UNITED STATES DEPARTMENT OF THE INTERIOR
BLM, BOISE DISTRICT

ID-120-2008-EA-45

Applicant: Gordon King #1101607, John Anchustegui #1100291, Gil King (pending OCP lease) #1101614, Gordon King #1102293, Phillips Bros. Cattle Co. #1102187	Proposed Action: **To authorize livestock grazing on the East Castle Creek Allotment in conformance with the Bruneau Management Framework Plan and Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management**			EA No. **ID-120-2008-EA 45**
State: **Idaho**	County: **Owyhee**	District: **Boise**	Field Office: **Bruneau**	Authority: **43 CFR 4100**
Prepared By: **Bruneau ID Team**	Title: **Various**			Report Date: **February 20, 2009**

LANDS INVOLVED

Allotment	Meridian	Township	Range	Sections	Acres
East Castle Creek	**Boise**	**06S –09S**	**2W- 3E**	**Various, see maps**	**96,578**

Table of Contents

1.0 Introduction

The Bureau of Land Management (BLM) has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment (EA) discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. Supporting documentation, including more detailed analyses of project area resources, is on file in the project planning record in the Bruneau Field Office at 3948 Development Avenue, Boise, Idaho. Throughout this EA, references to supporting documentation contained in the project record are shown in parentheses.

1.1 Proposed Action

BLM proposes to authorize livestock grazing consistent with BLM policy and in a manner that maintains or improves resource conditions for five permittees in the 113,133 acre East Castle Creek Allotment, Bruneau Field Office, for a 10-year period. This authorization of livestock would be consistent with the Bruneau Management Framework Plan (MFP, BLM 1983) 43 CFR 4100, and Idaho Standards for Rangeland Health and Guidelines for Grazing Management (Standards and Guidelines), 43 CFR 4180.1. The management and actions prescribed in the grazing authorization would make significant progress in toward meeting rangeland standards identified in the East Castle Creek Evaluation and Determination, signed May 21, 2008 (USDI 2008b).

The proposed action is the grazing management described in Alternative D and the projects listed below (see maps 12 and 13). The proposed action relies on the prescribed grazing management, lower stocking rates, range projects, adaptive management, and close monitoring to achieve resource objectives and meet Idaho Standards for Rangeland Health. It incorporates a lower stocking rate and adaptive management applied during the grazing season as needed to ensure resource objectives are achieved. In summary, winter use remains the same in Pasture 5B as the No Action, Alternative A. Turnout in the spring remains April 1, but now turnout would alternate between pasture 8B and 10B. Livestock grazing use in pastures 11B and 12 would be limited to 15 days in each pasture. Summer use would be shortened in pastures 28 and 28A. Livestock grazing use in pastures 29A and 29B would be the same as the No Action, Alternative A. Pastures 29C and 29D would be grazed in a rest rotation system, with use occurring in June for two weeks followed by rest the next year.

New projects are proposed to help address rangeland health problems and to aid grazing operations. These projects were selected from Alternative D by the authorized officer based on scoping, impacts analysis, the need to meet resources, and feedback from the interdisciplinary team. The following projects would be constructed (they are described in more detail in Alternative D and are shown on maps 12 and 13).

- *Monitoring Exclosures in Pastures 5B, 8B, and 10B;*
- *Pasture 5B Water Haul Relocation;*
- *Magpie Creek Headwaters Exclosure and Trough;*

- *Battle Creek Headwaters Exclosure and Trough;*
- *Pasture 44 Spring Exclosure 1;*
- *Pasture 44 Spring Exclosure 2;*
- *Buck Spring Exclosure;*
- *Rat Spring Exclosure;*
- *Juniper Station Pond Exclosure;*
- *Rock Spring Exclosure Expansion;*
- *Gopher Spring Exclosure;*
- *Station Spring Exclosure Expansion;*
- *Pasture 29A Battle Creek Tributary Meadow Exclosure;*
- *West Fork Shoofly Creek Fence Realignment;*
- *Pasture 29A Pond at Bill De Alder Draw Exclosure.*

1.2 Need for and Purpose of Proposed Action

This action is needed to address rangeland health issues identified in the East Castle Creek Rangeland Health Assessment, conducted in conformance with the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management (USDI 2008a) and documented in an Evaluation and Determination (USDI 2008b). This assessment identified that for 11of 29 pastures within the allotment, one or more of the standards are not being met; significant progress toward meeting the standard is not occurring; and current livestock grazing is a significant factor contributing to the current condition. The specific standards and the locations of concern are listed below:

- **Standard 1 (Watersheds)** is not met in pastures 8B, 8BI, 8BIII and 10B because of continued early spring use during the critical growing season prior to 2005; and excessive livestock use on seeded areas between 1998 and 2004.

- **Standard 2 (Riparian Areas and Wetlands)** is not met on: Poison Creek in pastures 8B and 12; Sheep Creek in pasture 28A; and on 70% of wetlands and springs located primarily in pastures 17, 19, 28, 29A, and 44 due to high levels of grazing of riparian vegetation and excessive amounts of bank alteration.

- **Standard 3 (Stream Channel/Floodplain)** is not met on portions of Poison Creek in pastures 8B and 12 and portions of Sheep Creek in pasture 28A because of high levels of grazing of riparian vegetation, which destabilizes banks and channels, and excessive amounts of bank alteration.

- **Standard 4 (Native Plant Communities)** is not met in pastures 8B, 8BI, 8BIII, 10B and 12 due to depletion of deep rooted perennial bunchgrasses, and the season and intensity of livestock use; pastures 28 and 28A are not meeting due to high utilization of bitterbrush and mahogany.

- **Standard 7 (Water Quality)** is not met on portions of Poison Creek in pastures 8B and 12 and on Sheep Creek in pasture 28A due to high levels of grazing of riparian vegetation and excessive amounts of bank alteration.

- **Standard 8 (Threatened and Endangered Plants and Animals)** is not met on springs and wet meadows throughout the allotment for special status species concerns – specifically sage grouse brood rearing habitat. It is also not met in pasture 5B due to grazing and trampling associated with a water haul site near one population of Mulford's milkvetch. Portions of West Fork Shoofly Creek in pasture 8B do not meet the standard for special status fish because of heavy livestock use and excessive levels of streambank alteration.

Upon completion of a Rangeland Health Assessment and identification of unmet standards, changes in grazing management that will make progress towards meeting the Standards must be made prior to the next grazing season. In addition, the BLM must respond to the applications for permit renewal (CFR 4130.1). The four grazing permits are currently authorized under the 2004 Interior Appropriation Bill (Sec. 325, Title III, HR 2691, DOI and Related Agencies Appropriation Act of 2004, PL 108-108).

The purpose of the proposed action is to authorize livestock grazing consistent with the Guidelines for Livestock Grazing Management, BLM policy and in a manner that maintains or improves resource conditions towards achieving objectives as described in the Bruneau Management Framework Plan (MFP) and meet or make progress toward meeting the Idaho Standards for Rangeland Health (ISRH). See Appendix A for a list of MFP Objectives. Livestock grazing on the East Castle Creek allotment would be carried out through grazing use permits which would include: Gordon King (#1101607), John Anchustegui (#1100291), John Anchustegui (OCP lease #1100397), and Paul Black (#1101661).

Objectives of this action include:

- Increase ground cover in pastures 8B and 10B while maintaining or improving watershed trend elsewhere in the allotment.
- Improve riparian areas associated with Poison Creek in pastures 8B and 12 and Sheep Creek in pasture 28A to proper functioning condition while maintaining trend in the rest of the allotment. Improve non-functioning or functioning-at-risk wetlands and springs to proper functioning condition in pastures 11B, 12, 17, 19, 28, 29A, and 44, while maintaining trend on wetlands and springs that are in proper functioning condition or making progress towards proper function condition.
- Improve frequency, cover and vigor of native or seeded plants in pastures 8B, 8BI, 8BIII, 10B and 12 while maintaining trend.
- Improve condition of mountain mahogany and bitterbrush communities and reduce hedging in pastures 28 and 28A while maintaining trends.
- Improve water quality, by improving channel morphology and streamside riparian vegetation in Poison Creek and Sheep Creek while maintaining trends.

- Maintain or improve sage grouse brood rearing habitat, reduce erosion and improve appropriate plant composition and vigor for wet meadows and springs in pastures 10B, 11B, 12, 28, 28A, 29A and 44.
- Improve redband trout habitat in West Fork Shoofly Creek in pasture 8B, improve streambank stability and cover and vigor of riparian vegetation.
- Reduce soil disturbance and improve general habitat conditions for Mulford's Milkvetch populations near water haul site in Pasture 5B.

More information regarding how these objectives would be monitored is in the Monitoring Plan (Appendix B).

1.3 **Location and Setting**

East Castle Creek Allotment (#893) is located in Owyhee County southwest of Grand View, Idaho, and south of State Highway 78 (Map 1). The allotment extends southwest about 34 miles into the Owyhee Mountains. It is bordered by West Castle Creek Allotment (#801) on the west and Battle Creek Allotment (#802) on the east. Elevations range from approximately 2,700 feet to over 7,000 feet within the allotment.

There are three major landforms in East Castle Creek Allotment: the Snake River Plain or lakebed landform (predominantly composed of deposited lakebed sediments) at the north end of the allotment; the mountainous landform of the Owyhee Mountains on the western portion of the allotment; and the plateau landform at the southern end of the allotment. Streams that drain the Owyhee Mountains within East Castle Creek Allotment include Shoofly, West Fork Shoofly, Poison, Battle, Birch, Magpie, and South Fork Castle creeks.

The allotment includes 96,578 acres of BLM-administered public land, 8,944 acres of State of Idaho land, and 7,611 acres of private land. The total allotment acreage is divided into 29 pastures and the total permitted Animal Unit Months (AUMs) of active livestock grazing use is currently 10,878.

Table 1. East Castle Creek Allotment Pastures and Seasons of Use

Pasture Number and Name	**Season of Use**	**Acreage (Approximate Total)**
5B East Winter Range	Winter	30,992
8B	Early Spring	29,275
8BI (seeding)	Early Spring	1,235
8BIII (seeding)	Early Spring	3,064
10B	Early Spring	10,223
11B Late Spring (Birch Creek)	Late Spring	3,065
12 Late Spring (Poison Creek)	Late Spring	4,954
13 FFR[1]	Custodial management	708
14 FFR	Custodial management	567
15 FFR	Custodial management	380
16 FFR	Custodial management	169
17 FFR	Custodial management	1,681

Pasture Number and Name	Season of Use	Acreage (Approximate Total)
18 FFR	Custodial management	156
19 FFR	Custodial management	1,797
20 FFR	Custodial management	811
21 FFR	Custodial management	123
27 Juniper Station FFR	Custodial management	156
28 Juniper	Summer	5,473
28A Anthill	Summer	5,952
29 State Section	Custodial management	591
29A	Summer	2,730
29B Corner Pocket	Summer	596
29C (Riparian)	Summer	149
29D (Riparian)	Summer	209
31 State Section	Custodial management	634
33 FFR	Custodial management	1,301
37 FFR	Custodial management	355
37A FFR	Custodial management	241
44 FFR	Custodial management	1,582

[1]Historically, FFR referred to Fenced Federal Range. FFRs were allotments/pastures which had mixed ownership of BLM, private ownership and State lands. Presently, these pastures are managed in a similar way when the BLM has the minority ownership of land in the pasture. These pastures should not be managed in this manner if the public land in the pasture contains: (1) critical habitat for threaten or endangered species, (2) wetlands negatively affected by livestock grazing.

1.4 Allotment Background Information

Detailed information regarding livestock grazing history of the allotment and specific pastures can be found in the East Castle Creek Allotment Final Rangeland Health Assessment (USDI 2008a). The following describes recent analysis, livestock management, decisions and the 2004 Stipulated Agreement.

1.4.1 Castle Creek Allotment (801) Analysis, Interpretation and Evaluation

An in-depth evaluation of livestock grazing management in the Castle Creek Allotments was the Castle Creek Allotment (0801) Analysis, Interpretation and Evaluation (AIE) (1983-1997). Both the current East and West Castle Creek allotments were considered together in the AIE in order to track with the Bruneau MFP decisions. This AIE considered the Bruneau MFP recommendation that livestock AUMs be reduced by 36% in the Castle Creek Allotments in light of available inventories and subsequent monitoring in the two allotments. However, the Bruneau Rangeland Program Summary (RPS) stated that monitoring rather than the one-point-in-time inventory in the Bruneau MFP would be used to adjust livestock AUMs. This was in compliance with BLM policy resulting from court decisions. The Castle Creek Allotment was also split among various permittees by construction of fences during 1989 through 1993 and then formally divided by Rangeline Agreement. Therefore, the 36% reduction was not implemented as originally recommended for the allotment as a whole.

The Castle Creek Allotment Final AIE (1997) was completed prior to full implementation of the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management. The AIE concluded that limited progress would be made towards several MFP objectives (as summarized in Appendix AE of EA#ID-01-97-103) without changes in previous livestock management.

1.4.2 **2004 Settlement**

The BLM issued a Final Decision in 1997 (EA#ID-01-97-103) after completion of the AIE which would have prescribed a 25% reduction on East Castle Creek Allotment, along with grazing systems for various pastures, supporting projects, and exclosures. Elements of the 1997 Final Decision were appealed and implementation was stayed, including the 25% reduction. From 1998 to 2004 during the stay of the 1997 final decision and prior to the 2004 Settlement, livestock grazing management occurred similar to the previous season of use, AUMs and grazing rotation as displayed in the following table:

Table 2. Grazing Management 1998-2004

Season of Use	Pasture	Year 1	Year 2	Authorized Use (AUMs)
Winter	5B	11/1 – 1/31		2,732
Spring	8B, 8BI, 8BIII, 10B, 11B, 12	4/1 – 6/30		5,083
Summer	28, 28A	6/25 – 7/28	7/29-8/31	2,061
Summer	29A, 29B	6/25 – 8/31		624
FFRs		4/1 – 11/31		371
			Total AUMs	**10,871**

In 2004, the "Stipulation to Adjust/Modify Final Decisions Relating to the East Castle Creek Allotment", referred herein as the 2004 Settlement, was signed between Owyhee County, the permittees, Western Watersheds Project, and the BLM. The 2004 Settlement was implemented in 2005 and continued through the 2007 grazing season.

Under the terms of the 2004 Settlement, Mr. King's permitted use was 8,152 AUMs, of which 756 AUMs were placed in Voluntary Non-use in the early and late spring pastures (8B, 8BI, 8BIII, 10B, 11B and 12) for the 2005, 2006, and 2007 seasons. Likewise, Mr. Anchustegui's permitted use (related to the Glenns Ferry Grazing Association and Owyhee Calcium Products permits) was 2,376 AUMs, of which 515 AUMs were placed in Voluntary Non-use in the early and late spring pastures. The following table shows livestock grazing management under the 2004 Settlement:

Table 3. Grazing Management Under the 2004 Settlement

Season of Use	Pasture	Year 1: 2005	Year 2: 2006	Year 3: 2007	Authorized Use (AUMs)
Winter	5B	11/1 – 1/31			2,297 King 91 Anchustegui
Spring	8B, 8BI, 8BIII	4/1 - 4/30	5/1 – 6/1	4/1 – 4/30	2753 King 1061 Anchustegui
	10B	5/1 - 5/23	4/1 – 4/30	5/1 – 6/1	
	11B	5/24 – 6/17	Rest	6/2 – 6/17	
	12	5/24 – 6/17	6/2 – 6/17	Rest	
Summer	King Rotation (28 and 28A) and AUMs per Final Decision – 2061 AUMs				
	Anchustegui AUMs per Final Decision – 624 AUMs				
	29A/29B	6/18 – 8/31	7/15 – 8/31	6/18 – 8/31	
	29C	6/15 – 6/30	Rest	6/15 – 6/30	
	29D[1]	6/15 – 6/30	6/15 – 6/30	6/15 – 6/30	

[1]29D is rested till MFP objectives have been met.

Since the permit reissuance process was not completed in time for the 2008 grazing season, the expiring permits were reissued under the 2004 Appropriation Act pending completion of the reissuance process.

1.5 Conformance with Land Use Plan

The Bruneau Management Framework Plan (MFP) was approved in March, 1983, and is the land use plan for public lands managed by the Bruneau Field Office. The relevant objectives for rangeland management, watersheds, wildlife and wildlife-aquatic identified in the MFP are listed in Appendix A. The objectives listed in the need for and purpose of this action, in Section 1.2 are consistent with the MFP objectives. The proposed action to authorize livestock grazing in a manner that maintains or improves resource conditions is in conformance with the Bruneau MFP and the objectives identified therein.

1.6 Relationship to Laws, Regulations, Policy, Other Plans

On August 12, 1997, Idaho's Standards for Rangeland Health and Guidelines for Livestock Grazing Management were approved. Subsequently, livestock management practices must be in conformance with Idaho's Standards and Guidelines. If a determination is made that an allotment is not meeting one or more Standards, then changes must be made before the next grazing season that will result in making significant progress towards meeting the Standard(s). BLM has completed Draft and Final Standards and Guidelines Assessments for the East Castle Creek Allotment. The subsequent Evaluation and Determination for East Castle Creek Allotment identifying what Standards were not being met was signed May 21, 2008. This is in compliance with Instruction Memorandum (IM) No. ID-2004-086 (July 12, 2004).

Federal regulations authorize BLM to issue grazing permits to qualified applicants (43 CFR 4110 and 4130). Permittees may graze livestock on public lands that are designated as available for

livestock grazing through the MFP. In addition, the following laws, acts, manuals, policies, and regulations provide the foundation for managing livestock use on the public lands:

- The Taylor Grazing Act (TGA), 1934 as amended – provides for the orderly use of public land. The goal of the TGA was to stop injury to the public grazing lands by preventing overgrazing and soil deterioration, to provide for their orderly use, improvement, and development, to stabilize the livestock industry dependent upon the public range, and for other purposes;
- The Federal Land Policy and Management Act (FLPMA), 1976 which authorized the following: Inventory and identification of public lands, land use planning, public involvement and participation. FLPMA also provides BLM with broad management authority under principles of multiple use and sustained yield. Land use planning resulted in the preparation of land use plans such as the Bruneau Management Framework Plan;
- The Public Rangelands Improvement Act (PRIA), 1978 which mandates that livestock grazing be managed to improve range condition and maintain the highest level of productivity;
- Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management, 1997 – integrates FLPMA, PRIA, ESA, CWA;
- Title 43, Code of Federal Regulations (43 CFR), Subpart 4100 – Grazing Administration, Exclusive of Alaska – requires compliance with Standards and Guidelines;
- Correspondence from Idaho BLM Deputy State Director for Resource Services, January 29, 1999 and response from Idaho State Historic Preservation Office, February 23, 1999 for programmatic Section 106 obligations of the National Historic Preservation Act (as amended) regarding issuing grazing permits.
- Interim Management Policy for Lands Under Wilderness Review (IMP) - BLM Manual section 8550-1, 1995.
- Clean Water Act 1972 – integrated into Standards and Guidelines;
- Endangered Species Act 1974 – integrated into Standards and Guidelines;
- Native American Graves Protection and Repatriation Act, 1990 – prescribes a term and condition on all new grazing permits protecting human remains.
- National Historic Preservation Act
- American Indian Religious Freedom Act

The Bureau of Land Management (BLM) is required to consult with Native American tribes to "help assure (1) that federally recognized tribal governments and Native American individuals, whose traditional uses of public land might be affected by a proposed BLM action, will have sufficient opportunity to contribute to the decision, and (2) that the decision maker will give tribal concerns proper consideration" (U.S. Department of the Interior, BLM Manual Handbook H-8120-1). Tribal coordination and consultation responsibilities are implemented under laws and executive orders that are specific to cultural resources which are referred to as "cultural resource authorities," and under regulations that are not specific which are termed "general authorities." Cultural resource authorities include: the National Historic Preservation Act of 1966, as amended (NHPA); the Archaeological Resources Protection Act of 1979 (ARPA); and the Native American Graves Protection and Repatriation Act of 1990, as amended (NAGPRA). General authorities include: the American Indian Religious Freedom Act of 1979 (AIRFA); the National Environmental Policy Act of 1969 (NEPA); the Federal Land Policy and Management

Act of 1976 (FLPMA); and Executive Order 13007-Indian Sacred Sites. The proposed action is in compliance with the aforementioned authorities. The Shoshone-Paiute Tribes claim aboriginal rights to their traditional homelands as their treaties with the United States, the Boise Valley Treaty of 1864 and the Bruneau Valley Treaty of 1866, which would have extinguished aboriginal title to the lands now federally administered, were never ratified.

1.7 **Public Involvement**

Public involvement in this environmental assessment for East Castle Creek began with data collection in 2007. For the 2007 field work season, the interested publics and permittees were invited by mail, phone calls, and email to participate in the field data collection in preparation for the East Castle Creek Rangeland Health Standards and Guidelines Assessment (DOI-BLM 2008). Also in preparation of the Standards and Guidelines Assessment, letters were sent to interested publics, state governments, tribal representatives and permittees soliciting data and information relevant to the allotment for consideration in the Assessment. The East Castle Creek Rangeland Health Standards and Guidelines Assessment (USDI 2008a) and subsequent Evaluation and Determination (USDI 2008b) identified which Idaho Standards for Rangeland Health (ISRH) are met or not met, where resource concerns exist and whether or not livestock grazing management is a contributing factor. In preparation for this environmental assessment, the BLM solicited additional comments, ideas and alternatives from the public.

Meetings to develop and discuss management on the allotment began in the fall of 2007. Several meetings with the BLM and permittees occurred through August 2008 to develop management alternatives that address the issues identified. As part of the BLM policy (BLM Instruction Memorandum No. ID-2004-086) involving livestock grazing permit renewals, the permittees submitted grazing applications for livestock management to the BLM. Several meetings followed in which the BLM and permittees worked to refine their submissions. In addition, this project (EA ID-120- 2008-45) was posted on the BLM website http://www.blm.gov/id/st/en/info/nepa.2.html, and http://www.id.blm.gov/planning/nepa/databases/project.php?id=763 as part of the ongoing scoping process. This document can also be accessed at the website above. Using comments received during scoping and the resource issues identified in the East Castle Creek Rangeland Health Standards and Guidelines Assessment and Evaluation and Determination, the interdisciplinary team refined the list of issues and concerns to address.

On October 10, 2008 the East Castle Creek Scoping Document was sent out to the permittees, interested publics, local, state, and federal governments, and tribes for review and comments. The scoping document described the status of resource conditions and management actions in relation to the ISRH. The BLM sought input and suggestions for management alternatives to respond to resource conditions or concerns and the opportunity was provided to participate in the development of the management alternatives. As a result of the initial public outreach for the Evaluation and Determination (USDI 2008b) and the scoping document (sent on October 10, 2008) the BLM received comments from Idaho Fish and Game, the Shoshone Paiute Tribe, Western Watersheds Project, and Gordon and Rose King. Where applicable and when timely and within the scope of the analysis, BLM incorporated comments and clarifications into the environmental assessment.

1.8 **Issues**

Issues may be defined as a point or matter of discussion, debate, or dispute about the potential environmental effects of impacts (BLM Handbook H-1790-1). Issues are concerns directly or indirectly caused by implementing the proposed action; these are used to develop alternatives to the proposed action. Relevant public comments and issues were used in the development of this EA, including those received in response to the Scoping Document mailed October 10, 2008. Comments not considered issues to analyze are: 1) outside the scope of the proposed action and thus irrelevant to the decision being made; 2) already decided by law, regulation, RMP, or other higher level decision; 3) conjectural and not supported by scientific or factual evidence[1]: 4) not necessary for making an informed decision. In this analysis, impacts will be quantified to the extent practicable. When measures cannot be quantified, a qualitative narrative based on the expertise of an appropriate resource specialist and available science will be presented.

Idaho Fish and Game (IDF&G) provided comments relative to bighorn sheep distribution and identified potential issues with projects within bighorn sheep habitat.

The permittees have expressed concern regarding cheatgrass in the lower elevation (early spring pastures) and whether those areas qualify as "Native Plant Communities" or whether the areas have crossed a vegetative threshold. This would impact livestock grazing in general, data collection and analysis. They have also expressed the need to have additional water sources provided to help with the distribution of cattle in some of the pastures.

During the past 10 years, we have received several letters from Western Watersheds Project (WWP) describing their concerns about conditions in the allotment, particularly the seedings and in specific riparian areas. WWP was a party to the 2004 Settlement and the provisions of it addressed some of their concerns. Cooperative stream monitoring was initiated on several streams as one outcome of the Settlement. In June, 2008, WWP brought forward the following issues: Concern over the number of and impacts from livestock facilities, the number of pastures and associated fences, grazing management practices and impacts to resources, including sage-grouse, sensitive wildlife, and fish habitat, restoration of the seedings, and grazing of public lands in general. Other concerns identified included the spread of cheatgrass, livestock trampling of microbiotic crusts, weeds, and conditions of springs, wetlands, and watersheds. In this EA, efforts were made to address these impacts and other concerns brought forward by WWP where applicable. WWP also wanted Areas of Critical Environmental Concern (ACECs) that were proposed during the Bruneau Resource Management Plan process to be considered in this EA, but that is considered outside the scope of the analysis.

Key Issues

The East Castle Creek Assessment and Determination identify which Standards from the Idaho Standards for Rangeland Health are not being met under the current livestock management in the East Castle Creek Allotment. These standards are summarized in the Need for and Purpose of the Proposed Action (Section 1.1). The primary key issue being addressed is the need to make progress toward achieving those standards that are not being met while maintaining and continuing to improve areas that are meeting standards. The BLM also carefully considered the

[1] The Council on Environmental Quality (CEQ) regulations requires this delineation in Sec. 1501.7, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)…"

concerns raised by IDF&G, the permittees, and WWP, and identified additional key issues to be addressed in this EA including livestock grazing impacts to sensitive resources, economic impacts of livestock grazing, and impacts of grazing on global warming and the impact of climate change on grazing. The alternatives were developed around these key issues.

2.0 Description of the Alternatives

2.1 Alternative Development Process

In accordance with DOI BLM Instruction Memorandum No. ID-2004-086: "The applicant's grazing proposal contained in the Application for Livestock Grazing [are] the proposed action[s]…. However, when the applicant's proposal is not likely to start making progress toward meeting the standard(s), BLM will develop and analyze at least one alternative that is likely to start making progress toward meeting the standard." The permittees and BLM worked together to develop their applications. The initial applications submitted by the permittees were reviewed by the BLM and discussed at meetings with the permittees. Feedback was provided to the permittees and they resubmitted their applications with revisions. Feedback was again provided to the permittees based on their new applications. Based on these discussions, Alternatives B and C reflect the permittees applications as modified and agreed to by the permittees, where the BLM felt it necessary to meet the purpose and need and to conform to livestock grazing regulations.

From the fall of 2007 through August 2008 BLM met with the permittees to discuss the alternatives developed at that time and to review the permittees' latest applications. Four alternatives were presented to the permittees in July and August, 2008: Alternative A – No Action/ Current Management; Alternative E, presented in this document; a two-pasture rest rotation alternative and a three- pasture rest rotation with an April 1 turnout, both of which were not carried forward and are discussed in the Section 2.2.

Based on feedback received by the BLM during these meetings and comments and issues brought forth from the public and other agencies, the BLM decided to develop an adaptive management alternative, included as Alternative D. It was developed by examining the 2004 Settlement and adjusting the management within the settlement, where it was determined to be inadequate, to meet the purpose and need. It results in a lower reduction in AUMs than the previous alternatives presented to the permittees. Adaptive Management (AM) is a cyclic process by which management prescriptions are developed to address stated resource objectives, implemented, monitored, evaluated, and then maintained or adjusted based upon the results. This process is best suited to management of resources where some level of uncertainty in the effects of management actions is present.

Project Scoping and Design

In order to fully understand and analyze the effects of projects on sensitive resources the BLM has made it a priority to field inspect, layout, and design as many projects as feasible for this EA. The BLM interdisciplinary team and operations crew made this a priority and field verified as many as possible in order to include them in this EA. Permittees attended in the field as well, when available. The BLM made a concerted effort to inspect proposed projects prior to inclusion in the EA, however,

the BLM did not want to adversely impact spring turnout by delaying the issuance of this EA until all projects underwent clearances. Also, during field visits of the projects, snow hampered full clearances and, combined with wet roads, limited the BLMs' ability to conduct botanical, wildlife and cultural clearances in remote areas. In cases where full scoping, layout and clearances were not completed, potential impacts to those resources are discussed and analyzed. If during final layout and clearances it is determined that a modification of a project is necessary to avoid sensitive species or a cultural site, the modification will be assessed to ensure it is within the scope of analysis presented in this EA. If it is determined to be outside this scope of analysis, a separate NEPA analysis will be conducted.

2.2 Alternatives Considered But Not Analyzed in Detail

2004 Settlement

The 2004 Settlement ("Stipulation to Adjust/Modify Final Decisions Relating to the East Castle Creek Allotment" dated July 9, 2004) that was agreed upon by attorneys for Gordon King, John Anchustegui, BLM, Owyhee County, and Western Watersheds Project was not carried forward as an alternative. The grazing management under the settlement resulted in many standards not being met (USDI 2008a,b). For example, management under the settlement did not meet Standard 8 (Threatened and Endangered Plants and Animals) for the BLM sensitive species Mulford's milkvetch. The placement of temporary water troughs in close proximity to a Mulford's milkvetch population resulted in adverse impacts to the species habitat. These impacts include an increase in weed species and soil trampling in and around the population. Likewise, Standards 2, 3, and 7 were also not met due to impacts to some streams and many wetlands. Browse of mountain mahogany and bitterbrush in the summer pastures, 28 and 28A, also resulted in Standard 4 not being met.

The team determined that an alternative reflecting the 2004 Settlement as written would, therefore, not meet the purpose and need of the proposed action. The team did, however, use the 2004 Settlement as the starting point for Alternative D and developed adaptive management tools to refine and adjust the 2004 Settlement, where it was determined to be inadequate to address resource concerns. The 2004 Settlement was used as a starting point for the development of Alternative D because measured utilization in pasture 8B was lower than previous years and was within MFP limits of 50% utilization and, in the Standards and Guidelines Assessment, the team thought more time would be required to understand the effects of 25% voluntary spring nonuse. The nonuse offered in the 2004 Settlement was used in development of Alternatives D and E. The Settlement also served as the starting point for Gordon King's interim and longer-term permit renewal application (Alternative C and incorporated into King's spring pastures in Alternative B) and as the starting point for John Anchustegui's permit renewal application (Alternative B).

The 2004 Settlement states: "BLM will assess and consider in the 2008 decision-making process the following:

a. Construction of a 2.5 mile pasture boundary fence in Pasture 5B to provide for public highway safety, especially during the school year.
b. Adjustment of the pasture 8B and 10B boundary fence.

c. Development of water at the mine site in Pasture 12, placing a trough on the sidehill.
d. Moving the water trough out of the Summit Spring Exclosure into Pasture 12.
e. Horsehead Spring Pipeline Extension to 10B & 12; Pasture 11B Spring Development; Anthill Pipeline Extension to Pastures 29A; Rat Spring Pipeline Extension to Pastures 29A; Rat Spring Pipeline Extension; Poison Creek Pipeline Extension to Pasture 8B; Birch Creek Pipeline Extension to Pasture 8I."

As part of the alternative development process, most of these projects were proposed under one or more alternatives and all were considered during team meetings. The pasture boundary fence for 5B was dropped from further consideration because it does not meet the purpose and need of the proposed action. The adjustment of the pasture 8B and 10B boundary fence is analyzed under Alternative C. Development of water at the mine adit in Pasture 12 is proposed under Alternatives B and C. The Anthill Pipeline Extension and Rat Spring Pipeline Extension, and do not meet the purpose and need of the proposed action and are dropped from further consideration. Horsehead Spring Pipeline, Pasture 11B Spring Development, and Birch Creek Pipeline Extension are proposed under Alternative C.

Two-Pasture Rest Rotation Alternative

Early on in the alternative development process the BLM developed an alternative that kept pasture 8B whole (did not divide the pasture) and alternated use of 8B with 10B to provide rest in each pasture one out of two years. No new fencing was required for this alternative. Use in the other pastures was very similar to Alternative E. The principle reason this alternative did not move forward was because it was similar to Alternative E in applying rest and rotation and it did not provide significant benefits for resources over Alternative E. The alternative would have also posed significant hardships to the permittees due to reductions and due to the movement of livestock between private lands and federal pastures.

Three- Pasture Rest Rotation, April 1 Turnout, and "break" in between 11B and the summer pastures

This alternative split 8B into two pastures and along with pasture 10B incorporated a 3-pasture rest rotation. Use in pasture 11B would be prescribed for 14 days and use in pasture 12 would be for 10 days, both with reduced numbers of livestock (400 cow/calf pairs in each pasture). There was a "break" in use from pastures 11B and 12 into the summer pastures during which livestock use could occur on private property, State lands, or FFR pastures. Summer pasture duration was reduced by two weeks at the end of the grazing season (mid August). Because data showed that utilization was within the limits on 8B, the stocking levels from the settlement were used as a starting point for livestock numbers. This alternative was not carried forward because it was very similar to the Alternative E.

Allotment Division Alternative

During the fall of 2007, the BLM and permittees discussed splitting the allotment into two separate allotments; one for Mr. Anchustegui and one for Mr. King. Essentially, pasture 8B would be divided based on the proportion of the AUMs each permittee currently has in the pasture, and it would be fenced accordingly. On November 5, 2007, the BLM met with both permittees, and the following was the outcome of the discussion:

- Pasture 8B would be split between Mr. Anchustegui and Mr. King along the Mud Flat Road, with the State section on Poison Creek being fenced down the middle to provide water to each permittee.
- The west fence of Pasture 8BIII would be realigned along the road, with the portion west of the road to go to Mr. King. Mr. Anchustegui would get most of Pasture 8BIII. The permittees agreed that we could decide this line.
- Mr. King would get Pastures 8BI, 10B, and 11B in their entirety.
- Pasture 12 remained a focus of disagreement- Mr. Anchustegui wanted the pasture in its entirety, while Mr. King wanted the use of the upper half.

The disagreement remained over pasture 12 and how to best allocate the late spring pastures. Both permittees questioned the use of the 1980 inventory figures to determine the pasture divisions. Because an alternative could not be agreed upon by the parties, it was not carried forward as it was discussed in November. However, Alternative B, submitted by Mr. Anchustegui does propose a split of the allotment.

No Grazing Alternative

This alternative equates to "not issuing a new grazing permit" and "closing" the East Castle Creek Allotment to livestock grazing on BLM administered public lands. Subsequently, 96,578 acres of public lands would be closed to livestock grazing and 10,872 federal AUMs would be retired. This alternative was considered, however, it was not analyzed because in detail because it does not provide for the sustainability of the western livestock industry and the communities dependent upon productive, healthy rangelands as required by the Taylor Grazing Act. Furthermore, this alternative would not be in conformance with the Bruneau Management Framework Plan.

Projects Considered But Not Analyzed in Detail

The following projects were discussed or proposed during the alternative development process. They were determined to not meet the purpose and need of the proposed action at this time. Any of the following projects could be analyzed in the future in a separate environmental assessment.

- *Highway fence*. The purpose is to provide for public safety. This project, proposed by the Kings on October 31, 2008 and brought forward in the 2004 settlement as a project to be considered, does not meet the purpose of need of the proposed action here in this EA. It is also discussed above in the section ***2004 Settlement***. The BLM recognizes the importance of public safety along the reach of road and may consider this in a future EA designed specifically to address public safety.
- *Birch Creek Pipeline Extension into 5B Trough Relocation*. This project would be a pipeline extension into pasture 5B. In the East Castle Creek Evaluation and Determination it was determined that Pasture 5B was not meeting Standards 1 and 4 but the cause was not current livestock grazing. Constructing additional pipeline and placing a new trough in 5B is, therefore, not necessary to meet resource objectives, nor would it be consistent with the purpose and need of the proposed action. This project would not solve a resource concern. In addition, this project was originally proposed in the King's application dated 6/20/08, but the location, and the project itself, was not clarified in their 10/31/2008 document. This project, like all others, could be analyzed in the future if it is deemed necessary to meet resource objectives.

- *Hanging Meadow Exclosures*. The upper western portion of pasture 12 has an extensive wet meadow complex that is currently downcutting due to pugging and shearing in the wet soils. The proposal to build an exclosure fence and remove livestock from the meadow complex is dropped in lieu of management prescriptions. It may be proposed and analyzed in the future if the selected management prescription does not result in improvements in the meadows.
- *Pasture 12 Division Fence*. There was a proposal to split pasture 12 from east to west at the northern end of the state section in the middle of the pasture in order to facilitate greater livestock distribution in pasture 12, particularly to limit use on the wet meadow complex in the upper portion of the pasture. This proposal was dropped in lieu of management prescriptions. Like the hanging meadows exclosure above, it may be proposed and analyzed in the future.
- *Poison Creek Exclosure Fence in Pasture 8B*. One option to address resource concerns on the upper end of Poison Creek would be to remove livestock grazing from the creek by building an exclosure fence. This project was discussed during several team meetings but was not carried forward during alternative development in lieu of livestock management prescriptions.

If it is determined that implementation of any of these projects is desirable or necessary to help meet resource management objectives, a separate NEPA analysis would be conducted.

2.3 Description of Alternatives

2.3.1 Summary of the Alternatives

The following table displays, per pasture, Acres, AUMs, Days use, and the Stocking Rate by Alternative. The stocking rate is derived by dividing the pasture acres (BLM) by the number of AUMs scheduled for that pasture. Pasture acreages are based on data from BLM Geographic Information System and are approximate.

Table 4. Stocking rates per pasture per alternative.

Pasture	Approx. BLM Acres[1]	Alt A			Alt B[2]			Alt C Interim			Alt D			Alt E[3]		
		AUMs	Days	SR	AUMs	Days	SR	AUMs	Days	SR	AUMs	Days	SR	AUMs	Days	SR
5B	29,505	2,735	vary	10.8	2732	vary	10.8	Same as B			Same as A			Same as A		
8B, 8BI,III	31,345	1,795	30	17.5	K:1012	30.5	21.1	1,466	30.5	8B& 8BI 14.8[5]	1,527	30.5	20.5	Y1:1549	62	20.2
					8B:550 III: 289	8B:40 III: 21	13.7 8.6							Y2:775	31	20.2
					T:1851[4]	-	-							Y3:775	31	20.2
10B	9,323	1,855	31	5.0	1,012	30.5	9.2	1,466	30.5	10B & 8BIII 13.0[5]	1,527	30.5	6.1	Y1: 0	0	-
														Y2:1515	31	6.2
														Y3:1515	31	6.2
11B	3,064	718	24	4.3	730	22	4.3	529	22	5.8	376	15	8.1	171	7	17.9
12	4,364	718	24	6.1	343	25	12.7	529	22	8.2	376	15	11.6	171	6	25.5
28	5,259	1031	34	5.1	1028	31	5.1	Same as B			875	26	6.0	871	27	6.0
28A	5,796	1031	34	5.6	1028	31	5.6				875	26	6.6	871	27	6.7
29 A,B C, D	3,097	624	vary	5.0	Same as A			Same as A			Same as A			Same as A		

[1]Acres based on best available BLM data to date for Alternative A. Alternatives B, C, and E have different acreages for 8B and 10B.
[2] Acres for Anchustegui portion of 8B=7555, 8BIII=2478. King portion (8B, 8BI, 8BIII combined) = 21,312
[3] 8B is divided into two separate pastures in Alt E. The stocking density is for the year the pasture is used. 1 year out of 3 the stocking rate would be zero for the ½ rested.
[4] Alternative B: Anchustegui would use his portion of 8B for 40 days and then 8BIII for 21 days. King would use his portion of 8B and 8BIII for 30 (April) or 31 (May) days.
[5] Alternative C: This alternative changes the configurations and acreages of Pastures 8B (21,697 including 8BI) and 10B (18,998 including 8BIII). The Stocking Rates in the table are based on the new acreage and the combined pastures.

Table 5. Projects Proposed by Alternative. An "X" indicates that the project is proposed and integral to the alternative. An "O" indicates that the project is considered and analyzed herein, but may be implemented at a later date if monitoring indicates it is necessary to meeting the resource objectives.

Project	Alt B: Anchustegui	Alt C: King	Alt D	Alt E
Pasture 5B				
Relocation of waterhaul site		X	X	X
Upland Monitoring Exclosures in 5B, 8B, 10B			X	X
Upland Grazing Exclosures in Pastures 5B, 8B, 8BI, 10B, 11B, 12, 28, 28A (2-4 in ea pasture; <3 acres ea)		X		
Pasture 8B, 8BI				
Alt B Pasture 8B Division Fence	X			
Alt E Pasture 8B Division Fence				X
Birch Creek Pipeline Extension into Pasture 8BI		X	O	O
Poison Creek Pipeline Extension into Pasture 8B		X		
Adjustment to the Pasture 8B and 10B Division Fence		X		
Riparian Grazing Exclosures 8B,10B,11B,12 (2-4 in ea. Pasture; <3 acres ea)		X		
Pasture 10B				
Headcut Stabilization on Birch Creek		X		
Horsehead Spring Pipeline Extension into 10B and 12		X		
Exclosure Spring 893-10B-4A		X		
Exclosure at Pasture 10B Spring 893-10B-10A		X		
Half Moon Spring Exclosure		X	O	O
Pasture 11B				
Headcut Stabilization on Birch Creek		X		
Trough and Exclosure at Pasture 11B Spring (2020073)		X	O	O
Trough and Exclosure at Spring 893-11B-19A		X		
Exclosure Pasture 11B Spring #1 (2020038)		X	O	O

Project	Alt B: Anchustegui	Alt C: King	Alt D	Alt E
Exclosure Pasture 11B Spring #2 (893-11B-20A)		X	O	O
Trough at 11B #1 or #2			O	O
Exclosure at Spring 2020039		X		
Eagle Spring Exclosure		X	O	O
Pasture 12				
3 Headcut Stabilizations on Lone Juniper Creek		X		
Horsehead Spring Pipeline Trough		X		
Mine Adit Trough	X	X	O	O
Pasture 12 Spring (893-12-07A) Exclosure		X	O	O
Trough at Pasture 12 Spring (893-12-07A)		X		
Trough and Exclosure at Spring 893-12-17B		X		
Trough and Exclosure at Spring 893-12-18B		X		
Bald Mountain Spring Overflow pipe		X		
Summit Springs Trough		X	O	O
Exclosure of Spring at 8S1E20SWNW		X		
Trough and Exclosure Spring at 8S1E17SWNWSW		X		
Exclosure at spring/wet meadow 8S1E17SWSWNE		X		
Water Gap Fence on Private/State land in Pasture 20 for Pasture 12		X		
Pasture 14				
West Fork Shoofly Creek Fence Realignment			X	X
Pasture 19				
Battle Creek Headwaters Exclosure		X	X	X
Battle Creek Headwaters Trough		X	O	O
Magpie Creek Headwaters Exclosure and Trough		X	X	X
Pasture 28				
Headcut Stabilization at		X		

Project	Alt B: Anchustegui	Alt C: King	Alt D	Alt E
unnamed seep at 8S2W24SWSW				
Buck Spring Exclosure (pasture 28 spring exclosure)		X	X	X
Exclosure of Spring 893-28-15A		X		
Exclosure of Pasture 28 Spring 893-28-24A		X		
Rat Spring Exclosure		X	X	X
Rat Spring Additional Trough		X		
Juniper Station Pond Maintenance and Exclosure (8S1W20S)		X	X	X
Gopher Spring Exclosure			X	X
Trough and Exclosure at Gopher Spring (8S1W20SWSW)		X		
Exclosure at Pasture 28 Spring at 8S1W31W		X		
Rock Spring Exclosure Expansion			X	X
Station Spring Exclosure Expansion			X	X
Pasture 28A				
Sheep Creek Exclosure at 9S1W6SE		X		
Pasture 29A				
Pasture 29A Pond at Bill De Alder Draw	X		X	X
Pasture 29A Battle Creek Tributary Meadow Exclosure.			X	X
Pasture 33				
3 Headcut Stabilizations on Sheep Creek		X		
Pasture 44				
Pasture 44 Spring Excl. #1 (893-44-29B)		X	X	X
Pasture 44 Spring Excl. # 2 (893-44-30B)		X	X	X
Exclosure of Pasture 44 Spring 893-44-32B		X		

According to best available data, for Alternative A (No Action/Current Management) there are currently 64 acres within existing exclosures which includes upland exclosures. There are approximately 113 miles of exterior allotment boundary fences and 110 miles of interior fence (including 3.6 miles of exclosure fencing). The following tables summarizes similar information each alternative.

Table 6. Summary of Proposed new projects (Alternatives B, C, D, E)

	Alt B	Alt C	Alt D	Alt E
Proposed New Spring Developments or Troughs (including pipeline Extensions)	1	15	"X"=1 "O"=5	"X"=1 "O"=5
Proposed Riparian/Wetland Exclosures (springs, wetlands, riparian areas, and headcuts)	1	45-53	"X"=12 "O"=7	"X"=12 "O"=7
Proposed Riparian/Wetland Acres in Exclosures (springs, riparian areas, and headcuts)[1]	.75	157-181[2]	"X"= 78 "O"=~34	"X"= 78 "O"=~34
Proposed Upland Exclosures	0	16-32	6	6
Proposed Acres in Upland Exclosures	0	48-96	34	34
Proposed Miles of Fence Associated with Exclosures (calculated)	.2	23-32	7.5	7.5
Proposed Interior Pasture Fences	9 miles	2.0	0	7 miles

[1]Buck Spring would exclude approximately 47 acres which is included in this total.
[2]As per the King's clarification during the meeting on 1/23/09, BLM was told to use an average size of 3.6 acres per exclosure. Actual size of exclosures may vary on the ground.
See the discussion of each project under the alternatives for more information.

2.3.2 Management Common to All Alternatives

The following management designs apply to all alternatives:

1. All fences would be built to Boise District Fence Standards to ensure that fence design reflects current research concerning sensitive and big game species. Current Boise District Fence Standards include the following:
    a. Pasture division fences would have 3 wires (Type B), with the bottom wire smooth and with wire spacing suitable for deer and antelope habitat;
    b. Exclosures would have 4 wires (Type A), with the bottom wire smooth and with wire spacing suitable for bighorn sheep habitat.

    In addition, visibility markers would be placed where needed according to most current recommendations. Raptor anti-perching devices would be placed on wooden posts in sensitive sage-grouse habitat. Blading of fencelines would not be allowed during construction. Green fenceposts would be used to minimize visual contrast. Gates and would be incorporated into all fence construction.

2. New spring developments would be built according to BLM Boise District standards, including fencing the source and engineering an appropriate overflow mechanism. The following design standards and mitigation measures would apply:
    a. Headboxes would be installed at the lower end of the spring head using standard specifications to avoid drying wetland areas;
    b. Headboxes that must be installed at the upper end of the spring head would have flow restrictors, or other flow management devices installed on the troughs, and standard specifications would be used to avoid drying wetland areas;
    c. Troughs would be installed, with standard bird ladders, bases, and braces;
    d. Disturbed areas would be contoured to the natural setting, if necessary and seeded to a seed mix appropriate to the ecological site(s) and with the same or similar plant species to the surrounding vegetation;
    e. New access roads would not be constructed.
3. New pipelines would be built according to BLM Boise District standards, including engineering an appropriate overflow mechanism for each trough. The following design standards and mitigation measures would apply:
    a. Troughs would be installed, with standard bird ladders, bases, and braces;
    b. Pipelines would be ripped in, with minimum disturbance including the jeep trail along the pipeline not exceeding 50 feet in width;
    c. Disturbed areas would be reseeded to a seed mix appropriate to the ecological site(s).
4. Pond repair would be done to restore a functional state using standard design criteria. The following design standards and mitigation measures would apply:
    a. Fill material would be taken from the existing area of disturbance;
    b. Vehicle activity would occur within the existing area of disturbance to the extent feasible or as approved by the authorized officer;
    c. Existing access roads or ways would be used.
5. In conformance with Bureau policy, motorized access would not be authorized for construction and maintenance of projects within the Little Jacks Creek Wilderness Study Area. No motorized cross-country travel would be allowed off of designated routes in the wilderness study area.
6. Special status plant and animal and cultural clearances would be conducted before project implementation. Any modifications of a project to avoid sensitive species or a cultural site will be assessed to ensure the modification is within the scope of analysis presented in this EA. If it is determined to be outside this scope of analysis, a separate NEPA analysis will be conducted.
7. All projects would be monitored for weeds for a minimum of three years following construction. Noxious or invasive weeds would be treated in conformance with Boise District Noxious Weed EA (USDI 2007a).
8. Riparian or spring exclosures that do not respond to rest with an increase in desirable vegetation would have the option of being restored with site appropriate species. Seed would be broadcast by hand and manually raked into the soil. Transplants of vegetative material may also occur. Any restoration would be limited to areas disturbed by project implementation or inside exclosures.

2.3.3 **Common Terms and Conditions**

The following Terms and Conditions would apply for each alternative unless otherwise stated in the description of the alternative.

1. Livestock grazing management in the East Castle Creek Allotment shall be made in accordance with the field manager's final decision for East Castle Creek Allotment.
2. Livestock turnout is subject to the Boise District range readiness criteria.
3. Supplemental feeding is limited to salt, mineral, and/or protein in block, granular, or liquid form. If used, these supplements must be placed at least one-quarter (1/4) mile away from any riparian area, spring, stream, meadow, aspen stand, sensitive plant populations, playa, or water development located on public land unless a variance is approved by the authorized officer.
4. Livestock exclosures located within the East Castle Creek Allotment are closed to livestock use or as otherwise approved by the Authorized Officer.
5. Permittees must properly complete, sign and date an Actual Grazing Use Report Form (BLM Form 4130-5) for each allotment. Actual use must be reported by individual pasture. The completed form(s) must be submitted to the Bruneau Field Office within 15 days from the last day of authorized annual grazing use.
6. Maintenance activities within the Little Jacks Creek Wilderness Study Area require prior consultation with the authorized officer. Motorized vehicles are restricted to designated roads in WSAs.
7. Permittees shall provide reasonable administrative access across private and leased lands to the Bureau of Land Management for the orderly management and protection of the public lands in accordance with 43 CFR 4130.3-2(h).
8. Pursuant to 43CFR 10.4(b), the Permittee is required to notify BLM by telephone, with written confirmation, immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined in 43 CFR 10.2) on federal lands. Pursuant to 43 CFR 10.4(c), any ongoing activities connected with such discovery must be stopped immediately and a reasonable effort to protect the discovered remains or objects must be made.
9. Permittees are required to coordinate trailing activities and movement between pastures with the BLM prior to initiation. A trailing permit or similar authorization may be required prior to crossing public land. No trailing will occur in the fall down Birch Creek in Pastures 10B and 11B.
10. Pastures referred to as Fenced Federal Range (FFR) are managed as custodial use as long as BLM land mixed in with the private and State lands meet or make progress toward the Idaho Standards for Rangeland Health. See definition page 23.
11. Livestock that are six months or older at the beginning of the grazing season are required to have ear-tags that are issued by the authorized officer.

2.3.4 **Annual Indicator Criteria**

Annual Indicator Criteria would be applied in accordance with DOI BLM Instruction Memorandum IM-2005-074 (see Appendix D) to assist in demonstrating compliance with the applicable portions of the Idaho Standards and Guidelines, and the applicable portions of the

Bruneau Management Framework Plan. These annual indicator criteria can provide useful information for interpreting the cause of trend in rangeland conditions and for adaptive management adjustments. Annual Indicator Criteria along with other required management practices would result in a reasonable expectation that long term desired conditions would be achieved. Each Alternative describes applicable annual indicator criteria and how those criteria are used for management.

2.4 Alternative A – No Action/ Current Management

For the East Castle Creek Allotment, current management is considered the 1997 Decision (EA # ID-01-97103) as it was implemented in combination with the pre-1997 (1986 through 1997) management for sections of the 1997 Decision that were stayed. Although management during 2005-2008 followed the 2004 Settlement Agreement, the last decisions issued are considered the No Action/Current Management, hence the description here. This alternative retains existing pasture boundaries; except that Pasture 11B had 4,297 acres, of which 71% was federal, prior to 2007. The State section (T07S R01W Section 36) and private lands within 11B were fenced out in that year. The pasture is approximately 3,064 acres now. In addition, portions of the State section (T08S R01E Section 16) in Pasture 12 were fenced separately by Mr. Anchustegui. No figures are currently available for partial removal of State land from Pasture 12. Exact fence locations have yet to be mapped. Maps 2 and 3 display Alternative A.

