks within five miles of the allotment. The lek within the allotment boundary is occupied, and is located on private ground. Of the 13 leks within five miles of the allotment, five leks are occupied, one lek is unoccupied, and the remaining seven leks have an undetermined status due to a lack of recent surveys. Analysis of active lek data gathered by IDFG, USFS, and BLM within five miles of the Blizzard Mountain Allotment show sage-grouse populations fluctuate annually and are fairly low compared with the ten year average.

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 (Zou 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. Most water sources within the Blizzard Mountain Allotment consist of free flowing water, which would not provide conditions for mosquito larvae to flourish to the extent that troughs would. There are no trough systems located on public lands within the allotment.

The Blizzard Mountain Allotment provides breeding, upland summer (late brood-rearing), and winter habitat for sage-grouse. The allotment also provides some habitat for late brood-rearing associated with riparian habitat. Two sage-grouse habitat assessments were conducted within the allotment 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 height, (5) forb height, (6) perennial grass cover, (7) forb canopy cover, and (8) forb diversity. Table 10 includes the average rating for each breeding habitat indicator throughout the Blizzard Mountain Allotment.

**Table 10 – Average Rating for Breeding Habitat Indicators**

<b>Breeding Habitat Indicators</b>	<b>Suitable</b>	<b>Marginal</b>	<b>Unsuitable</b>
Average Sagebrush Canopy Cover	1	2	
Average Sagebrush Height – Arid Site	1, 2		
Sagebrush Growth Form	1, 2		
Average Perennial Grass Height	1	2	
Average Perennial Forb Height	1	2	
Average Perennial Grass Canopy Cover – Arid Site	1, 2		
Average Perennial Forb Canopy Cover – Arid Site	1, 2		
Preferred Forb Abundance and Diversity	1, 2		

1- South Lava Pasture, 2- Blizzard Basin Pasture

Upland summer habitat indicators are as follows: (1) sagebrush canopy cover, (2) sagebrush height, (3) perennial grass and forb canopy cover, and (4) forb diversity. Table 11 includes the average rating for each upland summer habitat indicator throughout the Blizzard Mountain Allotment.

**Table 11 – Average Rating for Summer Habitat Indicators**

<b>Upland Summer Habitat Indicators</b>	<b>Suitable</b>	<b>Marginal</b>	<b>Unsuitable</b>
Average Sagebrush Canopy Cover	1	2	
Average Sagebrush Height	1, 2		
Average Perennial Grass and Forb Canopy Cover	1, 2		
Preferred Forb Abundance and Diversity	1, 2		

1- South Lava Pasture, 2- Blizzard Basin Pasture

Winter habitat indicators are as follows: (1) sagebrush canopy cover, and (2) sagebrush height. According to data available from the Western Regional Climate Center (2013) snow depths at the nearest monitoring station, located in the Craters of the Moon National Monument approximately 5 miles southeast of the Blizzard Mountain Allotment, peak in the month of February. These snow depths were recorded from 1958 and 2013 and yield an average of approximately 25 inches (63.5 cm). This data was used to determine winter habitat suitability based on sagebrush height above snowpack. Table 12 includes the average rating for each winter habitat indicator throughout the Blizzard Mountain Allotment, and Table 13 includes the habitat assessment overall rating by pasture for each of the three life stages.

**Table 12 – Average Rating for Winter Habitat Indicators**

<b>Winter Habitat Indicators</b>	<b>Suitable</b>	<b>Marginal</b>	<b>Unsuitable</b>
Sagebrush Canopy Cover	1, 2		
Sagebrush Height (availability during winter)			1, 2

1-South Lava Pasture, 2- Blizzard Basin Pasture

**Table 13- Sage-Grouse Habitat Assessment Rankings by Pasture**

<b>Pasture</b>	<b>Breeding Habitat</b>	<b>Upland Summer Habitat</b>	<b>Winter Habitat</b>
South Lava Pasture	Suitable	Suitable	Marginal
Blizzard Basin Pasture	Suitable	Suitable	Marginal

The rating for late brood-rearing habitat quality is closely associated with the condition of riparian-wetland areas. The Blizzard Mountain Allotment contains approximately 26 acres of riparian-wetland habitat associated with North Lava Creek and its tributaries, South Lava Creek and its tributaries, and five un-named springs. The most recent assessment, completed in 2013,

indicates that the riparian-wetland areas within the Blizzard Mountain Allotment met Standards for Rangeland Health.

The Blizzard Mountain Allotment consists of approximately 2,200 acres of BLM managed land, all of which is identified as both PPH and Key Habitat for sage-grouse. Overall, the allotment's breeding and upland summer habitats are in suitable condition. The allotment's winter habitats are considered to be in marginal condition. All of the indicators for the habitat assessment conducted in the South Lava Pasture rated as suitable for breeding and upland summer habitat.

The measured sagebrush canopy cover (44%) in the Blizzard Basin Pasture exceeded the suitable range and was rated as marginal for breeding and upland summer habitat. When sagebrush canopy cover begins to surpass the 25% threshold, it can exceed the cover conditions needed for productive brood-rearing and nesting sage-grouse habitat (ISGAC 2006). However, this relatively high sagebrush canopy cover did not limit the amount of perennial grass and forb canopy cover, which were measured to be well within the suitable range. The average perennial grass height in the Blizzard Basin Pasture was measured to be 1 cm (<10%) short of the suitable range for breeding habitat. The average perennial forb height also narrowly missed the suitable range. However, relatively high numbers of low-growing forbs brought the average forb height down, but the amount of perennial forbs available for foraging was within the suitable range. Despite this pasture having three indicators being rated as marginal, the site as a whole was classified as suitable breeding habitat as it should provide an adequate amount of available cover and forage.

Winter habitat was rated as marginal for both sites assessed in 2013. Although the amount of sagebrush canopy cover was rated as suitable, the average sagebrush height (amount available above average snowpack) was rated as unsuitable at both sites. This is due to the relatively high amount of average snowpack in this area (approximately 25 inches or 63.5 cm), and not due to the ecological condition of the assessed sites. Additionally, numerous windswept ridges within the allotment may provide access to available sagebrush during the winter months.

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 allotment is likely flying, perching, foraging and migration. There are no known nesting sites within Blizzard Mountain Allotment, however, this species was observed within the allotment during habitat assessments in 2013.

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 the Blizzard Mountain Allotment provide potential nesting for this species within the allotment. However, there are no known nesting sites within the allotment.

Northern goshawks nest in a variety of forest types including Douglas fir, various pines, and aspen. A high canopy closure is one of the most common habitat characteristics for goshawk nest sites. Foraging habitats can be very diverse and range from open sagebrush-steppe to dense

forests (Squires and Reynolds 1997). Although no nest sites have been identified, potential breeding and foraging habitat exists within the Blizzard Mountain Allotment.

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 the area but have not been documented within the 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 3-6 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 the area but have not been documented within the 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 the southern portion of 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, and sagebrush desert (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 the allotment, however suitable habitat does exist and it is likely shrikes nest and breed there during the summer months.

Hammond's flycatcher is primarily an aerial forager, capturing insect prey on the wing. However, it will also glean insects off leaves and other vegetation. It inhabits cool, dense forest and breeds primarily in Douglas fir, mixed forests, and conifer and aspen forests (Sedgwick 1994). Little is known about the Hammond's flycatcher in the area, however Douglas fir stands within the Blizzard Mountain Allotment may provide potential nesting and foraging habitat.

The olive-sided flycatcher feeds almost exclusively on flying insects within forest clearings and semi-open forest. During the breeding season it primarily inhabits montane coniferous forests, where it nests and forages in forest openings and edges associated with natural openings (Altman and Sallabanks 2012). There has been no known documentation of this species within the Blizzard Mountain Allotment; however, the allotment does contain potential breeding and foraging habitat.

Willow flycatchers nest in willow or alder thickets along streams. Forty-six percent of willow flycatcher breeding population nest within the intermountain west (Rich et al. 2004). The willow and alder components along the riparian areas in the Blizzard Mountain Allotment may provide potential nesting and foraging habitat for willow flycatchers.

Although Lewis's woodpeckers are typically classified as burned pine forest specialists, breeding habitats include an open canopy, a brushy under story offering ground cover, dead or downed woody material, available perches, and abundant insects (Tobalske 1997). Little is known about Lewis's woodpeckers in this area but the Blizzard Mountain Allotment has patches of a variety of tree species with the associated dead or downed woody material.

Williamson's sapsuckers are an omnivorous woodpecker species that feed exclusively on conifer sap and phloem during the pre-nesting season, and switch to a diet of ants after young have hatched (Gyug et al. 2012). Its breeding habitat consists of middle to high elevation conifer and mixed forests, including Douglas fir forests. Although there is no known documentation of this species within the Blizzard Mountain Allotment, the Douglas fir stands within the allotment may provide potential nesting and foraging habitat for the Williamson's sapsucker.

The Calliope hummingbird is the smallest breeding bird in North America. It feeds on floral nectar and small insects and is found during the breeding season in open montane forest, mountain meadows, and alder and willow thickets (Calder and Calder 1994). During migration Calliope hummingbirds can also be found in lowland brushy areas and along desert drainages. Potential breeding habitat for this species exists within the allotment, and it was observed within the allotment during habitat assessments in 2013.