Grazing System

A total of 10,878 AUMs would be authorized. Spring use would not be licensed by pasture, and the pastures would be available any time from April 1 through June 30. Generally, however, pastures 8B, 8BI, and 8BIII would be grazed during the month of April, 10B would be grazed during the month of May, and 11B and 12 would be grazed during the month of June, following past practice. The June 24th off date for the spring pastures was not part of the stay (historically the off date was June 30th), therefore use would end in the spring pastures, typically 11B and 12, on June 24th. The numbers to be placed in each of these pastures, the period of use within the spring season, the time allowed for pasture moves, and the total AUMs harvested from each pasture are not specified by the 1997 permit, but are left to the discretion of the permittees providing that:

- Range readiness standards are met prior to turnout;
- Adjustments would be made when carryover forage is lacking or when distribution is inadequate;
- Utilization of riparian and upland vegetation would not exceed 50% of the current year's growth;
- The 4 inch end of growing season stubble height requirement would be met on Birch Creek in pastures 10B and 11B.

The deferred-rotation grazing systems in pastures 28, 28A, 29A and 29B and the construction of the two riparian pastures 29C and 29D prescribed by the 1997 Decision were not appealed, and were fully implemented by the 1999 grazing season. The summer turnout date was also changed from July 1 to June 25. Summer use would therefore follow the deferred-rotation grazing system and turnout as described in the table below.

Fall trailing down Birch Creek in pastures 10B and 11B would not be allowed. Use of Fenced Federal Range pastures (FFRs) would be at the discretion of the permittees as long as MFP objectives are met.

Table 7. Alternative A Grazing Schedule

Pasture	# of Livestock	Year 1	Year 2	Year 3	Year 4-10	AUMs
5B	1,177 [1]	11/1-1/31			Repeat	2,735
8B	1,820	4/1- 4/30			Repeat	5,089
8BI						
8BIII						
10B	1,820	5/1- 5/31			Repeat	
11B	910	6/1-6/24			Repeat	
12	910	6/1-6/24			Repeat	
28	922	6/25-7/28	7/29-8/31	Repeat	Repeat	2,061
28A		7/29-8/31	6/25-7/28			
29A & 29B	280	6/25-8/31	7/25-8/31 [2]	Repeat	Repeat	624
29C		Rest	6/15-6/30			
29D		Rest till objectives are met. Then alternate use 6/15 – 6/30 with 29C			Repeat	
FFRs (King)	Varies	4/1- 11/30			Repeat	281
FFRs (JA)	Varies				Repeat	88
					Total AUMs	**10,878**

[1] Maximum initial numbers with staged removal of livestock.

[2] In these years, livestock grazing could occur on FFRs, State leases, or Private Property from 6/23 to 7/14 prior to turnout into pastures 29A and 29B on 7/15.

Permitted Use

Table 8 Alternative A: Permitted Use

Allotment	Permittee	Livestock		Grazing Period		% Public Land	Animal Unit Months		
		Number	Kind	Begin	End		Active	Suspended	Permitted
00893 East Castle Creek	Gordon King #1101607	1,256	C	4/1	6/24	100	3,512	0	3,512
		35	C	4/1	11/30	100	281	0	281
		922	C	6/25	8/31	100	2,061	0	2,061
		1,010	C	11/1	12/21	100	1,694	0	1,694
		744	C	12/22	12/22	100	24	0	24
		441	C	12/23	1/31	100	580	0	580
	Gordon King #1102293	23	C	11/1	1/31	100	68	0	68

Allotment	Permittee	Livestock		Grazing Period		% Public	Animal Unit Months		
	John Anchustegui #1100291	383	C	4/1	6/24	100	1,071	0	1,071
		11	C	4/1	11/30	100	88	0	88
		62	C	6/25	8/31	100	139	0	139
		30	C	11/1	1/31	100	91	0	91
	Phillips Bros. Cattle Co. #1102187	181	C	4/1	6/24	100	506	0	506
		217	C	6/25	8/31	100	485	0	485
	Owyhee Calcium Products #1101614	92	C	11/1	1/31	100	278	0	278
						Total	**10,878**	**0**	**10,878**

Terms and Conditions Specific for Alternative A:

The following Terms and Conditions would apply and replace the Common Terms and Conditions:

1. Grazing use will be in accordance with the January 6, 1993 Livestock Management Agreement for the East Castle Creek permittees and the established pasture boundary/area of use Agreement for the Castle Creek Allotment. Exchange of use may be authorized concurrent with the use of public lands only.
2. A minimum 4 inch stubble height will be left on herbaceous (grass/grass-like plants) vegetation within the riparian vegetation along Birch Creek (Pasture 10B and 11B) of the East Castle Creek Allotment at the end of the growing season.
3. Exchange of use AUMs will be reflected within annual billings.
4. Turnout is subject to Boise District Range Readiness Criteria.
5. Certified actual use report is due 15 days after authorized use.
6. Salt and/or supplement shall not be placed within one quarter (1/4) mile of springs, streams, meadows, aspen stands, playas, or water developments.
7. Changes to the scheduled use require prior approval.
8. Permittees are required to coordinate trailing activities with the BLM prior to initiation. A trailing permit or similar authorization may be required prior to crossing public lands.
9. Livestock exclosures located within your grazing allotment(s) are closed to all domestic grazing use.
10. Permittees are required to maintain rangeland improvements in accordance with the cooperative agreements and range improvement permits in which you are a signator or assignee. All maintenance of rangeland improvements within a Wilderness Study Area requires prior consultation with the authorized officer.
11. All appropriate documentation regarding base property leases, lands offered for exchange-of-use, and livestock control agreements must be approved prior to turn-

out. Leases of land and/or livestock must be notarized prior to submission and be in compliance with Boise District Policy.

12. Failure to pay the grazing bill within 15 days of the due date specified shall result in a late fee assessment of $25.00 or 10 percent of the grazing bill, whichever is greater, not to exceed $250.00. Payment made later than 15 days after the due date shall include the appropriate late fee assessment. Failure to make payment within 30 days may be a violation of 43 CFR 4140.1(B)(1) and shall result in action by the authorized officer under 43 CFR 4150.1 and 4160.1-2.
13. The Land Use Plan allowable use level for riparian and upland vegetation is 50% of the current year's growth. Livestock should be removed from the use areas, pasture or allotment when this utilization level has been reached.
14. All trailing to and from the East Castle Creek Allotment will be approved by the authorized officer prior to the start of trailing.
15. Payment may be made by cash, check, or VISA/MC.
16. Pursuant to 43CFR 10.4(b), the Permittee is required to notify BLM by telephone, with written confirmation, immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined in 43 CFR 10.2) on federal lands. Pursuant to 43 CFR 10.4(c), any ongoing activities connected with such discovery must be stopped immediately and a reasonable effort to protect the discovered remains or objects must be made

Range Projects
No new projects would be constructed.

2.5 **Alternative B – Anchustegui Alternative**

This alternative (see maps 4 and 5), proposed by John Anchustegui, relies on dividing the spring pastures into different use areas to manage livestock grazing and temporary nonuse to achieve resource objectives. Mr. Anchustegui proposes to designate separate use areas in the spring pastures for the two permittees, Mr. Anchustegui and Mr. King. For convenience sake these are termed pasture "8BN" and pasture "8BS" in this document. The current pasture 8B would be divided proportionate to the current permitted use (31% of the early spring use area for Mr. Anchustegui and 69% of the early spring use area for Mr. King). Pasture 8B would be fenced along the Mud Flat Road with the State section on Poison Creek (T08S R01E Section 16) fenced down the middle to provide water to each permittee (this is contingent upon concurrence from the Idaho State Department of Lands). The west fence of pasture 8BIII would be realigned along the Mud Flat Road with the portion northwest of the road included in pasture 8BN. The portion of 8BIII south of the Mud Flat Road would be used with pasture 8BS.

Use by the permittees in the spring pastures would be as follows:

- Mr. King would use pastures 8BN, 8BI, 10B, and 11B.
- Mr. Anchustegui would use pastures 8BS, 8BIII, and 12.
- The pipeline systems would be split between the two permittees, with the Birch Creek Pipeline in Mr. King's use area and the Poison Creek Pipeline in Mr. Anchustegui's use area.

Since Phillips Bros. Cattle Co. is leasing from Mr. Anchustegui, who owns the permit, their use would be in common with Mr. Anchustegui and would follow his application proposal during the term of the lease.

For Alternative B, Mr. Anchustegui's application, the BLM assumed for purposes of comparison that the permitted numbers for Mr. King would be adjusted for the change in season and partitioned among pastures in the same way as in Mr. King's application (see Alternative C). Mr. King's application would be applied as written to the portion of the currently shared spring pastures that he would be authorized to graze.

The term of the new permits would be March 1, 2009 through February 28, 2019. The permits issued under the Appropriation Act of 2004 would be modified according to this alternative and a new grazing permit would be offered to the permittees.

Grazing System

In the first three years, Mr. Anchustegui's turnout would occur on April 1, with turnout alternating between pastures 8B and 8BIII. Mr. King's first three years would be as described by his application (see Alternative C) and is included in the table below. The numbers to be placed in each of pasture, the period of use within the spring season (April 1 through June 25 or June 22 respectively), and the total AUMs harvested from each pasture are not specified by application or Alternative, but would be left to the discretion of the permittees providing that grazing management would stay with the parameters of the Annual Indicator Criteria (listed below). The deferred-rotation grazing systems in pastures 29A and 29B is similar to Alternative A. Use in 29C and 29D is later than Alternative A and numbers of livestock and AUMs are not specified. The two pastures are rested together every other year.

For the first three years at least, 395 spring AUMS for Mr. Anchustegui would be temporarily discontinued to allow for restoration of vigor of plants and to provide for improvement of riparian areas within the East Castle Creek Allotment (43 CFR 4130.3.2(f)). Overall, including Mr. Anchustegui's discontinuance of AUMs and Mr. King's prescription, there would be 1,159 fewer spring AUMs initially. At the end of 2011 grazing year, monitoring data collected during 2009, 2010, and 2011 would be evaluated. After evaluation of monitoring data in 2011, if adjustments in the permitted use is determined (either an increase or decrease in AUMS), then permit modifications would be made in accordance to 43 CFR 4130.3-3.

Mr. Anchustegui's proposal would authorize flexibility, requiring that livestock use would be subject to approval by the BLM Authorized Officer prior to turnout to ensure the schedule conforms to this alternative and any modifications thereof during the term of this permit. Livestock numbers may vary annually as long as such use remains within the Active Use, Season of Use, and the Management System described below.

See Alternative C for a description of King's management flexibility.

Table 9. Alternative B Grazing Schedule

Pasture	# of Livestock	Year 1	Year 2	Year 3	AUMs
King's proposal as applied to his portion of the allotment, Years 1 – 3[1]					
5B	1,177[2]	11/1 - 1/31			2,732
8B, 8BI	1,009	4/1 - 4/30	5/1 - 5/31	Repeat	2,755
10B	1,009	5/1 - 5/31	4/1 - 4/30	Repeat	
11B	1,009	6/1 - 6/22			
28	1,009	6/23 – 7/23	7/24 – 8/23	Repeat	2,057
28A		7/24 – 8/23	6/23 – 7/23	Repeat	
FFRs (King)	Varies	4/1- 11/30			281
Anchustegui's proposal as applied to his portion of the allotment, Years 1 – 10					
8B	418	4/1 – 5/10	4/22 – 5/31	Repeat	1,182
8BIII	418	5/11 – 5/31	4/1 – 4/21	Repeat	
12	418	6/1 – 6/25		Repeat	
29A & 29B	Year 1: 283 Year 2: 396	6/26 – 8/31	7/15 – 8/31[3]	Repeat	624
29C		7/6 – 7/15	Rest	Repeat	
29D		6/26 – 7/5	Rest	Repeat	
FFRs (JA)	Varies	4/1 – 11/30			88
				Total	**9,719[4]**

[1] Years 2012 through 2019 would follow King's Proposal as described under Alternative C for King's portion of the allotment.

[2] Maximum initial numbers with staged removal of livestock. Includes all livestock and AUMs for 5B.

[3] In these years, livestock grazing could occur on FFRs, State leases, or Private Property from 6/26 to 7/14 prior to turnout into pastures 29A and 29B on 7/15.

[4] The difference of 1,105 AUMs from the permit reflects the temporary discontinuance of AUMs.

Annual Indicator Criteria (AIC)

1. Utilization of key upland grass species does not exceed 50% by weight as consumed by all classes of animals.
2. Utilization of current year's growth of key upland browse species by livestock will not exceed 30% in mule deer winter range.
3. Utilization of current year's growth of key upland browse species by all classes of animals combined (livestock & wildlife) of current year's growth of key upland browse species will not exceed 50% in mule deer summer range.
4. A minimum of 4 inches of stubble height should remain on Poison Creek in pasture 12 at the end of the growing season on the greenline at selected key areas.
5. Browsing by livestock of woody species less than 3 feet tall (including young willows) on Poison Creek in pastures 8B and 12 should not exceed 25% of current annual production at key areas.
6. Streambank alteration attributable to livestock grazing should be less than 10% on these segments of Poison creek.

For Mr. King's portion of the allotment, the Annual Indicator Criteria under Alternative C apply.

Permitted Use

Table 10: Alternative B: Permitted Use

Allotment	Permittee	Livestock		Grazing Period		% Public Land	Animal Unit Months		
		Number	Kind	Begin	End		Active	Suspended	Total
00893 East Castle Creek	Gordon King #1101607	1,082	C	4/1	6/22	100	2,953[1]	0	2,953[1]
		40	C	4/1	10/31	100	281	0	281
		1,082	C	6/23	8/23	100	2,206[2]	0	2,206[2]
		1,061	C	11/1	12/21	100	1,850[3]	0	1,850[3]
		1,082	C	12/17	12/17	0	0	0	0
		546	C	12/18	1/31	100	808[4]	0	808[4]
	Gordon King #1102293	23	C	11/1	1/31	100	68	0	68
	John Anchustegui #1100291	379	C	4/1	6/25	100	1,071[5]	0	1,071[5]
		11	C	4/1	11/30	100	88	0	88
		62	C	6/26	8/31	100	137	0	137
		30	C	11/1	1/31	100	91	0	91
	Phillips Bros. Cattle Co. #1102187	179	C	4/1	6/25	100	506[6]	0	506[6]
		221	C	6/26	8/31	100	487	0	487
	Owyhee Calcium Products #1101614	92	C	11/1	1/31	100	278	0	278
						Total	**10,824**	**0**	**10,824**

[1] 200 AUMs would be temporarily discontinued by Term and Condition of the term permit as allowed by 43 CFR 4130.3- 2(f).

[2] 149 AUMs would be temporarily discontinued by Term and Condition of the term permit as allowed by 43 CFR 4130.3-2(f).

[3] 259 winter AUMs would be temporarily discontinued by Term and Condition of the term permit as allowed by 43 CFR 4130.3-2(f).

[4] 113 winter AUMs would be temporarily discontinued by Term and Condition of the term permit as allowed by 43 CFR 4130.3-2(f).

[5] 268 AUMs would be temporarily discontinued by Term and Condition of the term permit as allowed by 43 CFR 4130.3- 2(f).

[6] 127 AUMs would be temporarily discontinued by Term and Condition of the term permit as allowed by 43 CFR 4130.3-2 (f).

Terms and Conditions
In addition to the common Terms and Conditions listed in Section 2.3.3 the following Terms and Conditions would apply:

For John Anchustegui's permit # 1100291, spring actual use (4/1 – 6/25) on the East Castle Creek Allotment would not exceed 803 AUMs on public lands. 268 AUMs would be temporarily delayed/ discontinued, as allowed by 43 CFR 4130.3-2(f), to promote improvement in vigor of plants and of riparian areas.

For Phillips Bros Cattle Company permit #1102187, spring actual use (4/1 – 6/25) on the East Castle Creek Allotment would not exceed 379 AUMs on public lands. 127 AUMs would be temporarily delayed/ discontinued, as allowed by 43 CFR 4130.3-2(f), to promote improvement in vigor of plants and of riparian areas.

In addition to the Terms and Conditions listed under Alternative C, for Gordon King's permit #1101607, winter actual use on East Castle Creek Allotment would not exceed 2,286 AUMs on public lands. 372 winter AUMs would be temporarily discontinued, as allowed by 43 CFR 4130.3-2(f). Spring actual use (4/1 – 6/22) on the East Castle Creek Allotment would not exceed 2,755 AUMs on public lands. 200 spring AUMs would be temporarily discontinued, as allowed by 43 CFR 4130.3-2(f), to promote improvement of vigor of plants and of riparian areas. Summer actual use (6/23 – 8/23) on the East Castle Creek Allotment would not exceed 2,057 AUMs on public lands. 149 summer AUMs would be temporarily discontinued, as allowed by 43 CFR 4130.3-2(f).

Range Projects

1. *Alt B Pasture 8B Division Fence.* Map 4. Pasture 8B would be split between Mr. Anchustegui and Mr. King along the Mud Flat Road, with the State section on Poison Creek being fenced down the middle to provide water to each permittee (this is contingent upon concurrence from the Idaho State Department of Lands). The west fence of pasture 8BIII would be realigned along the road, with the portion west of the road to go to Mr. King. Mr. Anchustegui would get most of pasture 8BIII.

2. *Mine Adit Trough*. Map 5. Develop water at mine site located adjacent to the Mud Flat Road. This was also identified in the 2004 Settlement and is proposed in Alternative C. The purpose is to provide livestock water.

3. *Pasture 29A Pond at Bill De Alder Draw.* Map 5. The pond would be reconstructed and cleaned and an exclosure built to protect the meadow and wetland area. The pond is currently breached.

2.6 **Alternative C – King Alternative**

Mr. King submitted his application for grazing in the East Castle Creek on June 20, 2008. Mr. King would not propose a split of the allotment. Mr. King would take an interim-period voluntary non-use (shown as temporarily delayed/ discontinued AUMs) of 756 AUMs for 2009, and 2010, 2011. Thereafter, Mr. King would make full use to the extent of 8,220 AUMs, unless interim monitoring of utilization indicates a different level of AUMs is warranted. Mr. King and BLM would confer on data and information relevant to this provision in the fall/winter of 2011.

Because he did not propose how Mr. Anchustegui would graze the allotment, the BLM infers here that Mr. Anchustegui would manage livestock the same manner in which Mr. King proposes in pastures that are shared. For this Alternative, the BLM assumed for purposes of comparison that the permitted numbers for Mr. Anchustegui in the shared pastures would be adjusted for the change in season and partitioned among pastures in the same way as in Mr. King's application. Mr. Anchustegui would take the same percentage of non-use (shown as temporarily delayed/ discontinued AUMs) and follow the same livestock grazing system for the shared pastures.

The term of the new permits would be March 1, 2009 through February 28, 2019. The permits issued under the Appropriation Act of 2004 would be modified according to this alternative and a new grazing permit would be offered to the permittees.

Grazing System

Mr. King's Active Use would be 8,220 AUMs. The season of use would be from March 1 through February 28. Livestock number and livestock periods of use within pastures may vary annually as long as such use remains within the Active use, Season of Use and the Management System as shown in Table 11. Any livestock use in excess of Active Use or Season of Use would be authorized in accordance with 43 CFR 4130.6-2.

Mr. King's livestock would typically be turned out on the allotment on April 1, subject to Boise District Range Readiness Criteria. However, turnout can occur earlier, i.e. between March 1 and April 1, when Boise District Range Readiness criteria are met. Livestock would typically be moved to private and/or Fenced Federal Range from about August 24 through October 24, and would typically be turned into the Winter Pasture (5B) from October 25 through January 31, though they can be removed later, i.e. between January 31 and February 28, when Active use is not exceeded and delay in turnout occurred beyond April 1, or when Active Use is not exceeded and management indicators are met within the pasture(s) where the grazing use is scheduled to occur between January 31 and February 28.

No trailing would occur in the fall down Birch Creek in Pastures 10B and 11B. Livestock would be distributed throughout each of the use pastures, via salting, riding, and use of existing and new range improvements, to the extent possible and feasible. For resource management and livestock husbandry purposes, pasture move dates may deviate from the general schedule outlined herein by a period of one week either way from the dates stated. Mr. King would coordinate actual move dates with BLM.

Table 11. Alternative C Grazing Schedule Years 2009-2011

Pasture	# of Livestock	Year 1	Year 2	Year 3	AUMs
5B	1,122 cattle[1]	10/25-1/31			2,732
8B	1,462	4/1- 4/30	5/1- 5/31	Repeat[2]	3,989
8BI					
8BIII					
10B		5/1- 5/31	4/1- 4/30	Repeat[2]	
11B	731[3]	6/1-6/22			
12	731[3]	6/1-6/22			
28	1,009	6/23-7/23	7/24-8/23	Repeat	2,057
28A		7/24-8/23	6/23-7/23	Repeat	
29A & 29B	Year 1: 283 Year 2: 396	6/26 – 8/31	7/15 – 8/31[4]	Repeat	624
29C		7/6 – 7/15	Rest	Repeat	
29D		6/26 – 7/5	Rest	Repeat	
FFRs (King)	Varies	4/1- 11/30			281
FFRs (JA)	Varies				88
				Total	**9,772**

Table 12. Alternative C Grazing Schedule 2012-2019

Pasture	# of Livestock	Year 1	Year 2	Year 3	AUMs
5B	1,143[1]	10/25-1/31			3,095
8B	1,660	4/1- 4/30	5/1- 5/31	Repeat[2]	4,530
8BI					
8BIII					
10B		5/1- 5/31	4/1- 4/30	Repeat[2]	
11B	830[3]	6/1-6/22			
12	830[3]	6/1-6/22			
28	1082	6/23-7/23	7/24-8/23	Repeat	2,206
28A		7/24-8/23	6/23-7/23		
29A & 29B	Year 1: 283 Year 2: 396	6/26 – 8/31	7/15 – 8/31[4]	Repeat	624
29C		7/6 – 7/15	Rest	Repeat	
29D		6/26 – 7/5	Rest	Repeat	
FFRs (King)	Varies	4/1- 11/30			281
FFRs (JA)	Varies				88
				Total	**10,824**

[1] Maximum initial numbers with staged removal of livestock

[2] May use is not to occur in more than two consecutive years in pasture 8B or 10B.

[3] Approximate division by permittees, providing that utilization, streambank alteration and end-of-growing season stubble height and browse utilization requirements met on Birch and Poison creeks.

[4] In these years, livestock grazing could occur on FFRs, State leases, or Private Property from 6/23 to 7/14 prior to turnout into pastures 29A and 29B on 7/15.

Annual Indicator Criteria (AIC)

Listed below are measurable management indicators that would be applied to assist in demonstrating progress towards meeting the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management dated August 12, 1997, and in compliance with the Bruneau Management Framework Plan. These management indicators are subject to modification due to evaluation of long-term monitoring[1].

1. Upland utilization of key perennial grass species should not exceed moderate utilization (40%-60%), with a desired average utilization of 50% across a pasture or across the key areas in the pasture, at the end of the grazing period or growing period, whichever is later.
2. Browse use of key riparian shrubs, including but not limited to willows, on Birch Creek and Poison Creek should not exceed "moderate" (40-60%) use on young woody plants less than three (3) feet in height, as measured on the length of the perennial stream channel dominated by such shrubs or across key areas on the stream, within each respective pasture, measured at the end of the grazing period or growing period, whichever is later.
3. Streambank alteration[2] attributable to livestock grazing (pugging, shearing, trails, trampling) should be less than 10% as measured and verified by statistical reliability testing at key riparian areas in perennial reaches of streams.
4. Stubble height of key riparian species along the greenlines on perennial reaches of Birch Creek and Poison Creek should average 4 inches or more, as measured at riparian key sites at the end of the grazing period or growing period, whichever is later.
5. Utilization of bitterbrush in the summer pastures should not exceed moderate utilization (40%-60%), with a desired average utilization of 50% across the summer pastures, at the end of the grazing period or growing period, whichever is later.
6. These "Management indicators" would be monitored and would be applied according to the "Monitoring and Use Supervision Section" section herein.

[1] For example, should "streambank alteration" exceed 10% over a period of years, but the stream is nevertheless determined to be in an upward trend, this management indicator may be adjusted.

[2] Trampling impacts must be the obvious result of current season use and are considered streambank alteration when:

• Streambanks are covered with vegetation and have hoof prints that expose at least 12 mm (about ½ inch) of bare soil;

• Streambanks exhibit broken vegetation cover resulting from large herbivores walking along the streambank and have a hoof print at least 12 mm (½ inch) deep, as measured from the top of the displaced soil to the bottom of the hoof impression; and/or

• Streambanks have compacted soil caused by large herbivores repeatedly walking over the same area even though the animal's hoofs sink into and/or displace the soil less than 12 mm (½ inch).

Large herbivores trampling and trailing on top of terraces, above the active floodplain, is not considered streambank alteration. Hoof marks within the plot with shearing on the streambank and/or terrace wall and/or trampling at the base of the streambank or terrace wall are considered streambank alteration.

Monitoring and Use Supervision

1. Upland monitoring will consist of data collection as follows:

    a. Nested Plot Frequency Transect (NPFT) study sites would be read on an approximately 3-year monitoring interval. The need for additional monitoring sites would be evaluated, and coordinated with the livestock permittee and interested publics to identify additional key use areas.

    The existing NPFT site in Pasture 12 is situated less than 0.2 mile from Poison Creek, on a livestock trail leading to a long-standing salting location, and would be evaluated to determine its reliability and representation of the uplands in Pasture 12. If the site is determined to be not be representative, a new NPFT site would be established. A representative NPFT site would also be established in Pastures 11B and 28A.

    Upland grazing exclosure(s) (less than 3 acres in size, each) would be constructed in two-to-four representative vegetation types in the late-spring (11B & 12) pastures and in the summer pastures. Locations would be coordinated with the Permittee and interested publics. NPFTs would be initiated and read concurrently every 3 years with other NPFTs in the respective pastures.

    b. Utilization studies would be conducted in each pasture annually. Grasses would be monitored via the Height: Weight Method. Shrubs would be monitored via the Twig Length Measurement Method (Tech Ref. 1734-3)

2. Riparian monitoring would consist of data collection as follows:
    a. Establishment and annual monitoring of Multiple Indicator Monitoring (MIM) sites along Birch Creek and Poison Creek. (ID BLM Tech Bull 2007-01)[1].
    b. Periodic Proper Functioning Condition assessments conducted on springs and streams.
    c. Additional riparian monitoring, if it is determined to be necessary, in accordance with established MIM procedures or other BLM accepted protocols.
    d. Stubble height data collected annually. (Tech Ref. 1734-3).

Should monitoring demonstrate deviation in any one of the Management Indicators, BLM would coordinate with permittee and any interested publics. This coordination should consider the monitoring, the causal factor(s), and the "System" actually implemented.

BLM may coordinate with permittee and any interested publics a modification of the Grazing Permit in accordance with the grazing regulations, though due regard would be given to construct the Rangeland Management Projects before modifying the Grazing Permit.

[1] Except that Twig Length Measurement, rather than Landscape Appearance Method, will be employed.

Permitted Use

Table 13. Alternative C: Permitted Use

Allotment	Permittee	Livestock		Grazing Period		% Public Land	Animal Unit Months		
		Number	Kind	Begin	End		Active	Suspended	Permitted
00893 East Castle Creek	Gordon King #1101607	1,082	C	4/1	6/22	100	2,953[1]	0	2,953[1]
		40	C	4/1	10/31	100	281	0	281
		1,082	C	6/23	8/23	100	2,206[2]	0	2,206[2]
		1,061	C	10/25	12/16	100	1,850[3]	0	1,850[3]
		1,082	C	12/17	12/17	0	0	0	0
		546	C	12/18	1/31	100	808[4]	0	808[4]
	Gordon King #1102293	21	C	10/25	1/31	100	69	0	69
	John Anchustegui #1100291	392	C	4/1	6/22	100	1,070[5]	0	1,070[5]
		11	C	4/1	11/30	100	88	0	88
		60	C	6/23	8/31	100	138	0	138
		28	C	10/25	1/31	100	91	0	91
	Phillips Bros. Cattle Co. #1102187	186	C	4/1	6/22	100	508[6]	0	508[6]
		211	C	6/23	8/31	100	486	0	486
	Owyhee Calcium Products #1101614	85	C	10/25	1/31	100	277	0	277
						Total	**10,824**	**0**	**10,824**

[1] 200 AUMs would be temporarily discontinued by Term and Condition of the term permit as allowed by 43 CFR 4130.3- 2(f).
[2] 149 AUMs would be temporarily discontinued by Term and Condition of the term permit as allowed by 43 CFR 4130.3- 2(f).
[3] 259 AUMs would be temporarily discontinued by Term and Condition of the term permit as allowed by 43 CFR 4130.3- 2(f).
[4] 113 AUMs would be temporarily discontinued by Term and Condition of the term permit as allowed by 43 CFR 4130.3- 2(f).
[5] 236 AUMs would be temporarily discontinued by Term and Condition of the term permit as allowed by 43 CFR 4130.3- 2(f).
[6] 111 AUMs would be temporarily discontinued by Term and Condition of the term permit as allowed by 43 CFR 4130.3- 2(f).

Terms and Conditions

The common Terms and Conditions listed under Section 2.3.3 would apply, except Terms and Conditions # 1 would be modified as follows:

For Gordon King's permits:
#1 (in Section 2.3.3) would read as followed:

> " Livestock use would be annually scheduled to conform to the East Castle Creek Grazing Management Plan, and would be subject to approval by the BLM Authorized Officer prior to turnout to ensure the schedule conforms to the East Castle Creek Grazing Management Plan."

And the following Terms and Conditions would apply for after-the-fact billing:

2. The Permit holder would be annually billed for grazing use after-the-fact based upon the "as filed" Actual Grazing Report Form. The grazing use prescribed by this Grazing Permit is the functional equivalent of an Allotment Management Plan.

In addition, for Gordon King's permit #1101607, winter actual use on East Castle Creek Allotment would not exceed 2,286 AUMs on public lands. 372 winter AUMs would be temporarily discontinued, as allowed by 43 CFR 4130.3-2(f). Spring actual use (4/1 – 6/22) on the East Castle Creek Allotment would not exceed 2,755 AUMs on public lands. 200 spring AUMs would be temporarily discontinued, as allowed by 43 CFR 4130.3-2(f), to promote improvement of vigor of plants and of riparian areas. Summer actual use (6/23 – 8/23) on the East Castle Creek Allotment would not exceed 2,057 AUMs on public lands. 149 summer AUMs would be temporarily discontinued, as allowed by 43 CFR 4130.3-2(f).

For John Anchustegui's permit # 1100291, spring actual use (4/1 – 6/22) on the East Castle Creek Allotment would not exceed 834 AUMs on public lands. 236 AUMs would be temporarily delayed/ discontinued, as allowed by 43 CFR 4130.3-2(f), to promote improvement in vigor of plants and of riparian areas.

For Phillips Bros Cattle Company permit #1102187, spring actual use (4/1 – 6/22) on the East Castle Creek Allotment would not exceed 397 AUMs on public lands. 111 AUMs would be temporarily delayed/ discontinued, as allowed by 43 CFR 4130.3-2(f), to promote improvement in vigor of plants and of riparian areas.

Range Projects (see maps 6 and 7)

Pending completion of field investigations for all necessary clearances, the following projects are identified for construction or modification:

Pasture 5B

1. Relocation of waterhaul site in 5B, if data indicate need, and provided that another suitable haul site is located. The purpose is to relocate the waterhaul site away from a population of Mulford's milkvetch, if data indicate the need.

Pasture 8B and 8BI

2. Birch Creek Pipeline Extension into Pasture 8BI (Phase I seeding).
3. Poison Creek Pipeline Extension into Pasture 8B.

Pasture 8B and 10B

4. Adjustment of the Pasture 8B and 10B division fence. The purpose is to better balance the forage base of the respective pastures, providing for more stability to the livestock operation and grazing rotation.

Pasture 10B

5. Headcut stabilization at one location on Birch Creek. The purpose is to stabilize a headcut[1].
6. Horsehead Spring Pipeline into 10B (and 12). The purpose is to better distribute livestock and lessen livestock watering at springs.
7. Exclosure of wet meadow/riparian area of Spring 893-10B-4A.
8. Exclosure of wet meadow/riparian area of Spring 893-10B-10A.
9. Exclosure of the headbox and spring source of Half Moon Spring (0.236 acre). The purpose is to improve RFC and sage grouse late-brood rearing habitat, and to comply with standard procedures to fence spring sources at range developments. Pasture 11B

Pasture 11B

10. Headcut stabilization at one location on Birch Creek. The purpose is to stabilize a headcut.
11. Development and exclosure of the wet meadow/riparian area of Spring 893-11B-19A. The purpose is to provide livestock water, to improve RFC, and to comply with standard procedures to fence spring sources at range developments.
12. Exclosure of the wet meadow/riparian area of Spring 11B #2 (893-11B-20A (<0.25 acre). The purpose is to improve RFC and sage grouse late-brood rearing habitat.
13. Exclosure of the wet meadow/riparian area of Spring 11B #1 (2020038). The purpose is to improve RFC.
14. Exclosure of the wet meadow/riparian area of Spring 2020039 (size undisclosed by BLM information). The purpose is to improve RFC.
15. Pasture 11B Spring Development (Spring ID# 2020073)
16. Exclosure of the wet meadow/riparian are of Eagle Spring (0.341 acre). The purpose is to comply with standard procedures to fence spring sources at range developments.

Pasture 12:

17. Headcut stabilization at three (3) locations on Lone Juniper Creek. The purpose is to stabilize headcuts.
18. Horsehead Spring Pipeline into pasture 12 (and 10B). The purpose is to better distribute livestock and lessen livestock watering at streams.
19. Development of water at a mine site in Pasture 12, placing a trough on the sidehill. The purpose is to better distribute livestock and less livestock watering at streams;
20. Development and exclosure of the wet meadow/riparian area of Spring 893-12-07A (Pasture 12 Spring Exclosure). The purpose is to provide livestock water, to improve

[1] Stabilization will consist of placement of headcut stabilizing materials and construction of a small temporary livestock exclosure enclosing the headcut area. Upon stabilization of the vegetation and soil, the exclosure fencing will be removed, unless BLM, in consultation with the Permittee and interested publics, determines that the fencing should remain.

RFC and sage grouse late-brood rearing habitat, and to comply with standard procedures to fence spring sources at range developments.

21. Development and exclosure of the wet meadow/riparian area of Spring 893-12-17B (2.996 acres). The purpose is to provide livestock water, to improve RFC and sage grouse late-brood rearing habitat, and to comply with standard procedures to fence spring sources at range developments.
22. Development and exclosure of the wet meadow/riparian area of Spring 893-12-18B (0.370 acres). The purpose is to provide livestock water, to improve RFC and sage grouse late brood rearing habitat, and to comply with standard procedures to fence spring sources at range developments.
23. Pipe overflow of Bald Mountain Spring trough approximately 200 feet down into a draw away from the trough. The purpose is to eliminate overflow at the trough, which creates an intentional wet spot where livestock water at the trough.
24. Relocate the water trough out of the Summit Spring Exclosure into Pasture 12 uplands (Summit Springs Trough). The purpose is to better distribute livestock and lessen livestock watering at streams.
25. Exclosure of wet meadow/riparian area of an unnamed spring at 8S1E20SWNW (size undisclosed by BLM information). The purpose is to improve sage grouse late-brood rearing habitat.
26. Development and exclosure of the wet meadow/riparian area of an unnamed spring at 8S1E17 SWNWSW (size undisclosed by BLM information). The purpose is to provide livestock water, to improve sage grouse late-brood rearing habitat, and to comply with standard procedures to fence spring sources at range developments.
27. Exclosure of the wet meadow /riparian area of an unnamed spring at 8S1E17SWSWNE (size und undisclosed by BLM information). The purpose is to provide livestock water, to improve sage grouse late-brood rearing habitat.
28. Alteration of the Pasture 12/Pasture 20 fence so as to construct a water gap into private/state land in Pasture 20 (approximately ¼ mile fence total). The purpose is to better distribute livestock and lessen livestock water at streams in pasture 12.

Pasture 19:

29. Replacement of a livestock pond with a trough on uplands and exclosure of the wet meadow/riparian area of Spring 8931923B (0.081 acres) (Battle Creek headwaters). The purpose is to provide livestock water, to improve sage grouse late-brood rearing habitat, and to comply with standard procedures to fence spring sources at range developments.
30. Replacement of a livestock pond with a trough on uplands and exclosure of the wet meadow/riparian area of an unnamed spring at Magpie Creek Headwaters (size undisclosed by BLM information). The purpose is to provide livestock water, to improve RFC, and to comply with standard procedures to fence spring sources at range developments.

Pasture 28:

31. Headcut stabilization at an un-named seep at 8S2W24SWSW in pasture 28. The purpose is to stabilize headcuts.

32. Exclosure of the wet meadow/riparian area of Spring 893-28-14A (aka Buck Spring) (<0.25 acre). The purpose is to improve RFC and sage grouse late-brood rearing habitat and to comply with standard procedures to fence spring sources at range developments.
33. Exclosure of the wet meadow/riparian area of Spring 893-28-15A (<0.25 acre). The purpose is to improve RFC and sage grouse late-brood rearing habitat.
34. Exclosure of the wet meadow/riparian area of Spring 893-28-24A (<0.25 acre). The purpose is to improve sage grouse late-brood rearing habitat.
35. Exclosure of the wet meadow/riparian area of Rat Spring (<0.025 acre) and installation of an additional trough. The purpose is to improve RFC and sage grouse late-brood rearing habitat, to comply with standard procedures to fence spring sources at range developments, and to eliminate the overflow at the upland trough location.
36. Exclosure of the wet meadow/riparian area on an unnamed spring at Juniper Station Pond, 8S1W20S, leaving the livestock pond out of the exclosure. The purpose is to improve sage grouse late-brood rearing habitat.
37. Development and exclosure of the wet meadow/riparian area of an unnamed spring (now called Gopher Spring) at 8S1W20SWSW (size undisclosed by BLM information). The purpose is to provide livestock water, to improve sage grouse late-brood rearing habitat, and to comply with standard procedures to fence spring sources at range developments.
38. Exclosure of the wet meadow/riparian area of an unnamed spring at 8S1W31W (size undisclosed by BLM information). The purpose is to improve sage-grouse late-brood rearing habitat.

Pasture 28A:

39. Exclosure of the wet meadow/riparian area of Sheep Creek at 9S1W6SE (size undisclosed by BLM information). The purpose is to improve sage grouse late-brood rearing habitat.

Pasture 33:

40. Headcut stabilization at three locations on Sheep Creek;

Pasture 44:

41. Exclosure of the headbox and spring source of Spring 893-44-29B (Pasture 44 Spring Exclosure #1) (0.035 acre) and the wet meadow/riparian area below the trough (estimated < 1 acre). The purpose is to improve sage grouse late-brood rearing habitat and to comply with standard procedures to fence spring sources at range developments.
42. Exclosure of the wet meadow/riparian area of Spring 893-44-30B (Pasture 44 Spring Exclosure #2) (0.931 acres). The purpose is to improve RFC and sage grouse late-brood rearing habitat.
43. Exclosure of the wet meadow/riparian area of Spring 893-44-32B (0.07 acres) with gates at the road. The purpose is to improve RFC while continuing to provide road access through the area.

Pastures 5B, 8B, 8BI (seeded portions), 10B, 11B, 12, 28, and 28A:

44. Construction of upland grazing exclosures (less than 3 acres in size each) in two-to-four representative vegetation types and representing the range of current range conditions. NPFTs will be initiated and read concurrently every 3 years with other NPFTs in the respective pastures. Other studies as coordinated by BLM, the permittees, and the interested publics may also be initiated and read at appropriate intervals.

Pastures 8B, 10B, 11B, 12:

45. Construction of riparian grazing exclosures (less than 3 acres in size each) in two-to-four representative vegetation types and representing the current range of stream conditions on Poison Creek and Birch Creek. Greenline cover, vegetation, bank stability, and functioning condition will be initiated and read concurrently every year with corresponding studies in the same vegetation types and range of stream conditions outside the exclosures.

The overflow area/meadow management structures at the above described locations, and the 15-acre fenced area at Little Juniper, will be grazed annually to an average height of the meadow vegetation of 4 inches, then livestock will be removed from the fenced areas.

BLM will conduct resource inventories prior to construction of the above listed, or any other, range improvements. Except for the water gap fence in Pasture 20, BLM will be responsible for construction of the proposed improvements. Except for headcut stabilization structures and fences, maintenance will be the responsibility of the permittee. All projects on public lands will be constructed and maintained to conform to BLM design specifications and Cooperative Agreements. Applicable mitigation measures will be integrated into the construction of the rangeland management projects on public lands.

2.7 **Alternative D - Proposed Action**

Alternative D, the Proposed Action, relies on the prescribed grazing management, lower stocking rates, range projects, adaptive management, and close monitoring to achieve resource objectives and meet Idaho Standards for Rangeland Health. It would incorporate the use of annual indicator criteria, described below, to adjust livestock management during the current or successive grazing season as needed. This alternative differs from others in that as soon as the annual indicator criteria are met in specified pastures, livestock would be removed from those pastures. Mid-term (three to five years) and long-term (five to ten years) monitoring would be used to evaluate whether resource objectives are being met and whether livestock numbers require adjustment. This alternative proposes a similar stocking rate in the spring pastures as the 2004 Settlement. Stocking rates in the summer pastures 28 and 28A are also lower than the current permitted use (Alternative A). Permitted use would be 9,298 AUMs. Maps 8 and 9 show Alternative D, while maps 14 and 15 show the projects selected for the proposed action.

The term of the new permits would be March 1, 2009 through February 28, 2019. The permits issued under the Appropriation Act of 2004 would be modified according to this alternative and a new grazing permit would be offered to the permittees.

Grazing System

Grazing use for pasture 5B, season of use and staggered numbers of livestock, would remain the same as Alternative A, with the application of annual indicator criteria for Mulford's Milkvetch objectives. Turnout would occur April 1 in pasture 8B or 10B, similar to Alternative C and the 2004 Settlement Agreement. Livestock use in pastures 11B and 12 would be limited to 15 days, June 1st through June 15th, and the pastures would be treated as riparian pastures. Turnout into the summer pastures 28 and 28A would occur on June 16th, earlier than any of the other alternatives. Use in these pastures is limited to 26 days each. Livestock use in pastures 29A and 29B would be from June 16th to August 31 one year and July 15th to August 31 the following year. Pastures 29C and 29D are each rested every other year with scheduled use is from June 16th to June 30th with 24 AUMs total for the pasture that is being used that year. Fenced Federal Range pastures are open for use April 1 through November 30 as long as MFP objectives are being met.

Flexibility in pasture movement may be practiced in accordance with the following guidelines:

- Grazing schedule would generally be generally shown in Table 14, but dates may vary based on range readiness and as approved by the authorized officer.
- Five days flexibility in dates would be allowed in moving between pastures.
- Use in summer pastures 28 and 28A is limited to 26 days each. When browse use exceeds an average of 50% on bitterbrush or mountain mahogany in key areas, livestock would be removed from the pasture. If browse use is <50% when livestock have been in the pasture 26 days, use may be extended as long as permitted use is not exceeded and utilization on grass, riparian stubble height, bank alteration and browsing by livestock on woody species along Sheep Creek are within annual indicator criteria.

Table 14. Alternative D Grazing Schedule

Pasture	# of Livestock	Year 1	Year 2	Year 3[1]	AUMs
5B	1,177[2]	11/1-1/31			2,735
8B, 8BI, 8B III	1,527	4/1 - 4/30	5/1 – 5/31	Repeat	3,063
10B	1,527	5/1 – 5/31	4/1 – 4/30	Repeat	
11B	763	6/1 – 6/15			376
12	764	6/1 – 6/15			377
				Total Spring AUMs	**3,818**
28	1024	7/12 – 8/6	6/16 -7/11	Repeat	1,751
28A		6/16 – 7/11	7/12 – 8/6	Repeat	
29A, 29B	Year 1: 237 Year 2: 380	6/16 – 8/31	7/15 – 8/31[2]	Repeat	601
29C	47	Rest	6/16-6/30	Repeat	23
29D	47	6/16– 6/30	Rest	Repeat	
FFRs (King)	Varies	4/1- 11/30			281
FFRs (JA)	Varies	4/1- 11/30			88
				Total	**9,295[3]**

[1] The schedule would repeat the following year.
[2] Maximum initial numbers with staged removal of livestock.
[5] In these years, livestock grazing could occur on FFRs, State leases, or Private Property from 6/16 to 7/14 prior to turnout into pastures 29A and 29B on 7/15.

Annual Indicator Criteria (AIC)

The annual indicators would be used as thresholds to indicate when adjustments to livestock grazing management are necessary to meet or make significant progress toward meeting the Idaho Standards for Rangeland Health and resource objectives. These adjustments may occur during the grazing year, in the short-term (within 3 years) or long-term (greater than 3 years). Adjustments during the grazing year may include redistribution of livestock within a pasture if not all areas exceed the annual indicators or removal of livestock from a pasture. These indicators may be modified by the Field Manager based on the recommendations of the interdisciplinary team of resource specialists and consultation with the livestock grazing permittees. The following Annual Indicator Criteria would be monitored in accordance with the East Castle Creek Monitoring Plan (see Appendix B):

1. Utilization on key upland grass species (bottlebrush squirreltail, Sandberg bluegrass, bluebunch wheatgrass, ricegrass, Thurber needlegrass) would not exceed an average of 40% in the spring pastures (8B, 8BI, 8BIII, 10B) at key areas.

2. Utilization of key upland grass species, winterfat, and Nuttall saltbush would not exceed an average of 50% in pasture 5B at key areas.

3. Ground disturbance in and around Mulford's milkvetch populations decreases once water haul site is moved away from population. If soil disturbance is not reduced, identify an alternate trough location that would not impact Mulford's milkvetch.

4. Utilization of key upland grass species (bluebunch wheatgrass, Idaho fescue, Sandberg's bluegrass, Thurber needlegrass, needle-and-thread, ricegrass) does not exceed an average of 50% (pasture 11B, 12, 28, 28A, 29A, 29B) at key areas.

5. Utilization of current year's growth of key upland browse species by all classes of animals combined (livestock & wildlife) would not exceed 30% in mule deer winter range (pastures 8B and 10B) at key areas and 50% in mule deer summer range (pastures 28, 28A, 29ABCD) at key areas.

6. Browsing by livestock of woody species less than 5 feet tall (including young willows) on Poison, Birch, Sheep, and West Fork Shoofly creeks would not exceed an average of 25% of current annual production at key areas. Once utilization levels are reached, livestock would be redistributed to lesser used areas if present or removed from the pasture.

7. A minimum of an average of 4 inches of stubble height would remain on the above listed streams on the greenline at key areas. Streambank alteration attributable to livestock grazing is less than 10% based on MIM monitoring methods at key areas.

8. Bacteria in Battle and Poison creeks would not exceed the State of Idaho Water Quality Standards (see monitoring plan, Appendix B).

Mid-term and Long-term Monitoring

In addition to the Annual Indicator Criteria listed above, mid-term and long-term monitoring would be used to evaluate the effectiveness of meeting our resource objectives (as stated on pg. 5 and Appendix A). The Monitoring Plan is included in Appendix B.

Mid-term Monitoring for Pastures 5B, 8B, and 10B
Establish reference areas for each pasture. Reference areas should be grazed and considered to be meeting standards. An interdisciplinary team would select the reference areas in consultation with the permittees to ensure that they are similar in soils, aspect, elevation, etc. as the sites that would be monitored for progress. Place monitoring plots in reference areas and throughout pasture in areas not meeting standards. Use data from reference areas to set objectives for plant cover, density, vigor, litter, and bare ground. Set timeline for progress towards objectives for mid and long-term. Use monitoring data in conjunction with other annual indicators to adjust grazing plan.

Long-term
Install grazing exclosures at locations in Pastures 5B, 8B, and 10B representative of the various plant communities in the pastures to evaluate the range of potential of these pastures to respond to a release from grazing. Grazing exclosures would represent a variety of site potentials and would be selected by an interdisciplinary team in consultation with permittees. Place long term monitoring plots inside and out of exclosures. Measure the same parameters as in the reference area plots. Exclosures would be used to evaluate site potential and would allow managers to assess the relative impacts of weather and current management on vegetation. Exclosures would guide future permit renewals but may not be yield results soon enough to guide short or mid-term grazing modifications. The following two tables display additional monitoring and responses.

Table 15. Long Term Effectiveness Monitoring

Pasture	Long Term Effectiveness Monitoring
5B Upland Vegetation	Monitoring exclosures, trend and density measurements. Would evaluate at 10 years.
8B, 8BI, 8BIII, & 10B Upland Vegetation	Monitoring exclosures, trend and density measurements. Would evaluate at 5 and 10 years. Examples of criteria to indicate success towards meeting resource objectives may include: - Number of perennial grass plants per meter square - Percent of existing perennial grasses producing seed - Statistically significant increase in % of grasses in interspaces vs. shrubs
8B, 12, 28A, Riparian and Stream Channel	Statistically significant improvements in greenline cover, vegetation, bank stability, and upward trend in functioning condition in the long-term (5- 10 years).

Pasture	Long Term Effectiveness Monitoring
8B, 12, 28A Water quality	Long term monitoring (5 to 10 years) shows that water quality standards are being met of progress toward meeting the standards.
12 Hanging meadows	Long term monitoring (5 to 10 years) results show that hanging meadows are meeting or making progress toward meeting proper functioning condition.
29 A, 17, 19 Riparian, Upland Vegetation, Browse	Long term monitoring (5 to 10 years) results show that wetlands and riparian areas are meeting or making progress toward meeting proper functioning condition; upland vegetation communities condition are maintained or improving and there is no hedging of browse species caused by livestock grazing.
28, 28A Riparian, Upland Vegetation, Browse	Long term monitoring (5 to 10 years) results show that wetlands and riparian areas are meeting or making progress toward meeting proper functioning condition; upland vegetation communities condition are maintained or improving and there is reduced hedging of browse species.

Table 16. Pastures 8B and 10B Management Response with Exclosure Monitoring

Inside exclosure	Outside exclosure	Result
Up	Down or static	Reduce utilization annual indicators & reduce numbers or season of use.
No difference	No difference	Maintain grazing management.
No difference	Up	During permit renewal and with additional NEPA analysis, increasing AUMs.

Adaptive Management Responses

Exceeding Annual Indicator Criteria for three consecutive years would be evaluated for needed adjustment in grazing management. Adjustment may include changes in numbers of livestock and seasons of use. The decision tree similar to what is described in IM-2005-074 would be used to guide adjustments (see Appendix D). This adjustment could be in numbers of livestock, season of use, or a combination of numbers and season of use. The results of long-term monitoring would be evaluated after 5 years. The following are three potential responses to effectiveness monitoring:

1. If objectives are valid or if modification to objectives is appropriate
2. If objectives are still valid and monitoring shows progress is being made to meeting them, then livestock grazing management would continue. If appropriate, increases in grazing use would be analyzed.
3. If objectives are valid and monitoring shows progress is not being made toward meeting them and livestock are a causal factor, then modifications in grazing management would be implemented including, but not limited to changes in season of use, numbers of livestock, or a combination.

Permitted Use

Table 17. Alternative D: Permitted Use

Allotment	Permittee	Livestock		Grazing Period		% Public Land	Animal Unit Months		
		Number	Kind	Begin	End		Active	Suspended	Permitted
00893 East Castle Creek	Gordon King #1101607	1,054	C	4/1	6/15	100	2,635	0	2,635
		35	C	4/1	11/30	100	281	0	281
		1,024	C	6/16	8/6	100	1,751	0	1,751
		1,009	C	11/1	12/16	100	1,527	0	1,527
		1,009	C	12/17	12/17	0	0	0	0
		521	C	12/18	1/31	100	771	0	771
	Gordon King #1102293	23	C	11/1	1/31	100	68	0	68
	John Anchustegui #1100291	322	C	4/1	6/15	100	805	0	805
		11	C	4/1	11/30	100	88	0	88
		84[1]	C	6/16	8/31	100	139	0	139
		30	C	11/1	1/31	100	91	0	91
	Phillips Bros. Cattle Co. #1102187	151	C	4/1	6/15	100	378	0	378
		296[2]	C	6/16	8/31	100	486	0	486
	Owyhee Calcium Products #1101614	92	C	11/1	1/31	100	278	0	278
						Total	9,298	0	9,298

[1] Highest number, vary by year, is 55 for longer season.

[2] Highest number, vary by year, is 192 for longer season.

Terms and Conditions Specific to the Alternative D (Proposed Action)

The common terms and conditions listed under Section 2.3.3 would apply.

Range Projects

The following projects are designed to address resource concerns identified in the purpose and need and to address issues identified in the East Castle Creek Evaluation and Determination (see Maps 8 and 9). These projects are proposed under Alternatives D and E. Efforts were made to conduct surveys and clearances of projects included in this EA in order to disclose and analyze impacts and to comply with policy. Several projects are considered integral to the alternative, and other projects are analyzed here but would be considered for implementation in the future if it is determined, based on monitoring and resource conditions, that they be necessary to better meet resources objectives.

These projects are integral to the full implementation of Alternative D and E:

1. *Monitoring Exclosures*. Maps 8, 9. Two to three exclosures (3-strand barb wire) each in pastures 5B, 8B, and 10B would be constructed to evaluate the long each effectiveness and vegetative responses to the grazing prescription. Exclosures would be located in areas representative of varying (poor, mid, good) vegetation conditions and communities. Consideration would be taken to minimize risks to sensitive resources, including cultural and sensitive species, and to limit impacts to other uses, such as recreation. If an exclosure or fence crosses OHV trails, cattle-guards would be part of the design. 5B North would be approximately 7.4 acres; 5B South would be approximately 6.2; 8B West would be approximately 3.8 acres; and 8B East would be approximately 4.2 acres. The monitoring exclosures in pasture 10B have not been located yet.

2. *Pasture 5B Water Haul Trough Relocation.* Map 8. Relocate the water haul site impacting Mulford's Milkvetch. The purpose is to reduce the impacts associated with livestock congregating at the site and to still provide water elsewhere within the vicinity. This project is also proposed under Alternative C.

3. *Magpie Creek Headwaters Exclosure and Trough.* Map 9. Pasture 19. The headwaters of Magpie Creek are currently dug out to form a pond. This project would fence spring and extensive associated meadows, place a headbox in the spring source (currently at the pond) and construct a trough on private land to allow livestock to water when in the pasture. The pond, after placement of the headbox, would be reconstructed to allow water for wildlife. The exclosure would be approximately 5.4 acres.

4. *Battle Creek Headwaters Exclosure*. Map 9. Pasture 19. The headwaters of Battle Creek are currently dug out to form a watering pond. Resource damage is occurring to the spring sources, with hoof shearing and trampling. This project would fence the spring and associated meadows. The exclosure would be approximately 2.1 acres.

5. *Pasture 44 Spring Exclosure 1*. Map 9. There is currently a water development at this spring but the headbox and spring source are not protected. The purpose is to comply with standard procedures to fence spring sources when needed at range developments and to improve the functioning condition of the spring. The exclosure would be approximately 1 to 2 acres.

6. *Pasture 44 Spring Exclosure 2.* Map 9. This project would entail a small exclosure around the spring wetland area to improve functioning condition of the spring. The spring currently has moderate levels of disturbance and has an overall downward trend. The exclosure would be approximately 1 to 2 acres.

7. *Buck Spring Exclosure* (In the scoping document this project was titled "Pasture 28 Spring Exclosure"). Map 9. There is currently a water development at this location. The surrounding spring complex is severely impacted by pugging and hoof shearing. The spring is in non functioning condition with severe downcutting and gully. This spring complex forms the headwaters of a small perennial tributary to Rock Creek. The

tributary supports a willow and sedge plant community, but is severely eroded with numerous small headcuts. There is one large headcut at the trough. The purpose of this project is to protect and improve the function condition of the spring complex and tributary, by building an exclosure fence and utilizing natural features of the landscape (rock escarpments) as much as possible. The exclosure would be approximately 47 acres. The length of fence would be approximately .9 mile.

8. *Rat Spring Exclosure*. Map 9. Pasture 28. There is currently a water development at this spring but the spring area is not protected. The spring is functioning at risk. The purpose is to protect and improve the spring area. The trough, built in the 1970's would also be reconstructed. It is currently in disrepair with the water overflowing the tank, leaking, and leading to pugging of the surrounding wet area around the base of the trough. The trough would be replaced and reset with proper footings and supports. The exclosure would be approximately 0.3 acres.

9. *Juniper Station Pond* (In the Scoping Document this project was titled "Section 20 Spring"). Map 9. Pasture 28. A small pond currently exists at this location. This project entails constructing an exclosure fence around the wet meadow area and across the dam spillway to protect the integrity of the dam and improve the functioning condition of the wetland. The pond would also be cleaned out. The project would also protect sage grouse habitat. The exclosure would be approximately 5.6 acres.

10. *Gopher Spring Exclosure*. Map 9. An exclosure fence would be constructed to protect a spring wetland area adjacent to Juniper Station. The new fence would tie into a short reach of the existing Juniper Station fence.

11. *Rock Spring Exclosure Expansion*. Map 9. Pasture 28. Currently there is a large exclosure on State land at Rock Spring. The expansion would capture the BLM portion of the spring area and wet meadow to improve resource conditions and sage grouse habitat. The additional exclosure would be approximately 1.6 acres.

12. *Station Spring Exclosure Expansion*. Map 9. Pasture 28. This project would expand the exclosure at Station Spring to narrow the lane to the trough to protect sensitive resources. It would also harden the lane that allows the cattle access to the trough. The trough, placed in the 1970's, would also be reconstructed. It is currently in disrepair. The trough would be replaced and reset with proper footings and supports. The additional exclosure would be approximately 0.5 acres.

13. *Pasture 29A Battle Creek Tributary Meadow Exclosure*. Map 9. The wet meadow area is downcutting. The exclosure would protect and stabilize this tributary to Battle Creek. The exclosure would be approximately 7.5 acres.

14. *Pasture 29A Pond at Bill De Alder Draw*. Map 9. A small pond currently exists at this location. This project entails constructing an exclosure fence around the wet meadow area to improve the functioning condition of the wetland. The pond would also be

cleaned out and the dam spillway reconstructed. It is currently breached. The project was also proposed under Alternative B. The exclosure would be approximately 0.7 acres.

15. *West Fork Shoofly Creek Fence Realignment*. Maps 9. Pasture 14. This project is within the Little Jack's Creek Wilderness Study Area (WSA). Motorized vehicles would not be used to access, construct, maintain or remove fences or fence materials within the WSA, except on established ways recorded in the original wilderness inventory. Materials may be distributed by helicopter or packed in. The purpose is to exclude livestock grazing from 0.4 mile of West Fork Shoofly Creek that is degraded due to historical channel incision. Exclusion of livestock would facilitate restoration of channel and floodplain by eliminating use of new floodplain surfaces formed when sediment is trapped and retained by small rock weirs and by raising the elevation of the streambed at riffles. The resource objective is to restore the stream floodplain and increase bank storage of water to maintain greater stream flows in the W.F. Shoofly Creek. Fence Proposal:
    i. Remove gap fence in NE ¼ of section 13;
    ii. Also remove multiple pieces of fence on BLM land in SW ¼ section 13 that no longer serve any purpose (livestock have access to both sides of fence because private fences that the fences on BLM tie to are now in disrepair);
    iii. Build new fence on the downstream boundary of the private land in SE ¼ of NW ¼ of section 13. Fence ties to cliff band on the north end and to rocks on the south side;
    iv. Changes to fence length:
        a. ~ 340 meters of fence on BLM and within WSA would be removed;
        b. ~ 340 meters of new fence would be built on private/BLM boundary outside of WSA (on WSA boundary);
        c. ~ 10 meters of fence would be built on BLM land tying the property boundary fence to rock slope in NE ¼ of SW ¼ of section 13;
        d. Net 330 meters decrease in fence on BLM land and within WSA and net increase of 10 meters of fence (on BLM and private lands combined).

The following projects could also be considered in combination with Alternatives D and E. They are not integral at this time but are being analyzed for future implementation if needed.

1. *Half Moon Spring Exclosure*. Map 9. Pasture 10B. There is currently a water development at this spring but the headbox and spring source are not protected. The spring is in functioning at risk condition. The purpose is to comply with standard procedures to fence spring sources at range developments and to protect and improve spring conditions. The exclosure would be approximately 1.0 to 3.0 acres.

2. *Pasture 11B#1 and #2 Spring Exclosures and Trough*. Map 9. Pasture 11B. Two exclosure fences would be built to protect two springs in the southwest corner of Pasture 11B. At one of the springs, a water trough would be provided for livestock use. The

purpose is to improve the conditions of the springs and still provide water for livestock. One of the springs is in non-functioning condition and the other is functioning at risk. The exclosures would be approximately 1.0 to 2.0 acres.

3. *Pasture 11B Spring and Trough.* Map 9. This spring would be developed and the spring source protected with an exclosure fence. The purpose is to improve conditions at the spring and still provide water for livestock. The exclosure would be approximately 1.0 to 2.0 acres.

4. *Eagle Spring Exclosure*. Maps 9. Pasture 11B. There is currently a water development at this spring but the headbox and spring source are not protected. The spring is in proper functioning condition. The purpose is to comply with standard procedures to fence spring sources at range developments and to protect and improve spring conditions. The exclosure would be approximately 1.0 to 2.0 acres.

5. *Pasture 12 Spring Exclosure*. Maps 9. This spring is located on the boundary between BLM on the East Castle Creek Allotment and private property. An exclosure fence would be constructed and tie into the existing fence to protect the channel and wet meadow area. An existing gate would be relocated. The purpose is to improve the riparian area and meadow. There is currently severe pugging and hoof shearing in the spring area. The exclosure would be approximately 25 acres.

6. *Birch Creek Pipeline Extension into Pasture 8BI*. Map 6. Add an additional trough in Pasture 8BI from the existing pipeline. The purpose is to provide additional water for livestock. The pipeline extension and trough location would be constructed and located on private land. The BLM would have to apply for the appropriate easements. This was proposed under Alternative C.

7. *Mine Adit Trough*. Map 7. Pasture 12. Develop water at mine site located adjacent to the Mud Flat Road. This was also identified in the 2004 Settlement and was proposed in Alternative C. The purpose is to provide livestock water.

8. *Summit Springs Trough*. Map 7. Pasture 12. Provide water in trough at Summit Springs Currently, Summit Springs is in an exclosure and livestock water right below the exclosure fence causing resource damage. The exclosure fence would be adjusted to protect the area that is heavily impacted by livestock. The trough was proposed under Alternative C.

9. *Battle Creek Headwaters Trough*. Map 9. Pasture 19. The headwaters of Battle Creek are currently dug out to form a watering pond. This project would place a trough outside the exclosure to allow livestock to water while in the pasture. The overflow would feed back into Battle Creek.

2.8 **Alternative E - BLM Alternative**

Alternative E (maps 10 and 11) incorporates a three pasture rest rotation in the spring pastures, prescribed grazing management, range projects similar to Alternative D, adaptive management and monitoring to achieve resource objectives and Idaho Standards for Rangeland Health. A key difference between this alternative and Alternative D is that while Annual Indicator Criteria apply, they do not force a pasture move and are used only for the mid- and long-term effectiveness monitoring. In other words, the livestock would not be removed from a pasture once those criteria are met in that year. However, if repeated monitoring shows that annual indicators are exceeded and there is not apparent trend toward meeting the Rangeland Health Standards and resource objectives, then there would be adjustments to numbers of livestock, season of use, or both. Rest would be incorporated for the early spring pastures, and shorter period of use in pastures 11B and 12, resulting in lower stocking rates from the current permitted use (Alternative A). Stocking rates in the summer pastures 28 and 28A would also be lower than the current permitted use (Alternative A) and the same as Alternative D. Permitted use would be 8,103 AUMs.

The term of the new permits would be March 1, 2009 through February 28, 2019. The permits issued under the Appropriation Act of 2004 would be modified according to this alternative and a new grazing permit would be offered to the permittees.

Grazing System

Grazing use for pasture 5B, season of use and staggered numbers of livestock, would remain the same as Alternative A, with the application of annual indicator criteria for Mulford's Milkvetch objectives. The three pasture rest rotation grazing system in the early spring pastures (8B, 8BI, 8BIII and 10B) would be accomplished by splitting pasture 8B and using the two new pastures (for convenience sake these will be termed "8BA", the north half, and "8BB", the south half, in this document) with pasture 10B in a rotation (map 10). The rotation would allow rest one out of three years in 8BA and 8BI, 8BB and 8BIII, and 10B. Turnout into the two new 8B pastures and 10B would be changed to April 15 to accommodate a shorter season of use in 11B and 12. Pasture 8BI would be used with pasture 8BA and pasture 8BIII would be used with 8BB. Pastures 11B and 12 would be designated riparian pastures with use limited to 1 week in each pasture. Season of use in the summer pastures 28 and 28A would shortened to 27 days in each pasture to limit browse of mountain mahogany and bitterbrush. Pastures 29A and 29B would be used till 8/31 and 29C or 29D would be used for two weeks with limited numbers and rested in alternate years.

Table 18. Alternative E Grazing Schedule

Pasture	**#of Livestock**	**Year 1**	**Year 2**	**Year 3[1]**	**AUMs**		
5B	1,177[2]	11/1-1/31			2,735		
8BA, 8BI	760	4/15-5/15	Rest	5/16-6/15	Yr 1 1,549	Yr 2 2,290	Yr 3 2,290
8BB, 8BIII	760	5/16-6/15	4/15-5/15	Rest			
10B	1,486	Rest	5/16-6/15	4/15-5/15			
11B	743	6/16-6/22			171		
12	743	6/16-6/22			171		

Pasture	#of Livestock	Year 1	Year 2	Year 3[1]	AUMs		
				Total Spring AUMs	**1,932**	**2,632**	**2,632**
28	981	6/23-7/19	7/20-8/15	Repeat	1,742		
28A		7/20-8/15	6/23-7/19	Repeat			
29A & 29B	Year 1: 271 Year 2: 381	6/23-8/31	7/15-8/31[3]	Repeat	601		
29C	47	Rest	6/23 – 7/7	Repeat	23		
29D	47	6/23 – 7/7	Rest	Repeat			
FFRs (King)	Varies	4/1- 11/30			281		
FFRs (JA)	Varies	4/1- 11/30			88		
				Total	**7,403**	**8,103**	**8,103**

[1] The schedule would repeat the following year.
[2] Maximum initial numbers with staged removal of livestock.
[3] In these years, livestock grazing could occur on FFRs, State leases, or Private Property from 6/23 to 7/14 prior to turnout into pastures 29A and 29B on 7/15.

Annual Indicator Criteria (AIC)

Same as described under Alternative D (Proposed Action). The annual indicators would be used as thresholds to indicate when adjustments are necessary to livestock grazing management. Adjustments during the grazing year may include redistribution of livestock within a pasture.

Mid-term and Long-term Monitoring

Mid- and long-term monitoring is the same as described under Alternative D and as described in the Monitoring Plan (Appendix B).

Permitted Use

Table 19. Alternative E: Permitted Use

Allotment	Permittee	Livestock		Grazing Period		% Public Land	Animal Unit Months		
		Number	Kind	Begin	End		Active	Suspended	Permitted
00893 East Castle Creek	Gordon King #1101607	1,026	C	4/15	6/22	100	1,817	0	1,817
		35	C	4/1	11/30	100	281	0	281
		981	C	6/23	8/15	100	1,742	0	1,742
		1,009	C	11/1	12/16	100	1,527	0	1,527
		1,009	C	12/17	12/17	0	0	0	0
		521	C	12/18	1/31	100	771	0	771
	Gordon King	23	C	11/1	1/31	100	68	0	68

Allotment	Permittee	Livestock		Grazing Period		% Public	Animal Unit Months		
	#1102293								
	John Anchustegui #1100291	313	C	4/15	6/22	100	555	0	555
		11	C	4/1	11/30	100	88	0	88
		84[1]	C	6/23	8/31	100	139	0	139
		30	C	11/1	1/31	100	91	0	91
	Phillips Bros. Cattle Co. #1102187	147	C	4/15	6/22	100	260	0	260
		297[2]	C	6/23	8/31	100	486	0	486
	Owyhee Calcium Products #1101614	92	C	11/1	1/31	100	278	0	278
						Total	**8,103**	**0**	**8,103**

[1] Highest number, vary by year, is 60 for longer season.
[2] Highest number, vary by year, is 211 for longer season.

Terms and Conditions

The common terms and conditions listed under Section 2.3.3 would apply.

Range Projects

Projects proposed are the same as Alternative D with the addition of the following which is integral to this alternative:

1. *Pasture 8B Division Fence.* Map 10. A pasture division fence would be constructed to divide Pasture 8B into two relatively equal portions. The purpose of the project is to allow rest from grazing for perennial vegetation in one out of three years in pastures 8B and 10B. If the fence crosses any existing OHV trails, cattle-guards would be installed.

3.0 Affected Environment and Environmental Consequences

3.1 Affected Environment – Soils/Watersheds

There are three major landforms in the East Castle Creek Allotment: Lakebeds, which occur at lower elevations in the northern portion of the allotment in pastures 5B, 8B and 8BIII; mountains, or foothills, which occur in the lower to upper elevations in the southern portion of pasture 8B, and in 8BI, 10B, 11B, 12; and plateaus located in the upper summer pastures (28, 28A, 29A, 29B, 29C, and 29D).

The lakebeds landform has the greatest diversity of soil depths, aspects, and textures. The primary soils in the lakebeds landform are deep soils in the lower drainageways that support

greasewood, spiny hopsage, and Basin big sagebrush communities; moderately deep soils, mostly in higher drainageways, that support Wyoming big sagebrush communities; and shallow soils on fan terrace tops that support shadscale communities. Badlands are another important soil group in the lakebeds, bordering drainageways, particularly in Pasture 5B and locally, bordering Poison Creek and Shoofly Creek in Pasture 8B. These are steep and support a variety of shrub communities. Soil textures in the lakebeds landform are diverse, from very sandy (Basin big sagebrush) to loamy (most shadscale and Wyoming big sagebrush communities). The lakebeds landform also has inclusions of deep silty soils that potentially support winterfat or Nuttall saltbush communities.

The primary soils in the foothills landform are moderately deep soils supporting Wyoming big sagebrush communities at lower elevations and mountain big sagebrush communities at higher elevations; and shallow soils supporting black sagebrush with some shadscale inclusions at lower elevations and supporting low sagebrush communities at higher elevations. The moderately deep soils occur primarily on concave slopes, while the shallow soils predominate on convex slopes, particularly on ridgetops. Surface stones and gravel are common, particularly on soils derived from basalt, rhyolite, or volcaniclastic material, which predominate in pastures 8B and 10B. Surface textures are loams. Soils derived from granitic material in pastures 11B and 12 may be gravelly but have fewer surface stones. Surface textures are sandy loams. Small areas of very deep soils occur on the bottoms of foothill basins and on drainage terraces, supporting big sagebrush communities.

The primary soils in the plateau landform are moderately deep soils on concave slopes that support mountain big sagebrush communities, and shallow soils on convex slopes that support low sagebrush communities. The moderately deep soils typically have a sandy loam surface texture, while the shallow soils are stony loams with common surface rock or gravel. Deep soils that support mountain mahogany communities are interspersed with the low and big sagebrush communities in some areas. Inclusions of deep soils also occur along intermittent and perennial drainages and in snow accumulation areas that support Basin big sagebrush, stream riparian, and wet meadow communities. Shallow soils associated with rock outcrops are refugia for climax juniper trees.

Generally, the vegetation and biocrust components are most important to soil protection on soils lacking surface rock and gravel that provide protection from raindrop impact. Biocrusts are more important to surface stability on the lakebeds and lower foothills than at higher elevations, where cover of vascular plants is greater. Slopes are more likely to generate runoff that can result in flow paths, rills, or even gullies than are level areas. Sandy soils have greater permeability, with less likelihood of crusting or overland flow of water, but can be moved by wind if vegetative cover is lacking. Evidence of overland flow of water and of wind erosion have been evaluated, along with soil surface and vegetational characteristics that affect soil stability and hydrology, and were reported in the East Castle Creek Final Assessment.

The shrub communities at Rangeland Health Evaluation locations or trend sites on the lakebeds portion of this allotment, with one exception, contain few herbaceous perennials. According to the Draft NRCS Ecological Site Descriptions these communities are functioning within one vegetation state with depleted conditions. According to Laycock (1991) these communities have

crossed a threshold into a different vegetation state and the transition back to a perennial grass understory is "difficult to cross, and is highly unlikely if annuals are adapted to the area." Consequently, perennial grasses provide an insignificant amount of the total watershed cover; and cheatgrass, shrubs, gravel, and biocrust are the primary existing cover components. The Bruneau MFP watershed objective for these communities is to "allocate no more than 50% of vegetation to consumptive use [and] minimize erosion by maintaining a perennial vegetation cover where it exists."

Basal cover data for BLM trend studies on the lakebeds demonstrate very low cover of remnant perennial grasses to serve as a base for recruitment. Several factors continue to perpetuate these conditions: periodic mortality, sporadic recruitment, unfavorable growth conditions, near complete cover of cheatgrass (the major component of non-persistent litter), and favorable conditions for cheatgrass germination and growth. Mortality of perennial grasses and shrubs without recovery by the perennial grasses also occurred within the Poison Creek Exclosure, which serves as a reference area for recovery of shadscale communities on the lakebeds in absence of livestock grazing.

Utilization levels on perennial grasses have limited influence on the level of watershed cover in plant communities where annual grasses are the predominant understory or where shrubs are the predominant structural component; such as on the lakebeds portion of this allotment. Fluctuation in bare ground and non-persistent litter usually shows an inverse relationship in annual grass communities because cheatgrass is the major component of non-persistent litter. Fluctuation in these two categories shows a more consistent relationship with climatic (precipitation patterns) fluctuation than with actual use reported for livestock.

Pasture 5B: This pasture had one location with a 'moderate' overall rating for Soil and Site Stability and Hydrologic Function. Data exhibited bare areas of moderate size that were sporadically connected and moderate soil surface degradation in plant interspaces. Other cover categories such as gravel, biological soil crust, and litter (including cheatgrass) did not compensate for the loss of the original understory components at the time of the assessment. This assessment site showed evidence of currently active changes in soil stability and hydrologic function. The other two locations had some evidence of change to soil stability and hydrologic function from the reference condition, but it was primarily historic rather than currently active.

One BLM trend study in this pasture had greater perennial grass basal cover for recruitment. Although the perennial grass basal cover is low compared to the amount of bare ground, it is much higher than at other lakebeds trend studies. Vegetation basal cover was not recorded by species in 2006, and trends in perennial grass basal cover could not be determined separately; however, basal cover of perennial plants as a whole was greater in 2006 than in 1997 at this trend study. By contrast, it was static at all of the other lakebeds trend studies in the winter and spring pastures, and also within the Poison Creek Exclosure.

In addition to dormant season use, turnout dates, pasture move dates, stocking levels and water locations (an additional water haul site in Pasture 5B) are usually adjusted annually to fit current forage and water conditions. Utilization levels of perennial grasses during 1998 through 2004 exceeded the MFP objective at several utilization transects in Pasture 5B. Utilization levels of

perennial grasses during 2005 through 2007 were within the objective identified in the Bruneau MFP for watershed protection. Mortality of perennial grasses and shrubs without recovery by the perennial grasses, as described in pasture 5B, also occurred within the Poison Creek Exclosure. Since similar conditions were exhibited on both grazed and ungrazed areas, current livestock grazing is not a causal factor in this pasture.

Pasture 8B: The lakebeds in this pasture had one location with a 'moderate' overall rating for Soil and Site Stability and Hydrologic Function. This assessment site exhibited large, occasionally connected bare areas and moderate soil surface degradation in plant interspaces. Other cover categories such as gravel, biological soil crust, and litter (including cheatgrass) did not compensate for the loss of the original understory components at the time of the assessment. This assessment site showed evidence of currently active changes in soil stability and hydrologic function; particularly, there was evidence of water flow originating offsite on adjacent badland slopes. Any evidence of change to soil stability and hydrologic function at the other three locations (also on lakebeds) was primarily historic rather than currently active.

The Bruneau MFP states that the primary watershed decision is to "allocate no more than 50 percent of vegetation to consumptive use." The vegetative cover to be left on site is intended to provide protection from erosion. Utilization levels of remnant perennial grasses during 1998 through 2004 exceeded MFP objectives at several utilization transects in Pasture 8B and grazing use occurred at essentially the same time in successive years.

However, the livestock grazing practices on the spring pastures changed substantially during 2005 through 2007 as a consequence of the 2004 Settlement. The Settlement implemented alternating April and May use between Pastures 8B, 8BI, 8BIII and Pasture 10B, such that the remnant perennial grasses are no longer grazed during the critical growth period in consecutive years. In addition to these grazing practices turnout dates, pasture move dates, and stocking levels are usually adjusted annually to fit current forage and water conditions.

Utilization levels of remnant perennial grasses under the 2004 Settlement were within the Bruneau MFP objective for watershed protection. Although basal cover of perennial plants was static at all of the other lakebeds trend studies in the spring pastures, and also within the Poison Creek Exclosure; due to the short period since implementation, the effects of grazing practices as implemented under the 2004 Settlement are inconclusive with regard to further trend in watershed health.

Pasture 8BIII: The seeding had a 'moderate to extreme' overall rating for Soil and Site Stability and Hydrologic Function. However, many of the soil surface characteristics (crusting, lack of structure, absence of surface gravel) and lack of biological soil crust on the rangeland health assessment site are largely the consequence of plowing in 1992. Cover provided by the seeded and surviving native grasses and cheatgrass did not compensate for loss of the gravel and biological soil crust at the time of the examination.

At BLM trend study 07S02E28GE, bare ground was much lower, non-persistent litter was much higher, and perennial vegetation and seeded perennial grass basal cover was the same in 2006 as

in 2000. Cheatgrass was abundant in 2006 after two consecutive favorable years for germination and growth.

Utilization levels of perennial grasses during 1998 through 2004 exceeded MFP objectives at several utilization transects in Pasture 8BIII. General inspection of the seeding indicates that areas where crested wheatgrass is still dominant are patchier than in 1997. Although this pasture was rested in 2002, the observed change is substantially a consequence of repetitive severe (81-94%) use during the critical growth period each year.

Utilization levels of perennial grasses under the 2004 Settlement were within the Bruneau MFP objective for watershed protection. This pasture was rested or only slightly grazed in 2005 and 2006 to promote recovery of remaining seeded species. Due to the short period since implementation, the effects of grazing practices as implemented under the 2004 Settlement are inconclusive with regard to further trend in watershed health.

Foothills

The spring pastures received disproportionate uncontrolled use prior to adjudication and division into allotments and pastures. This continues to influence the rate and nature of watershed recovery, even in the foothills portion of these pastures. Only small areas lacking a substantial perennial grass cover presently occur within the foothills landform. Sandberg's bluegrass predominates on areas where historic grazing impacts have been greater, but areas dominated by bluebunch wheatgrass, Idaho fescue, and other decreaser grasses are also extensive. Shrubs are also denser than expected in some areas.

Lower Spring Pastures

Livestock grazing practices during 2005 through 2007 on the lower spring pastures of East Castle Creek Allotment changed substantially as described for the lakebeds portions of these pastures.

Pasture 8B: A trend study documents a static trend since 1997 in the foothills portion of the pasture. This study shows substantial basal cover for site protection from perennial grasses, shrubs, and biological soil crust, minimal bare ground, and minimal influence by cheatgrass. Sandberg bluegrass is the primary perennial grass species at the trend site, reflecting the historic loss of the decreaser component on lower slopes and stream terraces in the foothills. The study also shows less bare ground in 2006-07 than in 1997.

Utilization levels of perennial grasses under the 2004 Settlement were within objectives identified in the Bruneau MFP for watershed protection. Due to the short period since implementation, the effects of grazing practices as implemented under the 2004 Settlement are inconclusive with regard to further trend in watershed health.

Pasture 8BI: The seeding within Pasture 8BI had a 'moderate to extreme' overall departure for Soil and Site Stability and Hydrologic Function. Many of the soil surface characteristics (crusting, degraded structure and reduced soil cover) and lack of biological soil crust are largely the consequence of plowing in 1988. This assessment site showed evidence of currently active gullies formed by runoff from adjoining foothill slopes.

This pasture has experienced a reduction of crested wheatgrass since 1997 for the seeded areas as a whole, although the loss is not documented by a trend study in this pasture. The observed change is substantially a consequence of repetitive severe (81-94%) use during the critical growth period each year. Utilization levels of perennial grasses during 1998 through 2004 exceeded the MFP objective at several utilization transects in Pasture 8BI.

Utilization levels of perennial grasses under the 2004 Settlement were within the Bruneau MFP objective for watershed protection. This pasture was rested or only slightly grazed in 2005 and 2006 to promote recovery of remaining seeded species. Due to the short period since implementation, the effects of grazing practices as implemented under the 2004 Settlement are inconclusive with regard to further trend in watershed health.

Pasture 10B: The trend study shows substantial basal cover for site protection from perennial grasses, shrubs, and biological soil crust, minimal bare ground, and minimal influence by cheatgrass. Sandberg bluegrass is the primary perennial grass species at the trend site, reflecting the historic loss of the decreaser component on lower slopes and stream terraces in the foothills. The study also shows less bare ground in 2006-07 than in 1997.

Utilization levels of perennial grasses under the 2004 Settlement were within the Bruneau MFP objective for watershed protection. Management was also annually adapted to respond to current conditions.

Upper Spring Pastures

The livestock grazing practices on the upper spring pastures of East Castle Creek Allotment also changed substantially as a consequence of the 2004 Settlement during 2005 through 2007. The Settlement implemented rest rotation and shortened the season of use in Pastures 11B and 12. In addition to these grazing practices turnout dates, pasture move dates, and stocking levels are usually adjusted annually to fit current forage and water conditions.

Pasture 11B: Fence installation beginning in 1969 and continuing through 1990, a shorter and later season of use, and implementation of a grazing system under the 2004 Settlement have all contributed to improved conditions in Pasture 11B. Utilization levels of perennial grasses were within the Bruneau MFP objective for watershed protection, and the rangeland health Standard for Watersheds was met.

Pasture 12: The installation of fences between Pastures 8B and 12 has promoted improvement in vigor of desirable plants by promoting regrowth and preventing repetitive grazing of the same desirable plants. That fence has also been used to delay turnout in Pasture 12 until June 1 since 1969. Fence installation, a shorter and later season of use and implementation of a grazing system under the 2004 Settlement have all contributed to improved watershed conditions, and the rangeland health Standard for Watersheds was met.

One trend study shows substantial basal cover for site protection from perennial grasses, shrubs, and biological soil crust, minimal bare ground, and minimal influence by cheatgrass. Sandberg's bluegrass is also the primary perennial grass species at this trend site, reflecting the historic loss

of the decreaser component on lower slopes and stream terraces in the foothills. The study also shows less bare ground in 2006-07 than in 1997.

The loss of the litter component and increase in bare ground following a fire in 1992 is not indicative of the current or even the pre-1998 management for Pasture 12 as a whole. The dense shrub canopy and cheatgrass understory that have developed since the fire currently provide the primary watershed protection.

Utilization levels of perennial grasses during 1998 through 2004 exceeded the MFP watershed objective at several utilization transects in Pasture 12. The stocking rate in 2006 under the Settlement in Pasture 12 was also too high for portions of the landscape even under a favorable season of use and grazing system. In 2006 utilization levels at the upper end of Pasture 12 were greater in areas that typically receive less use, but the greatest impacts still occurred on stream terraces, lower slopes, and on gentler slopes. Due to the short period since implementation, the effects of grazing practices as implemented under the 2004 Settlement are inconclusive with regard to further trend in watershed health.

Pasture 44: Pasture 44 has FFR status, and is grazed at the discretion of the permittee. Watershed met the rangeland health Standard in this pasture.

Plateau

Most of the area within the summer pastures is located within the plateau physiographic unit of the East Castle Creek Allotment. An important BLM action was the construction of the Rough Mountain Drift Fence in 1948 to hinder and delay livestock access to the present-day summer pastures. The strong response to the change in season of use on the summer side of the fence accounts for much of the fenceline contrast at the upper end of the late spring pastures that is still visible today. Spring use was eliminated from the present-day summer pastures of both East and West Castle Creek allotments by Decision in 1969. Change to summer use, division of the allotment and initiation of the current grazing system have all contributed to measured progress in the summer pastures. In the plateau landform, watershed cover is provided primarily by vascular plants, particularly by decreaser grasses and shrubs. Biological soil crusts are less important to soil stabilization at higher elevations such as found on the plateau landform.

In the summer pastures, the livestock grazing practices were similar to those analyzed in the AIE, with several exceptions; i.e., the management of two new riparian pastures (29C and 29D), and the formal implementation of grazing systems on the summer pastures (Pastures 28, 28A, 29A and 29B). In addition to these grazing practices turnout dates, pasture move dates, and stocking levels are usually adjusted annually to fit current forage and water conditions and the needs of the livestock operations. The Bruneau MFP states that the primary watershed decision is to "allocate no more than 50 percent of vegetation to consumptive use." The vegetative cover to be left on site is intended to provide protection from erosion.

Pasture 28: This pasture had one location with a 'moderate to extreme' overall departure for Soil and Site Stability and Hydrologic Function. Small bare areas that occurred were rarely connected; but other cover categories such as gravel, biological soil crust, and particularly litter, did not compensate for loss in the original understory components at the time of the assessment.

The trend studies showed that basal cover of perennial species increased during 1997 through 2006; while basal cover of non-persistent litter, biological soil crust and bare ground were static. Cheatgrass is nonexistent at these study sites. The shrub canopy, basal cover of perennial plants, and gravel and stones provide adequate protection from raindrop impact and resistance to overland flow of water. While western juniper is located within the pasture it has not reached a density where it is the dominant species or is outcompeting the desired understory species. Utilization levels of perennial grasses in this pasture were within the Bruneau MFP objective for watershed protection.

Pasture 28A: Photo trend plots have been present throughout the changes in management since 1969 and document long-term encroachment of western juniper. However, there has been a marked recovery of perennial grasses in big and low sagebrush uplands, and recovery of wet meadows within the network of exclosures that has been built. While western juniper is located within the pasture and has increased at the photo plots, it has not reached a density where it is the dominant species or is suppressing watershed cover provided by understory species. Utilization levels of perennial grasses were within objectives identified in the Bruneau MFP for watershed protection.

Pasture 29A: Trend data shows that basal cover of perennial species increased during 1997 through 2006. Non-persistent litter, biological soil crust basal cover and bare ground were static. Cheatgrass is nonexistent. The shrub canopy and basal cover of perennial plants provide adequate protection from raindrop impact and resistance to overland flow of water. Within this pasture, western juniper has not yet reached a density where it suppresses watershed cover provided by understory species. Utilization levels of perennial grasses were within the Bruneau MFP objective for watershed protection.

Pastures 29B, 29C, and 29D: Upland trend and Rangeland Health data were not collected in these pastures.

Summary

The evaluation/determination identifies current and historic grazing practices as factors contributing to pastures in the allotment not meeting the Watershed Standard for Rangeland Health. Of the pastures not meeting the watershed standard, five (8B, 8BI, 8BIII, 10B, and 5B) show no progress toward the standard while three (28, 28A, and 29A) are making significant progress. Three pastures (11B, 12, and 44) are meeting the watershed standard.

Pastures 8B, 8BI, 8BIII, and 10B were cited as not meeting the watershed standard because of excessive livestock use on seeding areas, below average precipitation, and grazing practices prior to 2005 that allowed for repetitive early season use during the critical growing season and for utilization greater than the MFP watershed protection objective. Due to the short period since implementation, the effects of grazing practices as implemented under the 2004 Settlement are inconclusive with regard to further trend in watershed health.

Pasture 5B is identified as a site where current livestock grazing use and practices were not a significant factor based on the observation of similar Rangeland Health Indicators (i.e., mortality

of perennial grasses and shrubs without recovery by the perennial grasses) in the adjacent Poison Creek Exclosure.

In pastures 28, 28A and 29A there is an upward long-term trend for watershed health; although juniper encroachment, particularly in 28A, is an ongoing concern. Change to summer use, division of the allotment, and initiation of the current grazing system contribute to the progress toward meeting the watershed standard. In the summer pastures, the upward trend toward meeting the watershed standard can be maintained through management actions that limit the encroachment of western juniper while promoting yearly growth of the perennial grass understory to maintain soil surface integrity.

3.1.1 **Environmental Consequences – Soils/watershed**

The overall watershed and soil resource condition of the East Castle Creek Allotment is closely tied to soil surface stability, health of the biotic community, and hydrologic function. In general, rangeland management actions that limit use of the low elevation (lakebed) pastures during the critical growing season and protect the remaining understory will benefit the soil and watershed resource. Similarly, actions that provide for appropriate livestock numbers and/or grazing duration throughout the allotment will result in benefits to soils and watershed; including improved nutrient cycling by increasing the amount of litter left in place, reduced direct trampling impacts from livestock and more vigorous recovery of plant communities during periods of nonuse. Rangeland improvement projects that increase the number of areas where livestock trail or congregate would have a greater negative impact by concentrating direct trampling impacts from livestock, but would be localized. Conversely, projects that exclude cattle from sensitive areas such as springs and riparian areas would provide an overall direct benefit to the soil and watershed resource in those areas. Range improvement projects usually provide better control of frequency, intensity, duration, and timing of defoliation of perennial plants, with indirect beneficial impacts over entire pastures and seasonal use areas that often outweigh localized negative impacts.

Pastures 14, 17, 19, and 33 were not surveyed for compliance with the Watershed Standard for Rangeland Health during the RHA and, as such, are not considered in the alternatives analysis. Although Pastures 29C and 29D were not surveyed during the RHA and lack upland trend studies, they are considered in the alternatives analysis because of changes to grazing in these pastures proposed under various alternatives. However, the lack of current upland condition and trend data for these two pastures precludes a precise determination of the specific impacts of management actions proposed under the various alternatives. The limited grazing in these pastures occurs primarily on small wet meadows, and use on uplands is light and incidental.

3.1.1.1 **Alternative A – No Action/ Current Situation**

The overall condition of the watershed and soil resource of the East Castle Creek Allotment would exhibit a limited amount of change if managed under Alternative A. Areas that are currently meeting the Watershed Standard for Rangeland Health (pastures 11B, 12, and 44) would continue to do so. Of the areas which are not currently meeting the standard (pastures 5B,

8B, 8BI, 8BIII, 10B, 28, 28A, and 29A), only the summer pastures (28, 28A, 29A) would continue to progress toward meeting this standard. In winter pasture 5B, historic grazing activities have had a detrimental effect on herbaceous perennial plant communities. Similarly, in spring pastures 8B, 8BI, 8BIII, and 10B current grazing practices in combination with unfavorable precipitation levels have resulted in a depleted condition that may be difficult to reverse without active restoration (reseeding). Thus, any progress in the spring and winter pastures would be slow and climatically dependent. The Bruneau MFP watershed objective for these communities is to minimize erosion by maintaining a perennial vegetation cover where it exists.

Deferred rotation in the summer pastures (28, 28A, 29A, and 29B) would continue to improve watershed health by increasing effective soil cover (litter, composition of deep-rooted grass species, resistance to surface water flow) and by reducing the physical impacts of livestock grazing and trampling. Similarly, the proposed rest and light use in the summer riparian pasture (29C) would improve watershed condition.

The spring pastures (8B, 8BI, 8BIII, 10B, 11B, 12) would be grazed during the same portions of the key bunchgrass species' critical growth period every year. Utilization levels of perennial grasses during 1998 through 2004 when permitted use was similar to Alternative A exceeded the MFP watershed objective at several utilization transects. According to the RHA, utilization in portions of Pasture 12 has exceeded the MFP watershed objective as recently as 2006, but occurred under grazing practices prescribed by the Settlement. Trends in soil and watershed resource values would be similar to those under historic practices in these pastures as described in the Affected Environment.

Utilization rates of upland and riparian vegetation under this alternative (i.e., use not to exceed 50% of the current year's growth) would allow for residual material to be left in place for erosion protection and nutrient cycling in the spring pastures. Based on periodic overutilization of perennial grasses during 1998 through 2004 (as compared to MFP objective) it is uncertain whether use under this alternative would provide sufficient residual material to maintain or improve watershed cover in portions of the spring pastures where perennial grasses provide the primary soil cover. Holechek (1988) suggests that residues of approximately 160 lb/acre should aid in maintaining or improving rangeland health on most big sagebrush/bunchgrass sites, which are typical of the foothills landform. However, Holechek's suggestion does not apply to areas dominated by annual grasses, particularly in areas with less than 10 inches of precipitation (Bartolome, Stroud and Heady 1980), which characterizes the lakebeds landform. There, climatic fluctuation overrides the amount of residue left after grazing in determining the next year's annual grass production.

Direct negative impacts to the soil surface from livestock trampling (compaction, breakdown of biological soil crusts, and destruction of surface soil structure) would continue where livestock trail and congregate: close to water sources, in riparian corridors and meadows, at mineral licks, and along fence lines and gates. These are likely to be the most noticeable impacts of livestock grazing on the allotment.

3.1.1.2 **Alternative B – Anchustegui Alternative**

Under Alternative B, the areas that are not meeting the watershed standard and not showing significant progress toward meeting the standard (pastures 8B, 8BI, 8BIII, and 10B) would show some progress toward meeting the standard. The proposed rotation and reduced livestock numbers in the spring pastures could allow desired perennial grasses to recover by reducing use during the critical growth period in alternate years in both the King and Anchustegui portions of the East Castle Creek allotment. In the foothills, perennial grass cover would be maintained or increase. On the lakebeds, where perennial grass cover is very sparse except within the seedings, existing perennial grass cover would be maintained. Consumption of annual grass cover and trampling of biocrusts would also be less. This improvement is climatically dependent. Based on the long-term trend cited in the evaluation/determination, improvement in pastures that are not meeting but making progress toward the watershed standard (28, 28A, and 29A/29B) would likely continue, as described in Alternative A. Compared to Alternative A, the two weeks of grazing in pasture 29D would result in slightly greater litter consumption, since 29D is rested indefinitely in A. However, livestock utilization on uplands would be minimal, focusing instead on wet meadows along Battle Creek, and alternate year rest is provided by Alternative B. The proposed rest and light use in the summer riparian pastures (29C and 29D) would improve their condition. Pastures 11B and 12 currently meet the watershed standard and would continue to do so under this alternative. The proposed voluntary 25% nonuse and rotation could result in continuing improvement to the extent that it continues into the long-term in both portions of the spring pastures. Conversely, it is likely that short-term improvements would be negated in the long-term if permitted use increased.

Direct negative impacts to the soil surface from livestock trampling (compaction, breakdown of biological soil crusts, destruction of surface soil structure) would continue where livestock trail and congregate: close to water sources, in riparian corridors and meadows, at mineral licks, and along fence lines and gates. These are likely to be the most noticeable impacts of livestock grazing on the allotment.

Watershed degradation around existing watering facilities, generally within ¼ mile of the facility, would continue to be the most noticeable direct impact associated with grazing on the allotment. High utilization levels and intense trampling rarely occur beyond 200 feet from a trough or reservoir, with more diffuse impacts farther out.

One new water project is proposed, however, cattle already drink from the stream exiting the mine adit at the site of the Mine Adit Trough, with associated trampling and removal of soil cover. New projects that improve the distribution of livestock across a given pasture or exclude them from entry to riparian areas would result in an overall benefit. The proposed construction of a new fence in Pasture 8B would result in increased direct negative impacts to the soil surface from livestock trampling along the new fence line.

Overall impacts to the watershed and soil resource under Alternative B, based on the general grazing system and proposed projects, would show at least limited improvement over Alternative A in the foothills portion of the spring pastures, including Pastures 8B and 10B. Consumption

of grasses would be markedly lighter on stream terraces and lower slopes in Pasture 12, which receive the bulk of livestock use, than under Alternative A.

3.1.1.3 **Alternative C – King Alternative**

Overall impacts to the watershed and soil resource under Mr. King's interim management in Alternative C, based on the general grazing system, would show limited improvement, depending in part upon the amount of spring nonuse taken by the other permittees and also subject to climatic fluctuation. However, the relocation of the boundary fence between Pastures 8B and 10B that is part of Mr. King's application could undermine the effectiveness of the grazing practices that are common to both Alternative C and to modified Alternative D and would potentially aggravate differences in capacity among those pastures in poor growth years. That would not enhance feasibility of the grazing system under Alternative C.

Because Mr. King controls the majority of the spring permitted use, reduced livestock numbers and AUMs under his interim management proposal and the proposed rotation could still contribute to an incremental decrease in soil and watershed degradation compared to Alternative A. However, in the areas that are not meeting the watershed standard and not showing significant progress toward meeting the standard (pastures 8B, 8BI, 8BIII, and 10B) the benefit of the interim grazing practices to the overall condition of these pastures compared to the continuation of historic practices under Alternative A would primarily occur in the foothills landform, now more completely within Pasture 10B. Specifically, perennial grass cover would be maintained or increase in the foothills, since the effective stocking would be lighter, and the terrain and continuing lack of water would still limit the amount of additional use resulting from the change in most areas.

On the lakebeds, where perennial grass cover is very sparse except within the seedings, there is less certainty that utilization would continue to meet the MFP objective, that existing perennial grass cover would be maintained, or that remaining seeded species would also be maintained better than under Alternative A because of the higher stocking rate in pastures 8B, 8BI, and 8BIII. Because the higher stocking rate is not clearly mitigated by the additional proposed waters, consumption of annual grass cover and trampling of biological crusts may also not be less than under Alternative A. Improvement in pastures that are not meeting but making progress toward the watershed standard (28, 28A, and 29A/29B) would likely continue, as described in Alternative A. Pastures 11B and 12 currently meet the watershed standard and would also continue to do so under this alternative since livestock already water at all springs where surface water is available, and levels of use would be lower. Benefits to pastures 29C and 29D from the proposed light stocking and rest period would also be as described in Alternative B.

If monitoring supported at least gradual implementation of Mr. King's longer-term permit proposal, current assumptions about utilization levels and plant responses on the winter and summer pastures would further change from those described in the Affected Environment. Specifically, utilization levels on perennial grasses could be higher, and trends in watershed cover components could be different, and not conform to the described Purpose and Need for this action. While levels of use in the spring pastures would be permanently reduced from No Action/

Current Situation levels under full implementation of Mr. King's longer-term proposal, they would still be greater than have been observed under the Settlement, and not meet the MFP utilization objective.

Direct negative impacts to the soil surface from livestock trampling (compaction, breakdown of biological soil crusts, and destruction of surface soil structure) would continue where livestock trail and congregate: close to water sources, in riparian corridors and meadows, at mineral licks, and along fence lines and gates. These are likely to be the most noticeable impacts of livestock grazing on the allotment.

The realignment of the fence between pastures 8B and 10B would shift these impacts from one location to another, with recovery at the original location, as would development of ten springs with exclosures on the springhead and the relocation of one trough each in Pastures 5B and 28. Undeveloped springs are already used for watering, therefore, development usually shifts the impacts to less sensitive areas. Some localized negative soil surface impacts described above would still continue on uplands outside the exclosures at these trough sites and, to a lesser extent, along the outside of the exclosure fences. Projects that improve the distribution of livestock across a given pasture and exclude them from entry to riparian areas as do most of these new spring developments would result in an overall benefit.

Direct and indirect livestock impacts associated with existing watering facilities, generally within ¼ mile, would continue or expand slightly because of four new water facilities. High utilization levels and intense trampling would occur in the immediate areas around the trough (within 200 feet), with more diffuse impacts farther out.

An additional 19 projects to exclude springs and riparian areas from entry by livestock would, to the extent implemented, reduce trampling, pugging, and removal of vegetal cover of affected features. These projects would help to curtail erosion, compaction, and soil surface degradation in the areas within the exclosures. Allowing vegetation to grow without grazing would ensure adequate ground cover within the exclosures, with reduced trampling and removal of soil cover outside of the exclosures, since access to the attraction is now removed. Of the 19 total exclosures, 1 exceeding two acres in size, and three existing exclosures would be grazed annually to 4 inches stubble height. Impacts could be minimal providing that use was delayed until late in the scheduled use period when soils are dry to minimize pugging.

This alternative proposes construction or modification of 16 watering facilities. Associated construction activities, including new roads, will have localized direct and indirect impacts to soils and watershed cover. The direct impacts will occur where surface cover is temporarily removed allowing for greater runoff potentially causing accelerated erosion. Reseeding will occur where soil surface cover is removed during project construction, mitigating temporary impacts. The indirect impacts will occur if additional use of the area by livestock, permittees, or recreationists. These impacts include the continued use of the trails developed during construction which may result in reduced vegetation cover that protects soil from accelerated erosion.

3.1.1.4 **Alternative D**

Alternative D differs from the other alternatives in that it applies annual indicator criteria (AIC), measured during and after livestock use, to adjust livestock management in specified pastures every year as needed. Additionally, under this alternative, adjustments to turnout dates, rotation schedules, and AUMs throughout the allotment differ substantially from Alternative A, the No Action/Current Management Alternative. Alternative D has lesser differences from current management under the 2004 Settlement, which was discussed in the Affected Environment and was found to not fully address the Purpose and Need by the Determination. This approach has the advantage of adjusting grazing management based on AIC to lessen impacts in areas that are exhibiting the most resource impact. Mid- and long-term monitoring results could also result in further administrative action in accordance with grazing regulations (43CFR 4100). The administrative action could include: 1) modifications of grazing management (i.e., changes in seasons of use and/or implementation of rest/deferment, (2) reductions in livestock numbers or time (AUM reductions), (3) changes in permit terms and conditions, or (4) other actions.

April and May use of the spring pastures (8B, 8BI, 8BIII and 10B) will alternate every year and will lessen the impact of grazing in these pastures during the critical growth period compared to Alternative A and in a similar manner to Alternatives B and C. The critical growth period coincides with the boot stage in the annual growth cycle of perennial grasses (Bawtree 1989, Mueggler 1975, McLean and Wikeem 1985). Defoliation that ends prior to the boot stage, even weekly 80% defoliation, has substantially less plant mortality and greater leaf height, yield and flowering culm production than defoliation that extends through the boot stage, particularly when soil moisture is available for extended regrowth (McLean and Wikeem 1985). Conversely, defoliation that begins progressively later after the boot stage has progressively less influence upon perennial grass growth (Ganskopp 1988), as embodied in the Grazing Response Index (USDI 2008c). A similar rotation to Alternative A in the summer pastures (28 & 28A and 29A & 29B) would allow those pastures to continue their significant progress toward meeting the Watershed Standard for Rangeland Health, as described in Alternative A. Impacts to soil and watershed values in riparian Pasture 29D would be slightly increased compared to Alternative A due to the proposed low intensity grazing in this pasture every other year, but would be similar to B and C. The proposed rest and light use in the summer riparian pastures (29C and 29D) would improve watershed condition.

The reduction of livestock numbers and AUMs in the spring pastures will also lessen the direct and indirect impacts of grazing in these areas during the critical growing season compared to Alternative A. Specifically, perennial grass cover would be maintained or increase in the foothills. On the lakebeds, where perennial grass cover is very sparse except within the seedings, existing perennial grass cover would be maintained. Consumption of annual grass cover and trampling of biocrusts would also be less, but is still subject to effects of climatic fluctuation. Furthermore, reduced livestock numbers and decreased grazing duration in pastures 11B and 12 and in pastures 28 and 28A would also ensure that they continue to meet the watershed standard and Bruneau MFP objective under this alternative. While the types of direct impacts from livestock on effective soil cover and resistance to surface water flow would remain the same as under the other alternatives, the magnitude of these impacts would be less because of permanently reduced livestock numbers and more tightly controlled grazing schedules. Thus,

under Alternative D, the pastures not meeting the watershed standard would have the greatest likelihood of making significant progress and overall impacts to the watershed and soil resource would be the least for all of the alternatives analyzed.