The Piute ground squirrel is widespread and found in Utah, California, Idaho, Oregon, and Washington (O'Hare et al. 2006). Piute ground squirrels are found in arid high desert habitats such as sagebrush, shadscale or greasewood communities (Rickart 1987). Potential habitat for the Piute ground squirrel exists and its presence has been documented within the allotment.

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). No observations of pygmy rabbits have been documented within the allotment; however, potential habitat does exist.

Townsend's big-eared bats feed exclusively on flying insects and will use a wide variety of habitat, ranging from pine forest to desert scrub habitat. However, their habitat is very closely associated to areas containing caves or cavern-like structures available for roosting, during all stages of its life cycle (Gruver and Keinath 2006). There is an abandoned mine adit within the Blizzard Mountain Allotment that may serve as potential roosting habitat for the Townsend's big-eared bat. Additionally, the allotment contains potential foraging habitat for the species.

### Environmental Consequences

Direct impacts of livestock grazing on habitat used by special status species may 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 special status species 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, but these impacts are 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. 1993). 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% (Connelly et al. 2004).

Livestock grazing may impact prairie falcons, ferruginous hawks, and northern goshawks 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. Grazing movements by cattle may result in trampling or filling in of entries into these species' burrows.

Little is known about the impacts of livestock grazing on foraging habitat for Townsend's big-eared bats. Because this species feeds exclusively on flying insects, it is anticipated that grazing by livestock would not have any direct impacts to foraging habitat. Livestock grazing may indirectly impact foraging habitat by altering the vegetative composition in ways that influence

the amount of flying insects available as prey. However, insects associated with livestock activity may also provide a prey source.

Impacts to other special status species such as Brewer's sparrow, sage sparrow, loggerhead shrike, Hammond's flycatcher, olive-sided flycatcher, willow flycatcher, Lewis's woodpecker, Williamson's sapsucker, and Calliope hummingbird are discussed under the **Migratory Bird** section of this analysis.

#### *Alternative A (No Action)*

Under Alternative A, grazing on Blizzard Mountain Allotment would continue under the same mandatory terms and conditions as the current permit. Currently, a portion of the established livestock grazing season for the Martin Pasture takes place during important nesting and brood-rearing seasons for many special status sagebrush obligates, including sage-grouse. Spring livestock use in this allotment may impact nesting special status species through the reduction of understory grass and forb height and cover, which may result in reduced nesting success or increased nest and chick predation. Other special status species may abandon or lose their nests due to livestock presence or trampling, although the potential is limited due to the small acreage of public lands involved. The first grazing period for the Blizzard Basin and Lava Creek Pastures (07/01 – 08/25) begins during the latter end of nesting season and runs through important brood-rearing seasons. Livestock grazing during the summer brood-rearing season may impact sage-grouse by removing succulent forbs, which are an important food source during this time period. Fall livestock grazing use indirectly impacts special status species by reducing the amount of residual herbaceous vegetation available as forage or cover for special status species and their prey bases during the following spring. Impacts to other special status bird species would be similar to those discussed under **Migratory Birds**.

Potential impacts to Piute ground squirrels and pygmy rabbits would be potential crushing or collapsing of burrows, and removal of vegetation they may use as forage. Potential impacts to Townsend's big-eared bats may include the alteration of vegetation composition which may affect the amount of flying insects available as a prey source.

The allotment was evaluated in 2013 and the native plant communities and riparian-wetland areas were found to be meeting rangeland health standards. 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 in the Blizzard Mountain Allotment.

#### *Alternative B (Proposed Action)*

Impacts to special status species from grazing under Alternative B would be similar to those discussed under Alternative A. The implementation of a pasture rotation in the Blizzard Basin and Lava Creek Pastures may reduce these impacts by decreasing the potential of over utilizing areas preferred by livestock throughout the season of use. The pasture rotation would also allow for each pasture to receive periodic rest during different native plant life stages. Receiving rest during the early grazing season would alleviate potential impacts of livestock disturbance to nesting birds. There would also be no competition with special status species for understory

herbaceous vegetation available for nesting, cover, and foraging during this time period. A pasture receiving rest during the later grazing season would potentially provide more residual grasses and forbs available as forage or cover for special status species and their prey bases during the following spring.

Potential impacts to greater sage-grouse from the installation of a new fence would include disturbance and displacement during installation phase, fence posts and wires that may provide perches for predators, and the fence may pose a collision hazard (Stevens et al. 2011, Connelly et al. 2004). According to Connelly, placement of new fences and structures should be avoided within 1 km (0.6 mi) from occupied leks (Connelly et al. 2000), and the BLM IM-2012-043 suggests evaluating any new fences within 1.25 miles of leks that have been active within the past 5 years. There are no known leks within 1.25 miles of the proposed fence. As mentioned in the project description, the top strand of the fence will be marked with reflective markers to make it more visible to wildlife and reduce the risk of a collision. Additionally, this will be a let-down fence and would only be upright while livestock are present on either side of the boundary (06/01 – 10/20). Human activity associated with the construction and maintenance of the fence may cause some nesting bird species to become temporarily displaced or even abandon their nest sites. The fence will be constructed outside of the migratory bird nesting season (April 1 to June 30) to minimize the potential impacts to nesting birds (Sullivan et al. 2009). Construction of the fence would alleviate the drift of livestock from the adjacent allotment, which has been common in recent history. This would reduce unauthorized grazing disturbance to the vegetation in this area. It is expected that plant vigor, particularly in riparian areas, would increase and provide more productive habitat for special status species.

The native plant communities and wetland-riparian areas in the Blizzard Mountain Allotment were evaluated in 2013 and found to be meeting rangeland health standards. The implementation of a pasture rotation would allow certain pastures periodic deferment during different seasons, further promoting herbaceous vegetation production. The construction of an allotment boundary fence would reduce the risk of unauthorized grazing disturbance to vegetative communities. Therefore it is expected that, under this alternative, vegetation communities would continue to meet standards, or improve, and provide adequate habitat conditions for special status species within the allotment.

#### *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 of grasses and forbs would increase, with improvement in size and vigor of preferred forage species. Seed set would occur undisturbed by livestock if sufficient precipitation is received, further providing for increased cover and forage for special status species and/or their prey base. Some species such as the sage-grouse would benefit from the additional residual herbaceous vegetation 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. There would be no potential for livestock causing

an alteration in vegetation composition that may affect the amount of flying insects available as a prey source for Townsend's big-eared bats.

## **Wildlife Resources**

### Affected Environment

Habitats on public lands in the Blizzard Mountain Allotment are important to a wide range of native wildlife species which seasonally occupy a variety of habitat types. The Blizzard Mountain Allotment is part of Subunit 1 in IDFG Game Management Unit (GMU) 50. This area is considered to be important yearlong habitat for mule deer and important summer habitat for elk. The elk population in GMU 50 has shown an increase in recent years (IDFG, personal communication, 2 January 2014). Aerial surveys conducted by IDFG in 2013 only detected 35 elk wintering within Subunit 1 of GMU 50, however it is expected that elk use of Blizzard Mountain Allotment may be significant in some years depending on snow levels (IDFG, personal communication, 2 January 2014). The allotment is also within 0.5 miles of important spring range for pronghorn, and within 9 miles of identified bighorn sheep habitat. Moose, elk and mule deer were observed within the allotment during 2013 field assessments.

The Blizzard Mountain Allotment contains abandoned mine adits which provide bat habitat. Western small-footed myotis were documented at the entrances during a 2001 survey effort. Although not all habitat types have been surveyed, it is thought that high-desert habitats containing components such as tree stumps, caves, mines, rocky outcrops, and lava features provide adequate roosting sites for a variety of bat species. The Blizzard Mountain Allotment has many of these features.

Resident bird species found in the allotment include chukar, dark-eyed junco, horned lark, American kestrel, common raven, and black-billed magpie. Other mammals such as least chipmunk, montane vole, deer mouse, coyote, and badger; and reptiles such as short-horned lizard and western fence lizards are also likely to use the allotment. 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. Livestock grazing has the potential to negatively affect wildlife species that are dependent on the riparian zone by decreasing vegetative density, cover structure, and browse availability. 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 Blizzard Mountain Allotment would continue under the same mandatory terms and conditions as the current permit. Livestock have the potential to indirectly impact wildlife during the growing season (06/01-06/30) by reducing required understory grasses and forbs used for foraging and cover from predators. Fall cattle grazing (09/01-11/30) may affect wildlife by removing vegetation which species such as 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. Wildlife species sensitive to the presence of livestock and associated human activity may be temporarily displaced.

In 2013 the Blizzard Mountain Allotment was evaluated and the native plant communities were found to be meeting rangeland health standards, which includes providing health and diverse habitat for wildlife. While excessive grazing during the late season would reduce residual cover and forage for wintering big game, and excessive grazing during the growing season would reduce available understory cover and forage for a wide variety of wildlife species, the available data indicates that this is not occurring on the allotment. In general, habitat is currently providing for the needs of wildlife within this allotment and it is expected that renewing the grazing permit at current use levels would continue to provide habitat for a wide range of native wildlife species.

### *Alternative B (Proposed Action)*

Impacts to wildlife from grazing under Alternative B would be similar to those discussed under Alternative A. The implementation of a pasture rotation in the Blizzard Basin and Lava Creek Pastures may reduce these impacts by decreasing the potential of over utilizing areas preferred by livestock throughout the season of use. The pasture rotation would also allow for each pasture to receive periodic deferred use during different life stages. Receiving rest during the early grazing season would alleviate potential impacts of livestock disturbance to nesting birds. There would also be no competition to wildlife for understory herbaceous vegetation available for nesting, cover, and foraging during this time period. A pasture receiving rest during the later grazing season would potentially provide more vegetation available as forage or cover for various wildlife species and their prey bases during the winter months, and residual herbaceous vegetation available the following spring.