Direct negative impacts to the soil surface from livestock trampling (compaction, breakdown of biological soil crusts, destruction of surface soil structure) would continue where livestock trail and congregate: close to water sources, in riparian corridors and meadows, at mineral licks, and along fence lines and gates. These are likely to be the most noticeable impacts of livestock grazing on the allotment. Impacts to the watershed and soil resource (compaction, destruction of soil surface structure, breakdown of biological soil crusts, and trampling) due to livestock congregating around existing watering facilities would likely be most intense within ¼ mile of the facility and decrease with distance. High utilization levels and intense trampling rarely occur beyond 200 feet from a trough or reservoir, with more diffuse impacts farther out.

Projects that add new watering facilities or upgrade existing facilities- thereby supplying a more reliable water source- could amplify the existing livestock impact or create new areas of localized livestock impact. However, undeveloped springs are already used for watering, therefore, development usually shifts the impacts to less sensitive areas. Some localized negative soil surface impacts described above would still continue on uplands outside the exclosures at the trough sites and, to a lesser extent, along the outside of the exclosure fences. Projects that improve the distribution of livestock across a given pasture and exclude them from entry to riparian areas as do most of these new spring developments would result in an overall benefit. Construction of new watering facilities, especially pipelines, would also result in direct impacts to soils in the form of soil disturbance, displacement, and removal of vegetative cover. Disturbed areas are often repopulated by invasive grasses (cheatgrass) and forbs that provide little soil protection, but reseeding of dug or bladed areas usually occurs as a mitigation measure. Roads built to service pipelines and other watering facilities could also result in enhanced erosion and increase sediment delivery to streams, at least in the short-term.

Proposed projects to exclude springs and riparian areas from entry by livestock would, to the extent implemented, reduce trampling, pugging, and removal of vegetal cover of affected features. These projects would help to curtail erosion, compaction, and soil surface degradation in the areas within the exclosures. Allowing vegetation to grow without grazing would ensure adequate ground cover within the exclosures, with reduced trampling and removal of soil cover outside of the exclosures, since access to the attraction is now removed.

3.1.1.5 **Alternative E**

Under Alternative E, overall impacts to the watershed and soil resource will be less than Alternatives A, B, or C but greater than Alternative D. Similar to Alternative D, AIC will be monitored to determine mid- and long-term effectiveness of the rangeland management. In addition to AIC monitoring, mid- and long-term monitoring results from reference areas in each pasture could trigger changes in grazing management. Unlike Alternative D, AIC exceedance will not trigger immediate livestock removal from any pasture. Changes to authorized use will occur only if repeated monitoring results indicate that objectives are not being met. This approach may result This approach may result in greater watershed and soil impacts, compared

to Alternative D, because it could potentially allow several consecutive years of overuse before a change in management would occur.

The 3 year rest rotation system and reduced livestock numbers and AUMs proposed for the spring pastures will lessen the impact of grazing in these pastures during the critical growth period compared to Alternative A by providing periodic rest during the entire growth period in pastures 8B, 8BI, 8BIII, and 10B. Rotation in the summer pastures (28 and 28A, 29A and 29B) that is similar Alternative A would allow these pastures to continue their significant progress toward meeting the Watershed Standard for Rangeland Health, as described in Alternative A. Impacts to soil and watershed values in riparian pasture 29D would be incrementally increased compared to Alternative A due to the proposed low intensity grazing in this pasture every other year, but would be similar to B, C, and D. The proposed rest and light use in the summer riparian pastures (29C and 29D) would improve watershed condition.

The reduction of livestock numbers and AUMs in the lower spring pastures, compared to Alternative A, will also lessen the direct and indirect impacts of grazing in these areas during the critical growing season. Specifically, perennial grass cover would be maintained or increase in the foothills. On the lakebeds, where perennial grass cover is very sparse except within the seedings, existing perennial grass cover would be maintained. Consumption of annual grass cover and trampling of biocrusts would also be less, but is still subject to effects of climatic fluctuation. Rest benefits annual grasses at least as much as it does remnant perennial grasses, and is a factor in the large scale conversion of low elevation shrublands to annual grasslands by wildfire in the Intermountain region (Young and Clements 2007). Reduced livestock numbers and decreased grazing duration in pastures 11B and 12 and in pastures 28 and 28A will also lessen the associated reduction of effective soil cover and resistance to surface water flow that accompanies livestock use. Pastures 11B and 12 and Pastures 28 and 28A would continue to meet the watershed standard under this alternative.

Direct negative impacts to the soil surface from livestock trampling (compaction, breakdown of biological soil crusts, destruction of surface soil structure) would continue where livestock trail and congregate: close to water sources, in riparian corridors and meadows, at mineral licks, and along fence lines and gates. These are likely to be the most noticeable impacts of livestock grazing on the allotment. During rest years, no direct impacts would occur within rest pastures, and vegetative cover would be present. Otherwise, these impacts would be similar to Alternatives A through D for all pastures.

While direct impacts from existing livestock and rangeland improvement projects would remain the same as under the other alternatives, the magnitude of these impacts would be less because of permanently reduced livestock numbers and more tightly controlled grazing schedules. Impacts to the watershed and soil resource (compaction, destruction of soil surface structure, breakdown of biological soil crusts, and trampling) due to livestock congregating around watering facilities would likely be most intense within ¼ mile of the facility and decrease with distance. High utilization levels and intense trampling rarely occur beyond 200 feet from a trough or reservoir, with more diffuse impacts farther out. During rest years, no direct impacts would occur within rest pastures, and vegetative cover would be present. Thus, under Alternative E, the pastures not

meeting the watershed standard would have a greater chance of making significant progress than Alternatives A through C.

Projects that add new watering facilities or upgrade existing facilities- thereby supplying a more reliable water source- would amplify the existing livestock impact or create new areas of livestock impact. However, undeveloped springs are already used for watering, therefore, development usually shifts the impacts to less sensitive areas. Some localized negative soil surface impacts described above would still continue on uplands outside the exclosures at the trough sites and, to a lesser extent, along the outside of the exclosure fences. The Pasture 8B Division fence would also have some of the localized negative soil surface impacts described above. Projects that improve the distribution of livestock across a given pasture and exclude them from entry to riparian areas as do most of these new spring developments would result in an overall benefit. Construction of new watering facilities, especially pipelines, would also result in direct impacts to soils in the form of soil disturbance, displacement, and removal of vegetative cover. Disturbed areas are often repopulated by invasive grasses (cheatgrass) and forbs that provide little soil protection, but reseeding of dug or bladed areas usually occurs as a mitigation measure. Roads built to service pipelines and other watering facilities could also result in enhanced erosion and increase sediment delivery to streams, at least in the short-term.

Proposed projects to exclude springs and riparian areas from entry by livestock would, to the extent implemented, reduce trampling, pugging, and removal of vegetal cover of affected features. These projects would help to curtail erosion, compaction, and soil surface degradation in the areas within the exclosures. Allowing vegetation to grow without grazing would ensure adequate ground cover within the exclosures, with reduced trampling and removal of soil cover outside of the exclosures, since access to the attraction is now removed

3.2 **Affected Environment – Upland Vegetation**

There are three major landforms in the allotment: Lakebeds, which occur at lower elevations in the northern portion of the allotment in pastures 5B and 8B; mountains, or foothills, which occur in the lower to upper elevations in the southern portion of 8B, 10B, 11B, 12 and to some extent in the upper summer pastures; and plateaus located in the upper pastures.

The lakebed areas are characterized by salt desert shrub (shadscale, greasewood, Nuttall saltbush, winterfat, four-wing saltbush) and sagebrush dominated communities with remnant perennial grasses (Indian ricegrass, Sandberg bluegrass, Thurber's needlegrass, and squirreltail) and cheatgrass understories. Populations of perennial grasses are sparse and cheatgrass is common. Shrub overstories are relatively intact and have not had major disturbances such as fire. Foothill and mountain areas are characterized by sagebrush (Wyoming big, mountain big, low) overstories and perennial grass (Sandberg bluegrass, squirreltail, bluebunch wheatgrass, Idaho fescue, Thurber's needlegrass, Indian ricegrass) understories. Cheatgrass is a significant component at lower elevations in areas that receive consistent livestock use. Mature junipers are scattered throughout the mountain areas. In some areas, they are increasing. Areas in good condition are limited to relatively inaccessible sites on steep slopes and mountain tops, particularly within pastures grazed during the spring. Populations of cool season deep rooted bunchgrasses increase with elevation.

Plateau areas are characterized by sagebrush (mountain big, low) and mountain shrub (bitterbrush, curlleaf mountain mahogany) overstories with perennial grass (Idaho fescue, bluebunch wheatgrass, Thurber's needlegrass, squirreltail, Sandberg bluegrass) understories. Cheatgrass is a minor component, occurring primarily in heavily used and some burned areas. Plateau areas are generally in good condition.

Much of the information presented here in the Affected Environment for Upland Vegetation section is explained in greater detail in the East Castle Creek Rangeland Health Assessment (DOI-USDI 2008a) and the East Castle Creek Evaluation and Determination (DOI-USDI 2008b).

Pasture 5B: The plant communities have been altered for some decades, and were rated in poor condition in 1966. Past surveys have recognized the existence of pockets of better condition communities with an Indian ricegrass understory. These pockets generally received limited livestock use because of slopes, broken topography, or distance from reliable water sources. These areas also had substantial remnant populations of increaser grasses. The 1997 AIE noted a fenceline contrast in places between winter (such as 5B) and spring pastures and stated that in general, perennial grasses and palatable shrubs were more vigorous and abundant in winter pastures than spring pastures.

Overall trend in this pasture is static. One trend site has a slight upward trend (06S02E04) based on the increases in ricegrass, Sandberg's bluegrass, and winterfat but shadscale and budsage have decreased at this site. The other two trend sites are static.

The native plant community concerns in this pasture are changes in the functional/structural groups and the increase of invasive plants indicated by the decrease of deep rooted cool season bunchgrasses in the interspaces between shrubs and the increase of cheatgrass. Biological soil crust is an important functional/structural group that is well represented in this pasture. Biological soil crusts help to retain soil moisture, discourage annual weed growth and help to bind the soil particles together, thus protecting soil integrity.

Pasture 8B: The plant communities in most of this pasture have been altered over decades of spring grazing with heavy utilization (heavy utilization is 61-80%) occurring in several of the years monitored. Shrubs with a cheatgrass understory and remnant perennial bunchgrasses under the shrub canopies are the dominant visual aspect over approximately 50% of the pasture, especially the northern portions. The northern, lakebed, lower elevation areas have a cheatgrass understory which competes with the sparse remnant perennial bunchgrasses for space and energy. Recruitment of bunchgrasses is therefore low. Areas of better condition plant communities exist in the foothills portion of the pasture, above Shoofly Creek and in the more remote areas without reliable water sources. According to the 1997 AIE, the long-term ecological trend for perennial grasses was static to downward and the long-term trend for shrubs was static to upward. Vigor and productivity of perennial grasses, according to the AIE, were generally low. Consistent grazing from initiation of growth through the critical growth stage of forage species and drought conditions resulted in static or declining conditions beginning in 1987.

Long term trend for native perennial grasses is static to downward and trend on shadscale is downward and budsage is static. In the short term, from 1997 to present, trend on perennial grasses is downward and trend on shrubs (including low sage and Wyoming big sage) is downward.

The main biotic concerns of the native plant communities in this pasture are changes in functional/structural groups indicated by decreased cool season deep rooted perennial bunchgrasses; decreased annual production of native perennial plants; decreased litter amount; and invasive plants. Cheatgrass makes up a large component of the understory in this pasture, with remnant cool season deep rooted bunchgrasses occurring primarily under the shrub cover, especially in the lakebeds portions. There are more perennial native grasses in the interspaces between shrubs in the south and southeastern portion of the pasture, away from water.

Pastures 8BI and 8BIII: Pastures 8BI and 8BIII are part of the Castle Creek Plow and Seed Project (Phase I and III) which were plowed and drilled to crested wheatgrass in 1988 and 1992, respectively. Crested wheatgrass, particularly in 8BI, is not the visually dominant plant. It is on a downward trend in 8BIII. For these two pastures, crested wheatgrass is one of the perennial species under the functional/structural group cool season deep rooted bunchgrasses because in hydrologic terms, it functions the same as a native cool season deep rooted bunchgrass. For both seeding pastures, the lack of large cool season deep rooted bunchgrasses (including crested wheatgrass), poor vigor and low amounts of vigor are concerns.

Pasture 10B: The lower portions of the pasture, the alluvial basins and lower slopes, have been rated in poor condition since 1966. They are dominated by annual grasses in the understory with sparse Sandberg's bluegrass. As you move higher in elevation there is a more abundant and diverse understory of perennial bunch grasses. Sandberg's bluegrass increases in the understory and islands of other perennial bunchgrasses persist, particularly on the steeper slopes and mountain tops. The 1997 AIE concluded the historic trend in this pasture was downward in areas with gentle slopes receiving moderate livestock use and static to upward on steep slopes and mountain tops that receive lighter use. Season of use, grazing levels, and drought conditions have limited the recovery of perennial grasses since 1997.

The pasture exhibits a high amount of bare ground, reduced litter, increased cheatgrass, and few cool season deep rooted and shallow rooted bunchgrasses. The organic matter component of the soil surface is decreased in the lower, more accessible portions of the pasture.

Pasture 11B:
The upland vegetation concerns in the pasture include an increase in shrubs compared to the ecological site description and interspatial cool season deep rooted bunchgrasses are sparse and exhibit poor vigor. Bluegrass and cheatgrass are increasing in the interspatial areas. Litter from shrubs was slightly higher than expected and high from cheatgrass.

Pasture 12: Condition of upland vegetation in this pasture is associated with steepness of slope, elevation, proximity to water including Poison Creek, and historic uses. Condition rating ranged from poor along Poison Creek, a historic livestock corridor, to fair in the steeper portions of the pasture away from water sources based on historic condition ratings. Poorer condition areas are

dominated by increaser grass understories (Sandberg's bluegrass) with the better areas having a diverse understory dominated by Idaho fescue, bluebunch wheatgrass and other perennial bunchgrasses, depending on ecological sites. The steeper slopes opposite Poison Creek have reference condition low sage communities, with abundant and vigorous Idaho fescue and forbs. Overall trend in this pasture is static to downward.

Pasture 28: The plant communities in this pasture include low sagebrush communities and mountain big sagebrush communities, with bitterbrush and mountain mahogany scattered throughout. Cool season deep rooted bunchgrasses including bluebunch wheatgrass and Idaho fescue are prevalent in the understory along with Sandberg's bluegrass, which dominates. Low sage, Idaho fescue and squirreltail are increasing in the pasture. Overall trend on grasses is upward, except on bluegrass which has decreased. There are some areas of physical crusting and pedastalling of plants in this pasture. Vigor on bitterbrush was poor due to the plants being severely hedged. Invasive plants, cheatgrass and juniper, are increasing, as was rabbitbrush, primarily in disturbed areas.

Pasture 28A: The plant communities in this pasture are similar to the other summer pastures, with low sagebrush and mountain big sagebrush communities, with bitterbrush and mountain mahogany scattered throughout. There are no long term trend data for this pasture. Vegetation mapping based on the ecological site inventory of 1979, as presented in the 1997 AIE, rated this pasture in good condition. The rangeland health assessments noted that cool season deep rooted bunchgrasses were reduced from the ecological site descriptions and juniper and rabbit brush were increasing on the site.

Pasture 29A: The plant communities in the pasture include low sagebrush communities and mountain big sagebrush communities, with bitterbrush and mountain mahogany scattered throughout. Cool season deep rooted bunchgrasses are prevalent in the understory, along with many forbs. Trend on some perennial bunchgrasses (Junegrass and bluebunch wheatgrass) is upward. Squirreltail had a downward trend and Idaho fescue is static overall. Trend on bitterbrush is upward, while mountain big sagebrush is downward. Apparent trend at this site overall is upward.

Pasture 44: There are no long term trend data for this pasture or for the other FFR pastures in this allotment. Vegetation mapping based on the ecological site inventory of 1979, as presented in the 1997 AIE, showed this pasture as having an increase in the cover of bluegrass and cheatgrass and a subsequent decrease in cover in large cool season bunch grasses. It was rated in fair condition based on these data. Cheatgrass was noted as dominating the understory during the 2007 Rangeland Health Assessment. Since this pasture is an FFR, period of use is at the discretion of the permittee; thus, it has not been included in the analysis of alternatives.

Remaining Pastures:
In general, the remaining pastures (13, 14, 15, 16, 17, 18, 19, 20, 21, 27, 29B, 29C, 29D, 31, 33, and 37) are small and comprised mostly of private lands. No upland vegetation data regarding these pastures (rangeland health evaluations, trend monitoring, etc.) have been collected. These pastures are used at the discretion of the permittees, between April 1 and November 30. Upland vegetation condition generally depends on the season the pasture is grazed, the duration of use,

the intensity of use and the proximity to water. Pastures that may be grazed outside the critical growth period of perennial bunchgrasses and within MFP utilization objectives would typically be in better condition than pastures that are grazed repeatedly during the critical growth stages of perennial bunchgrasses.

Pastures 11B, 29A, 44 are meeting Standard 4 (Native Plant Communities). The remaining pastures (5B, 8B, 8BI, 8BIII, 10B, and 12) are not meeting the standard. Historic grazing was targeted in pasture 5, where current grazing management (prior to 2005) was considered a significant factor in pastures 8B, 8BI, 8BIII, 10B, and 12. The effects of post-Settlement management on upland vegetation are yet to be determined.

Overall, the decline of cool season, deep rooted bunchgrasses combined with cheatgrass encroachment is common to all pastures (except 28 and 28A) not meeting Standard 4. In many cases, grazing repeatedly during the critical growth period for perennial grasses (the reproductive phase when seedheads are developing but have not emerged) (Quinton et al. 1982) has relegated these grasses primarily to protected areas (e.g. under shrubs). Areas where access is more difficult for livestock (e.g. broken topography, steep slopes) may also maintain native perennial bunchgrass communities. Pastures 28 and 28A do not meet this standard due to heavy bitterbrush and mountain mahogany utilization by livestock. There are some areas within these pastures that have small amounts of cheatgrass and juniper, but they are currently not dominant.

3.2.1 **Environmental Consequences – Upland Vegetation**

This analysis considers impacts to upland plant communities that would occur within each pasture. The duration of impacts described below is as follows: short-term, up to five years from implementation; and long-term, greater than five years from implementation.

Short-term grazing impacts to vegetation resources from livestock grazing result from the combination of utilization levels, the season of use, and the duration of use. For this analysis, light utilization is generally defined as up to 40%, moderate utilization levels is defined as 41 to 60%, and heavy utilization is defined as 61% and greater. Generally, the vigor of key perennial bunchgrasses and shrubs can be sustained with light and moderate utilization, while heavy utilization reduces photosynthetic tissue below levels needed to maintain root reserves, diminishing vigor. Timing of use matters as well. Light and moderate utilization during periods when plants are withdrawing reserves from roots for growth, during re-growth, or during seed formation will impact herbaceous species greater than the same level of utilization when the plant is not actively growing. Forb species tend not to regrow after grazing. Over the long-term, impacts of moderate to heavy utilization during active growing periods can affect plants' (grasses, forbs and palatable shrubs) abilities to maintain health and vigor, recover from impacts, and remain competitive. Changes in the plant community, for instance an increase in less desirable grass species like cheatgrass or bluegrass and a decrease in the large cool season deep rooted bunchgrasses, a loss of forbs, and an increase in increaser shrub species, may occur over time as the perennial grasses die or lose vigor and their competitiveness.

Common Impacts Associated With Fence Construction: The direct impacts to upland vegetation resulting from fence construction include vegetation removal, trampling, breakage and soil

compaction along the fence line during construction in the short term. In the long term, the impacts continue as livestock trail along fence lines, increasing use on upland vegetation and compacting the soil. The disturbance results in an indirect effect of increasing the spread of invasive species, namely here cheatgrass. The increase in cheatgrass, combined with soil disturbance and compaction, can result in increased competition for native perennial grasses and forbs, thereby limiting recruitment of desired vegetation. Shrubs may also increase in the area, resulting in a shift of structural/functional groups near the fence.

Common Impacts Associated With New Water Developments: Water developments can be used to draw livestock away from over-utilized areas, thus decreasing livestock in one area by increasing it in another, in order to benefit upland vegetation or riparian areas. Direct impacts to upland vegetation resulting from new water developments (troughs, water haul sites, ponds) include vegetation removal, trampling, breakage, increased utilization, soil compaction, and potential spread of invasive species. Utilization of native perennial vegetation can reduce vigor and productivity of plants, increase competition from invasive species (cheatgrass, etc.), and lead to an overall reduction of health and functioning condition of upland vegetation. These impacts are greatest in the immediate area, near the water site (within approximately 200 feet). Beyon this area, impacts are diffuse and become less noticeable with increase distance from the water site. Vegetation in the area immediately surrounding would likely be removed over time as livestock loiter near the water, the soil is compacted, and plants no longer grow. Observations by the Bruneau Field Office staff indicates, in most cases, that these effects would not be a factor at distances greater than ¼ mile from a water site. However, the effects can vary depending on the availability of water, season of use, and livestock management practices.

Definition of terms used in this section:

Boot Stage: This term refers to the growth stage of the plant when the grass seedhead is enveloped in enclosing sheaths, just prior to heading out. The flag leaf is fully expanded, but the awns and grain head are not visible. The grain head can be felt in the flag leaf sheath. Boot stage usually begins in late April to mid June depending on the species and elevation and lasts from one to two weeks.

Critical growth stages of plants: These stages are from green-up, through active photosynthesis, to seed development (past the boot stage and when the seed in the spikelet hardens). The reason these stages are called 'critical' is because these are the times the plant is actively photosynthesizing and storing carbohydrates. Removal of above ground material causes the plant to pull energy from the roots. Repeated grazing during this time stresses plants and is harmful. For more discussion concerning the effects of grazing perennial bunchgrasses during the boot stage and other critical growth stages see Blaisdell and Pechanec, 1949, Cook et al. 1963, Wilson et al. 1966, Mueggler 1975, McLean and Wikeem 1985, Ganskopp 1988, Brewer et al. 2007.

Upland Growing Season: During the active growing season, from April to mid July, upland plants are susceptible to defoliation impacts as a result of the depletion of carbohydrates in roots and crowns, especially with moderate (41 to 60%) to heavy (61-80%) utilization, repeated grazing, and/or frequent growing season use. Perennial bunchgrasses are especially susceptible to impacts from defoliation during seed formation and seed stalk elongation, due to the increased

withdrawal of carbohydrate reserves from roots and crowns. Repeated use during the growing season would be expected to reduce vigor and health of desirable perennial bunchgrasses.

3.2.1.1 **Alternative A – No Action/ Current Management**

Winter Pasture

Pasture 5B

Overall, little change to upland vegetation would be expected under Alternative A. According to Blaisdell and Holmgren (1984), winter grazing is the appropriate grazing season for these salt-desert shrub communities, which means a mosaic of plant communities dominated by shrubs such as shadscale, saltbush, winterfat and hopsage, and cool season bunch grasses, such as ricegrass, squirreltail and Sandberg bluegrass. Pockets of better condition native plant communities would continue to do well. Overall trend would remain static in the pasture with continued upward trend on ricegrass, Sandberg bluegrass and winterfat in areas that receive lighter livestock use. Efforts to move livestock in the pasture when utilization levels reach moderate (41-60%) or MFP objectives (50%) would aid in maintaining trends and would prevent over-utilization of shrubs and grasses. Keeping utilization within MFP guidelines would allow litter and residue to remain on the plant. Residue during dormancy protects plants from extreme temperatures and destruction of the growing parts of the plant crown and improves soil structure and infiltration. Little change in the plant communities in terms of frequency, cover or density of perennial bunchgrasses or shrubs, would be expected in areas where cheatgrass dominates the grass cover.

Spring Pastures

Pasture 8B, 8BI, 8BIII, 10B

In the northern lakebed portion (estimated at approximately 60% of the pasture) of pasture 8B, where cheatgrass is dominant, spring grazing would likely have little negative or positive impact on native plant communities. Lower elevation foothill areas (estimated at approximately 40% of the pasture) where cool season, deep rooted, perennial bunchgrasses are more common would be expected to incur greater impacts due to livestock use preference. Forage preference in combination with soil disturbance would be expected to stress perennial vegetation via mechanical damage (trampling and pedestalling) in the short-term, and over the long-term lead to reduced vigor (i.e., basal cover and seed production). Observed downward trends in frequency and vigor would continue for perennial bunchgrasses in this pasture with no change to management. Consequently, cheatgrass and other invasive species would be more likely to spread, further suppressing recruitment of desirable species (Rosentreter 1992). This alternative would not produce progress toward meeting the standard for native plant communities. Utilization levels of perennial grasses during 1998 through 2004 when permitted use was similar to Alternative A exceeded the MFP watershed objective at several utilization transects.

Portions of pastures 8BI and 8BIII were seeded with crested wheatgrass in 1988 and 1992. These small pastures located within pasture 8B also exhibit a decline in cool season, deep rooted, perennial bunchgrasses coupled with an increase in cheatgrass. Poor vigor and reduced productivity of perennial grass (e.g. crested wheatgrass) are also at issue. The vigor and frequency of native and seeded perennial grasses in these pastures would be expected to decline

with no change to current grazing management, particularly in areas more easily accessible to livestock. Remnant cool season, deep rooted, native bunchgrasses would be further relegated to protected areas. Vigor of crested wheatgrass plants remaining in the shrub interspaces would also be expected to continue a downward trend. Significant progress toward meeting Standard 4 would not be expected under Alternative A.

Pasture 10B would be grazed during the same portion of the key bunchgrass species critical growth period every year. Impacts would be similar to pasture 8B. Where patches of desirable (in terms of ecological function and palatability to livestock) perennial bunchgrasses like Idaho fescue persist, repeated grazing during critical growth periods for these grasses would likely lead to their decline. Subsequently, Sandberg bluegrass, which is abundant in these areas and tends to increase in upland habitats as other grasses are selected out, would be expected to expand further into the shrub interspaces over the long-term. Such a conversion in function and structure of vegetation communities would be expected to produce negative effects on important ecological processes (proper nutrient cycling, hydrologic cycling, and energy flow). Upland vegetation on steeper slopes and mountain tops would be expected to continue a static or upward trend, as use would be limited in such areas. On the whole, this pasture would not be expected to show significant progress toward meeting the standard for native plant communities.

Pasture 11B and 12
Upland condition in pasture 11B correlates with elevation/accessibility and distance to water: lower elevation areas were rated poor to fair; higher elevations were rated fair to good in past analyses. Implementation of the current system would result in no change to the condition of native perennial vegetation over the long-term. Grazing would occur annually during critical growth periods for many cool season, deep rooted, native bunchgrasses (Indian ricegrass, needle-and-thread, bluebunch wheatgrass, and Idaho fescue). The duration of grazing would be shortened by 6 days compared to historic use, but AUMs would remain the same, so pressure on these grass species would not be reduced by the shorter season of use. This pasture would continue to meet Standard 4, at least in the short-term.

In pasture 12, repeated late spring grazing would likely lead to further degradation of upland vegetation adjacent to Poison Creek. Utilization in this heavily disturbed area would remain high due its proximity to water, and no significant progress toward meeting the standard would be anticipated in those areas along Poison Creek. Areas where shrub interspaces and understories are dominated by Sandberg bluegrass are expected to be maintained. Over the long-term, areas supporting a diversity of perennial grasses (namely, Idaho fescue and bluebunch wheatgrass) that are accessible to livestock would be expected to decline due to livestock preference and mechanical impacts (see pasture 8B discussion). Areas less accessible to livestock (the steeper portions of the foothills, for instance the slopes opposite Poison Creek that are considered reference areas for upland vegetation) would remain in good condition due to the rugged nature of the topography.

Summer Pastures
Pastures 28, 28A and 29A, 29B
Livestock use occurs after the critical growth stages of key perennial grasses (bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, and squirreltail) each year, and is delayed until

after seed ripe every other year. Deferment is designed to promote improved vigor of existing perennial grasses and for the recruitment/establishment of new grasses (Stoddart et al. 1983). This grazing rotation would be expected to improve (or at least maintain) perennial grass vigor and recruitment in summer pastures.

Recurring heavy utilization (high browse levels of shrubs by livestock) of curlleaf mountain mahogany and antelope bitterbrush by livestock in pastures 28 and 28A – which drives the determination for not meeting the native plant community standard – would continue without implementing changes to address this issue. Therefore, pastures 29A and 29B would continue to meet Standard 4, while pastures 28 and 28A would not be expected to meet or make significant progress toward meeting this standard.

Fenced Federal Range Pastures

In general, for the remaining pastures (13, 14, 15, 16, 17, 18, 19, 20, 21, 27, 29C, 29D, 31, 33, and 37), the occurrence, vigor, and production of desirable herbaceous vegetation, especially grasses, would be static over the short term and reduced over the long term in FFR pastures that are consistently grazed during the active growing season with limited rest or deferment. Use during the growing season would not allow plants to meet their minimum physiological needs. These impacts would be more pronounced in areas that consistently receive greater than moderate levels of use (41-60%), potentially those within 1/4 mile of water sources. Herbaceous vegetation conditions would remain static or improve over the long term in FFR pastures that are consistently grazed after the active growing period or in areas that receive <30% utilization during the active growing season. Timing of use or use levels would be adequate to allow herbaceous plants to meet their physiological needs. Shrubs that receive moderate or greater use during late summer would continue to exhibit low vigor over the long term.

Projects

No projects are proposed under this alternative.

3.2.1.2 **Alternative B – Anchustegui Proposed Action**

Winter Pasture

Pasture 5B

Effects from livestock grazing to upland vegetation under Alternative B would be similar to Alternative A.

Spring Pastures

Pastures 8B, 8BI, 8BIII, and 10B

This alternative proposes 2,863 AUMs in pastures 8B, 8BI, 8BIII and 10B, which would be 133 AUMs lower than the average actual use from 1998 to 2007 (average actual use is 2,996 not including 2004 actual use which was not divided by pasture). The alternative states that adjustments to stocking rates would only occur if monitoring shows that it is warranted, so therefore for the purposes of analysis, it is assumed that no increases in stocking rate would occur unless resource conditions improved. This alternative divides pasture 8B into two separate use areas, with 8BI included in King's portion with the northern portion of the pasture and 8BIII included in the southern portion and used by Anchustegui. In the two use areas, April and May

alternates with April turnout occurring in: either 10B or 8B for King, or either 8BIII or 8B for Anchustegui.

Under this type of split, the stocking rate in Anchustegui's portion of the pasture (8BS and 8BIII) would actually be increased over Alternative A. The number of acres per AUM would decrease from 17.5 acres under Alternative A to approximately 14 acres in 8BS and 9 acres in the 8BIII seeding (see Table 4). This increased stocking rate, coupled with repeated early season use which overlaps April and May every year, would not allow density, cover and vigor of perennial bunchgrasses to improve. Utilization levels of perennial grasses during 1998 through 2004 when permitted use was similar to Alternative A, with a stocking rate lower than this alternative, exceeded the MFP watershed objective at several utilization transects. Crested wheatgrass in 8BIII (seeded in 1992) has had a marked decline since 2000. Frequency on the Nested Plot Frequency Transect has declined 45%. Use in the pasture, when it was not rested, occurred in April or May. This alternative proposes the same period of use, with a higher stocking rate, which would not promote meeting the standard.

For King's portion of pasture 8B (8BN, 8BI, and a small portion of 8BIII) and pasture 10B the stocking rate would be lower than Alternative A. Livestock use would occur in either April or May in each of these pastures, with neither pasture being used in May more than two consecutive years. The lighter stocking rate may result in lighter utilization. Lighter utilization would have a positive effect on physiological needs of plants, allowing increased photosynthesis and carbohydrate storage. Due to the non-use, lighter stocking levels and April and May rotation, this alternative would benefit upland vegetation communities in this portion of 8B and 10B more than Alternatives A, C or D.

Pasture 11B
AUMs would increase slightly under this alternative compared to Alternative A, but overall effects to the native plants resource would be similar to those incurred under Alternative A.

Pasture 12
Reducing the number of livestock in this pasture to 418 would have positive benefits for the upland vegetation. Livestock use would still occur every year during the critical growth stages of most upland perennial grasses, but it is assumed that utilization would be lighter than it currently is due to lower stocking rate, particularly in areas near Poison Creek, around springs, and in the meadows in the southern portion of the pasture. With the reduced AUMS, significant progress towards meeting the native vegetation standard would be made in those areas currently not meeting the standard.

Summer Pastures
Pastures 28, 28A and 29A, 29B
A similar outcome to the native plants resource as described under Alternative A would be expected under this grazing system (see Alternative A, Summer Pastures discussion). Pasture 29A and 29B would be expected to continue to meet the standard for native plant communities. Pastures 28 and 28A would not be expected to meet or make significant progress toward meeting the standard without measures to address overgrazing of curlleaf mountain mahogany and antelope bitterbrush. Although livestock would leave the pastures 7 days earlier, the number of

livestock would be increased and the AUMs would remain the same as the No Action/Current Management Alternative A.

Fenced Federal Range Pastures
In general, effects from livestock grazing management would be the same as Alternative A for the remaining pastures (13, 14, 15, 16, 17, 18, 19, 20, 21, 27, 29C, 29D, 31, 33, and 37).

Projects
Pasture 8B Division Fence: There would be short term effects from fence construction and potential longer term impacts from trampling along the fence. Soil disturbance and vegetation removal along the fence would increase the potential for cheatgrass. This fence would implement the grazing management in Pasture 8B, therefore, effects to upland vegetation would be expected as described above.

Mine Adit Trough: Pasture 12. There would be short term impacts from fence construction and potential longer term impacts from trampling along the fence. Overall, there would be no benefits to upland vegetation communities at the site associated with this spring development. If this project succeeded in drawing livestock away from the hanging meadows in the upper part of the pasture, the meadows would benefit from reduced utilization. Exclosure construction would be expected to temporarily disturb associated vegetation and soils and long-term impacts may occur to vegetation from livestock congregation patterns around the exclosure. Additional utilization would occur in a wide area around the trough, but due to the steep slopes, utilization would likely be limited to the floodplain along Poison Creek and the lower foothills plant communities.

Bill de Alder Pond: Exclosure construction would be expected to temporarily disturb associated vegetation. Long-term impacts associated with trailing may occur to vegetation from livestock congregation patterns around the exclosure and immediately adjacent to the fence.

3.2.1.3 **Alternative C – King Proposed Action**

Winter Pasture
Livestock grazing management effects would be the same as Alternative A as long as increases do not occur in the winter pasture. If the stocking level increases, which would be based on monitoring, effects to upland plants would be increased utilization and decreased cover. Decrease cover during winter harms plants by reducing protective thermal cover and plants are more susceptible to insects, weather damage, and reduced cover limits moisture retention.

Spring Pastures
This alternative proposes taking approximately 6,600 acres from pasture 8B and fences it into pasture 10B. It prescribes essentially the same grazing rotations in the winter and spring pastures (5B, 8B, 8BI, 8BIII, 10B) as Alternatives B. It also prescribes a reduction in spring AUMs temporarily and permanently by increasing AUMs in the winter pasture and in pastures 28 and 28A. In the interim, AUMs would be reduced from permitted use in spring pastures by 22% and in the long term by 11% (for all spring pastures combined). The short-term interim reduction, AUMs would be less than the

reported actual use for spring pastures and may result in lower utilization. The long term reduction would not be a change from actual use and would therefore result in no change.
Reconfiguring pastures 8B and 10B would result in substantially more acres per AUM (stocking rate) in the area formerly pasture 10B than any other alternative. That portion of the pasture would go from being stocked at 5.0 acre per AUM under Alternative A to 13.0 acre an AUM. This would likely result in much lighter utilization on perennial grasses, forbs and shrubs in the original portion of 10B and overall would result in improved conditions of upland vegetation resources more quickly and more substantially than other alternatives. However, the stocking rate for the portion of the pasture that is added from 8B and 8BIII to 10B would be increased, from 17.5 acres an AUM under Alternative A to 13.0 acres and AUM. This would not result in any benefits to the native plant communities, grasses, forbs or shrubs. Utilization levels here would likely be higher, resulting in decreased vigor, productivity, cover and occurrences of desirable native vegetation while increasing the potential for invasive species (cheatgrass, etc.). Over the long term, increased stress on the plants would impact the overall vigor and health of the plant communities. The new pasture 8B would have a higher proportion of land that is dominated by cheatgrass than it currently has. The remaining remnant perennial bunchgrasses, forbs and shrubs in the lakebeds and foothills would be disproportionately impacted during years with little cheatgrass, as those plants would be selected more often if there is little cheatgrass.

In the new configuration for pasture 8B, there would also be fewer acres per AUM which would have a similarly negative impact to upland vegetation. And, the area that used to be in pasture 8B would now be in 10B and stocking rate on it would go from 17.5 acres an AUM under Alternative A to 13.0 acre an AUM. Utilization levels could exceed moderate (41-60%), resulting in reduced vigor, productivity, frequency and cover of upland vegetation grasses, forbs and some shrubs. Overall, the plant communities in pasture 8B under this alternative would decline and not make progress towards meeting Standard 4.

The alternative states that after the interim management period (2009, 2010, and 2011) the permittee will make full use of their AUMs, "unless interim monitoring of utilization indicates a different level of AUMs is warranted". Adjusting numbers to achieve a desired utilization of 50% across a pasture or key areas in the pasture would likely result in vegetation conditions in the spring pastures remaining the same. Livestock turnout and use would occur in either pasture 8B or 10B in either April or May. The rationale for having April or May use is that some delay in turnout would provide plants enough time to initiate growth and livestock would be grazing outside the boot stage. Each grass species would, if conditions during that year are right, have some deferment till after the boot stage, or use prior to the boot stage, as based on the 1968 Boise District Phenology Study as presented in the Castle Creek Allotment Analysis, Interpretation, and Evaluation (BLM 1997).

For instance, the boot stage for Sandberg's bluegrass in pasture 8B is defined as about mid-April to sometime in mid-May (please note, the phenology study mapped 8B as primarily late spring, but in reality it is more likely in the categories of early spring and late spring). Therefore, when the pasture is grazed during April, it is being grazed at the beginning of the boot stage during the later ½ of April. The next year, when it is grazed during May, use would occur during the later portion of the boot, or, the plants, if conditions are right (for instance, an early warm spring), may have completed the boot stage prior to May use. Conversely, grazing could occur during the boot stage in successive years with rotation because of fluctuations in yearly weather. The

only other grass with boot stage during the month of April into May is bluebunch wheatgrass, which is not found in the lakebeds portion of pasture 8B, and is scattered in the higher elevation foothills portion of pastures 8B (USDI 2008a). Pasture 10B falls in the late spring phenology zone which has the boot stage for Sandberg's bluegrass as early to mid May and bluebunch wheatgrass as late May to early June. Therefore, if weather conditions and timing are cooperative, these plants would not be grazed during the boot stage when 10B is grazed in April as grazing would occur prior to the boot stage. When 10B is grazed during May, it would coincide with the boot stage of bluebunch wheatgrass. In general, grazing would overlap growth initiation and critical growth periods of several perennial grasses.

Livestock grazing effects for pasture 12 would be similar to Alternative A, although upland utilization may be slightly reduced in the foothills and in the upper hanging meadows, due to the reduced stocking level from Alternative A.

Summer Pastures

In the summer pastures, there would be no change to the upland vegetation in the interim. The upland vegetation would be expected to respond similarly to Alternative A, at least in the interim, in pastures 28, 28A, 29A and 29B. Browse use of curlleaf mountain mahogany and antelope bitterbrush in Pastures 28 and 28A would be expected to continue at a heavy level without changes in livestock grazing management to address it. Significant progress towards meeting the Native Plant Community Standard and resource objectives would not be made in pastures 28 and 28A. In the long term, if the stocking rates are increased in pastures 28 and 28A, livestock grazing impacts would be increased and the upland plants would be less vigorous and the structural/functional aspect of the communities would be negatively altered. Utilization on the grasses is currently near MFP limits, so an increase in stocking in these pastures as prescribed as a possible outcome under this alternative, would not be beneficial to the grasses and forbs.

Fenced Federal Range Pastures

In general, effects from livestock grazing management would be the same as Alternative A for the remaining pastures (13, 14, 15, 16, 17, 18, 19, 20, 21, 27, 29C, 29D, 31, 33, and 37).

Projects (see Maps 6 and 7)

Spring Exclosures: A total of 12 spring exclosures without new trough developments and 5 spring exclosures with existing developments (each would be approximately 3 acres in size as discussed at the January 23, 2009 meeting of the BLM and Kings), would be constructed at the following springs (the numbers associated with the un-named springs or wetlands are BLM identification numbers assigned during field inventories):

- Spring 89310B4A
- Spring 893110B10A
- Half Moon Spring (developed, also analyzed separately under Alternative D)
- Spring 89311B20A (also analyzed separately under Alternative D as Spring 11B #2)
- Spring 2020038 (also analyzed under Alternative D as Spring 11B #1)
- Spring 2020039
- Eagle Spring (developed, also analyzed separately under Alternative D)
- Spring at 8S1E20SWNW

- Spring at 8S1E17SWSWNE
- Spring 8932814A (developed, also analyzed separately under Alternative D as Buck Spring)
- Spring 8932815A
- Spring 8932824A
- Spring at 8S1W31W
- Spring 8934429B (developed, also analyzed separately under Alternative D as Pasture 44 Spring #1)
- Spring 8934430B (also analyzed separately under Alternative D as Pasture 44 Spring #2)
- Spring 8934432B
- Exclosure of the wet meadow/riparian area of Rat Spring (<0.025 acre) and installation of an additional trough at the existing facility (developed, also analyzed separately under Alternative D).

These projects would result in short term, localized direct impacts on vegetation during construction and longer term indirect impacts similar to those described above. Unlike Alternatives D and E, this alternative prescribes overflow/wet meadow management structures to be grazed annually to an average height of the meadow vegetation of 4 inches, then livestock would be removed from the fenced areas. Use would be limited to 4 inches, which depending on the type of vegetation being grazed could be up to 75% utilization. This grazing prescription would result in little difference in upland vegetation within the exclosure. If they are treated as exclosures and not grazed, then condition of upland vegetation within the exclosures would improve, resulting in improved vigor, cover, frequency, and productivity as plants are released from grazing pressure.

Access to the spring exclosures during construction would vary. Some already have roads to them or are not far from a road, others would require travel across sage-brush steppe plant communities to access them. The BLM can require that only off-highway vehicles be used, rather than trucks, during construction. Depending on the number of times access routes are traveled, route scars, or roads, would be created, resulting in direct impacts typically associated with roads (breakage, crushing, soil compaction, increase of invasive species) to vegetation in the short and long term. Most routes, once they appear, remain on the landscape.

Spring Exclosures with New Water Trough Developments: A total of 9 spring exclosures and new trough developments would be constructed at the following springs (the numbers associated with the un-named springs or wetlands are BLM identification numbers assigned during field inventories). Each exclosure would be approximately 3 acres in size (as discussed at the January 23, 2009 meeting of the BLM and Kings):

- Development and exclosure of the wet meadow/riparian area of Spring 89311B19A
- Development and exclosure of the wet meadow/riparian area of Spring 8931207A
- Development and exclosure of the wet meadow/riparian area of Spring 8931217B Development and exclosure of the wet meadow/riparian area of Spring 8931218B
- Development and exclosure of the wet meadow/riparian area of an unnamed spring at 8S1E17 SWNWSW

- Development and exclosure of the wet meadow/riparian area of an unnamed spring at 8S1W20SWSW
- Development and exclosure of the wet meadow/riparian area of Spring 2020073 (previously "Pasture 11B Spring Development" and also analyzed separately under Alternative D)
- Replacement of a livestock pond with a trough on uplands and exclosure of the wet meadow/riparian area of Spring 8931923B (0.081 acres) (Battle Creek headwaters).
- Replacement of a livestock pond with a trough on uplands and exclosure of the wet meadow/riparian area of an unnamed spring at Magpie Creek Headwaters.

These projects would result in short term, localized direct impacts on vegetation during construction and longer term indirect impacts similar to those described above. Access to the spring exclosures and developments during construction would vary. Some already have roads to them or are not far from a road, others would require travel across sage-brush steppe plant communities to access them. It is likely that roads would be established to new trough locations during construction and for continued maintenance, resulting in direct impacts typically associated with roads (breakage, crushing, soil compaction, increase of invasive species) to vegetation in the short and long term. In order to protect the headboxes these exclosures would not be grazed. Condition of upland vegetation within the exclosures would improve, resulting in improved vigor, cover, frequency, and productivity as plants are released from grazing pressure. Impacts from the new watering sites are the same as described above.

Relocation of Water Haul Site in 5B: Direct and indirect impacts would be the same as though described above for new water developments. The upland vegetation at the previous site would benefit by having the watering trough and associated disturbances removed.

Birch Creek Pipeline Extension into 8BI: Construction of the pipeline and trough placement would take place on private land. There would be only minimal direct disturbance on BLM where the pipeline would extend to private land. Impacts would be the same as those described above. Utilization by livestock on vegetation surrounding the trough would increase. Although in a seeding, there are native perennial grasses at the location, including needle-and-thread and ricegrass, and use would be heavier on these native plants. Because this pasture already has moderate to heavy use, the impacts associated with the water development would be only slightly more than present at the site.

Poison Creek Pipeline Extension into Pasture 8B: Construction of approximately ¾ mile of pipeline and new trough placement would result in direct and indirect impacts at the site, including vegetation removal, trampling, increased vegetation use, soil compaction, and an increase of cheatgrass and other invasive vegetation. The new trough would go into a narrow area between the Mud Flat Road and the northern portion of the Pasture 8BIII fence in the new configuration of Pasture 8B, concentrating livestock use near the fence and road. As displayed on the map, this would be over 1 mile from a dry section of Poison Creek. Part of the purpose of this project is to pull livestock off Poison Creek. Due to the distance, it is unlikely that this project would result in reducing vegetation use along Poison Creek or improve conditions of the stream. It would, however, provide a livestock water location in this section of the new pasture 8B. Without this trough, there would not be any livestock water in this portion of the pasture, as

the other troughs on this pipeline would be in pasture 10B. Livestock utilization of perennial and annual vegetation would likely increase over present levels at the new trough location and for at least ¼ mile to the north, east and west of the trough. Increasing utilization in this area would not benefit the surrounding upland vegetation resources.

Adjustment of the Pasture 8B and 10B Boundary Fence: Approximately 2.0 miles of new fence would be constructed for this project and approximately 1.8 miles of existing pasture boundary fence would be removed. Direct and indirect impacts associated with fence construction would be the same as those described above. In the long term, vegetation around the fence would be impacted by trailing, soil compaction, breakage of vegetation, and an increase in invasive vegetation (cheatgrass, etc.). This fence would shift approximately 6,600 acres from pasture 8B to pasture 10B, resulting in a higher stocking rate in pasture 8B and a subsequent lower stocking rate in 10B. The higher stocking rate on the 8B portion would result in higher utilization on the remaining native vegetation, resulting in negative mid-term and long-term impacts of reduced vigor, frequency and overall function of the native plant communities in that pasture. Conversely, the lower stocking rate in pasture 10B, including the portion that used to be in 8B, would result in lighter utilization overall in this pasture, which may lead (depending on actual utilization levels) to improved vigor and maintenance of the native plant communities. If utilization associated with the lower stocking levels is light, the condition of the plant communities would improve in 10B. The stocking rate and grazing management for these pastures are also analyzed above.

Mine Adit Trough: See discussion under Alternative B.

Summit Springs Trough: This project, to pipe water from the Summit Springs Exclosure (the top of Poison Creek) and place a trough on a sidehill near the exclosure would have the same direct and indirect effects to upland vegetation as described above. No road construction would be necessary. The project would result in either pulling livestock off the meadows north of the road or would draw more livestock to the area. Livestock now access Poison Creek and the water coming from the Summit Springs Exclosure just below the current exclosure fence. This project would likely not impact or benefit upland vegetation other than described above.

Horsehead Spring Pipeline to 10B and 12: There would be direct and indirect impacts associated with this pipeline. In addition to increased utilization near the troughs, trampling, soil disturbance and compaction, potential spread of invasives, there would be other associated impacts from road construction, the degree of which cannot be determined at this time. The level of disturbance resulting from the road construction would be long-term, significant but localized. The troughs would have long term effects from increased utilization as livestock would be drawn to those areas. Increased utilization of native perennial vegetation would result in reduced vigor and productivity of plants, increased competition from invasive species (cheatgrass, etc.), and overall reduction of health and functioning condition of upland vegetation within ¼ to 1 mile of each trough location.

Alteration of the Pasture 12/Pasture 20 Fence: This fence would provide a water gap into private/state land in Pasture 20 (approximately ¼ mile fence total). It would not provide any

benefit to upland vegetation and would likely increase utilization in the hanging meadow area by attracting additional livestock, thus have a negative effect in the area.

Headcut Stabilization Projects (on Birch Creek in Pasture 10B and 11B; at three locations on Lone Juniper Creek in Pasture 12; at an un-named seep in Pasture 28; and three locations on Sheep Creek in Pasture 33. Stabilization will consist of placement of headcut stabilizing materials and construction of a small temporary livestock exclosure enclosing the headcut area. Upon stabilization of the vegetation and soil, the exclosure fencing will be removed, unless BLM, in consultation with the Permittee and interested publics, determines that the fencing should remain). Direct and indirect impacts associated with exclosure fence construction around these headcuts would be the same as those described above. In the long term, until fences are removed, vegetation around the outside of the fence would be impacted by trailing, soil compaction, breakage of vegetation, and an increase in invasive vegetation (cheatgrass, etc.). Vegetation within the exclosures would benefit from a release from grazing, resulting in improved vigor, frequency, productivity, cover, and composition. This benefit would continue until the fences are removed.

Exclosure of the wet meadow/riparian area of Sheep Creek at 9S1W6SE: This project would fence a short reach of Sheep Creek between two small parcels of State lands. Effects to the upland vegetation community would be similar to those described above.

Juniper Station Pond Exclosure: The project to fence the wet meadow area adjacent to this small pond would have localized direct impacts on upland vegetation during construction similar to those described above. Long term impacts include increased trailing and use in the surrounding uplands as this pond is improved to supply better water to livestock. There would likely be no need for a road to access this pond, as there is a road nearby for heavy equipment staging and the equipment would access the pond via a fairly dry and stable draw. If the exclosure is grazed there would be no difference to upland vegetation. If the exclosure is not grazed, upland vegetation condition would improve within the exclosure.

Upland Grazing Exclosures: These would have short term, localized direct impacts on vegetation during construction. Direct impacts would be vegetation trampling or removal and soil compaction which impacts plants during construction. In the long term, vegetation around the fence or troughs is typically impacted by trailing, compaction, breakage, invasives, and increased grazing pressure. Plants inside the exclosure would benefit by not having livestock grazing pressure on them. Effects from new roads would be the same as described above.

Pipe overflow of Bald Mountain Spring trough approximately 200 feet down into a draw away from the trough. No additional impacts or benefits to upland vegetation would occur from this project.

Upland Grazing Exclosures: Pastures 5B, 8B, 8BI (seeded portions), 10B, 11B, 12, 28, and 28A
Vegetation within the exclosures would benefit by a release from livestock grazing. Conditions within the exclosures would improve. These projects would result in short term, localized direct impacts on vegetation during construction and longer term indirect impacts outside the

exclosures similar to those described above. The exclosures would provide study areas to measure the progress of the grazing prescription.

Riparian Grazing Exclosures Pastures 8B, 10B, 11B, 12: Riparian vegetation and upland vegetation within the exclosures would benefit by a release from livestock grazing. Conditions within the exclosures would improve. These projects would result in short term, localized direct impacts on vegetation during construction and longer term indirect impacts outside the exclosures similar to those described above. The exclosures would provide study areas to measure the progress of the grazing prescription.

To summarize, the grazing prescription would not result in improvements in native plant communities. The projects, spring developments and fencing and subsequent roads, taken together, would have a significant effect on the landscape. Fragmentation (the process of dividing habitats into smaller and smaller units until their utility as habitat is lost) of native plant communities would increase.