Direct impacts associated with the construction of an allotment boundary fence include negatively affecting wildlife movement patterns as the fences may pose as barriers. Wildlife, particularly big game species, also has the potential to collide with or become entangled in the new fence. Indirect effects include a potential increase of cover and food available to wildlife by controlling livestock distribution. As mentioned in the project design, all fences would be built in a manner which will allow for easier passage and reduce the influence of fences on wildlife movement. Additionally, this will be a let-down fence and would only be upright while livestock are present on either side of the boundary (06/01 – 10/20). Human activity associated with the construction and maintenance of the fence may cause some wildlife species to become temporarily displaced, or even abandon their nest sites. The top strand will be marked with

reflective markers to make the fence more visible to wildlife and reduce the risk of collision. Construction of the fence would alleviate the drift of livestock from the adjacent allotment, which has been common in recent history. This would reduce unauthorized grazing disturbance to the vegetation in this area. It is expected that plant vigor would increase and provide more productive habitat for wildlife species within the allotment.

The native plant communities and wetland-riparian areas in the Blizzard Mountain Allotment were evaluated in 2013 and found to be meeting rangeland health standards. The implementation of a pasture rotation would allow certain pastures periodic rest during different seasons, further promoting herbaceous vegetation production. The installation of an allotment boundary fence would reduce the potential for unauthorized grazing disturbance to vegetative communities. Therefore it is expected that, under this alternative, vegetation communities would continue to meet standards, or improve, and provide adequate habitat conditions for wildlife species within the allotment.

### *Alternative C (No Grazing)*

Under Alternative C, no livestock grazing would be authorized within the allotment for a period of 10 years, from 2014 to 2024. In general, understory cover, composed of grasses and forbs, would increase, according to site potential, and 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 increased diversity, cover, and height of grasses and forbs, which would 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. There would be no browsing of woody plant species by livestock, which would potentially increase browse for big game and nesting habitat for various bird species. Burrowing species would benefit from a lack of disturbance, or potential crushing or collapsing of burrows.

Impacts to wildlife habitat in the Blizzard Mountain Allotment would be less under Alternative C than under Alternatives A or B, due to reduced disturbance, increased forage and cover, and lack of competition.

## **Cultural Resources**

### Affected Environment

To evaluate the Blizzard Mountain allotment for cultural resource values, a Class I records search was conducted using a Geographical Information System (GIS) inventory and site databases to determine previously surveyed acres and sites recorded within the allotment boundary.

Five previous inventories have been conducted within the Blizzard Mountain allotment. Class III inventories were conducted on approximately 41 acres (approximately 1.5% of BLM administered land).

There are five known cultural resources located on BLM administered land within the allotment boundary. Four of cultural resources are associated with historic mining in the area and are not eligible for inclusion to the National Register of Historic Places (NRHP). However, one site is a lithic scatter and is recommended potentially eligible to the NRHP under Criterion D.

### Environmental Consequences

#### *Alternative A (No Action)*

Livestock grazing has the potential to directly impact historic properties primarily through trampling which can modify the horizontal and vertical distribution of artifacts and impact resource integrity. Livestock impacts to cultural resources located within the Blizzard Mountain allotment are generally limited, with activity mainly focused at congregation areas. In areas where livestock is more dispersed, it can be predicted that impacts will be mainly surficial, causing no stratigraphic mixing, but perhaps resulting in horizontal displacement of artifacts.

There is one known congregation area in the Blizzard Mountain allotment. No known historic properties are located within 200 meters of the congregation area. Permit renewal in the Blizzard Mountain allotment would have no effect on known historic properties (sites listed or eligible for listing) on the NRHP.

#### *Alternative B (Proposed Action)*

Impacts to cultural resources would be similar to those presented under Alternative A; however, changes in the authorized use, as well as the construction of range improvements may have direct impacts on cultural resources.

Modifications to authorized use in the Blizzard Mountain allotment at a decrease of 15% (654 AUMs to 555 AUMs) could impact cultural resources by decreasing the amount of trampling that could occur in congregation areas. The AUMs on the permit would be removed rather than authorizing more use in other areas of the allotment.

The construction of range improvements including approximately 3.5 miles of fence on BLM administered lands could directly impact cultural resources through ground disturbance. Approximately 9 acres of the proposed fence location has been previously inventoried for cultural resources; no eligible sites were identified. Prior to any ground-disturbing activities, the proposed range improvements would be subject to Section 106 review and any effects to historic properties would be avoided or mitigated through consultation with the Idaho SHPO and affected tribes.

#### *Alternative C (No Grazing)*

This alternative would eliminate all livestock threats of damage to cultural resources from authorized livestock use within the Blizzard Mountain allotment for 10 years.

## **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.

### Environmental Consequences

#### *Alternative A (No Action)*

Alternative A would result in no changes in the mandatory terms and conditions for livestock grazing in the allotment. 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)*

Alternative B would result in 99 AUMs being removed from Active Use permitted within the allotment. These AUMs have not been used in recent years as a result of expansion of the CMNMP and those lands formerly within the allotment becoming unavailable to grazing. Generally reducing AUMs results in a loss of value of a grazing permit and decreased opportunity to graze livestock and therefore financial losses. However, these financial impacts occurred at the time of the expansion of the Monument. Although the AUMs exist on the current permit they are not usable and have no recognized value. The livestock operations since Monument expansion have adapted to the boundary change and no longer rely on these areas as part of the regular grazing operation.

The proposed boundary fence would be an additional expense for construction and maintenance. The cost of construction and maintenance and impacts this would have on the operator is difficult to quantify. It results in an increase cost compared to Alternative A. However, the boundary fence is a management tool that should aid in improving rangeland health in certain areas within the allotment. Achieving and maintaining rangeland health standards would benefit the viability and longevity of the livestock operation and use of the allotment.

*Alternative C D (No Grazing)*

Under Alternative C, no grazing would be authorized in the Blizzard Mountain Allotment for a period of ten years. The forage substitution cost to replace 555 AUMs would range from approximately \$55,500 to \$64,380 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 \$42,735 to \$53,280 annually. Under Alternative C, there would be no additional cost for project maintenance.

## CHAPTER 4 - CUMULATIVE IMPACTS

This section of the document discloses the incremental impacts 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 Big Lost Cumulative Impact Assessment Area (CIAA) for the purposes of this analysis includes the lower Big Lost River Valley and areas in close proximity to the valley within the boundary of the USFO (Figure 2). The Big Lost CIAA is bordered by the Big Desert CIAA to the south, the Twin Buttes CIAA to the southeast and the Little Lost CIAA to the East. The Big Lost CIAA contains approximately 435,323 total acres and includes portions of Butte and Custer counties. Unless otherwise noted, this landscape unit defines the bounds of the cumulative analysis for the resources affected by the Proposed Action and alternatives. This landscape unit was selected as the unit of analysis based on 4<sup>th</sup> 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. Blizzard Mountain Allotment is located in the southwest corner of this CIAA, and makes up less than one percent of the total acres and about one percent of the BLM acres in the CIAA (Figure 2). Surface ownership within the CIAA is summarized in Table 14:

<b>Table 14 - CIAA Surface Ownership</b>		
	<b>Acres</b>	<b>Percent of CIAA</b>
<b>Idaho State Land</b>	5,594	1%
<b>Department of Energy-INL</b>	29,984	7%
<b>National Park Service</b>	225	<1%
<b>Private Land</b>	141,815	33%
<b>U.S. Forest Service</b>	87,040	20%
<b>BLM</b>	170,665	39%
<b>Total</b>	<b>435,323</b>	<b>100%</b>

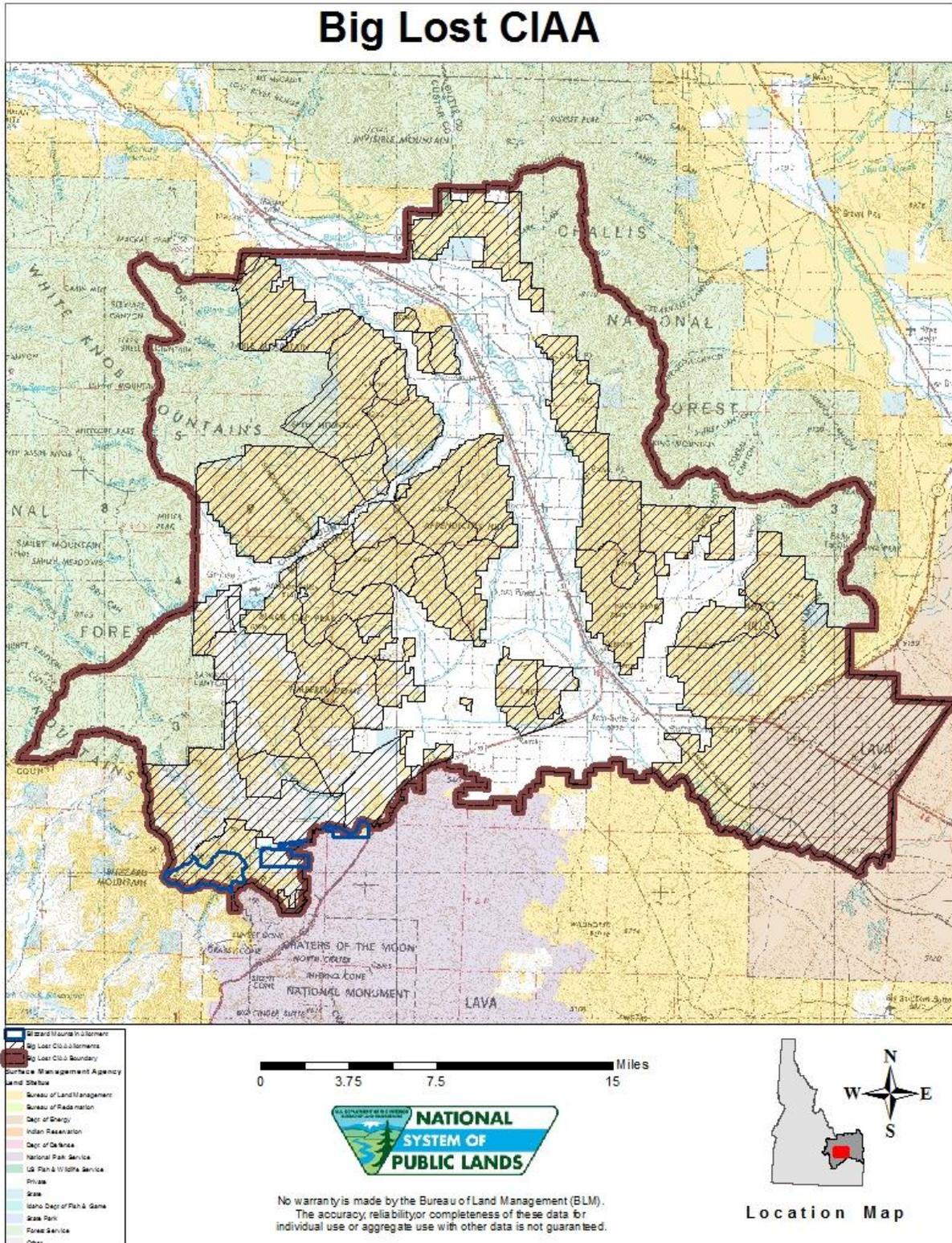
The dominant land and vegetation features throughout the CIAA are summarized in Table 15:

<b>Table 15 - Dominant Land and Vegetation Features</b>		
	<b>Acres</b>	<b>Percent of CIAA</b>
Perennial Grasslands	31,711	7%
Annual Grassland	6,286	1%
Shrubland	281,794	65%
Riparian and Wetland	5,502	1%
Forested	44,994	10%
Agriculture	52,349	12%
Urban	8,502	2%
Rock, Cliffs and Canyons	3,960	1%

Other	226	<1%
<b>Total</b>	<b>435,323</b>	<b>100%</b>

Shrublands dominate the CIAA with 281,794 acres (65% of CIAA) of shrubs primarily comprised of various species of sagebrush. Agriculture, forests and perennial grasslands also comprise a large area. Over time these vegetative communities have been affected by drought, human caused disturbance, invasive species, wildfire and a variety of other factors. The White Knob and Appendicitis Hills WSAs are located within the CIAA. These WSA's cover approximately 35,688 acres of BLM public lands or 8% of the CIAA.

Figure 2 – Big Lost Cumulative Impact Analysis Area (CIAA)



## Past and Present Actions

Past and present actions identified for the lower Big Lost CIAA which have impacted the human environment to varying degrees include agricultural development, urban development, infrastructure (i.e. communication sites, roads, fences and water troughs), wildfire and livestock grazing. Table 16 details acreage associated with the disturbances identified within the CIAA:

<b>Table 16- Past and Present Actions in the CIAA.</b>	
<b>Type of Activity</b>	<b>Impact</b>
<b><i>Agricultural Development</i></b>	
<i>Number of Acres</i>	52,349 Acres developed for Agriculture.
<i>Percent of CIAA</i>	12%
<b><i>Urban Development</i></b>	
<i>Number of Acres</i>	8,502 Acres developed by Urbanization
<i>Percent of CIAA</i>	2%
<b><i>Infrastructure (Roads, fences and water troughs)</i></b>	
<i>Number of Acres</i>	990 Miles of road affecting *1,440 acres 440 Miles of fence affecting *58 acres 80 Water troughs affecting *40 acres 6 Communication sites affecting 3 acres
<i>Percent of CIAA</i>	<1%
<b><i>Wildfire</i></b>	
<i>Number of Acres</i>	19 Fires over 30 years affecting 31,298 acres
<i>Percent of CIAA</i>	7%
<b><i>Livestock Grazing</i></b>	
<i>Number of BLM Allotments</i>	41 Allotments; 13 Allotments not meeting standards; 12 of the 13 allotments not meeting due to livestock grazing; 6 Allotments not meeting but making progress; 22 allotments meeting standards
<i>Number of Acres</i>	198,388 Acres** in 41 Allotments; Total BLM acres of the 13 Allotments not meeting standards: 65,064; Acres not meeting standards, within the 12 Allotments where livestock grazing has been identified: 5,160.
<i>Percent of CIAA</i>	BLM acres within allotments: 46%; 13 Allotments not meeting: 18%; Area within the 12 Allotments not meeting standards due to livestock grazing: 1%
<p>*Area affected by roads assumes an average impact area of 12 feet surrounding all roads.            *Area affected by fencing assumes an average impact area of 4 feet surrounding all fences.            *Area affected by water troughs assumes an average impact area of ½ acre surrounding all troughs.            *Area affected by communication sites assumes an average impact area of ½ acre surround all sites.</p>	
<p>**Figure includes BLM acres and acres where BLM administers livestock grazing on Department of Energy lands under a Memorandum of Understanding and National Parks Service lands under a Delegation of Authority.</p>	

Agricultural development has a long history in the CIAA. Though Lewis and Clark first entered, what would later become the state of Idaho, in 1805, settlers were not attracted to the region until the 1880s. There are no significant population centers within the CIAA. Settlement is generally dispersed with a larger numbers of residents in the southern portion of the CIAA associated with developed agriculture and the town of Arco, Idaho. The 2010 census placed the population estimate of Butte County at 2,891 and Custer County at 4,368. The majority of the total population between Butte and Custer counties resides outside of the CIAA. It is estimated that 2% of the CIAA has urban development. Private property makes up approximately 33% of the land base in the CIAA. Not all private ground is suitable for farming and those areas not used for crop production are often used for grazing livestock or other purposes. Approximately 12% of the CIAA has been developed for agricultural purposes.

Infrastructure development within the valley has increased over time, mostly in the form of conversion to agricultural lands. However, the majority of the land base in the CIAA remains undeveloped. Residential development is higher in proximity to the developed agricultural base along the Big Lost River and in the southern end of the CIAA. There are approximately 990 miles of existing roads within the CIAA, ranging from two lane paved routes to residential roads and undeveloped access routes. Using an average impact area of 12 feet along all roads the total area affected by roads is approximately 1,440 acres, which is less than 1% of the total area within Big Lost CIAA. Proliferation of approved, constructed and maintained roads within the CIAA is expected to be minimal in the foreseeable future. Proliferation of unauthorized roads is expected to continue, particularly as a result of OHV recreation. The extent to which unauthorized road proliferation will occur in the future is difficult to anticipate and quantify.

Livestock grazing has a long history in the region, dating back to the settlement of the area in the late 1800's. In the early settlement years, cattle and sheep were raised to support the surrounding miners and settlers. Within the CIAA, ranching has declined over time since its peak in the early to mid-20<sup>th</sup> century as more lands were devoted to agriculture. Livestock production has been relatively stable within the CIAA over the last 20 years and livestock production is a major economic segment of the CIAA. There are currently all or portions of 41 BLM grazing allotments, as well as all or portions of the 20 USFS allotments authorized for livestock grazing within the CIAA. Nearly all of the public lands within the CIAA are authorized for livestock grazing.

Recreation use within the CIAA has increased over time. Recreation use is primarily a dispersed activity within the CIAA. Dispersed campsites are found throughout the area and most are located adjacent to flowing water. Popular areas include Antelope Creek and suitable portions of the Big Lost River. Big game hunting, camping, fishing, and motorized vehicle use are the primary recreational pursuits within the CIAA. Many of the 990 miles of roads within the CIAA are used for motorized recreation. The White Knob and Appendicitis Hills WSA's are located within the CIAA. These WSAs cover approximately 35,688 acres of BLM public lands or 8% 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 172,700 acres of PPH within the Big Lost 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 180,660 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 seven 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. The level and character of agricultural development is anticipated to remain consistent into the foreseeable future as most suitable private property within the CIAA has been developed and additional water resources that would facilitate new development are limited. There are no identified renewable energy projects or residential developments within the CIAA and the level of existing infrastructure is expected to remain at or near current levels. Populations in Butte County, Idaho have fluctuated over the past 40 years with a high census count of 3,342 in 1980 to the current estimate of 2,891. Populations in Custer County have increased over the past 40 years to the current estimate of 4,368. Populations in both counties are not expected to change significantly in the future and urbanization or infrastructure is also not expected to increase substantially. The level and character of livestock grazing within the CIAA is expected to remain at or near current levels barring any significant policy change regarding grazing on federal lands which compose the majority of the CIAA. Annual authorizations for livestock use would continue to fluctuate on an allotment and individual operator level due to the demands of the individual operations and variability in resource conditions such as drought. Recreational use is expected to continue to increase over time and the potential exists for development or expansion of recreation facilities on public lands within the CIAA. Many of the 990 miles of roads within the CIAA are used for motorized recreation. Proliferation of unauthorized roads resulting from unauthorized motorized recreation is expected to continue as recreation activities increase in the area. The extent to which unauthorized road proliferation would occur in the future is difficult to anticipate and quantify.