3.2.1.4 **Alternative D – BLM Adaptive Management Alternative**

Winter Pasture
Livestock grazing management effects would be the same as Alternative A.

Spring Pastures
Extensive monitoring would be required and may necessitate adjustments to season and intensity of use. Based on the proposed AIC, immediate adjustments to livestock use would be made to address impacts to the resource (i.e., reduced stocking levels if AIC are reached/exceeded). Results of mid-term and long-term monitoring would also be used to shape subsequent management under this alternative. Mid-term and long-term adaptive management responses would be expected to reverse negative trends for upland vegetation and improve resource conditions, overall.

Similar to alternatives B and C, alternating use from April to May every other year in pastures 8B (including 8BI and 8BIII) and 10B would occur. In addition, a lower stocking level coupled with response to more stringent AIC and mid-term monitoring (utilization not to exceed 40% on key grasses) would be expected to lessen the impacts of grazing on key perennial grasses in these pastures. Lower utilization levels during the spring would allow plants to sustain physiological processes while being grazed. Limiting utilization of perennial grasses to 40% during the active growth period would promote improvements in plant vigor and reproductive capability (Holechek 1988). Applying the annual indicator criteria and adjusting management as needed in response to mid-term monitoring would assure that upland vegetation communities would maintain health or improve, making progress towards meeting the Native Plant Community Standard 4, and meet resource objectives. Areas currently dominated by invasive species (cheatgrass, etc.) would likely remain unchanged.

Livestock grazing management in pastures 11B and 12 would be changed in order to meet riparian resource objectives. The proposed shorter season of use in these pastures would benefit native plant communities, grasses, forbs and shrubs, by limiting the duration of use resulting in

decreased utilization in areas currently not meeting Standard 4. Plant vigor would increase and be adequate to enable reproduction and recruitment of plants. Adequate litter and standing dead plant material would be present for site protection and for decomposition to replenish soil nutrients. Native plant communities would be maintained or improved in these pastures.

Summer Pastures
Pastures 29A and B would continue to meet Standard 4. Deferring livestock grazing until after seed-ripe every other year in pastures 28, 28A, 29A and 29B would continue to result in improved vigor and reproductive capability of perennial bunch grasses in these pastures. In pastures 28 and 28A where livestock use on curlleaf mountain mahogany and antelope bitterbrush has been severe, shortening the season of use and application of the upland shrub browse AIC would be expected to alleviate the use. These plant communities will become healthy and productive animal habitat and the diversity of the native species will be maintained. Reduced browse of these palatable shrubs would improve health and vigor of these plant communities to enable reproduction and recruitment and to achieve normal growth form. In turn, residual plant cover and ground cover would be increased which would improve soil moisture and available water for plants. Under this management in the summer pastures progress will be made toward meeting Standard 4.

Fenced Federal Range Pastures
In general, effects from livestock grazing management would be the same as Alternative A for the remaining pastures (13, 14, 15, 16, 17, 18, 19, 20, 21, 27, 29C, 29D, 31, 33, and 37).

Projects (see Maps 8 and 9)
Range projects would have short term, localized direct impacts on vegetation during construction. Alternative D has several projects, mostly spring exclosures, and additional upland vegetation exclosures in the spring pastures. Direct impacts from livestock and range management projects would be vegetation trampling or removal and soil compaction which impacts plants during construction. In the long term, vegetation around the fence or trough is typically impacted by trailing, compaction, breakage, and increased grazing pressure. Benefits to springs and wet meadow areas would likely offset impacts to upland vegetation. Common impacts are also discussed on pages74 to 75. This alternative proposes 17 spring exclosures or exclosure expansions, three troughs, four upland vegetation monitoring exclosures and one fence realignment.

Relocation of Waterhaul Site in 5B: Impacts would be the same as those described under Alternative C.

Birch Creek Pipeline Extension into Pasture 8BI: Optional project. Impacts would be the same as those described under Alternative C.

Mine Adit Trough: Optional project. Impacts would be the same as those described under Alternative B.

Summit Springs Trough: Optional project. Impacts would be the same as those described under Alternative C.

Spring Exclosures Without New Trough Developments: A total of 7 spring exclosures without new trough developments would be constructed at the following springs:

- Half Moon Spring Exclosure (optional project)
- Eagle Spring Exclosure (optional project)
- Springs Pasture 11B#1 and 11B#2 (optional project, one may have a trough)
- Springs Pasture 44#1 and 44#2 (optional project)
- Pasture 12 Spring Exclosure (optional project)
- Rat Spring Exclosure

The size of the exclosures varies and is discussed under Alternative D. The optional projects are not integral to Alternative D, but they could be considered in the future if resource conditions do not improve from management or if it is determined a faster recovery rate is needed. These projects would result in short term, localized direct impacts on vegetation during construction and longer term indirect impacts similar to those described above. Grazing would not be allowed within the exclosures. Condition of upland vegetation within the exclosures would improve, resulting in improved vigor, cover, frequency, and productivity as plants are released from grazing pressure.

Access to the spring exclosures during construction would vary. The springs for Pasture 44 #2 and Pasture 12 Spring Exclosure are the only two in the above list that do not presently have roads to the springs. Depending on the number of times access routes are traveled, route scars, or roads, would be created, resulting in direct impacts typically associated with roads (breakage, crushing, soil compaction, increase of invasive species) to vegetation in the short and long term. Most routes, once they appear, remain on the landscape. Approximately ½ mile of road to each spring would likely be created due to repeated off-highway vehicle travel. Although at the Pasture 12 Spring Exclosure, there is a fenceline to follow that has impacts already.

Spring Exclosures with New Water Trough Developments: Following spring exclosures and new water developments are considered optional under this alternative:

- A trough at either Pasture 11B#1 and #2 Spring (optional project)
- Pasture 11B Spring Exclosure and Trough (optional project)
- Mine Adit Trough (optional project)
- Summit Springs Trough (optional project)
- Battle Creek Headwaters Trough (optional project)

These projects would result in short term, localized direct impacts on vegetation during construction and longer term indirect impacts similar to those described above. Pasture 11B Spring is the only site without roads to the site. A road would likely be established (created) to the spring and trough during construction and for continued maintenance, resulting in direct impacts typically associated with roads (breakage, crushing, soil compaction, increase of invasive species) to vegetation in the short and long term. In order to protect the headboxes these exclosures would not be grazed. Condition of upland vegetation within the exclosures would improve, resulting in improved vigor, cover, frequency, and productivity as plants are released from grazing pressure.

Impacts from the new watering sites are the same as described above and on pages 74 to 75.

Buck Spring Exclosure in Pasture 28: The exclosure would be approximately 47 acres in size and require about 1.0 mile of fence. There would be direct impacts to upland vegetation during construction including trampling and soil compaction, but they would be of short duration and recovery would be expected. Long term, there would be increased trailing around portions of the fence located directly adjacent to the spring complex at the head of the draw and along the fence where it crosses the channel. There would likely be little impacts over the length of the fence due to the roughness of the terrain. A small aspen grove (less than three acres in size) would be included within the exclosure. Long term benefits to the aspen stand would typically be from reduced grazing pressure which would result in improved vigor and increased cover as new shoots are released. Other upland plant communities included in the exclosure would benefit as well.

Juniper Station Pond Exclosure: 5.6 acres. The direct and indirect impacts from fence construction would be the same as described above. The upland vegetation within the exclosure would not be grazed and would improve with no grazing.

Rock Spring Exclosure Expansion (1.6 acres), Station Spring Exclosure Expansion: The exclosure expansion to include additional wetland area on BLM to improve the riparian wetland would incur direct, localized impacts to upland vegetation as described above and on pages 74-75.

Meadow Exclosures:

- Pasture 29A Battle Creek Tributary Meadow Exclosure (7.5 acres)
- Pasture 29A Pond at Bill De Alder Draw Exclosure (0.7 acre)
- Gopher Spring
- Rat Spring (0.3 acre)
- Magpie Creek Headwaters Exclosure (5.4 acres)
- Battle Creek Headwaters Exclosure (2.1 acres)

The meadows at these sites are currently downcut and eroding. These projects would stabilize the wet meadows and improve the overall condition, including condition of any upland vegetation included in the exclosure, which would be a small amount overall as these are small exclosures. Impacts from trailing would occur along the fences, but would not be significantly more than at present.

West Fork Shoofly Fence Realignment project: This project would expedite improvements along West Fork Shoofly Creek (1.6 miles) relative to Alternative A. Fence construction would result in impacts as described as above and on pages 74- 75.

Upland Monitoring Exclosures. Maps 8, 9. Two to three exclosures (3-strand barb wire) each in pastures 5B, 8B, and 10B would be constructed to evaluate the long each effectiveness and vegetative responses to the grazing prescription. Exclosures would be located in areas representative of varying (poor, mid, good) vegetation conditions and communities. Consideration would be taken to minimize risks to sensitive resources, including cultural and sensitive species, and to limit impacts to other uses, such as recreation. If an exclosure or fence crosses Off Highway Vehicle trails, cattle-guards would be part of the design. 5B North would be approximately 7.4 acres; 5B South would be approximately 6.2; 8B West would be

approximately 3.8 acres; and 8B East would be approximately 4.2 acres. The monitoring exclosures in pasture 10B have not been located yet. Impacts during fence construction would be the same as described above. Depending on the site, it is likely that roads would be established to the exclosures during construction resulting in direct impacts typically associated with roads (breakage, crushing, soil compaction, increase of invasive species) to vegetation in the short and long term.

3.2.1.5 **Alternative E - BLM**

Winter Pasture
Livestock grazing management effects would be the same as Alternative A.

Spring Pastures
Unlike Alternative D, the application of the AIC under Alternative E would occur in the mid- or long-term. If the AIC are not achieved repeatedly, changes in livestock management may occur to ensure resource objectives are achieved. Similar to Alternative D, the lower utilization level (40%) in the early spring pastures would help to achieve resource objectives.

This alternative relies on a rest-rotation grazing system for pastures 8B and 10B. Rest incorporated into the grazing schedule for Pastures 8B (including 8BA, 8BB, 8BI, and 8BIII) and 10B in addition to the lower stocking rate would promote the build-up of nutrient reserves in root systems, achievement of seed ripe and dispersal, and accumulation of standing residual vegetation. This would also boost perennial bunchgrass recruitment and individual bunchgrass health and vigor (Mueggler 1975, Holechek et al. 2000). Holechek et al. (2000) identified improvements in perennial bunchgrass health and vigor where moderate (versus heavy) stocking levels were maintained and utilization levels didn't exceed 40% under a rest rotation grazing system. In general, this rest rotation grazing schedule compared to the other alternatives provides the best opportunity to promote plant vigor, seed production, seedling establishment, root production and litter accumulation for upland herbaceous plants, due to the rest one out of three years.

Benefits from the changes in livestock grazing management in pastures 11B and 12 would be greater than Alternative D due to the shorter season of use that would occur in these pastures. Livestock utilization in areas typically heavier would likely overall be lighter, benefitting upland vegetation.

Summer Pastures
Effects from livestock grazing management in the summer pastures would be the same as under Alternative D. Pastures not currently meeting the native plant standard (Standard 4) for rangeland health would make progress towards meeting the standard (pastures 28, 28A).

Projects
Direct impacts from livestock and range management projects would remain the same as under Alternative D. Short- and long-term impacts would be less severe due to rest in some pastures, lower stocking levels, later turn out dates, shorter grazing duration, and response to mid-term

indicators. In addition to the projects listed in Alternative D, the following project would be necessary for this alternative:

Pasture 8B Pasture Division Fence: This project would have direct and indirect localized impacts to the upland vegetation during construction and after construction along the 7 number of miles of fence needed. Direct impacts would occur from vegetation removal and trampling, soil disturbance and compaction. Indirect impacts would be from the possible introduction of invasives and the possible accumulation of tumble mustards. Trailing along the fence would also likely increase. This fence would implement the grazing management in Pasture 8B therefore; indirect effects to the upland vegetation would be as described above.

3.3 **Affected Environment – Streams, Riparian Areas and Wetlands**

About twenty miles of stream in five major drainages (Battle, Birch, Poison, Rock, and West Fork Shoofly creeks) are located in the East Castle Creek Allotment. The riparian habitat of these streams is in functional at risk condition with an upward trend (7.7 miles); functional at risk with a static trend (6.8 miles); and non-functioning condition (2.7 miles). About 2.8 miles of stream are in proper functioning condition (PFC; USDI 2008a). Habitat conditions of individual streams are described below.

Definitions for terms used in this analysis:
"Proper Functioning Condition (PFC) – Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is a result of interaction among geology, soil, water, and vegetation.

Functional- At Risk- Riparian-wetland areas that are in functional condition but an existing soil, water, or vegetation attribute makes them susceptible to degradation.

Non-functional – Riparian-wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows and thus are not reducing erosion, improving water quality, etc., as listed above. The absence of certain physical attributes such as floodplain where on should be are indicators of non-functioning conditions." (TR 1737-9, USDI 1993)

The Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 1997) include the following indicators for Standard 2 (Riparian Areas and Wetlands):

1. The riparian/wetland vegetation is controlling erosion, stabilizing the streambanks, shading water areas to reduce water temperature, stabilizing

shorelines, filtering sediment, aiding in floodplain development, dissipating energy, delaying flood water, and increasing recharge of groundwater appropriate to site potential.
2. Riparian/wetland vegetation with deep strong binding roots is sufficient to stabilize streambanks and shorelines. Invader and shallow rooted species are minor component of the floodplain.
3. Age class and structural diversity of riparian/wetland vegetation is appropriate to the site.
4. Noxious weeds are not increasing.

And for Standard 3 (Stream Channel/Floodplain) include the following:

1. Stream channels and floodplains dissipate energy of high water flows and transport sediment. Soils support appropriate riparian-wetland species, allowing water movement, sediment infiltration, and water storage. Stream channels are not entrenching.
2. Stream width/depth ratio, gradient, sinuosity, and pool, riffle and run frequency are appropriate for the valley bottom type, geology, hydrology, and soils.
3. Streams have access to their floodplains and sediment disposition is evident.
4. There is little evidence of excessive soil compaction on the floodplain due to human activities.
5. Streambanks are within an appropriate range of stability according to site potential.
6. Noxious weeds are not increasing.

Battle Creek

Battle Creek flows through a low gradient valley in pastures 29C and 29D in the southern portion of the allotment. Stream flows are intermittent in this portion of Battle Creek. The stream and associated riparian areas (1.6 miles on public land) are in functional at risk condition with an upward trend. Bank-stabilizing riparian vegetation is strongly colonizing streambanks within this reach. Riparian areas are predominantly vegetated with Nebraska sedge and baltic rush community types (*Carex nebrascensis* and *Juncus balticus* C.T.s; Jankovsky-Jones et al. 2001), and willows (primarily *Salix geyeriana*) are being recruited into these communities. These reaches are impacted by historical channel incision (downcut and widened into F-channels; Rosgen 1996). However, the stream is progressing towards an E-channel type appropriate for the land form (Rosgen 1996) with the development of strongly vegetated banks and floodplains. These stream segments were fenced into riparian pastures (29C and 29D) in 1998 and are generally grazed lightly every other year, in June for two weeks, and rested from grazing on alternate years. These segments of Battle Creek were identified for improvement in riparian habitat conditions in the 1983 Land Use Plan (Bruneau MFP, WL-AQ Objective 2.1; USDI 1983), and are making substantial progress towards the Bruneau MFP objective.

Birch Creek

The headwaters of Birch Creek are located on private land adjacent to Clover and Rough mountains in the central portion of the allotment. Birch Creek flows northward from private land

through pastures 11B, 10B, and 8B. The upper portion of Birch Creek in pasture 11B (segment 13.0) is predominantly vegetated with Geyer's willow/mesic forb (*S. geyeriana*/mesic forb), *Salix*/mesic grass, and mesic grass C.T.'s. Stream flows are intermittent on part of this reach with the channel often dry by July or August. Streambanks are predominantly composed of easily erodible silt-clay soils. Most of Birch Creek in pasture 11B is historically incised 5 to 10 feet into gullied channels (G-channel type; Rosgen 1996). Trend in condition of riparian areas and stream channels on upper Birch Creek is upward with willow cover increasing at monitoring sites (USDI 2008a). Recruitment of willows and increased cover of late-seral sedges and rushes is apparent elsewhere on segment 13.0. The lower 1.7 miles of Birch Creek in pasture 11B (segments 10.6, 11.7, and 12.2) are functioning at risk with an upward trend since 1999 to 2003 (USDI 2008a). Stream flows are perennial and most riparian areas are vegetated with early-seral plant communities dominated by grasses and forbs. Cover of bank-stabilizing vegetation (willows and rushes) is increasing with less bare soil and eroding streambanks. However, changes in plant cover were slow particularly in deeply incised channel areas (USDI 2008a). About 0.2 mile of Birch Creek in a cobble-alluvial fill reach in the middle portion of pasture 11B is nonfunctional due to loss of stream flows due to historical incision of the stream (USDI 2008b). Most streambanks are vegetated with upland vegetation types. A short rock-armored reach (0.2 mile long) in a steep rocky canyon is in proper functioning condition. Streambanks are stable and well-vegetated with aspen (*Populus tremuloides*) and willows on this canyon reach (USDI 2008a).

Birch Creek in pasture 10B is in functional at risk condition with an upward trend (USDI 2008a). Many stream segments are historically incised 4 to 5 feet into gullied channels (G-channel type; Rosgen 1996), but generally have perennial flows. Riparian areas are predominantly vegetated with willow plant community types (*Salix exigua*/mesic forb; *S. lutea*/mesic grass; *S. lasiandra*/bench; *Betula occidentalis*/*Scirpus microcarpus*). Riparian trend monitoring showed upward trends in plant cover and diversity (USDI 2008a). A short segment of Birch Creek (0.2 mile long) is located in pasture 8B upstream of the private land at the Doyle homestead. This segment is functioning at risk with an upward trend. Shrub cover is increasing on historically deeply-incised streambanks. Median stubble heights of herbaceous riparian vegetation on Birch Creek in pasture 10B have generally exceeded 4 inches since 1997 (USDI 2008a). Residual stubble heights on Birch Creek in pasture 11B have usually exceeded 4 inches since 2002 (USDI 2008a).

About 1.4 miles of Birch Creek in pastures 8B and 10B was identified for improvement in riparian habitat condition in the 1983 Land Use Plan (Bruneau MFP, WL-AQ Objective 2.2; USDI 1983). These stream segments are functioning at risk with upward trends and are making slow progress towards the Bruneau MFP objective. Another 2.9 miles of Birch Creek in pasture 11B was also identified for improvement (WL-AQ Objective 2.2; USDI 1983). About 2.7 miles is functioning at risk with an upward trend and is making progress towards the Bruneau MFP objective, and for 0.2 miles trend in condition is static due to historic dewatering of that segment (USDI 2008b).

In 2007, 0.4 mile of Birch Creek in pasture 11B (0.2 mile in NF, 0.2 mile in FAR with an upward trend) was fenced in with State land and grazed at substantially higher levels than that during 1998-2005.

Poison Creek and tributaries

Poison Creek flows northward through pastures 12 and 8B in the eastern portion of the allotment. Stream flows are intermittent and the stream headwaters at Summit Springs in the southern end of pasture 12. Most of Poison Creek (4 miles) in pasture 12 is functioning at risk with a static trend (USDI 2008a). Streambanks are inadequately vegetated with bank-stabilizing plants or at risk of erosion because banks are unstable due to historic channel incision (G-channels; Rosgen 1996). About 3.2 miles of stream are predominantly vegetated with early-seral plant communities with scattered willows present, and receive high levels of bank alteration (USDI 2008a) that is negatively impacting riparian plant cover and vigor. Another 0.8 mile is vegetated with willow plant communities (primarily *S. lutea*/bench types), but channels and banks are unstable due to the historic incision of the channel (2 to 5 feet deep; USDI 2008a,b). Stream segments that were rated as functional at risk with a static to downward trends in 2003 have remained at risk of erosion as cover of bank-stabilizing plants has not increased (USDI 2008a). About 0.4 mile of Poison Creek in the central portion of pasture 12 is in proper functioning condition. Streambanks are densely vegetated with late-seral plant communities dominated by old-aged willows (*S. lutea*/*C. sericea*, *S. lasiandra*/bench C.T.s) that armor streambanks and prevent streambank alteration and erosion. Additionally, 0.2 mile of Poison Creek in the Summit Springs and Poison Creek Recreation Site grazing exclosures is in proper functioning condition. Streambanks are stable and strongly-vegetated with plant communities dominated by bank-stabilizing species.

Approximately 3.7 miles of Poison Creek are located on BLM land within pasture 8B. Most of the lower portion of Poison Creek (2.5 miles) is vegetated with a skunkbush sumac (*Rhus trilobata*/bench) plant community. Streambanks are weakly vegetated as the channel is deeply incised (4 to 8 feet deep) and most of the skunkbush sumac is growing on the upper banks and edge of the stream terrace. These stream segments are nonfunctioning because of impacts to the channel and bank storage capability (loss of water) of the stream resulting from the historic incision of the stream channel (USDI 2008a,b). Another 1.2 miles of Poison Creek in pasture 8B is in functional at risk condition with a static trend (USDI 2008a). These segments are vegetated with plant communities dominated by willows (predominantly sandbar willow [*S. exigua*/mesic grass-forb] and mesic forb types). Most streambanks are inadequately vegetated to protect streambanks and dissipate stream energy during high flows. Vigor and cover of bank-stabilizing herbaceous species (sedges and rushes) is lacking. Some willow stands are composed only of dead or decadent old-aged plants. Channels are incised an average of 5 feet and riparian areas are not widening. Riparian trend monitoring showed a static to downward trend in health of willow-vegetated stream segments in pasture 8B (USDI 2008a). High levels of bank alteration were observed on the upper portions of Poison Creek in pasture 8B in 1999 and 2007 (USDI 2008a). Residual stubble height of herbaceous vegetation on Poison Creek in pasture 12 generally exceeded 4 inches between 1999 and 2006 (USDI 2008a). However, high levels of streambank alteration were measured in 2006 and photographed in 1999, 2001, and 2002 (USDI 2008a).

About 2.8 miles of Poison Creek in pasture 8B was identified for improvement in riparian habitat condition in the 1983 Land Use Plan (Bruneau MFP, WL-AQ Objective 2.2; USDI 1983). These stream segments are in functional at risk or nonfunctioning condition with static trends, and are

not meeting or making progress towards the MFP objective, largely due to dewatering of the stream resulting from historical incision of the channel (USDI 2008a,b).

Fall Creek
About 0.7 mile of Fall Creek (a tributary to Poison Creek in pasture 12) supports riparian plant communities dominated by old-aged shrubs. This stream is in PFC, as about 90% of streambanks are stable and densely vegetated with shrub community types, including aspen (*Populus tremuloides/Cornus sericea*), and willow (*Salix geyerian*/bench; *S. lutea*/bench) types. However, the ecotone area between the riparian shrub communities and upland plant communities is severely disturbed by trampling and trailing. The ecotone area is largely composed of bare ground or vegetated with disturbance-induced plant communities dominated by burr buttercup, mullen, and Kentucky bluegrass. Approximately 0.4 mile of Fall Creek and some public land were fenced in with Mr. Anchustegui's state section in Pasture 12 without authorization.

Lone Juniper Creek
Lone Juniper Creek is another tributary to Poison Creek in pasture 12. About 0.5 mile of this stream supports riparian areas, but flows are ephemeral to intermittent, and as a result riparian plants are intermittent in their distribution along the stream. In general, the amount of streambank vegetated with obligate hydric plants increases going up the drainage. Lone Juniper Creek is in functional at risk condition because of the presence of 3 active headcuts (USDI 2008a). Trend in condition appears static; about 15-20% of banks are bare or unstable because of tramping and pugging of streambank soils. This stream is predominantly vegetated with shrub communities including aspen and willow (S. lutea/bench and S. exigua/bench) types. Areas with less bank storage of water are dominated by Baltic rush (*Juncus balticus*) and Elk sedge (*Carex douglasii*) community types.

Rock Creek
Rock Creek is a perennial stream located on the western boundary of the allotment. About 0.3 mile of Rock Creek located downstream of pasture 33 was fenced into a grazing exclosure in 1997. This segment is functioning at risk with a strong upward trend (USDI 2008a). Riparian areas are vegetated with a Geyer's willow type (*Salix geyeriana/Carex nebrascensis* C.T.). Young willows are abundant and sedge and willow cover is increasing on banks and floodplains. A short segment of Rock Creek (0.2 mile) is located in pasture 33 and is in functioning at risk condition with a slow upward trend. Channels of both segments are historically incised 4 to 6 feet in depth (G-channels, Rosgen 1996). Most streambanks of Rock Creek in pasture 33 are vegetated with bank stabilizing sedges and willows, and sedge and willow cover is slowly increasing under fall grazing (USDI 2008a,b).

Sheep Creek
Sheep Creek is a tributary to Rock Creek and flows northwest through pastures 28A and 33 to Rock Creek. The headwater spring is located at Sheep Creek Pond spring in pasture 28A. The upper BLM segment on Sheep Creek in pasture 28A is 0.3 mile long. This segment has perennial surface flows and is in functional at risk condition with no apparent trend (USDI 2008a). Streambanks are vegetated with facultative grasses, with small areas of sedges present. Streambanks and channels are actively eroding at the downstream end of the segment, with the

channel altered to a degraded G channel type (Rosgen 1996). The downstream segment in pasture 28A is 0.5 mile long and is in PFC. Stream channel shape and form is appropriate for the landscape setting (90% B stream type; Rosgen 1996). Streambanks are adequately vegetated with bank-stabilizing species. About 20% of streambanks are unstable due to bank alteration (trailing). Streamflows are intermittent with no surface flows on most of the reach by July. Much of the lower one-quarter of this segment is vegetated with facultative species (Silver sage [*Artemisia cana*], Juniper [*Juniperus occidentalis*], and grasses) due to the limited availability of water.

The lower 0.5 mile of Sheep Creek is located in pasture 33. About 0.2 mile of Sheep Creek from the confluence upstream to the road crossing at the BLM/private land boundary is in PFC (USDI 2008a). Stream channel shape and form are appropriate for the landscape setting (predominantly B and E stream types; Rosgen 1996). Streambanks are stable and well vegetated with plant communities dominated by bank-stabilizing species. The predominant plant community is a Geyer's willow type (*S. geyeriana/C. nebrascensis* C.T.). The next BLM segment upstream (0.3 mile long) is also well vegetated with plant communities dominated by bank-stabilizing species. Plant communities are predominantly Geyer's and Booth willow types (*S. geyeriana*/*C. nebrascensis* and *S. boothi*/C. *nebrascensis* C.T.s). However, 3 active headcuts are present, and the segment is functioning at risk with a downward trend as channels continue to erode at the headcuts (USDI 2008a). Channel instability is due to the erosion of inactive beaver dams (USDI 2008a,b).

West Fork Shoofly Creek

West Fork Shoofly Creek and associated canyons and cliff slopes form much of the eastern boundary of the allotment in pastures 8B and 14. The stream flows northeast from pasture 14 to pasture 8. In pasture 14, upstream of the private land parcel, 0.6 mile of West Fork Shoofly Creek is in PFC (USDI 2008a). Channel shape and form are appropriate for the landscape setting. Streambanks and floodplains are well vegetated with bank stabilizing plant communities dominated by willows (*S. lasiandra, S. lutea, S. lasiolepsis, and S. scouleriana*) and quaking aspen (*P. tremuloides*). Shrubs armor and stabilize 90-95% of streambanks. Floodplains are vegetated with 25-75 m wide areas of woody shrubs. West Fork Shoofly Creek (1.6 miles) in the canyon reach in pasture 8B and the lower end of pasture 14 is in functional at risk condition with an upward trend (USDI 2008a). Streambanks are largely vegetated with bank stabilizing plant communities dominated by willows (*S. lutea, S. lasiandra, S. lemmonii*), red-twig dogwood (*Cornus sericea*), with some black cottonwood (*Populus trichocarpa*) trees present. About 20% of the reach is vegetated with early seral plant communities, which are being colonized by late-seral rushes (*Scirpus microcarpus*). Recent trailing along the canyon reach in 8B has impacted the floodplain resulting in bare soil areas and trails (nick points) that are susceptible to erosion during high flows (USDI 2008a).

The downstream-most segment in pasture 8B (0.5 mile) is in functional at risk condition with a static trend (USDI 2008a). Streambanks are inadequately vegetated with bank-stabilizing plants on the upper one-third of the segment and plants exhibited low vigor as a result of high use and high levels of bank alteration (USDI 2008a). Shrub recruitment is also lacking. The channel on the lower portion of the segment is incised 2-3 feet, and is weakly vegetated with wild rose and

sagebrush due to the loss of bank storage of water resulting from the historic incision of the channel (USDI 2008a,b).

Wetlands

The functioning condition of 41 wetlands at springs on the East Castle Creek Allotment has been assessed. No surface water was found at two additional springs at the time they were inventoried and their condition was not assessed.

Thirteen springs have been developed to provide water for livestock; ten springs had short pipelines from the spring source to a watering trough, and three springs had ponds excavated in the wetland down-slope of the spring (USDI 2008a). All or most of the wetland at five developed springs was fenced to exclude livestock grazing. Eight wetlands at developed springs were functional at risk or non-functional, and 5 wetlands were in PFC. Impacts observed at developed springs with wetlands in functional at risk or non-functional condition included dewatering of all or a portion of the wetland, compaction or pugging of wetland soils, lack of or absence of wetland vegetation (USDI 2008a).

Of the 28 undeveloped springs, the wetland at Summit Spring was fenced to exclude livestock use, but livestock can access the wetlands at the remainder of the undeveloped springs in the allotment. Six wetlands at undeveloped springs are in PFC, 18 are functional at risk, and four are non functional (USDI 2008a). Additionally, two wetlands located at seeps or spring areas that are not mapped on USGS topographic maps in pasture 11B were assessed. One wetland was functional at risk and one wetland was in non-functional condition (USDI 2008a). Two wetlands (at mapped springs) in the upper end of Birch Creek in pasture 11B were assessed in 2002 and 2006. Trend in condition was static to downward (USDI 2008a). Overall 74% of spring wetlands are non-functional or in functional at risk condition (USDI 2008b).

3.3.1 Environmental Consequences – Streams, Riparian Areas and Wetlands

This analysis considers impacts to riparian areas that would occur within each pasture. The duration of impacts to streams, riparian areas, and wetlands described below are as follows:

Short-term = up to 5 years from implementation
Mid-term = 5 to 10 years from implementation
Long-term = 15 years after implementation

Improving riparian areas, in this analysis, is defined as progress toward PFC. It includes an increase in diversity of riparian species, density, and vigor of riparian vegetation. Increased riparian vegetation has many benefits: it filters sediment, supports and builds streambanks, reducing bank/depth ratio and dissipating energy, increases ground water recharge and storage thereby effectively increasing the storage and flow of water in the long term, and shades the stream channel thereby reducing solar radiation and lowering stream water temperatures. Fish habitat is improved when the width/depth ratio is decreased (narrower and deeper channel) and pools increase (often pools are a limiting factor in many degraded streams) and water temperatures are lower. More stream shading provides better cover for fish to hide from predators and the lower water temperatures allow for higher dissolved oxygen levels. Increased stream cover, dissolved oxygen and reduced sediment in the streams and in the gravels of the stream bed increases fish production and survivability.

Riparian-wetland areas are important wildlife habitat. As the riparian area improves in functioning condition, insect production, a source of food for fish and wildlife, also increases and habitat improves. In the Great Basin, 79% of terrestrial wildlife species are dependent on riparian areas (BLM TR 1737-14 1997) for some part of their life history.

Negative effects to wetlands associated with livestock grazing include:

- Pugging, defined as soil compaction caused by the weight of grazing animals, such as deep hoofprints or hoof action.
- Abnormal hydrologic heaving which is exacerbated when there is a compaction between plants (for example for hoof action) and/ or excessive removal of thermal vegetation cover. This results in a hummocked appearance of plants being elevated above the normal ground surface, root shearing between plants, and exposure of interspaces to increased erosional forces (TR 1737-11 1994). If allowed to continue over time would change vegetation composition.
- Change in vegetation composition from excessive utilization, pugging and hummocking of wetland. Over time would result in decreased cover, diversity of wetland vegetation, reduced extent of wetland, altered water quality and quantity, and lower biodiversity.

These types of negative effects may eventually drain the wetlands resulting in a loss.

Common Impacts Associated With Fence (Exclosure) Construction: The direct impacts to riparian, wet meadow and springs resulting from fence construction include localized vegetation removal, trampling, breakage and hydric soil disturbance in the short term. There is an increased potential for the spread of invasive species as soils are disturbed. Indirect, localized long term impacts depend on the purpose of the fence and management of the area within the fence. If the purpose is to exclude livestock grazing, the riparian areas and springs would generally improve in functioning condition, with increased cover, vigor, frequency, stature and diversity of riparian vegetation; increased soil moisture maintenance; increased soil replenishment for the riparian vegetation; increased water storage and flow; improved watershed health and wildlife habitat.

Common Impacts Associated With New Water Developments: Direct impacts to riparian, wet meadow and spring resulting from new water developments (troughs, pipelines, ponds) include vegetation removal, trampling, breakage, increased utilization, soil disturbance, and potential spread of invasive species. There are isolated short term impacts to riparian vegetation from headbox placement, and, depending on maintenance and effectiveness of the pipeline and trough system, could result in some dewatering, or drying up, of the spring source by capturing too much of the water. Water developments can be used to draw livestock away from over-utilized areas or streams in order to benefit upland vegetation or riparian areas.
Table 20 summarizes the functional condition of stream segments that would be affected by each alternative. The narratives following Table 20 describe impacts to riparian areas and wetlands for each alternative in more detail.

Table 20. Comparison among alternatives of projected condition of riparian habitats over the long-term (>15 years), for stream segments currently not meeting or projected to not meet standards (proper functioning condition [PFC]) under one or more alternatives. Currently, 6.8 miles of stream are in functional at risk condition with static or downward trends (FARS or FARD) (USDI 2008).

Stream	Pasture	Current Condition	Length (mi)	Projected Condition over the Long-term				
				Alt A	Alt B	Alt C	Alt D	Alt E
W.F. Shoofly	8B	FARS	0.5	FARS	FARS	FARS	PFC	PFC
W.F. Shoofly	8B	FARU	1.6	PFC	PFC	PFC	PFC	PFC
W.F. Shoofly	14	FARU	0.3	PFC	PFC	PFC	PFC	PFC
W.F. Shoofly	14	PFC	0.6	PFC	PFC	PFC	PFC	PFC
Birch	8B	FARU	0.2	PFC	PFC	PFC	PFC	PFC
Birch	10B	FARU	1.0	PFC	PFC	PFC	PFC	PFC
Birch	11B	FARU	2.5	PFC	PFC	PFC	PFC	PFC
Birch	11B	PFC	0.2	PFC	PFC	PFC	PFC	PFC
Birch	11B	NF	0.2	NF	NF	NF	FARU	PFC
Poison	8B	FARS	1.2	FARS	FARS	FARS	FARU	PFC
Poison	8B	NF	2.5	NF	NF	NF	NF	NF
Poison	12	FARS	4.0	FARS	FARU	FARS	FARU	PFC
Poison	12	PFC	0.6	PFC	PFC	PFC	PFC	PFC
Fall	12	PFC	0.7	PFC	PFC	PFC	PFC	PFC
Lone Juniper	12	FARS	0.5	FARS	FARU	FARS	FARU	PFC
Sheep	28A	PFC	0.5	PFC	PFC	PFC	PFC	PFC
Sheep	28A	FARS	0.3	FARS	FARS	FARS	PFC	PFC
Sheep	33	FARD	0.3	FARU	FARU	FARU	FARU	FARU
Sheep	33	PFC	0.2	PFC	PFC	PFC	PFC	PFC
Battle	29	FARU	1.6	PFC	PFC	PFC	PFC	PFC
Rock	33	FARU	0.5	PFC	PFC	PFC	PFC	PFC
Totals (miles)		FARD: 0.3 FARS: 6.5 FARU: 7.7 PFC: 2.8 NF: 2.7	20	FARS: 6.5 FARU:0.3 PFC: 10.5 NF: 2.7	FARS: 2.0 FARU:4.8 PFC: 10.5 NF: 2.7	FARS: 6.5 FARU:0.3 PFC: 10.5 NF: 2.7	FARU:6.2 PFC: 11.3 NF: 2.5	FARU:0.3 PFC: 17.2 NF: 2.5

3.3.1.1 **Alternative A – No Action/Current Management**

Wetlands

The five wetlands at developed springs that are excluded from livestock grazing would continue to be in PFC. Negative effects, as described above, from livestock grazing would continue to occur at the other nine developed springs that are functional at risk or non-functional and their functioning condition would not change.

Of the 28 undeveloped springs, the wetland at Summit Spring was fenced to exclude livestock use, but livestock can access the wetlands at the remainder of the undeveloped springs in the allotment. Trend in the remaining springs and wetlands would remain the same: six wetlands at undeveloped springs would be PFC; 18 would function at risk; and four would continue to be in

non-functional condition. Overall 74% of spring wetlands would remain in non-functional or in functional at risk condition. Some photos are included in Appendix E.

Streams

Stream riparian areas that are currently in functional at risk with an upward trend in condition (7.7 miles of stream on Battle, Birch, Rock, and West Fork Shoofly creeks) would continue to improve and reach PFC over the long term. About 2.8 miles of stream would continue to be in PFC (2.45 miles are associated with rugged, rocky canyon segments that restrict livestock access, 0.35 mile are in grazing exclosures). About 5 miles of riparian areas (primarily on Poison Creek in pastures 12 and 8B; Table 11) would remain in functional at risk condition with static to downward trends, largely due to high levels of livestock use and bank alteration. Another 2.7 miles of stream would remain in NF because of historical stream impacts (channel incision and loss of bank storage of water), and 1.8 miles would remain in FAR because of either current or historical channel incision. Of 8.7 miles of riparian habitat identified for improvement in the Management Framework Plan, 5.7 miles (on Battle, Birch, and Poison creeks) would continue to improve in condition and meet the MFP objectives over the long term. Three miles of Poison Creek are primarily impacted by historical channel incision and loss of water availability, and would not improve in condition.

Floodplains on Poison and Sheep creeks and portions of West Fork Shoofly creek do not contain a lot of rock to help stabilize streambanks and channels and thus these streams are susceptible to alteration and erosion until they are well vegetated with bank-stabilizing plant species (Clary and Webster 1989, Beeson and Doyle 1995, Micheli and Kirchner 2002). These stream segments would continue to receive too extensive of levels of bank alteration by livestock and conditions would remain static to downward.

Spring Pastures

The short segment of Birch Creek (0.2 mile) located upstream of the private land at the Doyle Homestead and the canyon portion of West Fork Shoofly Creek (1.6 miles) would continue to improve and meet Standard 2 over the long-term.

The downstream-most segment of West Shoofly Creek in pasture 8B (0.5 miles) would continue to be in functional at risk (FAR) condition with a static trend. The lower portion of this segment displays a loss of bank storage of water resulting from historic incision and is being colonized by sagebrush. The upper portion of this reach would begin to make progress towards meeting Standard 2 over the long-term (>15 years) but would not likely reach proper functioning condition (PFC) during the life of the permit.

The lower portion of Poison Creek in pasture 8B (2.5 miles) would remain non-functional (NF) due to historic channel incision and subsequent dewatering. The upper portion (1.2 miles) of Poison Creek would remain FAR with a static trend over the long-term.

Birch Creek on pasture 10B (1 mile) would continue to improve in health because riparian plant cover would continue to increase. The upward trend along this portion of Birch Creek would continue and the segment would reach PFC over the long-term.

The upward trend in condition of riparian areas and stream channels on the majority of Birch Creek (2.5 miles) in pasture 11B would continue with late spring grazing and with ½ the herd. This reach would continue to be FAR over the short-term but could reach PFC over the long-term, particularly in areas where the channel is not incised. Those segments that have been impacted by historical channel incision and loss of water (0.2 miles) would continue to be non-functional over the long-term. A separate but equally short segment of Birch Creek (0.2 miles) along a steep rocky canyon would continue to be vegetated with aspen and willows resulting in PFC over the long-term. Livestock fencing that partitions state and private lands within the pasture could prevent excessive use along upper Birch Creek because those lands can now be grazed independently.

The majority of Poison Creek in pasture 12 (4 miles) would continue to display a static trend over the short and long-term. A high level of bank alteration and low vigor of bank stabilizing vegetation would continue as a result of either livestock grazing (3.8 miles) or historic channel incision (0.2 miles). Old-aged willows and other late-seral riparian plant communities would persist along other portions of Poison Creek in the central portion of the pasture (0.4 miles) and in the Summit Springs and Poison Creek Recreation Site Grazing Exclosures (0.2 miles). These segments would maintain PFC because plant communities would continue to armor stream banks and prevent erosion over the long-term.

The segment of Fall Creek in pasture 12 (0.7 miles) would continue to support old-aged shrubs and trees that result in stable stream banks and PFC over the long-term (except the 0.4 mile portion that is fenced in with the state section of Anchustegui's: it is undisclosed how that reach would be managed and potential impacts are unknown). Weeds and upland vegetation would likely continue to encroach into the ecotone between the riparian area and the uplands with the proposed grazing system. While these shallow rooted species would not necessarily cause a downward trend in functioning condition of Fall Creek, they could reduce the ability of Fall Creek to recover PFC after a future disturbance event (e.g., fire, flood) that removes riparian vegetation.

The riparian area of Lone Juniper Creek in pasture 12 (0.5 miles) would continue to be FAR over the short-term due to active head cuts in the channel. The proposed grazing system would not reverse the static trend.

The lower portion of West Fork Shoofly Creek (0.3 miles) in pasture 14 would continue to be FAR with an upward trend over the short-term and could reach PFC over the long-term. The upper portion of West Fork Shoofly Creek (0.6 miles) would continue to be in PFC over the long-term. Livestock do not access most riparian areas because of dense riparian shrubs (USDI 2008a).

Summer Pastures

Buck Spring in pasture 28 is a large wetland area in the northwest portion of the pasture. There is a trough placed adjacent to the spring complex and the perennial channel that flows to Rock Creek. The spring and channel are in poor condition due to pugging, hummocking, utilization, and loss of wetland area. Effects to the Buck Spring spring complex would remain the same.

The lower segment of Sheep Creek in pasture 28A (0.5 miles) would maintain PFC over the long-term. The upper segment (0.3 miles) would continue as FAR with a static trend over the long-term. While stream bank alteration and erosion along the upper segment could improve incrementally over the long-term, annual livestock utilization would continue to inhibit the density and cover of bank-stabilizing species, resulting in an overall static trend.

Battle Creek (1.6 miles) in pastures 29C and 29 D would remain in FAR over the short-term but would continue to display an upward trend due to the rest rotation grazing system proposed for these pasture. These pastures, when grazed, are grazed early in the season with low stocking levels for a short period. Riparian vegetation has adequate time to regrow after livestock are removed. The channel stability and vigor of bank stabilizing plants along this segment of Battle Creek would continue to increase. The segment would achieve PFC over the long-term.

Exclusion of livestock grazing on 0.3 mile of Rock Creek in pasture 33 would continue the strong upward trend of riparian functioning condition. Outside the grazing exclosure, 0.2 miles of Rock Creek would also exhibit an upward trend, improving to PFC more slowly than that portion within the exclosure.

A short segment (0.3 mile) of Sheep Creek would continue to exhibit a downward trend due to head cuts related to loss of active beaver dams. The segment will stabilize over the long-term as the riparian plant communities increase and stabilize streambanks resulting in an upward trend. The 0.2 mile reach that is in proper functioning would remain in PFC.

3.3.1.2 **Alternative B – Anchustegui Alternative**

Wetlands

For wetlands and riparian areas, the main difference between this alternative and Alternative A is the lower stocking level in pasture 12 and the slightly higher stocking level in pasture 11B (from 718 AUMs to 730). Effects to spring wetlands would be similar to Alternative A for most of the allotment, except in these two pastures. Functioning condition of five springs in pasture 12 would improve in the mid- to long-term due to lower stocking levels resulting in decreased grazing pressure. Improvements would include increased diversity, vigor and cover of riparian vegetation, decreased pugging and abnormal frost heaving, increased water storage, decreased bare soil. The sixth spring in pasture 12 is in PFC and while cover and vigor of vegetation may improve, the condition rating would still be PFC. The condition of springs in the remainder of the allotment would remain the same as Alternative A. Negative effects from livestock grazing including pugging, abnormal frost heaving, over utilization, loss of riparian vegetation and drying of wetland would continue in the rest of the allotment due to the same management.

The maintenance of the pond and construction of the exclosure around the spring at Bill De Alder would result in improved conditions of this wetland area. Over the mid-term to long-term the wetland area would improve to proper functioning condition. Conditions and trends at remaining springs across the allotment would be unchanged from Alternative A.

Streams

Spring Pastures

Birch Creek (0.2 miles) and two separate reaches of West Fork Shoofly Creek (1.6 and 0.5 miles) would improve in functioning condition more rapidly under this alternative during the first three years with the voluntary non-use in numbers. It is assumed, since adjustments would be based on monitoring results, that trends associated with initial management would continue and these stream reaches would achieve proper functioning condition in the long-term

The lower portion of Poison Creek (2.7 miles) effectively in King's portion of the 8B would remain non-functional for the same reasons discussed under Alternative A. Impacts to the upper portion of Poison Creek, effectively in Anchustegui's portion of 8B above the fence that would divide the state section, would be similar to Alternative A as well. Trend would remain static, as was seen under the settlement agreement which had similar numbers and did not result in upward trends. The fence in this alternative may also result in a bottleneck on Poison Creek and may result in more cattle congregating here.

It is unclear what would occur from years 4 through 10 based on monitoring because it is not described in the alternative. If grazing were to remain the same as described under the first 3 years, then impacts would not change.

Birch Creek on pasture 10B (1 mile) would continue to improve in health because riparian plant cover would continue to increase. The upward trend along this portion of Birch Creek would continue and the segment would reach PFC over the long-term.

Livestock grazing management effects on Birch Creek in 11B would be the same as under Alternative A. There would be only slight differences in use between the two alternatives. These segments of Birch Creek would achieve PFC over the long-term. The segments of Birch Creek (0.2 miles) in pasture 11B that have been impacted by historical channel incision and loss of bank storage of water would continue to be NF over the long-term. The canyon segment of Birch Creek (0.2 miles) in pasture 11B would maintain PFC over the long-term. The seven days flexibility under this alternative has potential to limit the recovery of Birch Creek.

The number of livestock (418) and AUMs (343) proposed for Pasture 12 is much lower than Alternative A and would result in greater improvement on the creeks than under Alternative A. The majority of Poison Creek in pasture 12 (4.0 miles) would begin to display an upward trend over the long-term due to the lower stocking level. Upward trend would continue to the extent that spring non-use continues after year three. It is unclear after year 3 what would occur and what impacts would be. Impacts to Poison Creek in the central portion of the pasture (0.4 miles) and in the Summit Springs and Poison Creek Recreation Site Grazing Exclosures (0.2 miles) would be the same as described under Alternative A.

Lower grazing pressure would reduce the potential for weeds and shallow rooted upland vegetation to colonize the riparian area on Fall Creek to the extent that spring non-use is perpetuated in years 4 through 10. The segment of Fall Creek in pasture 12 (0.7 miles) would continue to support old-aged shrubs and trees that result in stable stream banks and PFC over the

long-term (except the 0.4 mile portion that is fenced in with the state section of Anchustegui's: it is undisclosed how that reach would be managed and potential impacts are unknown).

Lone Juniper Creek in pasture 12 (0.5 miles) could show trend improvements over the mid-term if head cuts stabilize. The proposed stocking level would reduce the potential for head cuts to migrate upstream over the short-term. The segment would continue to display an upward trend to the extent that voluntary spring non-use continued. Trend would become static over the long-term if grazing were increased in years 4 through 10.

The seven days flexibility under this alternative has potential to limit the recovery of streams in this pasture. If use is extended by seven days in this pasture, it would result in an increase of 28%, which would still be less than Alternative A, but would result in slower progress being made.

Livestock grazing management effects on West Fork Shoofly Creek in pasture 14 would remain the same as described under Alternative A.

Summer Pastures

Livestock grazing management effects on springs, wetlands and streams would remain as described under Alternative A. In these pastures, resource objectives and progress towards meeting Standards 2 and 3 would not be made.

Proposed Projects

Pasture 8B Division Fence: This project would result in isolated, short term impacts from fence construction where the fence crosses Poison Creek, from trampling, soil disturbance and vegetation removal during construction. At the stream crossing, long term impacts would result from increased trailing along the fence and the ready access to the stream for livestock this fence would create. Riparian condition at the fence would not make progress towards meeting the riparian standard. The pasture division would result in approximately ½ of mile of Poison Creek in Mr. Anchustegui's portion of 8B. This would be the only reach of Poison Creek in his portion of the pasture and could result in increased use along the stream if livestock are allowed to congregate on the creek.

Mine Adit Trough: This project would result in isolated, long term impacts from headbox and pipeline placement. Riparian vegetation would be removed during headbox placement. Wetland soils and riparian vegetation would be trampled, compacted and removed during pipeline placement. This project is located directly adjacent to Poison Creek and provides off-stream water for livestock. There is an old mining adit with spring water or ground water filling the entrance to the adit and flowing downstream to Poison Creek. The proposal would place a headbox at the opening of the adit and pipe the water downhill a short distance with a trough on the south side of Mud Flat Road and the south side of Poison Creek. The trough, however, would be located very close (approximately within 100 feet) to Poison Creek due to the topography of the surrounding hills. When the site was visited in October and November 2008 there was evidence of some livestock use within the limits of the 2004 Settlement. This project would not result in decreased utilization along Poison Creek and may draw more livestock to the creek with resulting increased use on Poison Creek and slower recovery of riparian vegetation.

If livestock cross Poison Creek or the overflow from the mine adit, it would result in increased pugging and bank alteration.

Pasture 29A Pond at Bill De Alder Draw: This project would result in a strong upward trend of the spring.

3.3.1.3 **Alternative C – King Proposed Action**

Wetlands

This alternative prescribes building overflow/wet meadow management structures (fences) around most springs, wetlands and wet meadows in the allotment (except pastures 29A, B, C, and D) in order to improve riparian functioning condition, improve sage-grouse brood rearing habitat, to meet resource objectives and Idaho Standards for Rangeland Health. Of the undeveloped springs: three springs in NF condition would be fenced; 8 in FAR would be fenced; and one in PFC would be fenced. Three undeveloped meadows would be fenced also. Four of the already developed springs would be fenced (Rat, Eagle, Half Moon, and Pasture 44#1), two of which are in PFC and 2 are FAR, and the larger complex at Buck Springs would be fenced (a smaller fence already exists).

In addition, the meadows associated with Battle Creek Headwaters (NF) and Magpie Creek Headwaters (FAR) springs would be fenced, and the ponds replaced with troughs placed outside the meadow structures. 5 springs (4 in FAR and one in NF condition) and 2 meadows would be would be developed for livestock water and the structures built around the springs and meadows.

The sum of these exclosures leaves a difference of 17 assessed springs unprotected: two springs in NF condition; 8 springs in FAR condition; and 7 springs in PFC. The springs in PFC condition will likely not change (decline) in pastures 10B, 11B, 12, or 29A as management is the same or only slightly different from Alternative A. Similarly, the condition of the other springs will not improve. If the long term management of increasing numbers in pastures 28 is applied, the condition of the spring (s) may change from PFC to FAR with increased pressure.

Generally, excluding springs and wetlands from livestock grazing is the fastest way to improve functioning condition and overall health of the system. Under this alternative, however, the prescription calls for the fenced areas to be grazed annually to an average height of the meadow vegetation of 4 inches then livestock would be removed from the fenced areas. This would result in limiting excessive utilization and would likely allow some of the higher condition (high end of functioning at risk) springs to improve. But this level of utilization with concentrated livestock use would likely not allow worse condition functioning at risk springs or non functioning springs to improve and negative effects from livestock grazing would occur. Negative effects from livestock grazing would include:

- Pugging defined as soil compaction caused by the weight of grazing animals, such as deep hoofprints or hoof action.
- Abnormal hydrologic heaving exacerbated when there is a compaction between plants (for example for hoof action) and/ or excessive removal of thermal vegetation cover. This results in a hummocked appearance of plants being elevated above the normal ground surface, root shearing between plants, and exposure of interspaces to increased erosional forces (TR 1737-11 1994). If allowed to continue over time would change vegetation composition.