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 and Present Actions*

Past and present actions have resulted in varying degrees of impact to the resources considered in the analysis. Impacts are higher for agricultural developments which have resulted in direct habitat loss and fragmentation of approximately 12% of the CIAA. Agricultural development has altered or removed the native vegetation communities, changed soil characteristics and introduced elements like accelerated erosion, irrigation and concentrated fertilization that have altered and would continue to alter the characteristics of the natural landscape.

Observable impacts associated with urban development have resulted in direct habitat loss and fragmentation of approximately 2% of the CIAA. These actions have introduced non-natural elements that have altered hydrology, energy cycles, soil characteristics and native vegetative communities within the CIAA.

Impacts associated with infrastructure development have resulted in direct habitat loss and fragmentation of less than <1% of the CIAA. Infrastructure often affects natural habitats differently than agriculture or urban development. In the case of roads and fences the impacts are often drawn out over a linear area rather than large concentrated blocks as agriculture and urban development are. Although infrastructure may influence natural areas in different ways the impacts act similarly by removing the native vegetation communities and introducing non-natural elements into the natural landscape.

Over the past 30 years, 19 wildfires have burned 31,298 acres on BLM lands, which amounts to approximately 7% of CIAA. In the southeast corner of the CIAA, fires have burned within the same area multiple times. Acreage estimates in this area are based on the total area burned. Acres that burned multiple times were only counted one time in this estimate. Wildfire can remove and/or permanently alter native vegetation communities. Often, invasive species and noxious weeds are able to establish within fire disturbance areas. Perennial grasses and forbs are generally able to recover well after wildfire if their composition and health were adequate prior to the fire and fire intensity is not too severe. If shrubs are removed by wildfire, recovery to pre-fire conditions can take much longer. Fire can act to reinvigorate vegetation in an area by returning available nutrients to the soil and making them readily available for existing vegetation.

Approximately 26,210 acres (6% of CIAA) of native habitat have been treated and/or seeded within the CIAA. Some vegetation treatments have been completed in an effort to rehabilitate and stabilize areas after wildfire. Recent treatments were completed to improve watershed functionality. Other treatments were completed in the late 1900's with the intent of increasing forage for livestock. Many of the treatment areas have burned or were treated on multiple occasions. The majority of seedings completed in the CIAA have seeded crested wheatgrass, which decreases the vegetation species diversity and habitat value to wildlife.

Of the 41 BLM grazing allotments in the CIAA 13 have been documented to be not meeting the Standards and Guidelines for Healthy Rangelands. One allotment was not meeting standards, but concerns identified were not attributed to livestock grazing. BLM administered lands within the 12 allotments where standards are not meeting due to livestock grazing cover an area of approximately 65,064 acres (18% of CIAA). The 65,064 acres include areas meeting and not meeting standards within the 12 allotments. A more accurate estimate of acres managed by BLM not actually meeting standards due to livestock grazing in the 12 allotments is 5,160 acres, which is approximately 1% of the CIAA.

In 1999 the Blizzard Mountain Allotment was determined to be meeting Standard 1 (Watersheds), 3 (Stream Channel/Flood Plain), Standard 4 (Native Plant Communities), 7 (Water Quality) and Standard 8 (Threatened and Endangered Plants and Animals). The allotment was not meeting Standards 2 (Riparian Areas and Wetlands), but was making significant progress toward meeting the standard. Standards 5 (Seedings) and 6 (Exotic Plants) were not applicable to the Blizzard Mountain Allotment. In 2013 all applicable standards made progress to achieve standards since 1999.

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).

Periods of extended drought have impact the CIAA. Based on climatic data collected near Arco, Idaho, precipitation has been reported below the long-term average in 6 of the past 10 years, with greater than 20 percent below average. While this may not be representative of the entire CIAA it is an indication of the amount of drought that has occurred within portions of the CIAA.

A number of researchers, including Lepage 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.

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 the Big Lost River Valley. Use was historically higher adjacent to available water with reduced use in the areas away from springs, creeks, and rivers. As livestock grazing became more carefully managed in the valley on the remaining native vegetation, the ecological health of the rangelands and riparian areas improved.

Fencing is commonly used as a livestock management tool and there are approximately 480 miles of fence occurring throughout the CIAA. Using an average impact area of 4 feet along all fences, the total area affected by fencing is approximately 58 acres, which is less than 1% of the total area within the Big Lost CIAA. Another livestock management tool often used in the CIAA is the use of water troughs to improve livestock distribution. There are a minimum of 80 livestock water troughs documented in the CIAA. Using an average impact area of 0.5 acres surrounding water troughs the total disturbance area is 40 acres, which is less than 1% of the total area within the Big Lost CIAA.

Activities that occur on public and private lands, such as agricultural practices; infrastructure development; recreational use such as camping, hunting, and ATV use; and livestock grazing management affect wildlife use patterns, the quantity and quality of habitats, and population viability. Many species of wildlife including birds, bears, and big game require large intact habitats for their continued survival. Urbanization and recreational properties on adjacent private lands reduces their value to wildlife habitat through fragmentation of existing habitats. Potential cumulative impacts of livestock grazing on wildlife habitat include compaction of soils, reduction of available forage and hiding cover, and disturbance of riparian vegetation. Maintaining intact habitats and having the flexibility to modify grazing schedules to meet the specific needs of vegetation and wildlife will help maintain rangelands in good ecological condition.

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 (*Centrocercus urophasianus*) 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).

Key sage-grouse habitats are large scale, intact sagebrush steppe areas that provide sage-grouse habitat (Sather-Blair et al. 2000). Within the Big Lost CIAA there are approximately 267,458 acres of Key sage-grouse habitat, which is approximately 61% of the CIAA. There are also 20,963 acres (5% of CIAA) of Restoration Type 1 habitat in the CIAA. These areas have limited sagebrush composition, but acceptable understory comprised of native and/or seeded perennial grass rangelands. Restoration Type 1 habitats are considered important areas of focus for sagebrush establishment and retention (Sather-Blair et al. 2000). Within the CIAA there are also areas with acceptable sagebrush cover, but inadequate desirable herbaceous cover in the understory or the understory is comprised of invasive annual grasses or exotic plants. Habitats that meet these criteria are considered Restoration Type 2 (Sather-Blair et al. 2000). Within the CIAA there are only 27 acres of Restoration Type 2 habitat (<1% of CIAA). Restoration of Type

2 areas would require expensive management treatments. Approximately 13,246 acres of PPH and 10,862 acres of PGH have been treated and/or seeded. Some vegetation treatments have been completed in an effort to rehabilitate and stabilize areas after wildfire. Other treatments were completed in the late 1900's to increase forage for livestock. Many of these areas have burned or were treated on multiple occasions. The majority of seedings completed in the CIAA have seeded crested wheatgrass, which may decrease the habitat value to sage-grouse.

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 260,330 acres of PPH within the Big Lost 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 PPH (Makela and Major 2011). There are approximately 57,410 acres of PGH within the CIAA. Table 17 summarizes known impacts within PPH and PGH areas in the Big Lost CIAA:

<b>Impact</b>	<b>PPH Acres Affected</b>	<b>% of PPH</b>	<b>% of CIAA</b>	<b>PGH Acres Affected</b>	<b>% of PGH</b>	<b>% of CIAA</b>
<b>Agricultural Development</b>	1,322	<1%	<1%	17,403	30%	4%
<b>Urban Development</b>	889	<1%	<1%	1,979	3%	<1%
<b>*Infrastructure</b>	962	<1%	<1%	210	<1%	<1%
<b>Wildfire</b>	25,843	10%	6%	4,847	8%	1%
<b>**Livestock Grazing</b>	5,160	2%	1%	0	0%	0%
<b>Vegetation Treatments</b>	7,082	3%	2%	2,786	5%	<1%

\*Note: Infrastructure is a combination of communication sites, roads, fences and water trough sites.

\*\* Action describes areas identified as not meeting ISRH and livestock grazing management was determined to be the primary factor. In situations where the specific location of acres, not meeting due to current livestock the applicable standards, were not delineated in a GIS data base and available for analysis relative to delineated PPH and PGH areas, the assumption was made if the allotment included PPH habitat, all of the acres not specifically located were within PPH areas. Likewise, if the allotment only included PGH habitat, all of the acres not meeting the applicable standard were considered to be within PGH areas. While this assumption may inflate that acreage impacted by livestock grazing in PPH or PGH habitat, respectively, it insures that potential PPH and PGH acreages impacted by livestock grazing are not excluded.

Wildfire and development (agricultural and urban) provide the greatest cumulative impact to sage-grouse within the CIAA. 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.

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 directly affect sage-grouse habitats by removing vegetation (foraging) or changing species

composition under poor management practices (Connelly and Braun 1997). Assuming that all acres not meeting standards are in PPH, approximately 2% of PPH within the CIAA have been identified as not meeting the Standards and Guidelines for Healthy Rangelands where livestock grazing was identified as a contributing factor.