- Change in vegetation composition from excessive utilization, pugging and hummocking of wetland. Over time would result in decreased cover, diversity of wetland vegetation, reduced extent of wetland, altered water quality and quantity, and lower biodiversity.

These types of negative effects may eventually drain the wetlands resulting in a loss.

More detailed list of springs and effects under this alternative are discussed at the end of the section under projects.

Streams

Spring Pastures

Livestock grazing management effects to Birch Creek in Pasture 8B and two separate reaches of West Fork Shoofly Creek would be similar to Alternative B. Birch Creek (0.2 miles) and a segment of West Fork Shoofly Creek (1.6 miles) would reach PFC over the long-term. The other segment of West Fork Shoofly Creek (0.5 miles) in this pasture would show an upward trend over the long-term along the upper half, but the lower half would maintain a static trend over the long-term.

The lower portion of Poison Creek in pasture 8B (2.5 miles) would remain NF for the same reasons discussed under Alternative A. The upper 1.2 miles would remain in functional at risk condition even though this reach would now be included in pasture 10B. 25% fewer AUMs in spring for the first four years would be similar to that prescribed under the 2004 Settlement which resulted in a static functional at risk condition.

Improvements in Birch Creek in pasture 10B and 11 B (2.5 miles) would be greater than under Alternative A. Birch Creek would continue to improve, at least in the interim period, after which, depending on monitoring, it is unclear what the impacts would be in this pasture because management is not defined. If management continues as described in the "interim" period, upward trends would continue. If a subsequent shift of 16 percent spring grazing to other pastures (years 4 – 10) occurred, the upward trend would continue more slowly over the long-term.

The segments of Birch Creek (0.2 miles) in pasture 11B that have been impacted by historical channel incision and loss of bank storage of water would continue to be NF over the long-term while the canyon segment (0.2 miles) would maintain PFC over the long-term.

Poison and Lone Juniper creeks in pasture 12 would remain in functional at risk condition. Although this alternative would result in a slightly lower stocking levels as seen prior to the 2004 Settlement, it prescribes 22 days use with 730 to 788 cows each year. This prescription would not be significantly different from what occurred from 1998 to 2005 which resulted in unstable banks and poor vegetative cover. The timing of livestock grazing is generally good for riparian areas, however livestock spend a great deal of time grazing and watering on streams in this pasture. Livestock alteration of streambanks and trampling of early-seral vegetation would continue to be high with this stocking level. Improvements in the density and cover of bank-stabilizing species would not occur.

Effects from livestock grazing on West Fork Shoofly Creek in pasture 14 would be the same as those described under Alternative A.

Summer Pastures
Livestock grazing management effects on springs, wetlands and streams would remain as described under Alternative A, except as modified by the projects proposed. In these pastures, resource objectives and progress towards meeting Standards 2 and 3 depend on the level of utilization on the resources, fencing, and developments.

Projects
Spring Exclosures: A total of 12 spring exclosures without new trough developments and 5 spring exclosures with existing developments (each would be approximately 3.6 acres in size as discussed at the January 23, 2009 meeting of the BLM and Kings), would be constructed at the following springs (the numbers associated with the un-named springs or wetlands are BLM identification numbers assigned during field inventories):

- Spring 893-10B-4A Exclosure
- Spring 893-10B-10A Exclosure
- Half Moon Spring Exclosure(developed, also analyzed separately under Alternative D)
- Spring 893-11B-20A Exclosure (also analyzed separately under Alternative D as Spring 11B #2)
- Spring 2020038 Exclosure (also analyzed under Alternative D as Spring 11B #1)
- Spring 2020039 Exclosure
- Eagle Spring Exclosure (developed, also analyzed separately under Alternative D)
- Spring at 8S1E20SWNW Exclosure
- Spring at 8S1E17SWSWNE Exclosure
- Spring 893-28-14A Exclosure (developed, also analyzed separately under Alternative D as Buck Spring)
- Spring 893-28-15A Exclosure
- Exclosure of the wet meadow/riparian area of Rat Spring (<0.025 acre) and installation of an additional trough at the existing facility (developed, also analyzed separately under Alternative D)
- Spring 893-28-24A Exclosure
- Spring at 8S1W31W Exclosure
- Spring 893-44-29B Exclosure (developed, also analyzed separately under Alternative D as Pasture 44 Spring #1)
- Spring 893-44-30B Exclosure (also analyzed separately under Alternative D as Pasture 44 Spring #2)
- Spring 893-44-32B Exclosure

These projects would result in short term, localized direct impacts on riparian areas during construction and longer term indirect impacts similar to those described above. Unlike Alternatives D and E, this alternative prescribes overflow/wet meadow management structures to be grazed annually to an average height of the meadow vegetation of 4 inches, and then livestock would be removed from the fenced areas. Use would be limited to 4 inches, which depending on the type of vegetation being grazed could be up to 75% utilization. Depending of season and what is available in the exclosure, use on willows and other riparian shrubs could be high. Livestock will switch to willows quickly when palatable wetlands species (like Kentucky

bluegrass and redtop) are grazed down. Having purposeful grazing within these exclosures will concentrate livestock on these resources and will likely not result in substantial benefits to the resources.

Spring Exclosures with New Water Trough Developments: A total of 9 spring exclosures and new trough developments would be constructed at the following springs (the numbers associated with the un-named springs or wetlands are BLM identification numbers assigned during field inventories). Each exclosure would be approximately 3.6 acres in size (as discussed at the January 23, 2009 meeting of the BLM and Kings):

- Development and exclosure of the wet meadow/riparian area of Spring 2020073 (previously "Pasture 11B Spring Development" and also analyzed separately under Alternative D)
- Development and exclosure of the wet meadow/riparian area of Spring 893-11B-19A
- Development and exclosure of the wet meadow/riparian area of Spring 893-12-07A
- Development and exclosure of the wet meadow/riparian area of Spring 893-12-17B
- Development and exclosure of the wet meadow/riparian area of Spring 893-12-18B
- Development and exclosure of the wet meadow/riparian area of an unnamed spring at 8S1E17 SWNWSW
- Development and exclosure of the wet meadow/riparian area of an unnamed spring at 8S1W20SWSW (Gopher Spring)
- Replacement of a livestock pond with a trough on uplands and exclosure of the wet meadow/riparian area of Spring 893-19-23B (0.081 acres) (Battle Creek headwaters).
- Replacement of a livestock pond with a trough on uplands and exclosure of the wet meadow/riparian area of an unnamed spring at Magpie Creek Headwaters.

These projects would result in short term, localized direct impacts on riparian areas during construction and longer term indirect impacts similar to those described above. Some, but not all the spring flow would be removed from the springs and piped to a trough, but as per Instruction Memorandum No. ID-2004-009 (Clarification for Range Improvement Program), enough water would remain in the spring to maintain the wetland. Additional wetlands may be created from the overflow of the trough. These spring exclosures would not be grazed and the springs and wetlands would improve quickly with a release from grazing.

Taken individually, the projects may improve overall condition of the fenced springs. But, cumulatively in pasture 12 alone there are 6 troughs and a watergap proposed in addition to spring and meadow exclosures at 5 places to protect wet meadow habitat. These water developments would serve an area where grazing use levels are already very high (see photo 13 in Appendix E). The intensive water developments would exacerbate the use levels on uplands and seasonal drainages and meadows that are not included in the proposed exclosures. So many new water sites in the upland wet meadows may reduce grazing pressure on Poison Creek, thus improving conditions on the stream, at the detriment to the areas surrounding the developed springs.

In the exclosures, the hoof-sheared walls at the excluded meadows would heal, the compaction of the meadows would be eliminated, and the meadows could become wetter, which would improve soil moisture and water retention and vegetation. However, these small exclosures will

not heal the gullies above or below the exclosures and will not correct the larger problems in the uplands.

Birch Creek Pipeline Extension into Pasture 8BI: This project would have no impacts or benefits to riparian or spring resources.

Poison Creek Pipeline Extension into Pasture 8B: This project would be approximately a mile away from a dry section of Poison Creek, and would therefore have insignificant benefits to Poison Creek or other streams in the pasture.

Alteration of the 8B and 10B Division Fence: This project would result in additional livestock grazing pressure on the reach of Poison Creek below the pasture 12 division fence. The stocking would be higher under this alternative due to the reconfiguration of the pastures. Impacts would remain and could be higher. The stream would remain in functioning at risk condition with a static to downward trend.

Mine Adit Trough: See discussion under Alternative B.

Moving the water trough out of the Poison Creek Exclosure (in pasture 12) into pasture 12 (Summit Spring Trough): The trough inside the exclosure dried up many years ago. During a field visit during the fall of 2008 to assess this project it was determined that it would not be feasible at this time due to lack of flow and movement of the spring source. This project would place a trough close to Poison Creek just outside the Summit Spring Exclosure near the top of Pasture 12. This project would be proposed to provide off-stream water to livestock and to reduce grazing pressure on the hanging meadows in the upper end of 12. If it is determined that it is feasible with spring flows, placing a trough adjacent to Poison Creek would not result in a measurable difference in the condition of the stream. Livestock would likely still congregate along the stream near the exclosure, utilize the vegetation, cross the creek where able and continue to cause streambank alteration and damage. It may result in attracting more livestock to the area to water, and the areas outside the meadow exclosures would receive heavier pressure.

Horsehead Spring Pipeline Extension into 10B and 12: Horsehead Spring is located on State of Idaho land therefore there would be no impacts to a BLM spring. The pipeline, as discussed, would have short- and long-term negative effects to wetland soils and riparian vegetation associated with the intermittent drainage that the pipeline would follow. Negative effects include soil compaction, damage to riparian vegetation, increased sediment, reduced water flow, and would likely increase livestock use of the area. Road construction (unknown mileage) would have no known impacts to riparian areas or streams at this time. The project would provide off-stream water in a corner of pasture 12 between Lone Juniper and Poison creeks. Improvements to the streams and riparian areas would be negligible as livestock would likely still congregate on the riparian areas for shade and forage. In addition, these trough locations are in a hilly area some distance from the creeks and would likely therefore not lessen use on the creeks. In pasture 10B there are two watering areas within a mile of the proposed trough location as displayed on Map 7. The livestock prescription described under this alternative for Birch Creek in pasture 10B would continue to allow Birch Creek to improve; therefore this project is not needed to make progress towards meeting the standards.

Alteration of the pasture 12/pasture 20 fence so as to construct a water gap into private/state land in pasture 20 (approximately ¼ mile fence total): This would supply another water source to the already degraded hanging meadows area, likely resulting in increased use on the portion of the meadows not included in exclosures and having no benefits to riparian or wetland resources.

Headcut Stabilizations: There would be direct and indirect effects to riparian vegetation and soils during construction by removal, trampling and compaction. In the long term, depending on design and severity of the headcuts, streams would improve dramatically due to these projects. However, overall the improvements in functioning condition of the streams would be influenced by the livestock grazing prescription. If the livestock grazing is not conducive to improvement in stream and riparian functioning condition, the stabilization projects would only have immediate, localized effects and would prevent further degradation at the site, but would not address the cause of the headcuts within the watersheds.

Exclosure of the wet meadow/riparian area of Sheep Creek at 9S1W6SE: This project would fence a short reach of Sheep Creek between two small parcels of State lands. This would improve the condition of Sheep Creek here to PFC in the mid-term.

Juniper Station Pond: This project, to clean out a pond and fence the associated wet meadow, would improve the wet meadow/spring area and result in a strong upward trend. Short-term, localized effects from fence construction would be as described above. In the long-term, there would be continued trampling and compaction of the soils from livestock congregating at the pond, but overall improvements in the meadow and wetland would offset the level of disturbance at the pond (the level of disturbance at the pond would not be more than it currently is).

Rat Spring: The addition of a second trough would likely result in less wetland/riparian area as less water would be overflowed to the wetland.

Bald Mountain: Piping the overflow 200 feet down a drainage would have negligible benefits to riparian and wetland resources.

Buck Spring Exclosure: Similar to Alternative D, this exclosure would fence the larger spring complex at Buck Spring resulting in rapid improvements in the spring wetland area. Unlike Alternative D, however, there would be no protection for the stream channel flowing from Buck Spring. The channel would continue to degrade with no change in livestock grazing. The numerous headcuts would become deeper, continue to migrate and erode the channel. Use levels would remain high along the stream and little recruitment of riparian vegetation would occur.

Riparian Exclosures in Pastures 8B, 10B, 11B and 12: Construction of riparian grazing exclosures (less than 3 acres in size each) in two-to-four representative vegetation types and representing the current range of stream conditions on Poison Creek and Birch Creek. This project could amount to 24 acres along Poison and Birch Creeks in riparian exclosures. Direct and indirect impacts would be the same as described above. The riparian area, vegetation, stream channel, habitat and water quality would all improve with a release from livestock grazing and would provide areas to study and measure progress of the grazing prescription in the unfenced areas.

3.3.1.4 **Alternative D – Adaptive Management Alternative**

Wetlands
Undeveloped spring wetland conditions in spring and summer pastures would improve more quickly and to a greater extent than under Alternative A due to lower stocking levels, construction of rangeland improvement projects, and application of the annual indicator criteria.

Livestock grazing management effects to nine spring wetlands previously developed to provide livestock water and seven non-functional wetlands would be the same as those described under Alternative B. Functional condition around these spring wetlands would improve over the long-term to PFC, except at Bald Mountain Spring which no longer supports wetland vegetation and would continue to be NF over the long-term due to historic dewatering.

Five undeveloped spring wetlands would improve to FARU or PFC over the long-term provided that they are also fenced to exclude livestock. These wetlands plus those mentioned above would result in 24 of the 44 wetlands in PFC over the long-term. The majority of the remaining wetlands would be in FAR with low to moderate levels of disturbance. Project construction would result in strong upward trends in wetland spring functioning condition at Magpie Creek headwaters, Battle Creek headwaters, two springs in pasture 44, Buck Spring complex, Rat Spring, Juniper Station pond, Rock Spring, a wet meadow tributary of Battle Creek, and the spring/wetland at Bill de Alder draw. Ten other spring wetlands (4 developed and 6 undeveloped) would continue to exhibit PFC over the long-term.

Streams
The primary mechanism for improvement of streams, riparian areas and wetlands under this alternative is the application of the annual indicator criteria that prescribe a removal of livestock from pastures when criteria are met. In addition, this alternative proposes lower stocking levels or reduced time which would also promote improvements. Pastures 11B and 12 are treated as riparian pastures, with reduced number of cows and reduced time allowed in the pastures.

Spring Pastures
Livestock grazing management effects to Birch Creek (0.2 miles) above the Doyle Homestead would be similar to those described under Alternative A except that improvement in riparian condition would occur more quickly because of the lower stocking level.

The lower reach of West Fork Shoofly Creek currently in functional at risk condition would improve to proper functioning condition with the realignment of the pasture fence. Conditions along the upper half of the segment would improve more quickly than under Alternative A because of reduced grazing pressure and application of the annual indicator criteria.

As with Alternative A, the lower portion of Poison Creek in pasture 8B (2.5 miles) would remain NF due to historic channel incision and subsequent dewatering. The lower stocking level and alternating April and May use is similar to the 2004 Settlement, which resulted in a static trend in riparian functioning condition on the remaining section (1.2 miles) of Poison Creek. With the application of annual indicator criteria and close monitoring of livestock use, there could be a slight upward trend observed on these reach. The later season of use every other year combined

with fewer livestock in the pasture would decrease the amount of hoof sheer and pugging along the streambank. Impacts would be limited to those levels prescribed in the annual indicator criteria.

Birch creek (1 mile) in pasture 10B would continue to improve and would be in proper functioning condition in the long term under this alternative. Improvements would occur more rapidly than Alternatives A, B or C due to lower stocking level and shorter time and implementation of the annual indicator criteria. The delay to May grazing every other year would lessen the impact of soil disturbance in riparian areas and wetlands.

The early, short duration use in pastures 11B and 12 would allow adequate time for riparian vegetation regrowth following the grazing season, resulting in increased streambank stability and improved riparian vegetation structure and vigor (Clary and Webster 1989). Livestock utilization and streambank alteration (hoof shearing and pugging) would be reduced due to the shorter length of time in these pastures. Application of the AIC would result in fewer impacts than Alternative A, resulting in increased vigor and cover of riparian species; diversity of riparian species; increased bank stability; improved water storage capability; increased thermal protection; and improvement of stream channel and floodplain morphology (Clary and Webster 1990).

Improvements on Birch Creek would occur more rapidly than Alternative A, B or C, due to lower stocking level proposed under this alternative and the shorter duration of use in the pasture. The majority of the reach could achieve PFC over the mid-term. Smaller portions of Birch Creek that have been impacted by historical channel incision (0.2 miles) could show an upward trend over the long-term if establishment of early seral riparian vegetation occurs. The canyon segment of Birch Creek in pasture 11B would continue to be in PFC over the long-term.

The majority of Poison Creek in pasture 12 (4 miles) would continue to display a static trend over the short-term but would begin to exhibit an upward trend over the long-term. The lower stocking levels and shorter duration and application of the annual indicator monitoring would permit more vigorous riparian vegetation that would stabilize the stream banks along this reach. Riparian areas associated with Lone Juniper Creek in pasture 12 (0.5 miles) would be static over the short term moving with an upward trend over the long term. Increased riparian vegetation would help stabilize stream banks and headcuts over time.

West Fork Shoofly Creek in pasture 14 would continue to have an upward trend and would reach PFC.

Summer Pastures

The spring complex at Buck Spring would improve to proper functioning condition under this alternative with the construction of the Buck Spring exclosure fence.

The lower segment of Sheep Creek in pasture 28A (0.5 miles) would maintain PFC over the long-term. Riparian area conditions along the upper segment (0.3 miles) of Sheep Creek would exhibit trend improvements more rapidly than under Alternative A. Fewer AUMs and an earlier season of use would reduce the potential for direct alteration of stream banks by livestock and

permit potential improvements in vigor and percent cover of bank stabilizing riparian vegetation. The proposed grazing system and exclosure would result in PFC along the upper segment of Sheep Creek over the long-term.

Channel stability and vigor of bank stabilizing vegetation along Battle Creek (1.6 miles) in 29C and 29D would improve similar to Alternative A. The segment would reach PFC over the mid-term. Livestock grazing management effects on Rock Creek would be the same as those described under Alternative A.

Proposed Projects

West Fork Shoofly Fence Realignment project: This project would expedite improvements along West Fork Shoofly Creek (1.6 miles) relative to Alternative A by preventing unauthorized livestock use of the grazing exclosure, preventing excessive bare ground along the floodplain and reducing the risk of erosion during high flow events. Fence construction would result in localized short term impacts, including trampling, vegetation removal, and soil compaction.

Spring Exclosures (Half Moon Spring, Eagle Spring, 2 springs in Pasture 11B, 2 springs in Pasture 44, 1 spring in Pasture 12, Rat Spring): Construction of these fences would have localized short term impacts to riparian vegetation through trampling, vegetation removal and soil compaction. The impacts would be limited because most of the spring exclosures would be built outside the wetland area of influence, but there would be some incidental impacts that may occur. Over the short term, these springs would improve to or stay in proper functioning condition: vigor, density and cover of riparian vegetation would increase; wetland soil structure would improve resulting in better water storage; and habitat would improve. Riparian/wetland vegetation with deep binding root masses would stabilize the eroded areas and over time there would be an increase in groundwater recharge.

Pasture 11B Spring Development: This project would exclude the spring and provide off-stream water for livestock near the state section in 11B, above Birch Creek. There would be isolated short term impacts to the riparian vegetation at the spring during headbox placement, but fencing the spring would result in improvement of riparian condition in the long term. If the spring development pulls livestock off Birch Creek, it result in faster improvement of the stream.

Buck Spring Exclosure in Pasture 28: This exclosure fence would result in the degraded spring complex improving to proper functioning condition over the long-term. Due to the level of disturbance, headcuts, pugging and other erosion present, this complex would respond slowly, but significantly over time. The downstream channel, also included within the exclosure, would improve to proper functioning condition as well, which would have a positive impact downstream on Rock Creek. As the soil structure is allowed to improve around the springs, riparian/wetland vegetation would stabilize the eroded areas and increase the groundwater recharge. Riparian vegetation and bank stability would improve in the channel quickly, and the headcuts and gullies would stabilize over the long term. There would be direct impacts to riparian vegetation during construction including trampling and soil compaction, but they would be of short duration and recovery would be expected.

Juniper Station Pond: see discussion under Alternative C.

Rock Spring Exclosure Expansion: The expansion of this exclosure to include additional wetland area on BLM would improve the riparian wetland area to proper functioning condition. There would be some minor, incidental impacts to riparian vegetation during construction including trampling and soil compaction, but they would be limited and of short duration. The fence would be outside the area of wetland influence. Benefits include increase in cover and density and vigor of riparian vegetation and increased ground water recharge.

Station Spring Exclosure Expansion: Benefits to the riparian/wetland area would be expected over the long term. Due to the level of soil disturbance and compaction, the response would not be immediate, but would take several years for the wetland plants to expand. Improving and protecting the overflow from the present trough would result in increased water within the exclosure.

Pasture 29A Battle Creek Tributary Meadow Exclosure: The meadow at this site is currently downcut and eroding. This exclosure fence would stabilize the wet meadow and improve the overall condition. Erosion caused by pugging and hoof shearing would stop and wetland vegetation cover would increase and achieve proper functioning condition over the long term.

Magpie Creek Headwaters Exclosure and Trough: The exclosure fence would result in a strong upward trend of the wet meadow area and spring complex. The breaching of the dam, placement of headbox and pipeline to trough (placed on private land) would have immediate, direct impacts to the spring, soils and what vegetation is left at the spring through trampling and soil disturbance. Over the long term, however, removal of livestock would have a positive effect. Wetland soil structure would improve with the removal of disturbance, riparian vegetation would colonize the site, and water storage would improve.

Battle Creek Headwaters Exclosure and Trough: The exclosure fence would result in a strong upward trend of the wet meadow area and spring complex. Currently the spring is impounded and there is no overflow from the dam. The breaching of the dam, placement of headbox and pipeline to trough would have immediate, direct impacts to the spring, soils and what vegetation is left at the spring through trampling and soil disturbance. Over the long term, however, removal of livestock would have a positive effect. Wetland soil structure would improve with the removal of disturbance, riparian vegetation would colonize the site, and water storage would improve. The overflow from the trough would return to Battle Creek which would have positive downstream effects.

3.3.1.5 **Alternative E – BLM**

Wetlands

Impacts to nine developed spring wetlands, five undeveloped spring wetlands, and seven non-functional wetlands would be the same as described under Alternative D because the spring source or primary wetland area would be fenced to exclude livestock. Impacts to the spring wetland at Bald Mountain Spring would be the same as those described under Alternative D. The majority of the remaining wetlands would be in FAR with low to moderate levels of disturbance. In contrast to Alternative D, spring wetlands associated with early spring pastures (11B and 12) would improve more rapidly due to a lower number of AUMs proposed, while

those associated with pasture 28 would improve more slowly due to higher number of AUMs proposed.

Streams

Spring Pastures

Impacts to Birch Creek (0.2 miles) above the Doyle Homestead and West Fork Shoofly Creek (1.6 miles) would be similar to those described under Alternative D. Although use would occur later in the season (up to June 15th, rather than May 31st as in the other alternatives) one year out of three, there would also be a year of rest prescribed. Overall, the livestock grazing prescription would result in PFC over the long term.

Livestock grazing effects to West Fork Shoofly Creek in pasture 8B (0.5 miles) would be similar to those described in Alternative D. As with Alternative A, the lower portion of Poison Creek in pasture 8B (2.5 miles) would remain NF due to historic channel incision and subsequent dewatering. Rest and lower stocking levels would result in the upper portion (1.2 miles) of Poison Creek moving towards proper functioning condition. Lower stocking levels relative to Alternative A on Birch Creek in pasture 10B and rest would promote improvements along the reach resulting in PFC over the long-term.

Birch and Poison creeks in pastures 11B and 12 would improve the most quickly under this alternative due to the lower stocking levels and shortening of the season of use. Both these pastures would be grazed as riparian pastures with the primary objective to limit use on the streams and improve conditions. Impacts to Birch Creek (2.5 miles) would be similar to those described under Alternative D but improvements would occur faster under this alternative because fifty percent fewer AUMs are proposed under this alternative. The reach could exhibit PFC over the mid-term and would exhibit PFC over the long-term. Smaller portions of Birch Creek that that have been impacted by historical channel incision (0.2 miles) would improve more rapidly than under Alternative D and could reach PFC over the long-term. The canyon segment of Birch Creek in pasture 11B would continue to be in PFC over the long-term.

Livestock grazing management effects on the majority of Poison Creek in pasture 12 (4 miles) would be similar to those described under Alternative D but improvements could occur more rapidly because 50 percent fewer AUMs are proposed for the pasture. This reach could begin to exhibit an upward trend over the mid-term and would exhibit PFC over the long-term. Impacts to riparian areas along segments of Poison Creek in the central portion of the pasture (0.4 miles) and in the Summit Springs and Poison Creek Recreation Site Grazing Exclosures (0.2 miles) would be the same as described under Alternative A.

Livestock grazing management effects on Lone Juniper Creek (0.5 miles) would be similar to those described under Alternative D but improvements could occur more rapidly because 50 percent fewer AUMs are proposed for the pasture. Lone Juniper Creek could exhibit PFC over the mid-term, provided that active head cuts stabilize.

Livestock grazing management effects on West Fork Shoofly Creek in pasture 14 would be same as those described under Alternative D.

Summer Pastures
Livestock grazing management effects on Buck Spring and Rock Creek would be the same as described under Alternative D. As with Alternative A, the lower portion of Sheep Creek (0.5 miles) would continue in PFC over the long-term. Livestock grazing management effects on the upper portion of Sheep Creek (0.3 miles) would be similar to those described under Alternative D. There would be slightly greater potential for livestock utilization of riparian areas under this alternative relative to Alternative D due to a later season of use.

Livestock grazing management effects on Battle Creek (1.6 miles) in 29C and 29D would be similar to those described under Alternative A. The segments would reach PFC over the long-term.

Proposed Projects
Effects from projects would be the same as described under Alternative D, with the exception of the following:

Pasture 8B Division Fence: The exact location of this fence has not been determined. The following impacts are what would be expected from fence construction and placement. Generally, where the fence crosses Poison Creek there would be direct short term impacts from fence construction, including trampling and removal of vegetation, soil compaction, erosion, and soil compaction. Long term, there would be direct impacts to the riparian vegetation and soils from expected livestock trailing along the fence and increased utilization from livestock. The purpose of the fence is not to improve riparian conditions along Poison Creek, but to allow for a rest rotation in the early spring pastures for the upland vegetation.

3.4 Affected Environment – Water Quality

Six major streams (Battle, Birch, Poison, Rock, Sheep, and West Fork Shoofly creeks) with perennial stream flows are located in the East Castle Creek allotment. Portions of Poison Creek have intermittent flows in years with low snow packs. Beneficial uses designated for all streams in the allotment include agricultural water supply (waters suitable or intended to be made suitable for the irrigation of crops or as drinking water for livestock) and secondary contact recreation (water that may be used for fishing, boating, wading, and other activities where ingestion of raw water is not probable). The designated beneficial uses for Battle Creek are primary and secondary contact recreation, cold water aquatic life, and salmonid spawning (IDEQ 2003). The beneficial use of cold water aquatic life is given to waters that are suitable or intended to be made suitable for protection and maintenance of viable communities of aquatic organisms and populations of significant aquatic species that have optimal growing temperatures below 18°C. The use of salmonid spawning is assigned to waters that provide or could provide habitat for active self-propagating populations of salmonid fishes (redband trout). Salmonid spawning and cold water aquatic life are primary beneficial uses for Rock, Sheep, and West Fork Shoofly creeks. Cold water aquatic life is an additional beneficial use for Birch and Poison creeks.

All six streams in the East Castle Creek allotment are 303(d) listed by the State of Idaho as water quality impaired (IDEQ 2003) and the Idaho Department of Environmental Quality (IDEQ) is

requiring TMDL (Total Maximum Daily Load) allocations for these streams to improve water quality (Table 21). IDEQ (2004b) found the six streams were not fully supporting the cold water aquatic life beneficial use (Table 22). IDEQ evaluates water quality in an Integrated 303(d)/305(b) Report (IDEQ2004b) using assessment units, which are groups of similar streams within a subbasin that have similar land use practices, ownership, or land management. Several streams in the East Castle Creek allotment were found to not support beneficial uses because they were grouped with other streams in the assessment unit for which IDEQ had data showing non support of beneficial uses (Table 22).

Table 21. Impaired Waters on the East Castle Creek allotment for which IDEQ (2003, 2004a, and 2007) is requiring TMDLs.

Name (Assessment Unit)	**Pollutant**
Birch Creek – Source to mouth (ID17050103SW021_02)	Sediment
Battle Creek – Source to mouth (ID17050104SW023_02)	Temperature
Poison Creek – Source to mouth (ID17050103SW024_02)	Sediment
Rock Creek – Source to Triangle Reservoir (ID17050108SW013_02)	Temperature
Sheep Creek – as a tributary to Rock Creek (ID17050108SW013_02)	Temperature
West Fork Shoofly Creek – as a tributary to Shoofly Creek (ID17050103SW024_02)	Sediment

Table 22. Beneficial use support status of streams in East Castle Creek allotment (IDEQ 2004b).

Name (Assessment Unit)	**CWAL**	**PCR**	**Comments**
Birch Creek – Source to mouth (ID17050103SW021_02)	Not Supporting	---	Segment and all attributes carried forward from 1998 list
Battle Creek – Source to mouth (ID17050104SW023_02)	Not Supporting	Fully	Segment and all attributes carried forward from 1998 list. Added to 303(d) list for temperature in SBA.
Poison Creek-Source to mouth (ID17050103SW024_02)	Not Supporting	---	Segment and all attributes carried forward from 1998 list.
Rock Creek – 1st and 2nd order segments from Source to Triangle Reservoir (ID17050108SW013_02)	Not Supporting	Fully	Segment and all attributes carried forward from 1998 list.
Sheep Creek – as a tributary to Rock Creek (ID17050108SW013_02)	Not Supporting	---	Segment and all attributes carried forward from 1998 list. This segment was not on the 1998 list and is not assessed
West Fork Shoofly Creek – as a tributary to Shoofly Creek (ID17050103SW024_02)	Not Supporting	---	Segment and all attributes carried forward from 1998 list. This segment was not on the 1998 list and is not assessed

CWAL=Cold Water Aquatic Life; PCR=Primary Contact Recreation; SCR=Secondary Contact Recreation
--- = Not Assessed

In general, streams on the East Castle Creek allotment did not fully support the cold water beneficial use because of either elevated stream temperatures or sediment (Table 21). BLM temperature data supports DEQ's findings of non-support of the cold water aquatic life beneficial use for Birch Creek and Poison Creek (USDI 2008a). BLM measurements of stream substrates on Birch Creek, Poison Creek, and Battle Creek also showed elevated levels of fine sediment in those streams (USDI 2008a). BLM bacteria sampling showed Birch Creek generally met criteria for full support of primary and secondary contact recreation beneficial uses, except in the late 1990's (USDI 1997; USDI 2008a). Poison Creek consistently had bacteria levels that exceeded criteria for full support of primary and secondary contact recreation beneficial uses during the time pastures 8B and 12 were being grazed (USDI 2008a,b).

Support of the cold water aquatic life beneficial use is largely dependent on maintaining narrow stream channels with stable banks that are well-shaded by streamside vegetation. Water quality is improving in Birch Creek based on trends in streamside vegetation, stream channel shape and form, and reductions in bacteria levels over time (USDI 2008a,b). Water quality of Poison Creek is impaired by both high levels of sediment and bacteria, and trends in streamside vegetation cover and bank stability are static to downward (USDI 2008a,b). Water quality in Battle and Rock creeks, and portions of West Fork Shoofly is improving based on upward trends in streamside vegetation cover and bank stability (USDI 2008a,b). Recent hot season grazing and trailing along portions of West Fork Shoofly Creek in pasture 8B has resulted in bare soil areas in floodplains that are susceptible to erosion and excessive use of riparian vegetation, contributing to static trends in plant cover, bank stability, and hence water quality (USDI 2008a,b).

3.4.1 **Environmental Consequences – Water Quality**

Water quality is tied closely to riparian functioning condition (described in the section above). As riparian conditions improve, stream channels narrow, deepen and stabilize. As riparian areas improve it also becomes more difficult for livestock to access the stream which reduces bacteria and reduces bank alteration, which causes increased sediment in the stream. These synergistic processes result in improved water quality criteria for temperature, dissolved oxygen levels, sediment, and reduce *E. coli* and fecal coliform levels. Changes in water quality would not be immediate and would require development of healthy riparian areas to see results. In general, aquatic habitat conditions would improve as channel form recovers, fine sediment levels decrease, and thermal cover provided by stream shading increases.

3.4.1.1 **Alternative A – No Action/Current Management**

Water quality would continue to improve and meet State standards over the long term on streams that are currently in functional at risk with an upward trend in condition (7.7 miles of stream on Battle, Birch, Rock, and West Fork Shoofly creeks). About 2.8 miles of stream would continue to support high quality water (2.4 miles are associated with rugged, rocky canyon segments that restrict livestock access, 0.4 mile are in grazing exclosures).

About 6.0 miles of stream would continue to have impaired water quality as these streams would remain in functional at risk condition with static to downward trends, largely due to high of levels of livestock use and bank alteration (USDI 2008a). Stream bank alteration and livestock use of riparian vegetation would continue to result in sedimentation and a lack of stream shading. Water quality of these streams is impaired due to a loss of stream shading which increases direct solar heating of the water column; Johnson 2004), bank destabilization (sources of fine sediment, which adversely impacts fish habitat; Beeson and Doyle 1995, Micheli and Kirchner 2002) and over widened, shallow channel dimensions that receive more solar radiation than narrow, deeper channels; Poole and Berman 2001). Streams with impaired water quality would include 5.2 miles of Poison Creek in pastures 8B and 12, 0.3 miles of Sheep Creek in pasture 28A, and 0.5 miles of West Fork Shoofly Creek in pasture 8B.

Approximately 2.5 miles of Poison Creek (pasture 8B) and 0.2 miles of Birch Creek (pasture 11B) would continue to be sediment impaired because of historical stream impacts (channel incision and loss of bank storage of water), while 0.3 mile of Sheep and 0.5 mile of West Fork Shoofly would have impaired water quality (widened channels and elevated sediment) because of either current or historical channel incision.

3.4.1.2 **Alternative B – Anchustegui Proposed Action**

As with Alternative A, about 2.8 miles of stream that are excluded from grazing or otherwise inaccessible to livestock would continue to support high quality water.

Effects to water quality on streams that are currently functional at risk with an upward trend in condition (7.7 miles of stream on Battle, Birch, Rock, and West Fork Shoofly creeks) would be similar to those described under Alternative A (i.e., they would continue to improve and meet State standards over the long-term).

As with Alternative A, water quality in streams that continue to display a static trend in functioning condition due to livestock grazing would continue to have impaired water quality (0.3 miles of West Fork Shoofly Creek in pasture 8B, Poison Creek in Anchustegui's portion of 8B, and 0.3 miles of Sheep Creek in pasture 28A). Short-term lower stocking levels in spring in pasture 12 would improve water quality slightly on stream, because levels of bank alteration would likely decrease. Lower spring stocking levels would reduce the potential for stream sedimentation and indirectly increase stream shading along these reaches as livestock forage less on riparian vegetation. Water quality along these reaches would continue to improve over the long-term, provided that grazing management continues. However, water quality along these segments would revert back to current conditions over the long-term (described in Alternative A) if voluntary non-use was discontinued.

Effects to water quality on Birch Creek in 11B would be the same as Alternative A. Similar to Alternative A, historic channel incision and loss of bank storage of water would continue to impair water quality on about 2.5 miles of Poison, 0.2 miles of Birch, and 0.3 mile of Sheep and 0.5 mile of West Fork Shoofly creeks.

Projects

Pasture 8B Division Fence: This project would result in isolated, short term impacts to water quality from fence construction where the fence crosses Poison Creek, from increased sediment and erosion along the stream banks. At the stream crossing, long term impacts would result from increased trailing along the fence and the ready access to the stream for livestock this fence would create. The pasture division would result in approximately ½ of mile of Poison Creek in Mr. Anchustegui's portion of 8B. This would be the only reach of Poison Creek in his portion of the pasture and could result in increased use along the stream if livestock are allowed to congregate on the creek.

Mine Adit Trough: This project, due to its proximity to Poison Creek would have limited benefits to water quality. Additional livestock may actually be drawn to the trough and to this location on Poison Creek, thereby increasing effects to stream banks, riparian vegetation and water quality. Depending on the level of disturbance to the mine tailings adjacent to the site and the levels of heavy metals in the water pooled at the entrance to the mine adit, this project has the potential to harm water quality in Poison Creek by introducing heavy metals and increasing runoff on tailing piles. However, the exact content of the mine tailings and levels of heavy metals are not known at this time. These impacts may be of short duration as pollutants are carried downstream.

Pasture 29A Pond at Bill De Alder Draw: This project would result in a strong upward trend of the spring which would have short and long term benefits to this water body.

3.4.1.3 **Alternative C – King Proposed Action**

As with Alternative A, about 2.8 miles of stream that are either excluded from grazing or otherwise inaccessible to livestock would continue to support high quality water. Similar to Alternative B, water quality in streams that continue to display a static trend in functioning condition due to livestock grazing would continue to have impaired water quality.

Livestock grazing management effects to water quality on streams that are currently functioning at risk with an upward trend in condition (7.7 miles of stream on Battle, Birch, Rock, and West Fork Shoofly creeks) would be similar to those described under alternatives A; they would continue to improve and meet State standards over the long-term. Water quality on Birch Creek in the new configuration of Pasture 10B would improve due to the reduced stocking levels. Water quality on Poison Creek, just below Pasture 12, in the new Pasture 10B, which used to be in Pasture 8B, would not improve due to the reconfiguration of the pasture. This reach of stream would have an increase of livestock use due to the changes in the stocking rate and the stream, currently functioning at risk with a static trend, would have continue to be static to downward. The new trough in pasture 10B from the new Horsehead Spring Pipeline would provide some relief for Poison Creek, but would not offset the effects of the increased stocking overall in the pasture because livestock would still be utilize the portion of Poison Creek in the new 10B configuration.

The short reach of Sheep Creek in between the two sections of State lands in pasture in Pasture 28A would improve at the proposed exclosure location due to the release from grazing, depending on if the upstream State lands do not also continue to be impacted. If water quality in

the upstream section does not improve or pollutants decrease, then water quality on BLM would remain impacted.

Effects to Poison Creek in pastures 8B and 12 would be the same as under Alternative A in areas not excluded with fence exclosures. The stream would remain in a static trend and bank stability, vegetation cover, and water quality would not improve. Impacts to water quality along streams impacted by historic or current channel incision including 2.5 miles of Poison Creek, 0.2 miles of Birch Creek, and 0.3 mile of Sheep and 0.5 mile of West Fork Shoofly creeks would be the same as those described under Alternative A. In the 2 to 4 new exclosures on Poison Creek, water quality at the site and downstream for a short distance would improve.

Proposed Projects

Spring Exclosures: A total of 12 spring exclosures without new trough developments and 5 spring exclosures with existing developments (each would be approximately 3.6 acres in size as discussed at the January 23, 2009 meeting of the BLM and Kings), would be constructed at the following springs (the numbers associated with the un-named springs or wetlands are BLM identification numbers assigned during field inventories):

- Spring 893-10B-4A Exclosure
- Spring 893-10B-10A Exclosure
- Half Moon Spring Exclosure(developed, also analyzed separately under Alternative D)
- Spring 893-11B-20A Exclosure (also analyzed separately under Alternative D as Spring 11B #2)
- Spring 2020038 Exclosure (also analyzed under Alternative D as Spring 11B #1)
- Spring 2020039 Exclosure
- Eagle Spring Exclosure (developed, also analyzed separately under Alternative D)
- Spring at 8S1E20SWNW Exclosure
- Spring at 8S1E17SWSWNE Exclosure
- Spring 893-28-14A Exclosure (developed, also analyzed separately under Alternative D as Buck Spring)
- Spring 893-28-15A Exclosure
- Exclosure of the wet meadow/riparian area of Rat Spring (<0.025 acre) and installation of an additional trough at the existing facility (developed, also analyzed separately under Alternative D)
- Spring 893-28-24A Exclosure
- Spring at 8S1W31W Exclosure
- Spring 893-44-29B Exclosure (developed, also analyzed separately under Alternative D as Pasture 44 Spring #1)
- Spring 893-44-30B Exclosure (also analyzed separately under Alternative D as Pasture 44 Spring #2)
- Spring 893-44-32B Exclosure

These projects would result in short term, localized direct and indirect impacts to water quality during construction, including increased sedimentation, disturbed soils, and opening of the vegetative canopy during construction which could increase solar radiation. Unlike Alternatives D and E, this alternative prescribes overflow/wet meadow management structures to be grazed

annually to an average height of the meadow vegetation of 4 inches, and then livestock would be removed from the fenced areas. This would result in similar water quality impacts as Alternative A. Having purposeful grazing within these exclosures will concentrate livestock on these resources and will likely not result in substantial benefits to the resources. If these fenced springs are not grazed, condition and water quality at the springs would improve.

Spring Exclosures with New Water Trough Developments: A total of 9 spring exclosures and new trough developments would be constructed at the following springs (the numbers associated with the un-named springs or wetlands are BLM identification numbers assigned during field inventories). Each exclosure would be approximately 3.6 acres in size (as discussed at the January 23, 2009 meeting of the BLM and Kings):

- Development and exclosure of the wet meadow/riparian area of Spring 2020073 (previously "Pasture 11B Spring Development" and also analyzed separately under Alternative D)
- Development and exclosure of the wet meadow/riparian area of Spring 893-11B-19A
- Development and exclosure of the wet meadow/riparian area of Spring 893-12-07A
- Development and exclosure of the wet meadow/riparian area of Spring 893-12-17B
- Development and exclosure of the wet meadow/riparian area of Spring 893-12-18B
- Development and exclosure of the wet meadow/riparian area of an unnamed spring at 8S1E17 SWNWSW
- Development and exclosure of the wet meadow/riparian area of an unnamed spring at 8S1W20SWSW (Gopher Spring)
- Replacement of a livestock pond with a trough on uplands and exclosure of the wet meadow/riparian area of Spring 893-19-23B (0.081 acres) (Battle Creek headwaters).
- Replacement of a livestock pond with a trough on uplands and exclosure of the wet meadow/riparian area of an unnamed spring at Magpie Creek Headwaters.

These projects would result in short term, localized direct impacts on water quality during construction. Some, but not all the spring flow would be removed from the springs and piped to a trough, but as per Instruction Memorandum No. ID-2004-009 (Clarification for Range Improvement Program), enough water would remain in the spring to maintain the wetland. Sufficient flow would remain to maintain or improve water quality with the addition of the exclosure. Additional wetlands may be created from the overflow of the trough. These spring exclosures would not be grazed resulting in the water quality of the springs improving because of reduced sedimentation and bacteria inputs from livestock. Water quality of remaining springs and streams not included in exclosures would not improve.

Birch Creek Pipeline Extension into Pasture 8BI: There would be no direct or indirect impacts to water quality from this project.

Poison Creek Pipeline Extension into Pasture 8B: There would be no direct or indirect impacts to water quality from this project. Poison Creek Pipeline Extension into Pasture 8B: This project would be approximately a mile away from a dry section of Poison Creek, and would therefore have insignificant benefits to Poison Creek or other streams in the pasture.

Alteration of the 8B and 10B Division Fence: This project would result in additional livestock grazing pressure on the reach of Poison Creek below the pasture 12 division fence. The stocking would be higher under this alternative due to the reconfiguration of the pastures. Impacts would remain and could be higher. The stream would remain in functioning at risk condition with a static to downward trend. Bacteria levels may be elevated here due to the increase in grazing pressure.

Mine Adit Trough: See discussion under Alternative B.

Moving the water trough out of the Poison Creek Exclosure (in pasture 12) into pasture 12 (Summit Spring Trough): This project would place a trough close to Poison Creek just outside the Summit Spring Exclosure near the top of Pasture 12. This project would be proposed to provide off-stream water to livestock. At present, due to lack of spring flow, this project is not feasible. However, if feasible, livestock would have an additional water source adjacent to Poison Creek next to the Summit Spring Exclosure. If the trough were placed on the southeast side of the Mud Flat Road, the more practical side for placement, livestock from the north would still have to cross Poison Creek to access the trough. This part of Poison Creek would continue to have unstable banks, increased sediment, and elevated bacteria levels. This project may attract additional livestock to Poison Creek below the Summit Spring Exclosure, and while they would more readily drink from the trough, utilization levels on Poison Creek and bacteria inputs to Poison Creeks would likely not be reduced.

Horsehead Spring Pipeline Extension into 10B and 12: Horsehead Spring is located on State of Idaho land therefore there would be no direct or indirect impacts to BLM at the development site. Road construction (unknown mileage) in order to build the project would have no known impacts to water quality. The project would provide off-stream water in pasture 12 between Lone Juniper and Poison creeks. Improvements to the water quality of Poison Creek would be slight as livestock would likely still congregate on the riparian areas for shade and forage. In addition, the troughs would be too far away from the streams to provide relief. In pasture 10B there are two watering areas within a mile of the proposed trough location as displayed on Map 7. Birch Creek in pasture 10B has an upward trend in riparian condition, which would continue under the livestock grazing prescription. Indirect benefits to Birch Creek from this project would be slight.

Alteration of the pasture 12/pasture 20 fence so as to construct a water gap into private/state land in pasture 20 (approximately ¼ mile fence total): Water quality on BLM would not be impacted by this project.

Rat Spring: The addition of a second trough would likely result in less wetland/riparian area as less water would be overflowed to the wetland.

Pasture 11B Spring Development: This project would exclude the spring and provide off-stream water for livestock near the state section in 11B, above Birch Creek. There would be isolated short term impacts to water quality at the spring during headbox placement, but fencing the spring would result in improvement of water quality as this isolated spring in the long term. Water quality of Birch Creek would continue to have an upward trend under the livestock

grazing management prescription for this alternative. Indirect benefits to Birch Creek from this project would be slight.

Exclosure of the wet meadow/riparian area of Sheep Creek at 9S1W6SE: Excluding livestock grazing from this reach of Sheep Creek would result in improved water quality.

Headcut Stabilizations: There would be short-term direct and indirect impacts to water quality during construction of the protective fences by removal, trampling of vegetation and soil. In the long term, depending on design, headcuts would stabilize and sediment in the streams would be reduced.

Juniper Station Pond: This project, to clean out a pond and fence the associated wet meadow, would improve the wet meadow/spring area and result in a strong upward trend. Short-term, localized effects from fence construction would be as described above. In the long-term, there would be continued trampling and compaction of the soils from livestock congregating at the pond, but overall improvements in the meadow and wetland would offset the level of disturbance at the pond (the level of disturbance at the pond would not be more than it currently is). No changes to the water quality at the immediate location of the pond would be realized.

Buck Spring Exclosure: Similar to Alternative D, this exclosure would fence the larger spring complex at Buck Spring resulting in rapid improvements in the spring wetland area. Unlike Alternative D, however, there would be no protection for the stream channel flowing from Buck Spring. The channel would continue to degrade with no change in livestock grazing. The numerous headcuts would become deeper, continue to migrate and erode the channel. Use levels would remain high along the stream and little recruitment of riparian vegetation would occur. No changes to water quality would occur.

Riparian Exclosures: Construction of riparian grazing exclosures (less than 3 acres in size each) in two-to-four representative vegetation types and representing the current range of stream conditions on Poison Creek and Birch Creek. This project could amount to 24 acres along Poison and Birch Creeks in riparian exclosures. The riparian area, vegetation, stream channel, habitat and water quality would all improve with a release from livestock grazing and would provide areas to study and measure progress of the grazing prescription in the unfenced areas.

3.4.1.4 **Alternative D**

As with Alternative A, about 2.8 miles of stream that are either excluded from grazing or otherwise inaccessible to livestock would continue to support high quality water. Similar to Alternative A, impacts to water quality would continue to improve and meet State standards over the long-term on streams that are currently functional at risk with an upward trend in condition (7.7 miles of stream on Battle, Birch, Rock, and West Fork Shoofly creeks). Rangeland improvement projects would promote water quality improvements at site specific locations.

Water quality along all major stream segments would improve over the long-term because they would display functional or upward trends in condition. Water quality along 6.0 miles of stream

currently receiving excessive levels of bank alteration would improve as a result of lower stocking levels and implementation of adaptive management. These improvements would be more persistent than under Alternative B due to the potential removal of livestock from pastures not meeting the annual indicator criteria in key riparian areas. Potentially, water quality could improve very quickly.

As with Alternative A, water quality along 2.5 miles of Poison Creek would continue to be impaired due to historic channel incision. In contrast to Alternatives A, B, and C, water quality along Sheep and West Fork Shoofly creeks would improve over the long-term due to greater bank stability, stream shading and application of the annual indicator criteria.

Proposed Projects

West Fork Shoofly Fence Realignment project: This project would expedite improvements along West Fork Shoofly Creek (1.6 miles) relative to Alternative A by effectively excluding livestock grazing within the exclosure, preventing excessive bare ground along the floodplain and reducing the risk of erosion during high flow events. Fence construction would result in localized short term impacts, including trampling, vegetation removal, and soil compaction that would increase solar radiation and sediments in the stream for a short time. Long term, this project would result in improved water quality.

Spring Exclosures (Half Moon Spring, Eagle Spring, 2 springs in Pasture 11B, 2 springs in Pasture 44, 1 spring in Pasture 12, Rat Spring): Construction of these fences would have localized short term impacts to water quality from increased sediments and vegetation removal. The impacts would be limited because most of the spring exclosures would be built outside the wetland area of influence, but there would be some incidental impacts that may occur. Over the short term, water quality at these springs would improve. Riparian/wetland vegetation with deep binding root masses would stabilize the eroded areas and over time there would be an increase in groundwater recharge. Fence construction would have the immediate effect of limiting fecal coliform input into the spring area.

Pasture 11B Spring Development: This project would exclude the spring and provide off-stream water for livestock near the state section in 11B, above Birch Creek. There would be isolated short term impacts to water quality at the spring during headbox placement, but fencing the spring would result in improvement of water quality as this isolated spring in the long term. Water quality of Birch Creek would continue to have an upward trend under the livestock grazing management prescription for this alternative. Indirect benefits to Birch Creek from this project would be slight.

Buck Spring Exclosure in Pasture 28: This exclosure fence would result in the degraded spring complex improving to proper functioning condition over the long-term. Due to the level of disturbance, headcuts, pugging and other erosion present, this complex would respond slowly, but significantly over time and this would result in a subsequent improvement in water quality. The water in the downstream channel would also improve which would have a positive impact downstream on Rock Creek and bacteria inputs to Rock Creek would be reduced. As the soil structure is allowed to improve around the springs, riparian/wetland vegetation would stabilize the eroded areas and increase the groundwater recharge.

Rock Spring Exclosure Expansion: The expansion of this exclosure to include additional wetland area on BLM would improve the water quality at the spring. There would be some minor, incidental impacts to riparian vegetation during construction including trampling and soil compaction, but they would be limited and of short duration. The fence would be outside the area of wetland influence.

Station Spring Exclosure Expansion: Benefits to the riparian/wetland area would be expected over the long term as wetland plants expand into the new excluded area. Indirect benefits to the water quality of existing springs at this location would be from decreased runoff and increased infiltration in the expanded exclosure area. Due to the level of soil disturbance and compaction, the response would not be immediate, but would take several years. Improving and protecting the overflow from the present trough would result in increased water within the exclosure and reduced fecal coliform.

Pasture 29A Battle Creek Tributary Meadow Exclosure: The meadow at this site is currently downcut and eroding. This exclosure fence would stabilize the wet meadow and improve the overall condition. Erosion caused by pugging and hoof shearing would stop and water quality at the spring would improve. This project has the potential to improve downstream water quality of Battle Creek by reducing runoff, increasing infiltration, and reducing fecal coliform. As riparian vegetation cover increases, it would also result in reduced solar radiation to any flowing water.

Magpie Creek Headwaters Exclosure and Trough: The exclosure fence would result in a strong upward trend of the wet meadow area, spring complex and water quality. The breaching of the dam, placement of headbox and pipeline to trough (placed on private land) would have immediate, direct impacts to water quality trampling and soil disturbance. Over the long term, however, removal of livestock would have a positive effect. Wetland soil structure would improve with the removal of disturbance, riparian vegetation would colonize the site, and water storage would improve. This project has the potential to improve downstream water quality of Battle Creek by reducing runoff, increasing infiltration, and reducing fecal coliform. As riparian vegetation cover increases, it would also result in reduced solar radiation to any flowing water.

Battle Creek Headwaters Exclosure and Trough: The exclosure fence would result in a strong upward trend of the wet meadow area and spring complex. Currently the spring is impounded and there is no overflow from the dam. The breaching of the dam, placement of headbox and pipeline to trough would have immediate, direct impacts to the water quality of the spring, including increased sediments and soil disturbance. Over the long term, however, removal of livestock would have a positive effect. Wetland soil structure would improve with the removal of disturbance, riparian vegetation would colonize the site, water storage would improve, and bacteria levels would decrease. This project would also improve the downstream reaches of Battle Creek if there is adequate flow from the spring.

3.4.1.5 **Alternative E**

As with Alternative A, about 2.8 miles of stream that are either excluded from grazing or otherwise inaccessible to livestock would continue to support high quality water.

Water quality would continue to improve and meet State standards over the long-term on streams that are currently functional at risk with an upward trend in condition (7.7 miles of stream on Battle, Birch, Rock, and West Fork Shoofly creeks). Riparian vegetation and bank stability characteristics that help to improve water quality would improve the fastest under this alternative with the reduced numbers, rest and seasons of use in 8B, 11B, and 12. Even though this alternative does not prescribe immediate yearly adjustments if annual indicators are exceeded, the shorter season of use in pasture 12 would result in lower levels of bacteria in the stream.

As with Alternative A, water quality along 2.7 miles of Poison Creek would continue to be impaired due to historic channel incision. In contrast to Alternative A, B, and C, water quality along Sheep and West Fork Shoofly creeks would improve over the long-term due to greater bank stability, stream shading, and lower stocking levels.

Projects
Impacts from projects would be the same as described under Alternative D, with the exception of the following:

Pasture 8B Division Fence: The exact location of this fence has not been determined. The following impacts are what would be expected from fence construction and placement. Generally, where the fence crosses Poison Creek there would be direct short term impacts from fence construction, including trampling and removal of vegetation, soil compaction, erosion, and soil compaction that would have deleterious impacts on water quality. Long term, there would be direct impacts to the riparian vegetation and soils from expected livestock trailing along the fence and increased utilization from livestock. This may result in an increase in fecal coliform where livestock trails cross the creek. However, adjustments made to livestock grazing resulting from monitoring would have an overall positive effect. The purpose of the fence is not to improve water quality conditions along Poison Creek, but to allow for a rest rotation in the early spring pastures for the upland vegetation.

3.5 Affected Environment – Special Status Plants

Sensitive species discussed below are those species listed on the 2008 BLM sensitive species list for the Bruneau Field Office. Only known populations of Special Status Species (SSP) occurring in the East Castle Creek Allotment are discussed below. The East Castle Creek Allotment provides habitat for several sensitive species that are not currently known to occur in this area, however these will not be reported in this document. All observations of population condition or impacts that are reported in this document are on file with BLM.

There are ten BLM SSP known to occur in the East Castle Creek Allotment (Table 22). All ten SSP are either Type 2, Type 3, Type 4, or Type 5 BLM Sensitive species (See Table 22 footnotes for definitions of these Types). The single Type 2 plant is the Mulford's milkvetch (*Astragalus mulfordiae*). Type 3 plants include Mud Flat milkvetch (*Astragalus yoder-williamsii*), cowpie buckwheat (*Eriogonum shockleyi*) and spreading gilia (*Ipomopsis polycladon*). Type 4 plants are desert pincushion (*Chaenactis stevioides*), white eatonella (*Eatonella nivea*), rigid threadbush (*Nemacladus rigidus*) and white-margined wax plant (*Glyptopleura marginata*). There are two

Type 5/Watch plants, Snake River milkvetch (*Astragalus purshii* var. *ophiogenes*) and Simpson's hedgehog cactus (*Pediocactus simpsonii*).

Currently, there are no known populations of Proposed, listed Threatened, or listed Endangered plants (Type 1) in this allotment. However, the USFWS considers all of Idaho to be within the potential range of Ute ladies'-tresses (*Spiranthes diluvialis*), a federally threatened orchid species. This plant occurs in spring, seep, and riparian habitats. Due to the difficulty in narrowly defining potential habitat for this species, USFWS has chosen to apply a loose definition and requires Section 7 consultation only in three counties of southeast Idaho or in areas where the plant is actually found (USFWS 2002). Surveys specifically for this plant are recommended prior to authorizing federal actions in southwest Idaho, but not required. This plant will not be discussed further.

Table 22. BLM Special Status Plants known to occur in the East Castle Creek Allotment, 2007.

Species	**Habitat**	**Status in 2008**[1]	**Pasture Located**	**Potential livestock conflicts**
Mulford's milkvetch *Astragalus mulfordiae*	Needle-&-Thread/Indian ricegrass, deep sandy soils	BLM Sensitive, Type 2	5B, 5BEX, 8B	Grazing and trampling
Mud Flat milkvetch *Astragalus yoder-williamsii*	Mountain big sagebrush, Low sagebrush, cindery, silt loams	BLM Sensitive, Type 3	12, 17, 44, 28, 28A, 29A	Range projects and trampling
Desert pincushion *Chaenactis stevioides*	Wyoming sagebrush, Wyoming sagebrush-shadscale, Horsebrush, Indian ricegrass	BLM Sensitive, Type 4	5B	Grazing and trampling
White eatonella *Eatonella nivea*	Wyoming sagebrush-shadscale, sandy or cinder soils in salt desert shrub habitat	BLM Sensitive, Type 4	5B, 8B	Grazing and trampling
Cowpie buckwheat *Eriogonum shockleyi*	Wyoming sagebrush-shadscale, lakebed sediments and oolitic limestone outcrops of salt desert shrub habitat	BLM Sensitive Type 3	8B	Range projects and trampling
Spreading gilia *Ipomopsis polycladon*	Low sagebrush, Wyoming sagebrush-shadscale, horsebrush, soils of lakebed origin in sagebrush or salt desert shrub habitats	BLM Sensitive, Type 3	5B	Range projects and trampling
Rigid threadbush *Nemacladus rigidus*	Wyoming sagebrush, Wyoming sagebrush-shadscale, sandy, cindery, or ashy outcrops in shadscale-sagebrush habitats	BLM Sensitive, Type 4	8B	Range projects and trampling
White-margined wax plant *Glyptopleura marginata*	Salt desert shrub, greasewood, sandy soils	BLM Sensitive, Type 4	5B, 8B	Range projects and trampling

Species	Habitat	Status in 2008[1]	Pasture Located	Potential livestock conflicts
Snake River milkvetch *Astragalus purshii var. ophiogenes*	Needle-&-Thread/Indian ricegrass, sandy bluffs and dunes in salt desert shrub habitat	BLM Watch, Type 5	5B, 5BEX	Range projects and trampling
Simpson's hedgehog cactus *Pediocactus simpsonii*	Benches and canyon rims in rocky or sandy soil in low sagebrush habitat	BLM Watch Type 5	14	Trampling

Status definitions.
BLM Sensitive: Rare species on the Idaho State Director's list indicating that the plant is of conservation concern.
Type 1: Species listed by the FWS as threatened or endangered, or proposed or candidates for listing under the Endangered Species Act (there are no Type 1 plant species in this assessment area).
Type 2: Species that have a high likelihood of being listed in the foreseeable future due to their global rarity and significant endangerment factors (there are no Type 2 plant species in this assessment area).
Type 3: Species that are globally rare with moderate endangerment factors.
Type 4: Species that are generally rare in Idaho with small populations or localized distribution and may currently have low threat levels.
Type 5: Species that may be added to the BLM Sensitive species list depending on new information.

Mulford's Milkvetch

Six populations of Mulford's milkvetch are found in pasture 5B and in the "Oolite exclosure" and one population in 8B in the East Castle Creek Allotment. (This is the number of "element occurrences" or EOs, the term used for "population" in the Idaho Conservation Data Center (ICDC) database of rare plants. Some EO's are made up of several sub-populations or patches of the plant.) The population found in pasture 5B about 1 mile off Mudflat road (EO 11), was trampled in December 2003 due to a water haul site for cattle being located about 75 yards away. On the monitoring transect within a nearby sub-population, numbers of milkvetch plants were 5 in 2004, 5 in 2005, 0 in 2006, and 2 in 2007 (ICDC, 2008). The major damage occurring to the milkvetch habitat by winter grazing probably occurred when livestock trampled the sandy soils before fall moisture arrived (Rosentreter 2003, Idaho State Office Botanist). The vegetation near EO 11 receives heavy use by livestock as a result of the water haul site. The slopes where the species occurs is trampled with deep hoof prints because of the loose sandy soils. An increase in the types of weeds observed at this site has also occurred since the site was first monitored in 2004. The trampling of substrate, increase in weed composition and the reduced vigor of associated species contribute to the reduction of habitat quality for Mulford's milkvetch at this site. For this reason, Standard 8 is not being met in Pasture 5B.

In other areas of the allotment, declines in population numbers have been observed for several populations. The species tends to exhibits a high degree of population fluctuation which may be a result of the high degree of annual variability in environmental conditions where it occurs. Mulford's milkvetch and its habitat have been monitored in pasture 5B since 2003 and 2004 by the Conservation Data Center of IDFG. Plant counts between two transects inside the Oolite Exclosure declined 59% from 39 to 31 to 16 plants between 2005 and 2007. Combined counts on transects for all populations in pasture 5B ranged from 139 to 89 to 122 plants during the same time period, a 13% decline (ICDC, 2008). A 2002 survey of rare plants and their habitat by the (ICDC, 2008) found that Mulford's milkvetch populations in 5B typically had low cheatgrass cover, light to moderate grazing impacts, relatively intact desertic shrubland habitat,

and high imminent threats from OHV use. The exception to this was EO25 (less than 20 individuals) in the northwest corner of 5A (across the fence in West Castle Creek Allotment) which had relatively high grazing intensity with high levels of soil disturbance from livestock (ICDC, 2003).

Mud Flat Milkvetch

Mud Flat milkvetch is found in the southern portion of the East Castle Creek Allotment in pastures 28, 28A, and 29A. While Mud Flat milkvetch is the most frequently occurring sensitive plant in the allotment, it is a former federal candidate for listing as threatened or endangered and is of particular concern due to its limited distribution. This perennial species is found in mountain big sagebrush and low sagebrush communities, sometimes on the edge of the juniper zone.

Many of the SSP that are known to occur in the Bruneau Field Office are highly specialized and inhabit micro-sites that only represent a small fraction of the total landscape. Species typically associated with Mud Flat milkvetch however include more extensive vegetation types such as mountain big sagebrush, low sagebrush, Idaho fescue, and bitterbrush. Therefore, the health of these communities can be important factors when assessing the potential for impacts to Mud Flat milkvetch populations. Three populations were visited in 2006 and overall habitat condition was rated good-to-excellent at two sites and fair-to-good at one site. At the fair-to-good site, habitat condition was poor near a water trough, but improved farther away. Trailing and trampling through the population was noted, though plants were still vigorous.

Desert Pincushion

There are two populations of desert pincushion located within pasture 5B just west of Twenty Mile Gulch. One of these populations consisted of 158 plants scattered among five small discontinuous patches covering an area of approximately 0.25 acres in 2002 (ICDC, 2003). The population vigor was assessed as good. Cheatgrass cover was high and other weed species such as Russian thistle and halogeton were present. The threat from increased weed invasion was imminent because of the cheatgrass dominated old burn adjacent to the population. Grazing disturbance to the population was moderate to locally heavy. The other population was small with only one reproductive plant. This population was assessed as having poor vigor in 2002.

White Eatonella

There were three occurrences of white eatonella observed within the East Castle Creek Allotment. There were two populations located in pasture 5B and one population located in pasture 8B. Population vigor ranged from fair to excellent. One of the populations within pasture 5B covers an area of approximately one acre. The other population within pasture 5B covers an area of approximately 0.1 acres made up by two subpopulations. The population within pasture 8B consists of three subpopulations totaling 0.5 – 1 acre, with plant density varying from high (150/1 square meter) to low (1/1 square meter). These populations were generally located in intact desertic shrubland adjacent to degraded valleys. They had low to moderate cheatgrass cover, dispersed grazing, and imminent threats from active OHV use (ICDC, 2003).

Cowpie Buckwheat (Packard's Buckwheat)
There is one new population of cowpie buckwheat identified in 2002 within pasture 5B near Vinson Wash. This population covers an area approximately 40,000 to 50,000 square meters and was made up of 50,000 to 60,000 individuals. Two other populations were identified in the 1980's and occur in 5BEX (Oolite Exclosure) and pasture 8B. Habitat for this species is characteristically sparse in vegetation because of the unproductive, clay rich soils. Cheatgrass was identified as the primary threat to cowpie buckwheat because of its moderate cover within the occupied habitat. Little evidence of livestock grazing was observed for this species.

Spreading Gilia
There was one new population of spreading gilia identified in 2002 within pasture 5B of the East Castle Creek allotment. This population contained five individuals and comprised an area of approximately five square meters. The habitat condition for this population is degraded desertic shrub and burn mosaic. There was additional habitat present around the population available for expansion. The habitat for this population receives light livestock use and no other threats are imminent. The vigor of the population was assessed as fair.

Rigid Threadbush
Rigid threadbush occurs in a large area that has been designated as containing multiple populations and suitable habitat. This area covers the southeastern corner of pasture 5B, and 5BEX (Oolite Exclosure) and the north eastern corner of 8B. This species has not been documented as occurring anywhere else within the allotment.

White-Margined Wax Plant
There were four new populations of white-margined wax plant located on the East Castle Creek allotment in 2002. Two populations were identified in pasture 5B and two were identified in pasture 8B. Both of the populations in pasture 5B are small (approximately 16 individuals). The populations in pasture 8B vary in size one containing approximately 20 individuals and the other contains multiple subpopulations that range from 2 to 150 individuals. The larger population in pasture 8B was assessed as having good vigor and 100 percent were reproductive. One other population was identified prior to 1997. One population (EO56) near 20 Mile Gulch and the gravel pit has degraded habitat from localized heavy grazing and OHV use. A second population has moderate grazing impacts and moderate to high cheatgrass and weed cover. The remaining three populations had light to moderate grazing and low cheatgrass cover.

Snake River Milkvetch
A large area has been designated as Snake River milkvetch potential habitat along the southeastern boundary of pasture 5BEX (Oolite Exclosure). There is one population of Snake River milkvetch identified as occurring in pasture 5B in the vicinity of Vinson Wash. The population contains 3 individuals over 0.10 acres. Grazing impacts are described as moderate with low cheatgrass and weed cover (ICDC, 2003). The occupied habitat is intact desertic shrubland adjacent to burnt valley bottoms. This Watch list species is of low conservation risk due to its relative abundance and slightly higher tolerance for disturbance. Snake River milkvetch often occurs on barren sites within habitats containing big sagebrush, Indian ricegrass, needle-and-thread grass and four-wing saltbush.

Simpson's Hedgehog Cactus
A single population of Simpson's hedgehog cactus is located within pasture 14 in the vicinity of West Fork Shoofly Creek. Hedgehog cactus occurs on rocky or sandy benches and canyon rims. The rocky nature of its habitat generally protects this species from disturbance but it is susceptible to trampling by livestock if located in trailing areas or near fences. This plant has no specific phenologically "critical" period since it remains above ground all year. This Watch list species is of low conservation risk due to its relative abundance and slightly higher tolerance for disturbance.

3.5.1 Environmental Consequences – Special Status Plants

Effects to Special Status Plants from the grazing prescriptions and projects associated with these alternatives were based on existing inventory records, monitoring reports, and professional knowledge of potential habitat and vegetation condition. Projects associated with each alternative were not clearly identified until late in 2008. This was past the optimal time to observe many of the SSP, particularly the diminutive spring annual species that occur in the low elevations of the allotment. For projects that occur in the lower elevations, such as the winter and spring pastures, specific impact analyses were generally deferred until surveys could be conducted at an appropriate time of year. The exception to this would be areas that were clearly unsuitable based on degree of disturbance or substrate. In the higher elevation summer pastures where Mud Flat milkvetch and Simpson's hedgehog cactus are more likely to occur, off-season surveys were conducted because the plants could be observed even if dormant. Even with some of these upper pasture surveys, early snow covered some of the project areas resulting in a need for season appropriate surveys.

In general, much of the allotment has not has systematic surveys for rare plants and known occurrences are generally based on project related clearances or incidental observations. Therefore, reliance on existing records cannot fully inform an impact analysis for these species. On-site surveys would be necessary for all projects.

3.5.1.1 Alternative A – No Action/ Current Management

Standard 8 (Threatened and Endangered Plants and Animals) was evaluated in pastures 5B and 8B as part of the 2008 Rangeland Health Assessment. Pasture 5B was not meeting the standard because of current grazing impacts associated with a water haul site. Pasture 8B was meeting the standard. Aside from the water haul site in Pasture 5B, SSP in the allotment show little evidence of impacts related to grazing.

Several SSP occur in pasture 5B (see Table14). Mulford's milkvetch is the main species of concern as many of the other SSP occupy restricted substrates that are often ungrazed. Trampling and heavy grazing by livestock associated with a water haul site resulted in the failure to meet Standard 8. The Mulford's milkvetch plants within EO 11 have been impacted directly by hoof action, and habitat has been degraded, as evident by reduced vigor of associated species and an increase in invasive annuals.

Under the present grazing system the water haul location would remain unchanged, resulting in continued trampling and degradation of Mulford's milkvetch plants (EO 11) and habitat. Pasture 5B would not meet or make significant progress toward meeting Standard 8 in the short or long-term. It is unlikely that other Mulford's milkvetch populations or other SSP within the pasture would incur negative impacts from current livestock grazing. Overall, grazing related impacts to SSP or their habitat are not anticipated in the other pastures. Pasture 8B is expected to continue to meet Standard 8. However, the evaluation/determination cited livestock trailing through one population of Mud Flat milkvetch in 2006. At that time, plants were vigorous, but continued trailing could lead to habitat degradation and jeopardize the future viability of the population.

Summary:
The livestock management described in Alternative A would not be an effective way to make progress towards meeting Standard 8 for SSP. Habitat condition and population vigor for Mulford's milkvetch would not improve and could show further declines if current management continues.

3.5.1.1 Alternative B – Anchustegui Proposed Action

Under Alternative B Pasture 5B would not be grazed by Mr. Anchustegui. Therefore, no change is proposed to the water haul site that is limiting progress towards meeting this standard. For changes to SSP located in Pasture 5B see the analysis in the next section under Alternative C.

Grazing in pasture 8B and 8BIII would alternate from April to May annually. Little change in terms of livestock impacts to SSP would take place because of this management. Pasture 8B would continue to meet Standard 8. Moreover, impacts to known SSP or their habitat are not anticipated in any pasture based on the proposed grazing management. A possible exception is the livestock trailing impacts to Mud Flat milkvetch population mentioned under Alternative A.

Three projects are proposed under this alternative include a pasture division fence in 8B, a trough at the Mine Adit, and Pond repair/exclosure at Bill de Alder Draw. Localized short term and long term disturbance to upland vegetation is expected in these areas. For example, such projects lead to congregation of livestock around watering facilities and exclosures, and trailing along fences, often resulting in trampling and heavy utilization of associated vegetation. The Pasture 8B division fence would have potential adverse impacts to at least two SSP, White-margined wax plant and Mulford's milkvetch. Because of the timing of the application, surveys for SSP along the fence line could not be conducted at an appropriate time of year. If selected in the Decision, surveys will be conducted at an optimal time prior to implementation and subsequent analysis would be conducted as determined by the authorized officer. If rare plants are encountered, the project design would be modified to avoid any adverse impacts to SSP.
Rare plant surveys were conducted at the Mine Adit and at Bill De Alder Draw trough and exclosure. No SSP or suitable habitat were observed. These two projects would not have impacts to SSP or rare plant habitat.

Summary:
Alternative B would impact SSP primarily through implementation of projects. The proposed Pasture 8B division fence, if implemented as planned, would create potential for increased

trailing, soil disturbance, and weed spread adjacent to at least two SSP. This may cause Pasture 8B to not meet Standard 8 in the future. If the relocation of the water haul site in Pasture 5B is implemented, then Alternative B would result in progress towards meeting Standard 8 in Pasture 5B.

3.5.1.2 **Alternative C – King Proposed Action**

This alternative is very similar to the current grazing management in terms of timing and intensity in Pasture 5B, with one primary modification relating directly to Standard 8. The water haul site near Mulford's milkvetch population (EO #11) would be relocated to an area along an existing gravel pit road. This would be expected to alleviate livestock impacts to this population and the associated habitat. The new water haul location would be in an area that is already disturbed; therefore, new areas of impact (localized erosion, compaction of soils, increased pressure on forage plants, and encroachment of weedy species) due to congregation of livestock would be less of a concern. As a result, overall condition would be expected to improve, facilitating meeting or making significant progress toward meeting Standard 8.

Several additional range projects are proposed under this alternative than under Alternative B. Alternative C proposes development of the Mine Adit with a trough which would not have any impacts to Special Status Plants (SSP) or suitable habitat. The Birch Creek pipeline extension was surveyed for SSP and none were located and no rare plant habitat was identified. Therefore, no adverse impacts to SSP are expected. The impacts to SSP associated with the remaining proposed projects could not be determined at this time because precise locations could not be determined (Summit Springs Trough, Upland Grazing Exclosures, and Horsehead Spring Pipeline Extension) or season appropriate rare plant surveys could not be conducted (Pasture 11B Spring Development). If selected in the Decision, surveys will be conducted at an optimal time prior to implementation and subsequent analysis would be conducted as determined by the authorized officer. If rare plants are encountered, the project design would be modified to avoid or minimize any adverse impacts to SSP.

On October 31, 2008 Gordon and Rose King added a more extensive list of projects to their application. The projects included in this revised alternative (see Section 2.6) did not have clearance surveys conducted, with the exception of those that are also contained in other alternatives, because they were received during the winter when SSP are absent or covered with snow. Many of the proposed projects are located in the summer pastures and would have low to moderate potential to adversely impact Mud Flat milkvetch in sagebrush dominated areas or Simpson's hedgehog cactus in rocky benches and slopes. Most of the wet meadow/riparian and monitoring exclosures are surrounded by big sagebrush type vegetation that would have some degree of potential for mudflat milkvetch. If special status plants were located at or near any of the projects, they would be at risk for increased trampling of soils, grazing and trampling of plant material, and increases in weed abundance. These impacts could result in loss of suitable habitat and declines in special status plant populations.

Summary:
The livestock management proposed in Alternative C would be effective in alleviating the adverse impacts to Mulford's milkvetch in Pasture 5B. With the relocation of the water haul site,

Pasture 5B would be expected to make progress toward meeting Standard 8. The proposed projects would either have no impacts to SSP associated with them or have unknown impacts at present. It is likely that many of the projects that have unknown impacts (because they have not been specifically delineated in the field) would be designed or mitigated to avoid any adverse impacts to rare plants. For this reason, the remaining pastures would likely continue to meet Standard 8 as a result of the management in Alternative C.

3.5.1.3 **Alternative D BLM Adaptive Management Alternative**

The grazing system and related range management projects under Alternative D would be expected to impact SSP in a similar manner as Alternative C. Overall AUMs would remain the same or greater than the average actual use recorded over the last eight years. However, condition of general vegetation and SSP habitat over the long-term may improve with the implementation of annual and mid-term indicators driving grazing management actions relative to Alternatives A, B, and C.

Alternative D includes more projects than Alternatives A, B, and C with a focus on spring and wetland exclosures. New water developments are included as optional if grazing prescriptions are not adequate to meet standards. Because of the number of projects in this alternative, the projects are grouped according to impacts below.

Projects that would have no impacts to special status plants or suitable habitat include:

- Mine Adit Trough
- Pasture 29A Pond at Bill de Alder Draw
- Relocation of water haul site in 5B
- Birch Creek Pipeline
- Gopher Spring
- One of the Monitoring Exclosures in 5B
- Pasture 12 Spring Exclosure
- Rat Spring Exclosure
- Section 20 Spring Exclosure
- Rock Spring Exclosure
- Station Spring Exclosure
- Pasture 29A Battle Creek Tributary Meadow Exclosure

Projects where it was not possible to analyze impacts to special status species because of unsuitable conditions such as snow on the ground or inappropriate season to locate spring annual species includes:

- Pasture 11B Spring Development
- Pasture 28 Spring (aka Buck Spring)
- Magpie Creek Exclosure
- Battle Creek Headwaters Exclosure and Trough
- Monitoring Exclosures

Of the projects listed above, the monitoring exclosure sites have the greatest potential for supporting SSP. The monitoring exclosures are located in the Lakebed Formation where SSP density is high relative to other portions of the allotment. The other projects have moderate potential for Mud Flat milkvetch occurrence. All of these projects would need to be surveyed for SSP during an appropriate time of year, depending on the species with the greatest likelihood of occurrence. If SSP are identified in the project area, additional analysis would occur as determined by the authorized officer. If rare plants are encountered, the project design would be modified to avoid any adverse impacts to SSP.

Projects where specific locations were not yet identified or where complete project planning was not feasible prior to releasing this document includes:

- Summit Springs Trough
- Monitoring Exclosures
- Pasture 44 Spring Exclosure #1
- Pasture 44 Spring Exclosure #2
- Half Moon Spring Exclosure
- Pasture 11B Spring Exclosure #1
- Pasture 11B Spring Exclosure #2
- Eagle Spring Exclosure
- West Fork Shoofly Creek Fence Realignment

Of these projects, the Monitoring Exclosures and the West Fork Shoofly Creek Fence Realignment have the greatest potential for supporting SSP. The Lakebeds Formation where the Monitoring Exclosures would be located has a relatively higher density of SSP than other portions of the allotment. The West Fork Shoofly Creek supports populations of Simpson's hedgehog cactus because of the rocky substrate along the canyon rim. Therefore, the fence realignment would have a high potential for SSP within or adjacent to the project area. The other projects have moderately suitable habitat for Mud Flat milkvetch. All these projects would need to be surveyed for SSP during an appropriate time of year, depending on the species with the greatest likelihood of occurrence. If SSP are identified in the project area, additional analysis would occur as determined by the authorized officer. If rare plants are encountered, the project design would be modified to avoid any adverse impacts to SSP.

Summary:
The livestock management proposed in Alternative D would be effective in alleviating the adverse impacts to Mulford's milkvetch in Pasture 5B. With the relocation of the water haul site, Pasture 5B would be expected to make progress toward meeting Standard 8. The proposed projects would either have no impacts to SSP associated with them or have unknown impacts at present. It is likely that the projects that have unknown impacts (because they have not been specifically delineated in the field) would be designed or mitigated to avoid any adverse impacts to rare plants. For this reason, the remaining pastures would likely continue to meet Standard 8 as a result of the management in Alternative D.

3.5.1.4 **Alternative E BLM**

The grazing system and related range management projects under Alternative E would be expected to produce similar effects to SSP as those under Alternative D. Incorporating rest into the grazing rotation slightly reduced stocking levels, and the use of mid-term and long term indicators driving grazing management decisions would be expected to improve overall condition of vegetation and SSP habitat.

Proposed projects under Alternative E are similar to Alternative D with the exception of the Pasture 8B Division Fence. All the other projects fall into the same grouping as listed above in Alternative D. The Pasture 8B Division Fence, as currently mapped, falls adjacent to several SSP (white-margined wax plant and Mulford's milkvetch) and has potential to impact additional SSP (rigid threadbush, white eatonella, and spreading gilia). This fence would need a rare plant inventory at an appropriate time of year prior to installation. If SSP are identified, further analysis would occur as determined by the authorized officer. If rare plants are encountered, the project design would be modified to avoid any adverse impacts to SSP.

Summary:
The livestock management proposed in Alternative E would be effective in alleviating the adverse impacts to Mulford's milkvetch in Pasture 5B. With the relocation of the water haul site, Pasture 5B would be expected to make progress towards meeting Standard 8. Most of the proposed projects would not cause the any of the pastures to not meet Standard 8, with the exception of the Pasture 8B Division Fence. Because of the fence proximity to several SSP populations, there are potential impacts that could cause Pasture 8B to not meet Standard 8 in the future.

3.6 **Affected Environment – Wildlife, Including Special Status Terrestrial Species**

There are a wide variety of native wildlife species, including one Candidate species (Columbia spotted frog) and 27 BLM sensitive wildlife species, found or potentially found within the East Castle Creek allotment. Appendix C lists the species, their habitat associations, and describes the meaning of 'Types". Typical sagebrush-associated and upland species include sage-grouse, pygmy rabbit, antelope, mule deer, coyote, white-tailed and black-tailed jackrabbit, mountain cottontail, badger, ground squirrel, sage thrasher, brewer's sparrow, meadowlark, and horned lark. All of these species are year-round residents. Common riparian species include yellow warbler, dusky flycatcher, Northern oriole, song sparrow, spotted towhee, and lazuli bunting. Common species in juniper and mountain mahogany include American robin, northern flicker, Townsend's solitaire, Cassin's finch, chipping sparrow, and mountain bluebird. Most of the songbirds are summer residents, nesting in the BFO and/or migrating through. Mountain quail occupied the West Fork of Shoofly Creek and possibly Birch Creek into the 1980's. Bighorn sheep use the canyons of Shoofly Creek and its East and West forks, Rough Mountain, and also travel between these areas and Castle Creek.

The higher portions of East Castle Creek allotment contain essentially native sagebrush habitats for wildlife. Special wildlife habitats are depicted on Figure A. Bitterbrush and mountain mahogany are common in the higher elevations and provide browse for deer. Junipers are

expanding in the middle and high elevations, with the potential to replace sagebrush habitats. The lower elevations (Pastures 5B and 8B) still retain native shrubs but are dominated by cheatgrass and lack most of the native grasses and forbs. The shrubs provide winter browse for antelope, but sage-grouse no longer use, or perhaps rarely use, the lowest elevations.

Greater Sage-grouse (BLM Sensitive, Type 2)

Sage-grouse declined westwide from the 1960s to the mid-1980s and then tended to stabilize (Connelly et al 2004). They are currently being reviewed by the US Fish and Wildlife Service for potential listing as Threatened or Endangered. In 2004, a "Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats" was completed for the USFWS by experts from the Western Association of Fish and Wildlife Agencies. The assessment did not come to any clear conclusions about principal causes of the decline of sage-grouse, but instead discusses a variety of factors affecting sage-grouse and sagebrush habitats, including livestock grazing. It recognizes that the major changes to sagebrush habitat from livestock grazing occurred in the late 1880s and early 1900s, with depletion of native grasses and forbs, and replacement by cheatgrass, mainly in the lower elevation sagebrush communities. It also recognizes that these changes are irreversible given current knowledge of restoration techniques (Chapter 7, pages 26-27). In the BFO, including East Castle Cr. allotment, this depletion occurred largely in the lower elevations, while in the higher elevations native grasses and forbs still dominate in the understory.

In general, range conditions across the west have improved since the days of unregulated livestock grazing combined with large herds of unmanaged wild horses. Sage grouse numbers were extremely low during 1918-1942, such that wildlife managers feared extinction of the species (Autenreith 1981). There is not a simple correlation between habitat condition and sage-grouse numbers; other factors are involved, such as habitat loss, weather, disease (Autenreith 1981, Connelly et al. 2004) and predation (Coates 2007).

Aldridge et al. (2008) examined the chances of survival of sage-grouse across its range, and developed a model to predict where they are most likely to persist and where they are at risk of disappearing. According to their model, sage grouse in the BFO are likely secure populations.

The BFO is part of one of the two regions of the west that are still considered sage-grouse strongholds: Wyoming, and the region that includes southwest Idaho, southeast Oregon, and northern Nevada. Within Idaho, the BFO contains the largest unburned, intact sagebrush habitat remaining, comprising over 1,525,000 acres mapped as Key habitat (including state, private and tribal lands.) It also contains the largest area with a high density of leks in Idaho, to the south of East Castle Creek Allotment. The higher-elevation mountain sage habitat in the BFO is mostly in suitable condition for sage-grouse, and has not been lost to wildfires. Much of the lower-elevation Wyoming sage habitat on the Snake River plain lacks adequate grasses and forbs for cover and food, is dominated by cheatgrass in the understory, and/or has been burned by wildfires, thus losing the sagebrush. The current range of the sage-grouse in the BFO is the higher elevations above the Snake River Plain.

Sage-grouse are dependent on sagebrush throughout the year, for both food and cover. In the winter, they need areas where sagebrush is above the snow. In the nesting season, they need

sagebrush for cover and food, grasses for nesting cover, and forbs for food and nesting cover. In later summer and fall, as the vegetation dries, they use riparian areas, springs, moist meadows, and higher elevations where they can find green forbs to eat (Connelly et al 2000, Connelly et al 2004).

Sage-grouse and their scat have been observed and grouse have been located through telemetry from the higher portions (< ~4000 ft) of pasture 8B south through the higher elevation pastures. About 40,000 acres of East Castle Creek are mapped as 'Key' sage-grouse habitat, and 12,000 acres are mapped as 'Juniper Restoration' on the statewide sage-grouse habitat map (see Figure A). The Juniper Restoration habitat is in the early stages of juniper expansion, and most still functions as sage-grouse habitat. The lower elevations (pastures 5B and most of 8B) are not sage-grouse habitat, because they are mostly salt desert shrub. The higher elevations are used for wintering, nesting and summering (Figure A). For this analysis, pastures 28, 28A, 29 A, B, C, D, and 31 are considered nesting habitat – they are the higher-elevation pastures with gentler slopes. Winter range for sage-grouse consists of the middle and higher elevations, from the upper parts of pasture 8B, ridges in the foothills, the top of Rough Mountain, and knobs of sage that are blown clear of snow in the winter.

Important late summer habitat for sage-grouse within the allotment include hanging meadows (on benches within steeper slopes) at the top end of pasture 12, meadows in 29A, B, C, and D, springs and meadows in 28 and 28A, especially around Juniper Station, and springs especially at higher elevations. Pasture 12 contains a series of mesic-to-wet meadows at the upper end. These meadows regrow by the end of the season because they are grazed in June. However, most showed erosion and bare ground in and below the meadows, with 2-4 ft hoofed cuts at the bottom end of the meadows. These cuts lead to drying and risk of headcutting through the meadows. Additionally, the grazing use level in upland areas at the upper end of pasture12 was heavy on a landscape scale, which matched the heavy hoof-shearing and cuts found at any wet areas. Another eroded area is the head tributaries of Battle Creek in pasture 29A, with heavy use on wet soils leading to headcuts and drying of the meadow. All unfenced wet areas in pasture 28 were heavily used with erosion, large bare areas and drying of meadows.

In the BFO, there are 276 historically mapped lek locations. The leks are scattered over most of the BFO except for lower elevations of the north end. Numbers of birds on leks over the years are the main way population numbers are tracked. Only 105 of the historic leks have count data at all, and most of these are only for one or a few years. Thus population numbers and trend cannot be estimated for the BFO or the East Castle Creek Allotment. Also the historic data may not have accurate locations, because of the manner leks were mapped, most from a fixed wing aircraft and before the use of GPS systems. Additionally, many historic locations were clustered and probably were never actually separate leks. Also the lek locations were compiled from many years, so all these leks never were in use at one time.

In 2004 and 2005, the BFO conducted helicopter surveys of sage grouse leks on 1 million acres, covering most of the sage grouse nesting habitat in the BFO. We flew north-south transects spaced ½ mile apart, using personnel as spotters from both Idaho Department of Fish and Game and the BLM. The total seen over the two years for the BFO was 2010 birds on 91 leks. Only about 1/3 of the leks found in 2004 and 2005 were close enough to a previously mapped lek in

the historic database to be considered the same lek. Thus, about 2/3 of the leks found were in new places.

In 2006, BFO attempted to determine sightability of leks on our surveys by flying the same 250,000 acre area twice, a portion of the area surveyed in 2004 and 2005, called the Grasmere block. On the 1st survey 49 leks were seen, and 39 on the 2nd survey, but only 17 leks were the same between both surveys. Overall, about half the leks were seen in both 2005 and 2006. Thus we know that a "zero" count on one helicopter survey does not necessarily mean that lek is inactive.

From these helicopter lek surveys, it appears that some leks are core leks, used year after year, and some are satellite leks that shift and change over the years. Many of the locations in the historic database appear to have been satellite leks. Because of the transient nature of satellite leks, and the large numbers of new lek locations from our recent helicopter surveys, it is not possible to evaluate population trend from this historic database by determining the percentage of historic leks that are still active.

In the Grasmere block of about 250,000 acres (about 10 miles SE of East Castle Creek Allotment), where the densest concentration of leks in the BFO are found, numbers of birds have declined from 1000 in 2004-2005 to 400 in 2008. Most of the decline happened in 2007-2008, probably from extremely low chick survival in 2007 and the effects of West Nile Virus, which hit in fall of 2006 and killed many sage-grouse.

Sage grouse populations in south-central Idaho fluctuated on a 10-year cycle, with peaks one year ahead of the well-known black-tailed jackrabbit cycles, from 1955 to 1982 (Rich 1985). The magnitude of the population cycles was four-fold, from an average of about 15 males per lek in the low year to 70 in the peak year. In general, sage grouse populations tend to have roughly ten-year cycles (see graphs in Chapter 6 of Connelly et al 2004). The causes of the cycling for jackrabbits and sage grouse are probably linked, and are unknown for both. The cycles for both species appear to have dampened since the mid-1980's. There was an extreme jackrabbit peak in southern Idaho in 1984, and there has been no such extreme peak since. Thus it is not possible to evaluate the effects of habitat management actions on sage grouse populations in any timeframe less than multiple decades.

On the landscape perspective, East Castle Creek allotment has relatively few historic lek locations compared to the numbers of leks on the Owyhee front to the northwest and in the high plateaus of the central BFO to the southeast. There are three historic lek locations (mating grounds) in the allotment plus one 1990's location. Two are within 1 mile of each other in pasture 8B at the base of the foothills (see Figure A); neither showed activity during surveys in the 1990's or in 2007-8. There are few counts of these leks in the historic database (see Table 23). One new lek was found in the mid-1990's in the low elevation flats of pasture 8B; this lek had activity for a few years, with about 10 birds, and then none (Tim Carrigan, pers. comm.) That lek and the two historic locations in pasture 8B were checked in 2007 and 2008, and no activity was observed. A fourth small lek was located in the high country near Rock Creek in pasture 28, where junipers have increased dramatically in recent years. BLM has not checked this lek.

BLM flew sage-grouse lek surveys by helicopter in 2004, surveying from the Mudflat Road southward, because this area contained most of the historic leks. Thus only the southern edge of the East Castle Creek allotment was surveyed. No active leks were found within the allotment on these helicopter surveys; however, two active leks were found within 5 miles of the allotment. Sage-grouse from these leks and others may use the allotment for nesting, and spend summer, fall and winter in the allotment.

Table 23. All known count data for leks in East Castle Creek Allotment for the years 1950 to 2008, from the IDFG lek datbase. There are no count data known for any other years not shown in the table.

Lek	Pasture	1972	1974	1990s	2007-08
7S 2E 7 NESW	8B	6	0	0	0
7S 2E 7 NESE	8B		0	0	0
8S 2W 23 SE	28		0	5	Not checked
06S 1E 36	8B			~10 for a couple years	0

In 2006 and 2007, 14 sage-grouse nesting habitat and 51 brood-rearing habitat evaluations were completed, using "A Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Adiminstered Public Lands in Idaho – Sage Grouse" (USDI 2000 with updates of 2001). For data by pasture, see the Assessment, USDI 2008, pages 86-98. The nesting habitat in East Castle Creek allotment occurs in patches of big sage in a mosaic with low sage. Nesting habitat transect locations were selected to represent the largest patches of big sage in a pasture. Most of the brood-rearing areas (70%) were rated as marginal or unsuitable, due to heavy livestock grazing use (Table 24). These were mostly riparian areas at springs, and some meadow habitats. Most of the nesting habitat rated as suitable according to the parameters on the assessment form (>= 15% grass canopy cover); however, they had about half of the grass cover that is potential, that is, 30%, versus 60% grass canopy cover measured in pasture 31, an adjacent state section that is in reference or near-reference condition (see Standard 8–Wildlife in the Rangeland Health Assessment, USDI 2008a).

Winter habitat is suitable, because sagebrush is present. Idaho Fish and Game telemetry data revealed the top of Rough Mountain as a wintering area.

Table 24. Summary of ratings from sage-grouse brood-rearing and nesting habitat assessments in the East Castle Creek Allotment, 2006.

	Suitable		Marginal		Unsuitable	
Habitat	No.	Percent	No.	Percent	No.	Percent
Brood-rearing	15	29%	23	45%	13	25%
Nesting	10	71%	3	21%	1	7%

Mountain Quail (Type 3-state concern)
Shoofly Creek is the last known place where mountain quail persisted in the Bruneau FO, disappearing sometime in the mid-1980's. Birch and Poison Creeks are also potential habitat. Reasons for their disappearance are not known, but there has been a general population decline in Idaho. Mountain quail need fruiting shrubs such as chokecherry and elderberry to provide food, particularly in the winter. They use tall thick riparian shrubs for cover in this desert setting. Riparian proper functioning condition is used as the measure of habitat quality for this species.

Pygmy Rabbit (Type 2 – rangewide concern)
Since 2002, pygmy rabbits have been found to be widespread and common in mountain big sagebrush throughout the BFO. They are especially common in the mahogany savannah along the Mudflat Road, including the upper parts of pasture 12, and pastures 28, 28A, 29A and D, and 31 of the East Castle Creek allotment (see Figure A). By common, we mean that most suitable-looking habitat contains pygmy rabbit sign. Its habitat extends from the mahogany savannah southeast to the Duck Valley Indian Reservation and the Nevada border.

Pygmy rabbits use denser, taller big sage, digging their burrows at the base of sagebrush. In the winter, they eat sage almost exclusively. In the summer, they eat about half sage and half grasses and forbs. Burak (2006) studied pygmy rabbits within the East Castle Creek allotment and adjacent areas. During summer, he observed them eating grass (40%); forbs (11%), including lupine and buckwheat); and shrubs (38%), mostly sagebrush and a little rabbitbrush.

In 2002, pygmy rabbits were petitioned to be listed as endangered by several environmental groups. However, the U.S. Fish and Wildlife Service did not find it warranted to review the species for listing. In January 2008, a judge reversed that decision and FWS is again reviewing the species for potential listing. Since 2002, substantial populations have been found in Wyoming, Utah, Nevada, California, Oregon and Idaho, in places they were previously unknown or rarely recorded, including the Bruneau Field Office. Over 600 burrow systems rated as current or recent have been mapped in the Bruneau Field Office since 2002; previously there were only 6 records in the Conservation Database of IDFG. In the East Castle Creek allotment, 261 burrow systems have been mapped, 193 of these aged as current or recent, and 69 as old or very old.

Columbia Spotted Frog (Type 1- federal candidate)
Columbia spotted frogs have been found in parts of Battle, Birch, Sheep and Rock Creeks on the East Castle Creek allotment (see Figure A). The areas of habitat in Battle and Birch Creek are small, and the portion of Rock Creek within this allotment is the upstream end of a much larger habitat area that continues downstream, mostly on private land. Most spotted frog habitat in the Owyhees occurs to the west of East Castle Creek allotment, and most is on private land.

The causes of spotted frog decline are not completely known, but in general, it is probably mostly related to the lack of pools after beavers were trapped out of the Owyhees. The return of beavers to Stoneman Creek in 2001 was followed by a sudden 50-fold increase in the frog population (Munger and Oelrich, 2006).

The riparian condition in the headwaters of Battle Creek, and thus habitat for spotted frogs, is in an upward trend in pastures 29 D and C, after being fenced into riparian pastures after the 1997 decision. Spotted frogs are found in a section of Sheep Creek in pasture 33 in the SW corner of the allotment. This section of creek has good condition riparian vegetation, but is being threatened by three headcuts from inactive beaver dams. One location in Birch Creek in pasture 10B is in functioning at risk condition with a slow upward trend, but the meadow where frogs were seen in 1996 (B. Zoellick, pers. com.) is also being threatened by a headcut.

The key element needed by spotted frogs is pooled water or slow moving water with refuge from predatory fish, if those are present (Munger et al 2003). Riparian areas in good condition provide oxbow pools and refuge in the form of aquatic vegetation. When cattle grazing causes erosion and downcutting of streams, and eliminates aquatic vegetation, it adversely affects frog habitat by reducing pools and refuges. However, levels of grazing that do not increase erosion and eliminate aquatic plant refuges may benefit some aspects of frog habitat, by opening dense stands of vegetation and keeping open water in pools. At Stoneman Creek, "the observed increases in frog numbers and reproduction occurred during a period when the site has been subjected to heavy, season-long grazing on a yearly basis" (Munger and Oelrich 2006, pg 8), so the return of pool habitat created by beavers drove population numbers, at least in the short term, more than grazing pressure.

California Bighorn Sheep (Type 3 – State concern)

To the east of the allotment, Little Jacks and Shoofly creeks (including the West Fork Shoofly Creek in East Castle Allotment) and are home to a herd of over 100 California bighorn sheep, reintroduced there in 1967. These sheep are part of a herd complex with Big Jacks Creek, which has another 125 sheep (2006 counts by IDFG). This herd is one of several large herds in Owyhee County, which is home to about 1/5 of the California bighorns in the US. For unknown reasons, population numbers dropped significantly since a peak in 1994 of an estimated 275 bighorn sheep in the Little Jacks-Shoofly area. IDFG investigated the possibility of disease causing the population decline, but found no clear evidence supporting this hypothesis. They have been trying to study mountain lion predation as a cause, and finding it very difficult to study in this setting of deep inaccessible canyons. However, counts by IDFG in 2007 and 2008 in Owyhee County increased (Jake Powell, IDFG, pers. comm.) Castle Creek, to the west of the allotment, is home to a herd of about 30 bighorn sheep.

Helicopter flights and counts in 2008 by IDFG revealed at least 13 bighorn sheep rams summering on Rough Mountain in East Castle Creek allotment (Jake Powell, IDFG, pers. comm., and letter to BLM from IDFG, Nov 6, 2008). This area had been assumed to be a travelling zone, particularly in the fall, for bighorns between the Castle Creek and Shoofly Creek herds, and bighorns had been observed crossing Poison Creek between Shoofly Creek and Rough Mountain in various years (Lonnie Huter, Matt McCoy, Roger Cada, BLM; Jake Powell, IDFG, pers. comm.) But this was the first evidence of animals residing between the Castle and Shoofly Creek herds. Thus, BLM has updated its map of bighorn habitat according to suggestions by IDFG Southwest Region (Figure A), and the impact analysis takes account of these new data.

Bighorns eat a variety of plants, including forbs, grasses, and shrubs. They graze on the flats above the canyons but generally stay close to the security of the rocky cliffs. Telemetry studies

of bighorn and cattle interactions conducted by BLM, IDFG, and USGS in Owyhee Co. during the 1980's and 1990's showed that their use areas do not overlap significantly in the canyon country. However, use areas can overlap in certain key areas, such as meadows along creeks (see Figure A). In East Castle Creek allotment, cattle and bighorns both use Rough Mountain.

American Pronghorn Antelope

Antelope use the low elevation pastures in the winter (see Figure A) and the higher elevation pastures in the summer. During winter months, antelope browse on a wide variety of woody plants, including sagebrush, shadscale, winterfat, and Nuttall's saltbush. They eat more forbs and grasses in the summer. They use open flats where they can see a long distance. They may compete with cattle for food, particularly winter shrub browse in pastures 5B and 8B.

Mule Deer

Mule deer are present throughout the year on the East Castle Creek allotment. The low pastures (5B and 8B) are used year-round. Winter range occurs in the mid-elevations (Figure A), and the higher elevations are summer range. The higher elevations have extensive stands of bitterbrush and mountain mahogany, which are preferred browse species. Shrubs are particularly important in the winter, but are browsed any time of the year. Mahogany groves also provide important hiding cover.

BLM measured browse use levels using the Extensive Browse Method. In 2006, 2007, and 2008 browse utilization on bitterbrush and mountain mahogany by cattle varied from heavy (60-80%) to severe (80-100%) in pastures 28 and 28A, except for corners of each pasture sampled specifically to be as far from water as possible within the pasture, where use levels in 2007 were light (5-12%) (see Table 25). Additionally, the shrubs were severely hedged and were small-statured (looked like bonsai plants) compared to less-used pastures (31, 29A, 29D), meaning that the use levels documented in 2006 - 2008 have occurred in many years.

Table 25. Browse utilization and degree of hedging on mountain mahogany and bitterbrush, in East Castle Creek Allotment, 2006 - 2008. See also Appendix E.

Pasture	Location: Township, Range, Section	Percent utilization			Degree of Hedging (% of plants)			Age Class (% of plants)		
		2006	2007	2008	None	Moderate	Severe	Young	Mature	Decadent
29 D	8S1E29	37			25	61	14		100	
29 A	8S1W25	36		44	18	56	26	3	97	
	8S1W35SW		26	10						
	average			27	22	58	20			
28 A	9S1W4	83		63	0	11	89		100	
	8S1W27		79	57	1	14	85	2	97	1
	9S1W15		14	15	3	33	63		100	
	9S1W5SE		92	61	0	7	93	3	97	
	9S1W5NE		62	29						

Pasture	Location: Township,	Percent utilization			Degree of Hedging (% of plants)			Age Class (% of plants)		
	8S1W32NW		62	60	0	5	95		100	
	average	83	62	48	<1	14	85			
28	8S1W28NW	92		73	0	2	98		100	
	8S1W28NE			82						
	8S1W29SW			90	1	5	94		95	5
	8S1W29NE		64							
	8S1W20NE		5	73	13	43	46	5	95	
	average	92		80	5	17	79			

Riparian Birds

Riparian areas are crucial for many species of birds, including migrants such as yellow warblers and lazuli bunting, as well as resident species such as black-capped chickadee and northern flicker. In the desert, riparian shrub communities may support over 50 species of birds, whereas adjacent sagebrush uplands may have less than 10. The density and width of shrubs and the lushness of the undergrowth influence bird numbers; the wider and denser the shrubs the better the cover for nesting birds.