Livestock grazing has occurred within the CIAA since the late 1800s. Impacts to sagebrush ecosystems were likely the greatest during this time as unregulated grazing occurred into the early 1900s (Knick et al. 2003). 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 by curbing unregulated grazing. Since then other laws, improved science, improved management cooperation (interagency and with private landowners) and improving adaptive management have provided more safeguards for sage-grouse habitats.

Sage-grouse within the CIAA are part of a larger population known as the Snake-Salmon-Beaverhead population. A population viability analysis for the Snake-Salmon-Beaverhead population was completed by Garton et al. (2011). The viability analysis factored in known current and historic anthropogenic factors including domestic livestock grazing from 1965-2007. This analysis included sage-grouse meta-populations within the CIAA. Garton et al. (2011) found that the Snake-Salmon-Beaverhead population had a 0%-27% chance of falling below population viability levels ( $\geq 500$  male sage-grouse) in the next 100 years.

No new primary threats such as conversion of sage-grouse habitat for agriculture or urbanization, or infrastructure (roads, powerlines, energy development, etc.) are proposed on public lands in the CIAA. In addition, no such plans or proposals are identified for nearby lands under other ownership (private, NPS, DOE or State of Idaho lands) in the CIAA. Invasive species and wildfire continue to be threats that cannot be anticipated in frequency or intensity. Impacts associated with wildfire are likely to continue to be the greatest threat to sage-grouse populations in the CIAA. Managing for healthy habitats in the CIAA provides the most protection against invasive species and resiliency to disturbances such as wildfire. PPH are comprised of areas that have the highest conservation value for maintaining sustainable sage-grouse habitats. Additional disturbances (e.g. new infrastructure development) are less likely to be implemented in PPH areas without adequate mitigation in the future (BLM 2011).

The renewal of the grazing permit for the Blizzard Mountain Allotment would continue livestock grazing for 10 years. The allotment is expected to maintain the current status of meeting the Standards and Guidelines for Healthy Rangelands (including the needs of sage-grouse where applicable) into the foreseeable future and provide for improved habitats within the CIAA. Other grazing permits within the CIAA would continue to be evaluated, modified as needed and renewed according to law and BLM policy in the future. Other threats such as invasive plants, climate change, collisions, contaminants, disease, hunting, mining, predation, vegetation treatments, recreation (OHV use) and water developments are likely to continue in the CIAA, but the extent to which they affect sage-grouse are difficult to quantify. No new vegetation treatments or mining are proposed in this EA. Some fencing and spring developments are proposed and the associated impacts are analyzed in their respective alternatives. Other such proposals may occur within the CIAA in the future, but would be subject to law and BLM policy

to ensure that the cumulative effect to sage-grouse does not inhibit the viability of populations in the CIAA or for the Snake-Salmon-Beaverhead population.

### *Incremental Impacts Associated with Alternatives*

#### *Alternative A*

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 no infrastructure development associated with livestock use would be constructed. The number of road miles within the area would not increase as a result of implementing Alternative A. The number of riparian acres in PFC or in current trends would remain about the same, as would the number of upland acres being maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species. The amount of suitable habitat for wildlife species, including special status species that occur in the CIAA would remain about the same.

#### *Alternative B*

Alternative B would contribute very little to the collective impact associated with past, present and reasonably foreseeable future actions. Active livestock use would remain consistent with current use levels. Approximately 3.5 miles of fence would be constructed. The cumulative effect of this would still impact less than 1% of the CIAA. The number of road miles within the area would not increase as a result of implementing Alternative B. As a whole the number of riparian acres in PFC or trending upwards to PFC within the CIAA would increase slightly. The number of upland acres being maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species would remain consistent with the current situation. The amount of suitable habitat for wildlife species, including special status species that occur in the CIAA would remain about the same.

#### *Alternative C*

Alternative C would contribute very little to the collective impact associated with past, present and reasonably foreseeable future actions. Livestock use would not occur for a ten year period within the allotment. The number of road miles within the area would not increase as a result of implementing Alternative C. No additional infrastructure or range improvement projects would be constructed. Removal of livestock under Alternative C would result in the maintenance and/or improvement in habitat conditions throughout the allotment. The amount of suitable habitat for wildlife species, including special status species that occur in the CIAA would remain about the same.

## **CHAPTER 5 – SUMMARY AND CONCLUSIONS**

The assessment indicates that Alternative A, which includes a reduction of permitted use, would continue to meet Standards 1, 2, 3, 4, 7 and 8 of the Idaho Rangeland Health Standards in the allotment. Overall, the allotment would continue to provide habitats suitable to maintain viable populations of native wildlife species, including special statues species such as the Greater sage-grouse. Alternative A does not provide needed management plans for the Basin and Lava Creek Pastures that would benefit vegetation and riparian areas. In addition, Alternative A would not authorize fencing that would provide for more orderly administration of public lands in the area. Under Alternative A, there would be no impact on economic or social values.

The assessment indicates that Alternative B would be more beneficial in terms of orderly livestock management ability in the area compared to Alternative A. Alternative B would be expected to maintain applicable standards and improvements in riparian areas and soil stability in localized areas would be expected. Under Alternative B, there would be no impact on economic or social values.

The assessment indicates that Alternative C, which includes no livestock grazing in the allotment for a 10 year period, would continue to meet standards. The Blizzard Mountain Allotment would continue to provide habitats suitable to maintain viable populations of special statues species and improvement in habitat condition in both upland and riparian areas associated with livestock grazing impacts would be expected. Under Alternative C, there would be economic and social impacts on the operators. The forage substitution cost to replace 555 AUMs would range from approximately \$5,911 to \$34,771 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 \$42,735 to \$53,280 annually. Under Alternative C, there would be no additional cost for project maintenance.

## **CHAPTER 6 - CONSULTATION AND COORDINATION**

### **Persons and Agencies Consulted**

Marty Bennett – Permittee  
Idaho Department of Fish and Game  
Idaho Department of Lands  
Idaho State Dept. of Agriculture  
Chairman, Land Use Policy Committee, Shoshone-Bannock Tribes  
Chairman, Tribal Business Council, Shoshone-Bannock Tribes  
U.S. Fish and Wildlife Service  
Lost River Ranger District  
Western Watersheds Project

### **List of Preparers**

Jordan Hennefer: Economic and Social Values/Invasive, Non-Native Species/Vegetation  
Deena Teel: Wetland and Riparian Area  
Dan Kotansky: Stream Channels/Floodplains, Water Quality  
Justin Frye: Wildlife Resources/Threatened, Endangered, and Other Special Status Species  
Marissa Guenther: Cultural Resources

## CHAPTER 7 - REFERENCES

Altman, Bob and Rex Sallabanks. 2012. Olive-sided Flycatcher (*Contopus cooperi*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/502doi:10.2173/bna.502>

Ash, A., Thornton, P., Stokes, C., & Togtohyn, C. 2012. Is proactive adaptation to climate change necessary in grazed rangeland? *Rangeland Ecology and Management*, 65(6):563-568.

Bechard, Marc J. and Josef K. Schmutz. 1995. Ferruginous Hawk (*Buteo regalis*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/172doi:10.2173/bna.172>

Bedell, T. E. 1998. Glossary of terms used in range management. Fourth edition. Society for Range Management.

Beever, E.A., and C.L. Aldridge 2011. Influences of free-roaming equids on sagebrush ecosystems, with a focus on Greater Sage-Grouse. Pp. 273-290 in S.T. Knick and J.W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkley, CA.

Behnke, R.J., and R.F. Raleigh. 1978. Grazing and the riparian zone: Impact and management perspectives. General Technical Report WO-12. U.S. Department of Agriculture, Forest Service.

Belnap, J., & Gillette, D. A. (1998). Vulnerability of desert soil surfaces to wind erosion: impacts of soil texture and disturbance. *Journal of Arid Environments*, 39, 133-142.

Belnap, J., Rosentreter, R., Leonard, S., Hilty Kaltenecker, J., Williams, J., & Eldridge, D. (2001). Biological Soil Crusts: Ecology and Management. Denver, Colorado: USDI BLM. Retrieved from <http://www.blm.gov/nstc/library/pdf/CrustManual.pdf>

Bock, C. E., V. A. Saab, T. D. Rich, and D. S. Dobkin. 1993. Effects of livestock grazing on neotropical migratory landbirds in western North America. In: Finch, Deborah M.; Stangel, Peter W. (eds). Status and management of neotropical migratory birds: September 21-25, 1992 Estes Park, Colorado. Gen. Tech. Rep. RM-229. Fort Collins, Colo.: Rocky Mountain Forest and Range Experiment Station, U.S. Dept of Agriculture, Forest Service: 296-309.

Bradley, B. 2009. Regional analysis of the impacts of climate change on cheatgrass invasion shows potential risk and opportunity. *Global Change Biology*, 15:196-208.

Burton, T., Cowley, E., and Smith, S. 2007. Monitoring Stream Channels and Riparian Vegetation – Multiple Indicators.

Cade, T. J., and C. P. Woods. 1997. Changes in distribution and abundance of the Loggerhead Shrike. *Conservation Biology* 11:21-31.

Calder, William A. and Lorene L. Calder. 1994. Calliope Hummingbird (*Selasphorus calliope*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/135> [doi:10.2173/bna.135](https://doi.org/10.2173/bna.135) (3 Dec. 2013).

Chambers, J., & Pellant, M. 2008. Climate change impacts on northwestern and intermountain United States rangelands. *Rangelands*, 30(3):29-33.

Connelly, J.W., and C. E. Braun. 1997. Long-term changes in Sage-grouse *Centrocercus urophasianus* populations in western North America. *Wildlife Biology* 3:229-234.

Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. Guideline to manage sage-grouse populations and their habitats. *Wildlife Society Bulletin* 28:967-985.

Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation Assessment of greater sage-grouse and sagebrush habitats. Western Association of Fish and Wildlife Agencies, Cheyenne, Wyoming, USA.

Connelly, John W., Rinkes, E. T. and Braun, C. E. 2011. Characteristics of Greater Sage-Grouse habitats: a landscape species at micro- and macro scales. Pp. 69-83 in S. T. Knick and J. W. Connelly (editors). *Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats*. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA.

Davies, K.W., Vavra, M., Schultz, B.W., and N.R. Rimbey. 2014. Implications of Longer Term Rest from Grazing in the Sagebrush Steppe. *Journal of Rangeland Applications*. V.1, pp.14-34.

Dechant, J. A., Sondreal, M. L., Johnson, D. H., Igl, L. D., Goldade, C. M., Nenneman, M. P., Zimmerman, A. L., and Euliss, B. R. 2002. Effects of Management Practices on Grassland Birds: Loggerhead Shrike. USGS Northern Prairie Wildlife Research Center. Paper 143.

DeLong, A. K. 1993. Relationships between vegetative structure and predation rates of artificial sage-grouse nests. Thesis, Oregon State University, Corvallis.

Douglass, R. J. and M. R. Frisina. 1993. Mice and Management on the Mount Haggin Wildlife Management Area. *Rangelands* 15:8-12.

Ecological Solutions Group, 2014. Riparian and Wetland Data Site. [www.ecologicalsolutionsgroup.com](http://www.ecologicalsolutionsgroup.com). Stevensville, Montana.

Eldridge, D. J., & Greene, R. (1994). Microbiotic soil crusts - a review of their roles in soil and ecological processes in the rangelands of Australia. *Australian Journal of Soil Research*, 32(3), 389-415.

Federal Register. 2010. Federal Register/Vol.75, No.55/Tuesday, March 23, 2010/Rules and Regulations.

France, K.A., Ganskopp, D.C., and C.S. Boyd. 2008. Interspace/undercanopy foraging patterns of beef cattle in sagebrush habitats. *Rangeland Ecology and Management* 59:567-575.

Garton, E.O., J.W. Connelly, J.S. Horne, C.A. Hagen, A. Moser and M.A. Schroeder. 2011. Greater Sage-Grouse population dynamics and probability of persistence. Pp. 293-381 in S.T. Knick and J.W. Connelly (editors). *Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats*. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA.

Gruver, J.C. and D.A. Keinath (2006, October 25). Townsend's Big-eared Bat (*Corynorhinus townsendii*): a technical conservation assessment. [Online]. USDA Forest Service, Rocky Mountain Region. Available:  
<http://www.fs.fed.us/r2/projects/scp/assessments/townsendbigeardbat.pdf> (3 Dec. 2013).

Gyug, Les W., R. C. Dobbs, T. E. Martin and C. J. Conway. 2012. Williamson's Sapsucker (*Sphyrapicus thyroideus*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the *Birds of North America Online*:  
<http://bna.birds.cornell.edu/bna/species/285doi:10.2173/bna.285>

Harp, A.J., R. Loucks, and J. Hawkins. 2000. Spatial Distribution of Economic Change from Idaho Ranches. *Journal of Range Management*. 53(2) pgs 164-169.  
Heath, S. K. and G. Ballard. 2003. Patterns of Breeding Songbird Diversity and Occurrence in Riparian Habitats of the Eastern Sierra Nevada. *In California Riparian Systems: Processes and Floodplain Management, Ecology, and Restoration*. P. M. Faber (Ed.). Riparian Habitat and Floodplains Conference Proceedings, Riparian Habitat Joint Venture, Sacramento, CA.

Idaho Department of Fish and Game. 2005. Idaho Comprehensive Wildlife Conservation Strategy. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID.  
<http://fishandgame.idaho.gov/cms/tech/CDC/cwcs.cfm>

Idaho Sage-grouse Advisory Committee. 2006. Conservation Plan for the Greater Sage-grouse in Idaho.

Interagency Technical Reference. 1999. Utilization Studies and Residual Measurements. 1734-3.

Interagency Technical Reference. 1999. Sampling Vegetation Attributes. 1734-4.

Janson, R. G. 2002. The pygmy rabbit from Utah to Montana. Montana Cooperative Wildlife Research Unit, University of Montana. Missoula MT. 41 pp.

Knick, S. T., D. S. Dobkin, J. T. Rotenberry, M. A. Schroeder, W. M. Vander Haegen, and C. van Riper III. 2003. Teetering on the edge or too Late? Conservation and research issues for avifauna of sagebrush habitats. *The Condor*, 105(4):611-634.

Knick, S. T., S.E. Hanser, R.F. Miller, D.A. Pyke, M.J. Wisdom, S.P. Finn, E.T. Rinkes, and C.J. Henny. 2011. Greater Sage-Grouse population dynamics and probability of persistence. Pp. 293-381 in S.T. Knick and J.W. Connelly (editors). *Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats*. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA.

Knopf, Fritz L., James A. Sedgwick and Richard W. Cannon. 1988. Guild Structure of a Riparian Avifauna Relative to Seasonal Cattle Grazing. *The Journal of Wildlife Management*, Vol. 52, No. 2 (Apr., 1988), pp. 280-290 Published by: Allen Press Article Stable URL: <http://www.jstor.org/stable/3801235>.

Lepage, M.-P., Bourdages, L., & Bourgeois, G. (2012). *Interpretation of Climate Change Scenarios in Order to Improve Agricultural Risk Management*. Quebec, Canada: Centre de reference en agriculture et agroalimentaire du Quebec.

Makela, P. and D. Major. 2011. A framework to identify Greater sage-grouse priority areas and general areas in Management Zone IV and the Bear Lake Plateau of Southeastern Idaho. Available (3/1/2012) at: [http://www.blm.gov/pgdata/etc/medialib/blm/id/wildlife/sensitive\\_species/sg\\_scoping\\_meeting.Par.67149.File.dat/Idaho\\_Sage-grouse\\_Priority\\_Areas\\_White\\_Paper\\_September\\_27\\_2011\\_FINAL\\_508.pdf](http://www.blm.gov/pgdata/etc/medialib/blm/id/wildlife/sensitive_species/sg_scoping_meeting.Par.67149.File.dat/Idaho_Sage-grouse_Priority_Areas_White_Paper_September_27_2011_FINAL_508.pdf)

Marble, J. R., & Harper, K. T. (1989). Effect of timing of grazing on soil-surface cryptogamic communities in a Great Basin low-shrub desert: a preliminary report. *Western North American Naturalist*, 49(1), 104-107.

Martin, J. W. and B. A. Carlson. 1998. Sage sparrow (*Amphispiza belli*). In *The Birds of North America*, No. 326, edited by A. Poole and F. Gill. Philadelphia: The Birds of North America, Inc.

National Drought Mitigation Center. (2012). Types of Drought Impacts. Retrieved from <http://drought.unl.edu>.

Natural Resources Conservation Service. Official Soil Series Descriptions. Online at <http://ortho.ftw.nrcs.usda.gov/cgi-bin/osd/osdname.cgi>.

Neilson, R., Lenihan, J., Bachelet, D., & Drapek, R. 2005. Climate change implications for sagebrush ecosystems. *Transactions of the 70th North American Wildlife and Natural Resources Conference*, (pp. 145-159). Fort Collins, Colorado.

North Magic Valley Sage-grouse Local Working Group. 2011. Sage-grouse Conservation Plan.

O'Hare, J. R., J. D. Eisemann, and K. A. Fagerstone. 2006. Changes in Taxonomic

nomenclature and Conservation Status of Ground Squirrel Species: Implications for Pesticide Labeling and Use of Zinc Phosphide Pesticide Products. Proc. 22nd Vertebr. Pest Conf. (R. M. Timm and J. M. O'Brien, Eds.) Published at Univ. of Calif., Davis. 2006. Pp. 450-457.

Pehrson, K. A. and Sowell, B. F. 2011. Converting crested wheatgrass stands to enhance big sagebrush: A literature review. Natural Resources and Environmental Issues. 16: Article 16. Available at: <http://digitalcommons.usu.edu/nrei/vol16/iss1/16>.

Pellant, M., P. Shaver, D.A. Pyke, and J.E. Herrick. 2005. Interpreting Indicators of Rangeland Health, Version 4. Technical Reference 1734-6. U.S. Department of the Interior, Bureau of Land Management, National Science and Technology Center, Denver Co. 122 pp.

Rich, T. D., C. J. Beardmore, H. Berlanga, P. J., Blancher, M. S. W. Bradstreet, G. S. Butcher, D., Demarest, E. H. Dunn, W. C. Hunter, E. Iñigo, J. A. Kennedy, A. Martell. A. Panjabi, D. N. Pashley, K. V. Rosenberg, C. Rustav, S. Wendt, & T. Will. 2004. Partners in Flight North American Landbird Conservation Plan. Cornell Laboratory of Ornithology, Ithaca, New York, USA.

Rickart, E. A. 1987. *Spermophilus townsendii* in Mammalian Species. The American Society of Mammalogists. No. 268 pp1-6.

Ring, M., Lindner, D., Cross, E., & Schlesinger, M. 2012. Causes of the global warming observed since the 19th century. *Atmospheric and Climate Sciences*, 2:401-415.  
United States Department of Interior-Bureau of Land Management. 2008. NEPA Handbook. Technical Reference #H-1790-1. Available at:  
[http://www.blm.gov/pgdata/etc/medialib/blm/ak/aktest/planning/planning\\_general.Par.2116.File.dat/Handbook.NEPA.H-1790-1.2k8.01.30\[1\].pdf](http://www.blm.gov/pgdata/etc/medialib/blm/ak/aktest/planning/planning_general.Par.2116.File.dat/Handbook.NEPA.H-1790-1.2k8.01.30[1].pdf)

Rotenberry, J. T., M. A. Patten, and K. L. Preston. 1999. Brewer's Sparrow (*Spizella breweri*). In *The Birds of North America*, No. 390 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.

Rowe, H.I., and E.T. Bartlett. 2001. Development and federal grazing policy impacts on two Colorado counties: a comparative study. In: L.A. Torell, E.T. Bartlett, and R. Larranaga (eds.). *Current issues in rangeland resource economics: Proc. of a symposium sponsored by Western Coordinating Committee 55 (WCC-55)*, N.M. State Univ., Res. Rep. 737, Las Cruces, N.M.

Ritter, S. (Ed.). 1998. Riparian riches: habitat management for birds in Idaho. *Idaho Partners in Flight*.

Saab, V. A., C. e. Bock, T. D. Rich, and D. S. Dobkin. 1995. Livestock grazing effects in western North American. Pages 311-353 in T. E. Martin and D. M. Finch, editors. *Ecology and management of Neotropical migratory birds*. Oxford University Press, New York.

Sather-Blair, S., P. Makela, T. Carrigan and L. Anderson. 2000. A framework to assist in making sensitive species habitat assessments for BLM-Administered public lands in Idaho-Sage-grouse. U.S. Bureau of Land Management unpublished report. Idaho State Office, Boise, ID.

Sedgwick, James. A. 1994. Hammond's Flycatcher (*Empidonax hammondii*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/109doi:10.2173/bna.109>

Squires, John R. and Richard T. Reynolds. 1997. Northern Goshawk (*Accipiter gentilis*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/298doi:10.2173/bna.298>

Staudinger, M., Grimm, N., Staudt, A., Carter, S., Chapin III, F., Kareiva, P., . . . Stein, B. (2012). *Impacts of Climate Change on Biodiversity, Ecosystems, and Ecosystem Services: Technical Input to the 2013 National Climate Assessment*. Cooperative Report to the 2013 National Climate Assessment 296 p.: Available at: <http://assessment.globalchange.gov>.

Steenhof, K. 1998. Prairie Falcon (*Falco Mexicanus*). Pp. 1-28 in A Poole, F Gill, eds. *The Birds of North America, No. 346*, Vol. 9, 1 Edition. Philadelphia, PA: The Birds of North America, Inc..

Stevens, B. S., K. P. Reese, and J. W. Connelly. 2011. Impacts of Fences on Greater Sage-grouse in Idaho: Collison, Mitigation, and Spatial Ecology. Master Thesis. University of Idaho.

Stiver, S.J., E.T. Rinkes, and D.E. Naugle. 2010. Sage-grouse Habitat Assessment Framework. U.S. Bureau of Land Management. Unpublished Report. U.S. Bureau of Land Management, Idaho State Office, Boise, Idaho.

Strand, E.K., Launchbaugh, K.L., Limb, R. and L.A. Torrell. 2014. Livestock Grazing Effects on Fuel Loads for Wildland Fire in Sagebrush Dominated Ecosystems. *Journal of Rangeland Applications*. V.1, pp.35-57.

Sullivan, B.L., C.L. Wood, M.J. Iliff, R.E. Bonney, D. Fink, and S. Kelling. 2009. eBird: a citizen-based bird observation network in the biological sciences. *Biological Conservation* 142: 2282-2292. Soil Conservation Service. 2005. BLM-Idaho Range Site Descriptions.

Thines, N. J., L. A. Shipley, and R. D. Saylor. 2004. Effects of cattle grazing on ecology and habitat of Columbia Basin pygmy rabbits (*Brachylagus idahoensis*). *Biological Conservation* 119:525-534

Tobalske, B. W. 1997. Lewis's Woodpecker (*Melanerpes lewis*). In *The Birds of North America*, No. 284 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

United States Department of the Interior-Bureau of Land Management (USDI-BLM). 1983. Big Lost Management Framework Plan. Idaho Falls District Office, Idaho Falls, Idaho.

United States Department of the Interior-Bureau of Land Management (USDI-BLM). 1997. Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management. Final. 18pp.

U.S. Department of Interior, Bureau of Land Management. 1999. Utilization studies and residual measurements. Interagency Technical Reference 1734-3. U.S. Department of Interior, Bureau of Land Management, National Business Center, Denver, Colorado.  
<http://www.blm.gov/nstc/library/pdf/utilstudies.pdf>

United States Department of the Interior-Bureau of Land Management (USDI-BLM). 2006. Grazing Management Processes and Strategies for Riparian-Wetland Areas. Technical Reference 1737-20.

USDI, Bureau of Land Management. 2007. Monitoring Stream Channels and Riparian Vegetation - Multiple Indicators. Technical Bulletin 2007-01.

United States Department of the Interior-United States Geological Survey (USDI-USGS). 2008. The Challenges of Linking Carbon Emissions, Atmospheric Greenhouse Gas Concentrations, Global Warming, and Consequential Impacts. Memorandum to the U.S. Fish and Wildlife Service. Available at:  
[http://www.usgs.gov/climate\\_landuse/info\\_quality\\_docs/director\\_memo\\_14may08.pdf](http://www.usgs.gov/climate_landuse/info_quality_docs/director_memo_14may08.pdf)

United States Department of the Interior-Bureau of Land Management (USDI-BLM). 2009b. Upper Snake-Pocatello Integrated Weed Management Program Environmental Assessment. Document on file, Idaho Falls District Office, Idaho Falls, Idaho.

United States Department of the Interior-Bureau of Land Management (USDI-BLM). 2011. Greater sage-Grouse Interim Management Policies and Procedures. Instruction Memorandum No. 2012-43.

United States Department of the Interior-Bureau of Land Management (USDI-BLM). 2013a. Blizzard Mountain Allotment Assessment – Standards for Rangeland Health and Conformance with Guidelines for Livestock Grazing Management. Unpublished report, Upper Snake Field Office, Idaho Falls, Idaho.

United States Department of the Interior-Bureau of Land Management (USDI-BLM). 2013b. Evaluation Report – Achieving the Idaho Standards for Rangeland Health and Conformance with the Guidelines for Livestock Grazing Management – Blizzard Mountain Allotment. Unpublished report, Upper Snake Field Office, Idaho Falls, Idaho.

U.S. Fish and Wildlife Service. 2010. Federal Register Notice March 5, 2010: 12-Month Findings for Petitions to List the Greater Sage- Grouse (*Centrocercus urophasianus*) as

Threatened or Endangered. Available: <http://www.fws.gov/mountain-prairie/species/birds/sagegrouse/>

United States Department of the Interior-United States Geological Survey (USDI-USGS). 2013. West Nile Virus Disease Maps- Idaho. Accessed at: <http://diseasemaps.usgs.gov/index.html>.  
U.S. Fish and Wildlife Service (USFWS). 2010. Endangered and threatened wildlife and plants: 12-Month findings for petitions to list the greater sage-grouse (*Centrocercus urophasianus*) as threatened or endangered. 75 FR 55. March 23. pp. 13910-13014.

U.S. Lentic Wetland Health Assessment (Survey) User Manual. 2005.

Vallentine, John F. 1990. Grazing Management. Academic Press, Inc.

Vander Haegen, M. 2003. Sage Sparrow 33-1 – 33-4 in E. Larsen, J. M. Azerrad, N. Nordstrom, editors. Management Recommendations for Washington's Priority Species, Volume IV: Birds. Washington Department of Fish and Wildlife, Olympia, Washington, USA.

Walker, B. 2004. Effects of management practices on grassland birds: Brewer's Sparrow. Northern Prairie Wildlife Research Center, Jamestown, ND. Northern Prairie Wildlife Research Center Online. <http://www.npwrc.usgs.gov/resource/literatr/grasbird/brsp/brsp.htm> (Version 12AUG2004).

Western Regional Climate Center (WRCC). 2013. Cooperative Climatological Data Summaries: Southern Idaho. Web. <http://www.wrcc.dri.edu/summary/Climsmsid.html> (18 Nov. 2013)

Wik, P. 2002. Ecology of greater sage-grouse in south-central Owyhee County, Idaho. Thesis, University of Idaho, Moscow.

Woods, C. P., and T. J. Cade. 1996. Nesting habits of the Loggerhead Shrike in sagebrush. Condor 98:75-81.

Zou, L., S. N. Miller, and E. T. Schmidtman. 2006. Mosquito larval habitat mapping using remote sensing and GIS: Implications of coalbed methane development and West Nile Virus. Journal of Medical Entomology 43(5): 1034-1041.

APPENDIX A – DETERMINATION DOCUMENT for BLIZZARD MOUNTAIN 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)*

# APPENDIX B – Project Maps

Figure 3. Proposed Boundary Fence.