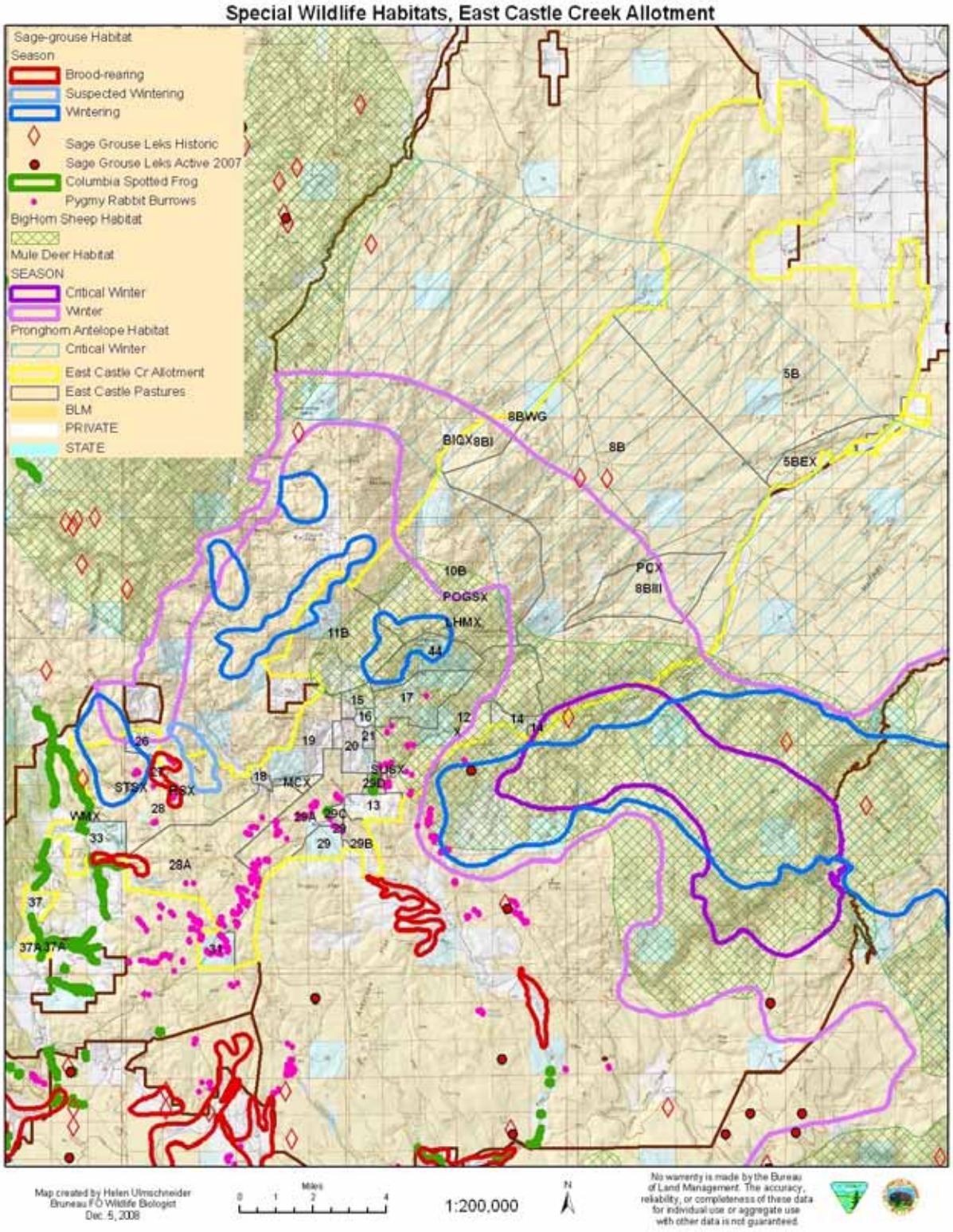


Figure A. Special Wildlife Habitats in East Castle Creek Allotment.

3.6.1 **Environmental Consequences – Wildlife**

For the analysis of impacts to various species of wildlife, an indicator or key species can be used to extrapolate effects to other species. In this EA, sage-grouse are used as an key species for wildlife associated with sagebrush, such as pygmy rabbit, sage thrasher, and Brewer's sparrow, because habitat in good condition for sage grouse is also good condition habitat for these other obligate species. Sage-grouse need large expanses of habitat, they require good condition forb and grass understory, good condition wet areas, and sagebrush year-round, which are important elements for the other species taken together.

In this analysis, general upland vegetation condition is also used as an indicator of upland wildlife habitat quality, under the assumption that diverse native plants and vigor (primary productivity) are the basics necessary to provide food and cover to the diversity of wildlife. Upland vegetation conditions are discussed under section 3.1.2 above. For riparian species, we generally use proper functioning condition to evaluate habitat, discussed under section 3.1.3 above. The basis for this is that functioning condition assessments take into consideration the range of factors that will maintain a creek or spring as good wildlife habitat for the long term, including the plants growing in the riparian area, their vigor and reproduction.

For some species, for example deer and spotted frogs, we have specific knowledge of how grazing affects components of their habitat. Grazing effects are unlikely or speculative for some wildlife, such as snakes, toads, bats, and lizards, thus these are not discussed separately, but are covered under the general upland and riparian discussions. See Appendix C for habitat affinities of BLM sensitive species.

In general, effects to habitat are what can be analyzed, not effects to populations. It is not possible to absolutely predict increases in wildlife numbers with improvement in habitat, although it can happen. There are other factors affecting actual population numbers of wildlife which are not under BLM's control or in most cases, even completely understood. These other factors include such things as wildfire, disease, hunting, weather, and predators.

Short-term effects are anticipated to last less than 5 years, long-term effects would last beyond 5 years.

Common to All Alternatives

Wire fences pose collision risk to some wildlife, including big game and sage grouse. The risk is low enough that it is not generally known to affect populations, except in special circumstances (see Baines and Summers 1997). Additionally, there is new concern about sage grouse collisions with fences in special locations like at a lek or on a ridge in wintering areas (Dahlgren and Thacker 2008), but data are scarce. In Boise District, the person who maintained exclosure fences for 15 years reported that he never found a sage grouse killed along a fence, but did find 3 or 4 deer (Allan Stark, pers comm.) New fences would be constructed according to Boise District wildlife standards, or if altered for special circumstances, in consultation with IDFG and the permittees. On barbed-wire fences, the heights of the top and bottom wires and the spacing and number of middle wires are designed to allow big game to easily jump or go under a fence, and minimize the risk of death or injury if they collide with the fence. Visibility markers,

especially on new fences, help animals see the fence and become accustomed to its location over a year or two. Devices to prevent raptors from perching on wood posts or rails where sage grouse or pygmy rabbits occur would minimize the potential to increase predation on these species.

3.6.1.1 **Alternative A – No Action/Current Management**

Grazing Management

Overall, conditions on the allotment would remain similar to current conditions. Upland habitat for sage grouse and pygmy rabbits would continue to be generally suitable. Seventy percent of the upland habitat in the higher elevation pastures is in suitable nesting habitat condition and would remain so. There is adequate cover of sagebrush, grasses, and forbs in most places.

The 70% of wet meadows and springs that are in marginal or unsuitable condition for late summer sage grouse habitat would continue to be at risk of further erosion and drying, and would continue to produce less than their potential of forage for sage grouse. However, sage grouse would continue to use these areas, because most still provide some forage and water even in a degraded condition. Sage grouse sign has been seen around many of the meadows and wet areas in the allotment.

Pastures 5B, 8B, 8BI, 8BIII, and 10B

Under any alternative, the lower elevation lakebed pastures (5B and northern portion of 8B) would remain in poor habitat condition from the loss of native grasses and forbs and the invasion of cheatgrass due to historic, not current, livestock grazing. Assuming the absence of wildfire, long-term habitat would continue to be comprised of native shrubs with an annual grass and forb understory, under any alternative.

Winter and spring shrub habitat for mule deer and pronghorn antelope would remain in static condition, and some competition with livestock for desirable woody forage would continue both short- and long-term. Antelope populations in Owyhee Co. have been fairly stable and would continue so (IDFG, pers. com).

Wildlife habitats of the lower elevation foothills (8B, 8BI, 8BIII, and 10B) would remain static or slowly degrade with no change to current grazing management, particularly in areas easily accessible to livestock. Under Alternative A, most areas that still retain native grasses would remain stable, because livestock grazing patterns would remain the same, meaning that the lightly grazed areas where native grasses remain would remain lightly grazed, allowing those grasses to persist. There is potential for slow expansion of cheatgrass where native grasses are not vigorous.

The quality of most of sage-grouse winter habitat found in the foothills of 8B and 10B would remain static under all alternatives, unless burned by wildfire. Cheatgrass currently present in the drainage bottoms increases the chance of fire, and if cheatgrass expanded the frequency and extent of fires could increase slightly from current condition. Sage-grouse feed almost exclusively on sagebrush leaves during winter months (Wallestad et al. 1975, ISAC 2006), and

other than by fire, sagebrush occurrence would not change in these areas as a result of current grazing.

In pasture 8B, the small section of Birch Creek and most of West Fork Shoofly Creek would continue to improve and meet Standards 2, 3, and 8 over the long-term. Improvement in riparian habitat would provide suitable wildlife habitat over the short-term and preferred habitat over the long-term for bighorn sheep, mountain quail, and riparian birds. The upstream-most ¼ mile of West Shoofly Creek in Pasture 8B,which is outside of the exclosure, would continue to be Functioning at Risk (FAR) with a static trend, due to historical impacts of channel incision and subsequent dewatering, which would result in marginal to poor habitat for riparian-associated species such as songbirds. Studies in Salmon, Idaho suggested that bird numbers increase dramatically on recovering streams where herbaceous vegetation increased, even before recruited shrubs had reached a stature suitable for nesting (in-house report, Salmon BLM). The hypothesis is that this increase is due to an increase in insects for food associated with more biomass of herbaceous vegetation.

Columbia spotted frogs have been observed at one location along Birch Creek in pasture 10B. The wet meadow is functioning at risk with a slow upward trend, but is also being threatened by a headcut, which adversely affects frog habitat by dewatering pools and reducing refuges. The headcut may stablilize slowly with the slow improvement in riparian conditions. Whether it headcuts further before it stablilizes depends on the magnitude of unpredictable flood events.

Pastures 11B, 12, and 14

Under current grazing management in 11B, upland vegetation would continue to meet Standard 4 (native upland communities) over the long-term, thus providing suitable upland wildlife habitat, providing forage, cover, and primary production to support the food web. Birch Creek (2.7 of 2.9 miles) in pasture 11B is anticipated to continue in an upward trend under Alternative A, improving riparian shrub and herbaceous habitat for cover and food for songbirds and other wildlife that use riparian areas.

Areas in pasture 12 that contain steeper slopes generally unused by livestock, such as under the rim between Poison and Shoofly Creeks, near bighorn sheep habitats, are currently in reference condition and would continue to provide excellent wildlife habitat. Areas close to the stream and with gentler slopes would continue with a cheatgrass understory and depleted native grasses under all alternatives, providing unreliable production and cover, and less nutritious forage for wildlife.

Hanging wet meadows (about 9 areas totaling about 13 acres) found in the higher elevations of pasture 12 provide late brood-rearing habitat for sage-grouse. Insects and succulent forbs are important factors in sage-grouse chick survival (ISAC 2006). Chick survival is lower if insects and forbs are unavailable (Johnson and Boyce 1990), probably because of starvation and increased vulnerability to predation while searching a larger area for food. The hanging wet meadows of pasture 12 are being degraded by heavy livestock use, erosion, and hoof-shearing of wet soils. By continuing current management, the meadows could continue to gradually dry, or could suddenly dry out if headcuts rapidly move through meadows in a high runoff year. Drier

meadows would result in reduced or eliminated preferred forbs and insects for sage-grouse, and this could result in lower chick survival (Johnson and Boyce 1990).

The majority of Poison Creek in Pasture 12 would remain static at FAR. Cattle grazing has left the stream with inadequately vegetated banks, and marginal riparian wildlife habitat. Old-aged willows and other late-seral riparian plant communities of Poison Creek in the central portion of the pasture would remain in PFC and continue to provide quality shrub habitat for riparian wildlife, particularly songbirds.

Fall Creek in Pasture 12 would continue to support old-aged shrubs and trees that provide stable stream banks and long-term riparian habitat for wildlife. The understory vegetation on the floodplain is weedy and would continue so under all alternatives, which reduces the habitat value for sage-grouse during late brood-rearing when succulent riparian forbs are needed. Active head cuts in the channel of Lone Juniper Creek in Pasture 12 would continue to threaten degradation of its riparian habitat value, by incising the stream and causing the loss of wetland plants and shrubs.

In pasture 14, the portion of West Fork Shoofly Creek above the private land would continue to provide high quality riparian habitat because livestock cannot access the stream due to dense shrubs. This would be the same for all alternatives.

Pastures 28, 28A, 29A, 29B, 29C, 29D, 33
Pastures 28, 28A, and 29A, B, C, and D provide the main area of nesting habitat for sage-grouse in the East Castle Creek allotment (USDI BLM 2008). In Owyhee County, sage-grouse chose nest sites with taller grass than random plots, and successful nests had an average of 2 inches taller grass than unsuccessful nests (Wik 2002). Native bunchgrasses are in an upward trend for pastures 28 and 29A, while 28A has an unknown trend. The upward trend would improve nesting cover for sage-grouse in the short- and long-term. Pygmy rabbits, big game, and other species that use these pastures would benefit from increased forage availability and movement or escape cover.

In pastures 28 and 28A, mountain mahogany and bitterbrush would continue to be heavily browsed by cattle in most years, reducing the amount of spring-summer-fall browse for deer and elk. Browse levels from cattle would be in the range of 50 to 90%, judging from recent data (Table 25 above). These two pastures comprise about 11,000 acres, 11 % of the estimated 100,000 acres of mahogany savannah along the Mudflat Road.

The headwaters of Battle Creek and wet meadows in the riparian pastures 29B, 29C, and 29D are in an upward trend providing sage-grouse late brood-rearing and spotted frog habitat. These areas are expected to continue improving for the duration of the grazing permit. An approximately 1-acre meadow in pasture 29A is in a downward trend with active cuts from hoof-shearing of wet soils, and would continue in a dried-out condition, or degrade further, without protection from the exclosure in the proposed action. This would result in reduced wet meadow habitat for sage-grouse brood-rearing long-term.

Spotted frogs are found in a section of Sheep Creek in pasture 33, which has good condition riparian habitat present, but is being threatened by three headcuts from inactive beaver dams. Grazing management is not the cause of the problem. The good condition riparian vegetation may slow down advancement of the headcuts up the creek. If the headcuts are stabilized through adding rocks or some similar method, the current good condition riparian vegetation would maintain good habitat for spotted frogs.

The creek below Buck Spring in pasture 28 would continue to have several headcuts working up to a wet meadow just above the spring. The headcuts would eventually eliminate the meadow. The current downcut condition of the stream reduces the amount of riparian area, reducing habitat quantity and quality for birds and other riparian species. This reduced habitat quality is from less primary production, and less shrubs for nesting habitat, food and cover.

To summarize, under this alternative, browse for antelope and deer in pastures 8 and 10 would continue to be overgrazed by cattle. Seventy percent of sage grouse brood-rearing habitat in the allotment would continue in a degraded condition and at risk of further degradation, including the hanging meadows in pasture 12. Poison Creek in pasture 12 would continue in a degraded condition, providing marginal habitat for songbirds and other wildlife. Birch Creek in pasture 11 would continue in a slow upward trend. Browse for mule deer in pastures 28 and 28A would continue to be limited by heavy cattle use beyond the MFP limits.

3.6.1.2 **Alternative B – Anchustegui Proposed Action**

Grazing management
Overall management of the King portion of the area would match that alternative, thus see analysis for Alternative C.

The 25% voluntary non-use during the short-term could slightly improve antelope habitat on the eastern portion of 8B by reducing shrub browsing during the first few years. However, if numbers were reinstated, the benefit would be transitory.

Riparian conditions in pasture 12 would improve with a lighter stocking rate than Alternative A. However, most of the improvement would be in the lower half of the pasture because the cattle have a tendency to drift up the drainage and remain in the top end, using it heavily early in the grazing period, while the lower end is still lightly used. Thus the hanging meadows at the top end of pasture 12 may not improve even with the lighter stocking rate, unless the permittee were diligent about pushing cattle down from the top end.

Browse use levels in 29 A, B, C, and D would remain below 50% and thus meet the standards in the MFP. Browse use levels in pastures 28 and 28A would remain as in Alternative A (see above).

Projects
Pasture 8B division fence: The fence location would be within the area usually used by antelope as wintering range. This portion of the antelope winter range is not used as much as on the

eastern side of the Mudflat Road, and is a less harmful place on the winter range to build a fence than east of the Mudflat Road. Antelope depend on unimpeded running to escape predators. Fences can impede escape, and some antelope and/or deer may die or be injured by collision with the fence. IDFG did not have serious concerns with the fence if it was built to the Boise District standards, which allow antelope to go underneath, and deer to jump (Jake Powell, Southwest Region IDFG, pers. comm.) The fence would not be in sage grouse or pygmy rabbit habitat.

Mine Adit Trough: There is already water at this site and in Poison Creek, so it would not increase cattle use in the area. This top end of the pasture currently gets the heaviest use in the pasture. It possibly could reduce the hoof-cutting of wet soils at spring sites in the nearby hanging meadows, because the cattle are hoofing at the wet soil to get a drink of water. If the trough provided a reliable drink, it may reduce this hoofing. Reduction of the hoof cutting at the bottom of wet meadows would reduce the drying effect, increasing wetness in the meadows, and thus forb production. Therefore, it could have a slight beneficial effect on sage grouse habitat.

Bill de Alder pond: The existing pond and spring above it are already a water source, so fixing the pond would not change cattle distribution. The exclosure would help increase forbs in the spring area (1/4 acre) for sage grouse summer food. The fence is located far enough from the wet area to include sagebrush habitat for cover, and to allow grouse to flush from the wet area without immediately encountering a fence, thus reducing the likelihood of collisions. The fence would include some pygmy rabbit habitat, and crosses through some habitat. Grass and forbs would increase inside the exclosure, providing more food and cover for pygmy rabbits. Pygmy rabbits are unlikely to be negatively affected by the fence even if it crosses burrow systems because they are constantly remodeling burrow systems and creating new burrows and entrances, they use several different burrow systems, and the burrow systems in use in an area are shifting and changing on the landscape from year to year. Additionally, BLM has found burrows immediately adjacent to cattle trails and to fences, meaning that pygmy rabbits do not avoid them.

To summarize, under this alternative, little would be expected to change from Alternative A, other than slight improvement of songbird habitat on Poison Creek in pasture 12.

3.6.1.3 **Alternative C – King Proposed Action**

Grazing Management

Short term, this alternative reduces spring AUMs compared to Alternative A, but then could reinstate them in a few years, depending on the results of monitoring. Long-term, this alternative has the same number of AUMs as Alternative A, but shifts use from the spring pastures to the summer and winter pastures. A short-term reduction of use in the spring pastures would not cause any long-term improvement in habitat conditions for wildlife, including shrubs for winter browse for antelope, or the condition of Poison Creek. There is little change in AUMs long-term, while the duration of use could potentially be extended, and thus there is no reason to expect change from the impacts analyzed for Alternative A.

During years 5 through 10 of the permit, this Alternative proposes to increase AUMs by 18% in pasture 5B compared to Alternative A. This could exacerbate winter forage competition between big game and livestock, and contribute to decreasing habitat quality in this pasture over the long-term. Near water sources, winterfat and Nuttall's saltbush are used more than 50%, and these use levels would remain or increase.

The decreases in AUMs in pastures 8B, 8BI, 8BIII, 10, 11, and 12 combined with the rotation of pasture 10 with 8B, 8BI and 8BIII may improve native grass cover and quantity in each. It should slightly reduce use levels on shrubs in pasture 8, increasing shrub browse available to wintering antelope. In pasture 12, shrub habitat for songbirds on Poison Creek and its side drainages could improve slightly with 20% less use, even though little change is expected in the herbaceous species, because the cattle tend to graze the herbaceous plants first and the shrubs second. The duration of use (3 weeks) is the same as for the last 10 years, which has led to denuded banks in most years. On other creeks with a similar grazing regime in Boise District (e.g., Rabbit Creek), shrubs increased slowly while herbaceous vegetation remained static (Rabbit Creek Allotment Rangeland Health Assessment 2003). Twenty percent will probably not be enough of a reduction to significantly improve the condition of the hanging meadows at the top end, judging by the fact that these meadows were already overused in 2008 after the first 2 weeks of grazing.

King's summer pastures (28A and 28) are scheduled with 7% more AUMs than Alternative A. If the annual use criteria for deer browse were adhered to, cattle would often need to be removed early from these pastures, judging from 2006 - 2008 data (Table 25). The planned use does not take into account this historic overuse by reducing scheduled AUMs upfront. Instead, close watch would need to be made every year to remove cattle as they approached the 50% use level. In 2008, BLM measured browse use in pasture 28 halfway into the grazing period for that pasture, and found slight use on three transects: 0%, 1.5%, and 6.3% use. Two weeks later, when grazing ended in that pasture, use levels were 60%, 15%, and 63% respectively on the same transects. Thus browse use levels could be exceeded quickly in these pastures. Trying to manage browse use levels entirely by monitoring during the grazing period may be unrealistic, given the current staffing levels in the Bruneau FO and the size of the BFO (approximately 1.5 million acres) where other monitoring must also be done. Thus, browse use levels could easily be exceeded often, leaving suboptimal browse quantity for mule deer and elk in the 11,000 acres of pastures 28 and 28A.

This alternative lacks mid- and long-term objectives to supplement the annual indicator criteria. Annual utilization levels alone are only a part of the objective; they are also a means to a larger goal, which is healthy, diverse, productive native vegetation communities. Expecting to adjust grazing levels upward within 3 or 4 years seems unrealistic to achieve long-term upward trends in dry upland communities, where improvements are usually much slower.

Projects

Mr. King proposes 27 spring and/or meadow exclosures, plus 16 - 32 upland monitoring exclosures and 4 - 8 creek riparian monitoring exclosures, totaling 47 – 67 exclosures. The 20-40 creek and upland monitoring exclosures, assuming 3 acres each and a shape of 300 x 400 feet, would require about 5 to 10 miles of fence to exclude 60 to 180 acres of land. The 27 spring

exclosures, assuming 3 acres in size and a shape of 300 x 400 ft, would require about 7 miles of fence to exclude 81 acres. Thus the total would be 12-17 miles of fence. This would add approximately 16-22% to the more than 76 miles of internal fences existing in the allotment. Mr. King proposes that BLM be responsible for building and maintaining all of them. The risk of big game and sage-grouse collisions with the fences increases as the miles of fence increase. We have no current estimate of death and injury rates of wildlife on fences in this allotment, but it does happen. The rate could increase by 16-22% with the construction of all these exclosures.

Mr. King also proposes 3 pipelines with 4 or 5 troughs, and 11 troughs from springs. These projects are analyzed individually or in small groups below. Also see the wildlife analysis of fences and exclosures under Alternative D, which applies to fences and exclosures under this alternative.

Pasture 5B
Relocation of waterhaul site in 5B: Moving the waterhaul site ½ mile would not have any detectable effect on wildlife, because the new site is in an already well-used area, dominated by cheatgrass in the understory. It is not in antelope winter range, sage grouse or pygmy rabbit habitat.

Pasture 8B and 8BI
Poison Creek Pipeline Extension into Pasture 8B: This trough would have small localized effects on wildlife habitat quality. There would be a bare area right around the tank. The surrounding habitat is dominated by cheatgrass in the understory, so effects to perennial native grasses would be slight. Shrub use could increase in the vicinity of the trough, locally reducing browse available for deer and antelope.

Birch Cr. Pipeline Extension into Pasture 8BI: This trough would have a small effect on wildlife habitat quality in the small scale right around the tank, because it would be in an area seeded to crested wheatgrass in the 1980's, and with cheatgrass, though sagebrush has regrown. The site is already a heavier grazing use area on a flat where there is water in the creek about ¼ mile away, and the existing pipeline already distributes water to either side within 1 mile of the proposed tank.

Pastures 8B and 10B:
Adjustment of the Pasture 8B / 10B boundary fence: The total amount of fence would be slightly greater than currently, but the locations would be in approximately the same habitat. Thus effects to wildlife from the fence itself would be the same as the current situation.

Pasture 10B
Headcut stabilization at two locations on Birch Creek: This would have a beneficial effect on a wet meadow and potential spotted frog habitat, by maintaining the wetland.

Horsehead Spring Pipeline into pastures 10B and 12: Placing troughs and then maintaining troughs would create a road or track into a currently unroaded area. This would invite 4-wheelers and other vehicle traffic, which increases the risk of noxious weed invasion, and disturbance.

Additionally, it would develop water in currently unwatered areas within bighorn sheep habitat, based on the new 2008 maps. The Bruneau MFP states:

- W/L-2.1(3) Maintain a separation of use between cattle and bighorn by not developing livestock water sources within 1 mile of bighorn habitat or potential habitat unless the potential adverse impacts to bighorn can be avoided.
- W/L-2.1(7) Maintain the current low level of human disturbance in bighorn habitat by avoiding constructing or upgrading any roads in these areas.

The effect of these troughs would be to redistribute cattle use within the expanded bighorn habitat. It would put more water at the base of Rough Mountain in the travel zone for bighorns, and not near the top of Rough Mountain, which is where the bighorns spend spring and summer. The track or road necessary to install the troughs would be contrary to the intent of avoiding constructing roads in bighorn habitat. Additionally, IDFG has expressed opposition to this pipeline within bighorn habitat.

The pasture 12 trough may have slight positive effects on Poison Creek and Lone Juniper Creek by pulling some grazing use off the creek. It is difficult to predict whether there would be a measurable increase in shrub habitat for songbirds or herbaceous vegetation along the creeks due to the effect of the trough.

Exclosure of the wet meadow/riparian area of Spring 893 10B 4A (<0.25 acre), 7S 1E 30 SESE*:* This spring was rated suitable for sage grouse. Exclosure would probably not improve it much. It is located within the area newly mapped as Bighorn Sheep Habitat. IDFG had some concerns about spring exclosures along Rough Mountain where the sheep have mostly been sighted, as they might inhibit access by bighorns. This spring is at the very edge of the area mapped, where IDFG had less concerns.

Exclosure of the wet meadow/riparian area of spring 893 10B 10A. 7S 1E 23 NWSW: This spring is too low elevation for use by sage grouse as brood-rearing habitat. Additionally it has no preferred forbs. It is in the lower foothills and within the area used for wintering. Exclosure would not improve it for brood-rearing habitat.

Exclosure of the headbox and spring source of Half Moon Spring: Eagle and Half Moon springs are right near the top of Rough Mountain where IDFG found groups of bighorn rams summering in 2008. IDFG has expressed concern about exclosures at these two springs, based on the lack of data about how bighorns respond to fences around water sources. IDFG did not express concern about the other proposed exclosures in the area surrounding Rough Mountain, because they are all outside of the area thought to be residential bighorn habitat. These bighorns were newly discovered in 2008, and there is slim knowledge about how they use the country. The basics are that they go back and forth to Shoofly Cr. where the ewes and lambs live, and probably also to Castle Creek.

Pasture 11B
Exclosure of spring and headbox at Eagle Spring: See Half Moon Spring above.
Pasture 11B Spring Development 7S 1E 31 NWNW: This development would be within ¼ mile of the expanded bighorn sheep habitat. IDFG has expressed opposition to it based on the effects

it may have on bighorn sheep. It would also be contrary to MFP objective WL 2.1(3) quoted above.

Development and exclosure of the wet meadow/riparian area of Spring 19A. (also ID#2020037, 8S 1W 2 SESW): This spring is 0.8 mile from the bighorn sheep habitat area on Rough Mountain. Developing a trough there would be contrary to MFP objective WL 2.1(3) quoted above.

Exclosure of the wet meadow/riparian area of Spring 20A 8S 1W 2 SESW
Exclosure of the wet meadow/riparian area of Spring 2020038, 8S 1W 2 NESW
Exclosure of the wet meadow/riparian area of Spring 2020039 8S 1W 2 NESW.
These three springs are outside of the bighorn sheep area by about 0.8 - 1 mile. Exclosure would improve the condition of the meadows, increasing food plants and cover for sage grouse and other wildlife.

Pasture 12
The following proposals all are in the top of pasture 12, where there is a complex of hanging meadows forming late brood-rearing habitat for sage grouse:
Trough and exclosure at spring 7B, 8S 1E 29 NWNW (same place as Alt. D "Pasture 12 spring"),
Trough and exclosure at spring 17B, 8S 1E 20 NENW,
Trough and exclosure at spring 18B, 8S 1E 17 SENW,
Exclosure at wet meadow 8S 1E 17 SWSWNE. (This and the one above are for the same area. The meadows extend for ½ mile below the spring 18B),
Exclosure of wet meadow at 8S 1E 20 SWNW,
Trough and exclosure of wet meadow at 8S 1E 17 SWNWSW,
Mine Adit trough,
Summit spring trough,
Alteration of the pasture 12/pasture 20 fence so as to construct a water gap into private/state land in pasture 20 (approximately ¼ mile fence total):

Thus there are 6 troughs and a watergap in the upper end of pasture 12 proposed, in addition to spring and meadow exclosures at 5 places to protect meadow habitats for sage-grouse brood-rearing habitat. These water developments would serve an area of approximately 1200 acres or 2 square miles. Grazing use levels in this area are already very high, see Photo 13 in Appendix E. This intensive water development would only exacerbate the use levels on uplands and on seasonal drainages and meadows that are not included in the proposed exclosures. Grass cover and forbs for food for sage grouse and pygmy rabbits would not improve from the current poor condition.

The exclosures taken together would potentially exclude about 10 acres of the approximately 13 acres of meadows at the top of pasture 12 north of the Mudflat Road - (the specific fence layouts have not been mapped out). In the exclosures, the hoof-sheared walls at the excluded meadows would heal, the compaction of the meadows would be eliminated, and the meadows could become wetter, which would provide more food for sage grouse.

However, the problems in the meadows are connected to the watershed. For example, the meadow at 8S 1E 20 SWNW has a gully cutting along the side of the meadow. This functions essentially like a ditch draining the meadow. Above the meadow, the gully merges with cattle trails and an area of heavy grazing use of grasses. Thus the uplands are lacking grasses to slow down runoff in the spring and during storms, which resulted in the gully eroding alongside and draining the meadow. A small exclosure around the meadow itself will not correct this larger problem originating in upland condition.

Gully cutting through sagebrush along the side of the meadow in 8S 1E 20 SWNW, showing debris flow lodged above rocks. 9/6/2006.

If the springs have enough flow to feed a trough, developing these waters could reduce the hoofing by cattle at other wet areas that would not be included in the exclosures, because the cattle could drink at a trough. However, the intensity of water development proposed – 6 troughs and a water gap – would be more likely to attract even more cattle into an already attractive area, increasing the overuse problems in both wet and upland areas. Also, because none of the springs flowed much water (in September of 2006), developing them could dry the associated riparian areas.

Pasture 19
Replacement of livestock ponds with troughs on uplands and exclosure of the wet meadow/riparian area of Spring 893 19 23B - Battle Cr Headwaters, and also at Magpie Creek Headwaters.
Meadow habitat for sage grouse would improve.

Pasture 28
Headcut stabilization at an unnamed seep at 8S 2W 24 SWSW: This is the legal location of Buck Spring. Stabilizing a headcut would be futile without fixing the 4 or more headcuts below, or addressing the cause of the headcuts, overgrazing of the riparian area.

Exclosure of the wet meadow/riparian area of Buck Spring: Exclosure of only the meadow will not resolve the headcuts moving up the drainage below the meadow and threatening to further dry out the meadow. Any improvements in sage grouse wet meadow habitat would be short lived, because the headcuts would eventually move through the meadow.

Exclosure of the wet meadow/riparian area of spring 893 28 15A: 8S 2W 25: Exclosure would improve wet meadow condition for sage grouse, increasing food plants.

Exclosure of the wet meadow/riparian area of spring 893 28 24A: Spring is in PFC, thus exclosure would not change condition.

Exclosure of the wet meadow/riparian area of Rat Spring and installation of an additional trough: The meadow would improve in condition for sage grouse. The additional trough would not alter cattle distribution appreciably, but could reduce the outflow which feeds the wet area to be excluded. This would dry the wet meadow and reduce sage grouse food.

Exclosure of the wet meadow/riparian area of spring at 8S 1W 20 S, (Juniper Station pond: the meadow would improve as sage grouse habitat.

Development and exclosure of the wet meadow/riparian area of spring at 8S 1W 20 SWSW, (Gopher Spring): This wet meadow area has a tiny seep of water that would not likely be able to support a trough. It is right outside Juniper Station, and very near Juniper Creek which already supplies water. A trough would dry up the meadow, reducing late summer food for sage grouse.

Exclosure of wet meadow of an unnamed spring at 8S 1E 31 W: This is an ephemeral side drainage to Rock Creek, within a juniper expansion area. There is really no meadow associated with it, it has a small drainage bottom with some wetland plants. It is an area of relatively mesic sagebrush. Effects to wildlife habitat would be minimal.

Pasture 28A
Exclosure of wet meadow/riparian area of Sheep Creek at 9S 1W 6SE. Food and cover for sage grouse and other wildlife would improve.

Pasture 33
Headcut stabilization at three locations on Sheep Creek: Headcut stabilization would reduce risk to the riparian vegetation and be positive for habitat maintenance for wildlife.

Pasture 44
Exclosure of headbox and spring source of Spring 29B and the wet meadow below the trough,
Exclosure of wet meadow/riparian area of Spring 30B,
Exclosure of the wet meadow/riparian area of Spring 32B with gates at the road:
These springs are on Rough Mountain within the new area identified as Bighorn Sheep habitat. IDFG expressed opposition to fencing two other nearby springs (Eagle and Half Moon) on the other side of Rough Mountain because of potential to inhibit access by Bighorns. These springs would fall in the same category.

Two-to-four upland grazing exclosures in 5B, 8B, 8B1, 10B, 11B, 12, 28, and 28A, <3 acres each
Two-to-four exclosures on Poison and Birch creeks, <3 acres each:
Exclosures help track the effects of grazing management and thus can be beneficial to managing wildlife habitat, because of the increased understanding they offer of the potential of the

vegetation and the effects of grazing management. The total number of upland exclosures proposed would be 16 to 32. Additionally, 4 to 8 exclosures are proposed on the creeks, for a total of 20-40 exclosures. This many exclosures is excessive, especially considering existing exclosures and fenceline contrasts which can inform analysis of grazing effects. Existing exclosures include: an exclosure in 8B1, Poison Creek Exclosure in 8B, 3 exclosures on Poison Creek, (Poison Creek picnic area and 2 exclosures built after the last permit renewal process), an upland exclosure in 12, Summit Springs exclosure at the top of pasture 12, and Station Spring exclosure in pasture 28. Additionally, contrasts between some of the FFR pastures and other pastures are informative (see photo above for an example), and contrasts between pasture 31 and pasture 28 and 28A. Thus many of the exclosures proposed seem unnecessary. As an example, canopy cover transects in pasture 31 contrasted with those in pastures 28 and 28A show substantially more cover inside pasture 31 (see Assessment page 90).

The chances of wildlife injury from the fences for each exclosure would be slight, because of their small size and the fence design to allow for passage. However, the additional miles of fence needed for this many monitoring exclosures increases the chances of injury or death to big game and/or sage-grouse 6.5 to 13% relative to the >76 miles of existing internal fences in the allotment (see beginning of this section). The exclosures in 8B would be in antelope winter range, but their small size and using fence specifications for antelope range (discussed under alternative B), would help make impacts to antelope negligible.

3.6.1.4 **Alternative D - Proposed Action**

Grazing Management

Pastures 5B, 8B, 8BI, 8BIII, and 10B
The proposed grazing in pasture 5B would have generally the same wildlife effects as Alternative A. However, if shrub utilization was kept below 50% as in the AICs, forage competition in big game summer and winter range would be reduced compared to Alternatives A, B, and C, and general wildlife habitat could slightly improve over the long-term. In pastures 8B and 10B, the proposed reduction in AUMs and rotation between the pastures would cause a slow improvement in grass and forb production, and reduce shrub use in 8B (budsage and shadscale). Thus overall forage available for mule deer and pronghorn antelope would increase slowly.

Pastures 11B and 12
In pastures 11 and 12, the 49% reduction in AUMs by reducing numbers and duration (3 weeks to 2 weeks) should cause a clear upward trend in riparian condition. Improved shrub and herbaceous habitat would provide more nesting habitat for songbirds and more production for food and cover for large and small animals.

In pasture 12, the cattle tend to move to the top end of the pasture and use it the most heavily. Thus, it is possible that the wet meadows at the top end would still be threatened by the hoofing of wet soils, even with the reduction in AUMs. If mid-term objectives are not met in pasture 12, the hanging wet meadows would either be excluded or pasture 12 would be split to better

manage livestock. Excluding the meadows or splitting pasture 12 would benefit all riparian associated wildlife by allowing the springs and meadows to recover and maintain hydric conditions. In wet meadows, forbs would be increased and duration of the wet season could increase, providing more summer food for sage grouse.

Pastures 28, 28A, and 29A, B, C, D
Turnout into the summer pastures 28 and 28A would occur June 16, earlier than other alternatives, and with a 15% reduction in AUMs. Both of these measures should help to reduce browse use levels in these pastures to 50% or less and would be more certain to achieve that objective than Alternatives A, B, or C. Cattle tend to use browse more later in the season when the grasses have cured.

Although the earlier turnout could help reduce browse use, it could also have a negative effect on the grasses, by grazing them one week earlier in the critical season. The reduction in total AUMs may balance out this effect. Overall, nesting cover for sage grouse would remain in suitable condition.

Effects of management in 29 A, B, C, and D would be the same as in Alternative A.

Proposed Projects
Monitoring exclosures in 5B, 8B, and 10B: Same as alternative C.

Spring Exclosures: Half Moon, 11B #1 and #2, Eagle Spring, Pasture 12, Magpie Creek Headwaters, Battle Creek Headwaters, Pasture 44 #1 and #2, Buck Spring, Unnamed spring between Station and Buck Spring, Rat Spring, Juniper Station Pond, Rock Spring, Station Spring, 29A Battle Cr tributary, Bill de Alder pond, Gopher spring:

All of the proposed spring exclosures would benefit sage grouse by improving late summer habitat, except for Eagle Spring which is already at proper functioning condition. Protection from excessive use levels, hoof-shearing, and pugging would lessen drying and erosion of wetlands, thus increasing wet meadow area and/or plant vigor, thus increasing food forbs. Riparian birds would benefit at any spring with shrub habitat, by increasing shrubs and primary productivity of the sites. Big game would benefit from increased forage.

Of all the proposed exclosures, Eagle and Half Moon springs are right near the top of Rough Mountain where IDFG found groups of bighorn rams summering in 2008. IDFG has expressed concern about exclosures at these two springs, based on the lack of data about how bighorns respond to fences around water sources. IDFG did not express concern about the other proposed exclosures in the area surrounding Rough Mountain, because they are all outside of the area thought to be residential bighorn habitat. These bighorns were newly discovered in 2008, and there is slim knowledge about how they use the country. The basics are that they go back and forth to Shoofly Cr. where the ewes and lambs live, and probably also to Castle Creek.

When built to Boise District fence standards, exclosure fences would minimally inhibit big game access into these wet sites. Any barb-wire fence poses a risk of collision or entanglement for big game and some birds, particularly sage grouse and chukars, but this effect would be rare. The

person who maintained all the exclosures in Boise District for 15 years never found a dead sage grouse along an exclosure fenceline. He did see "3 or 4" deer killed by fences (Allan Stark, pers. comm., 11/2008) Deer carcasses would last longer than sage grouse, and thus are more likely to be detected, so not seeing dead sage grouse does not necessarily mean there were none. The proposed design features would help reduce collision risk and impediments to wildlife, including the fence wire specifications, locating the fence back away from the edge of the wet area where possible to allow larger escape distances from inside, and locating fences on gentler slopes or so that they go up and down steeper slopes where possible, to allow easier jumping.

Using wood fence (jacks, rail, or zigzag) in areas that receive the most pressure from cattle helps assure the integrity of the fence for excluding cattle. Wood fences are more visible to wildlife and less likely to cause injury from collisions. The triangular cross section of jack fences is more difficult for bighorns, deer and elk to jump, however, when combined with wire fence, these animals could jump the wire portions. Placing devices to deter raptors from perching on the wood rails or posts would prevent increased predation on sage grouse or pygmy rabbits.

Pygmy rabbits occur in the dense sagebrush adjacent to Pasture 12 spring, Rock Spring, Bill de Alder pond, Gopher spring, Juniper Station pond, and 29 A Battle Cr tributary. The fence locations go through pygmy rabbit habitat at all of these, where burrows and pellets were found. Improvements in grass and forb abundance inside the exclosures would be beneficial for pygmy rabbits for both food and cover. Some clearing of sagebrush would occur when the fence is built, causing temporary disturbance to part of their habitat. However, mountain sage recovers rapidly and the effect would be short-term. BLM has found occupied pygmy rabbit burrows in several burns only 12 years post-fire in the mahogany savannah, where sagebrush had regrown as tall and thick as surrounding areas. Pygmy rabbits are unlikely to be negatively affected by the fences themselves, even if they cross burrow systems because they would go underneath without impediment. Trails that may develop along fences would be slightly negative for pymgy rabbit habitat, but unlikely to affect population numbers, because they are constantly remodeling burrow systems and creating new burrows and entrances, they use several different burrow systems (Sanchez 2008), and the burrow systems in use in an area are shifting and changing on the landscape from year to year (Rachlow 2008). Thus they are not tied to one burrow system. Additionally, Bruneau BLM has found burrows immediately adjacent to cattle trails and to fences.

The trough developments proposed at some of these springs would replace existing usable water sources for cattle, and thus should generally not increase grazing use of the surrounding area above existing use levels. Use levels could increase if the trough provided substantially more drinkable water, such as at a small seep. Some small-scale loss of habitat would occur around the trough site for about 200 feet. A larger area of habitat, including the wet area, which is the most valuable wildlife habitat, would be improved within the exclosure. By putting float valves in the troughs, water can be maintained in the spring source, to maintain the habitat there. The MFP only allows development of water where there is enough to maintain the wetland as well as feed the trough. The projects that are integral to this alternative meet this criteria.

West Fork Shoofly Creek Fence Realignment: This project would benefit riparian wildlife by adding an additional 0.4 mile of the creek inside a grazing exclosure. Riparian shrubs and

primary production of the herbaceous understory would increase, providing more cover, food and nest sites for riparian birds and other wildlife.

To summarize, under this alternative, overall grass and shrubs available for mule deer and antelope would increase slowly in pastures 8 and 10; Riparian shrub habitat for songbirds in Poison Creek and its tributaries in pasture 12 and Birch Creek in pasture 11 would improve significantly; the wet meadows at the top of pasture 12 would improve as sage grouse habitat; and cattle use on mule deer browse in pasture 28 and 28A would meet the MFP limit of 50% .

3.6.1.5 **Alternative E**

Grazing Management

The reduced stocking rates and rest rotation for pastures 8 and 10 would probably improve grasses and shrubs over the long term in some parts of the pastures, but the tradeoff would be a fence in antelope winter range in pasture 8B. The reduced use in the riparian pastures of 11 and 12 would cause obvious and rapid increase in shrubs and herbaceous understory on the creeks, improving nesting habitat and cover for songbirds and other riparian species.

Pastures 5B, 8B, 8BI, 8BIII, and 10B

The proposed grazing in pasture 5B would have the same wildlife effects as Alternative A. The rest rotation in pastures 8 and 10 combined with half the AUMs of Alternative A would benefit big game and sage-grouse winter habitats by allowing native understories to recover and reduce shrub forage competition with livestock.

Pastures 11B and 12

The shorter season and reduced stocking levels would improve habitat for pygmy rabbits, bighorn sheep, and sage-grouse by improving upland and riparian habitats. Willows would increase and thicken along the creeks, providing more and more secure nesting habitat for birds. In upland communities, grasses and forbs would increase, particularly at the upper end of pasture 12, providing more food and cover for sage grouse, pygmy rabbits, and other wildlife. Because of the reduced grazing pressure, this alternative would be the most likely to achieve objectives for the meadows at the top end of 12 without the need for an exclosure or splitting the pasture to reduce use levels further.

Pastures 28, 28A, 29A, 29B, 29C, 29D

Overall the wildlife effects would be similar to Alternative D in these pastures. The 1-week later use dates than alternative D could mean slightly more browse use by cattle, but would be slightly better for the upland grasses, being more outside of the critical use period. Therefore effects on forage for wildlife may not be very different between alternative D and E. The shorter duration and 15% reduction from Alternative A may cause browse use levels to be <=50% in most years. This would mean more browse for deer and elk.

Projects

Pasture 8B division fence: The fence location would be within the area usually used by antelope as wintering range. This portion of the antelope winter range is not used by as many antelope as on the eastern side of the Mudflat Road, and thus is probably the least harmful place on the

plains to build a fence (Jake Powell, IDFG, pers. comm.) Antelope depend on unimpeded running to escape predators. Fences can impede escape, and some antelope and/or deer may die or be injured by collision with the fence. The new fence would be constructed according to BLM wildlife standards, with a smooth bottom wire at 18 inches above the ground, to allow antelope to go underneath. Additionally the height of the top wire would be 40 inches, and the spacing between the two top wires would be 10 and 12 inches to allow animals to jump with reduced risk of entanglement in the two top wires. Nevertheless, there would be a potential for occasional injury or mortality when big game cross the fence, especially when the fence is new. IDFG did not have serious concerns with the fence if it was built to the standards stated above (Jake Powell, Southwest Region IDFG, pers. comm.) The fence would not be in sage grouse or pygmy rabbit habitat.

Impacts of all other projects are the same as Alternative D.

To summarize, under this alternative, although it would be the most likely alternative to improve habitat for deer and antelope by improving grasses and shrubs in pastures 8 and 10 because it offers every-other-year rest, the tradeoff would be a fence in antelope winter range. It would be the most likely and fastest alternative to improve songbird habitat conditions on creeks and on meadows for sage grouse in pastures 11 and12. It would have the same effects as Alternative D on browse for mule deer in pastures 28 and 28A, meeting the MFP standard in most years.

3.7 **Affected Environment - Fish, Including Special Status Species**

Redband trout (*Oncorhynchus mykiss gairdneri*) are the most common and widely distributed fish in streams in the East Castle Creek allotment (USDI 1997). Redband trout are considered a sensitive species by both BLM and the Idaho Department of Fish and Game (Kozfkay et al. 2006, Zoellick and Cade 2006). Redband trout are year-long residents of perennial portions of Rock Creek, Sheep Creek (tributary to Rock Creek), and West Fork Shoofly Creek, and seasonally inhabit intermittent segments of these streams. Speckled dace (*Rhinichthys osculus*) and bridgelip suckers (*Catostomas columbianus*) are also found in Rock Creek. Speckled dace seasonally inhabit the headwaters of Battle Creek in the East Castle Creek allotment. No introduced or exotic fish are present in streams in the East Castle Creek Allotment.

Rock Creek
Rock Creek flows through a low gradient valley on the western edge of the allotment. Redband trout abundance in Rock Creek is low; an estimated 0.6 trout/100 m^2 were present in 2002 (Zoellick et al. 2005). About 0.3 mile of Rock Creek in the East Castle Creek allotment was fenced into a grazing exclosure in 1997. Trend in habitat condition for redband trout is strongly upward with late-seral plant cover increasing on streambanks and floodplains and stabilizing banks and channels (USDI 2008a). Another 0.2 mile of Rock Creek in pasture 33 is slowly improving in habitat condition as cover of willows and sedges is slowly increasing on streambanks and floodplains with fall livestock grazing (USDI 2008b).

Sheep Creek
Sheep Creek is a tributary to Rock Creek and flows northwest through pastures 28A and 33. The lower 0.45 mile of Sheep Creek is located in pasture 33 and most of this segment has perennial stream flows. On the first 0.2 mile upstream of the confluence, streambanks are stable and well vegetated with plant communities dominated by bank-stabilizing species, and are providing adequate habitat for the long term maintenance of redband trout populations (USDI 2008a). The next BLM segment upstream (0.25 mile long) is not providing adequate habitat for the long-term maintenance of redband trout populations. This segment is well vegetated with plant communities dominated by bank-stabilizing species, and stream channels are well shaded. However, 3 active headcuts are present, and the segment is functioning at risk with a downward trend as channels are continuing to erode and widen at the headcuts (USDI 2008a,b).

West Fork Shoofly Creek
West Fork Shoofly Creek is a first order tributary to Shoofly Creek and is located on the eastern edge of the allotment in pastures 14 and 8B. This stream is an important spawning and rearing area for redband trout moving upstream from Shoofly Creek, and also supports resident populations of redband trout. Densities of 17.4 trout/100 m^2 of stream were estimated in West Fork Shoofly Creek in the late 1990's (BLM, unpubl. data).

Most of West Fork Shoofly Creek in pasture 14 (0.6 mile) provides adequate habitat for the long-term maintenance of redband trout populations. Upstream of the private land (LL Cow Camp) in pasture 14, streambanks are stable and densely vegetated with willow shrub communities so that stream channels are stable and well shaded. About 0.2 mile of West Fork Shoofly downstream of private land in pasture 14 is historically incised 4 to 5 feet deep into a G-channel (Rosgen 1996). Redband trout habitat quality is impaired in this 0.2 mile reach due to the historical incision of the channel, but is slowly improving as streambank vegetation has an upward trend in cover and density (USDI 2008a,b). Sediment levels are elevated because about 20 to 25% of the steep, incised banks are bare and eroding.

The upper 1.5 miles of West Fork Shoofly Creek in pasture 8B is located in a rocky canyon that is closed to grazing. This segment is providing adequate habitat for the long-term maintenance of redband trout populations (USDI 2008b). Streambanks and floodplains are densely vegetated with riparian shrub and tree communities. Stream channels are stable and well shaded. However, recent livestock trailing (during the hot season) created bare soil areas in the floodplain that are at risk of erosion during high flows (USDI 2008b). The lower 0.5 mile of BLM-managed land on West Fork Shoofly Creek in pasture 8B is intermittent with duration of stream flows dependent on the size of winter snowpacks. This reach is an important migratory corridor for redband trout moving between Shoofly Creek and perennial headwater reaches of West Fork Shoofly Creek. This segment is historically incised 2 to 5 feet deep into a G-channel (Rosgen 1996). Redband trout habitat is impacted by the historical incision, which has reduced bank storage of water needed to maintain stream flows (USDI 2008a,b). Riparian plants needed to stabilize streambanks and channels are also impacted by the loss of water and this segment is in functional at risk condition with a static trend. Redband trout habitat is inadequate on this reach due to unstable banks and channels and loss of stream flows (USDI 2008b).

About 2.8 miles of West Fork Shoofly Creek in pastures 8B and 14 was identified for improvement in habitat condition for redband trout in the 1983 Land Use Plan (Bruneau MFP, WL-AQ Objective 2.1; USDI 1983). Of 2 miles in pasture 8B, 1.5 mile is improving in condition or meeting the MFP objective (USDI 2008a,b). About 0.5 mile is in functional at risk condition with a static trend and not meeting the MFP objective, largely due to historic incision impacts, but also due to recent high levels of livestock use (USDI 2008b). In pasture 14, 0.6 mile of stream is meeting the MFP objective, while another 0.2 mile is historically incised and functioning at risk with a slow upward trend, and thus making slow progress towards the MFP objective (USDI 2008b).

3.7.1 Environmental Consequences – Fish

3.7.1.1 Alternative A – No Action/ Current Management

The 3 miles of stream within the allotment that are currently providing suitable habitat for the long-term maintenance of redband trout populations (0.6 mile of West Fork Shoofly Creek), or improving in condition (2.4 miles of Rock, Sheep, and West Fork Shoofly Creeks), would continue to improve and provide suitable habitat over the mid to long term. Of 0.8 mile that is not providing suitable habitat, 0.5 mile of West Fork Shoofly Creek is predominantly impaired by historic channel incision and subsequent loss of stream flows, but is also additionally impacted by hot season grazing (outside of the traditional spring grazing use for pasture 8B) and would not improve in condition. It would not meet the MFP objective, primarily because of historic grazing and channel incision, but also in part because of recent excessive livestock use during the hot season (USDI 2008a). Excessive livestock use in streams and along streambanks can adversely affect fish habitat by decreasing stream shading and raise water temperatures, increasing sedimentation and active bank erosion, and altering the stream channel dimensions and reducing oxygen levels in the water. Another 0.3 mile of habitat on Sheep Creek is degrading because of channel erosion due to the loss of beaver dams and would continue to degrade under this alternative. About 2.3 miles of redband trout habitat in West Fork Shoofly Creek that was identified for improvement in the Land Use Plan, would continue to meet the objective or improve in condition over the mid-term, with 0.2 mile of incised channel improving over the long term.

3.7.1.2 Alternative B – Anchustegui Proposed Action

The effects of Alternative B on fish habitat in the East Castle Creek allotment would be similar to Alternative A. The 25% voluntary non-use proposed under this alternative would slightly benefit aquatic habitat and fish of West Fork Shoofly Creek in pasture 8B by reducing the amount of livestock-induced sedimentation and fecal coliform in the water, and allowing faster recovery of riparian vegetation than Alternative A. However, the condition of West Fork Shoofly Creek in pasture 8B currently not providing suitable habitat due to historic grazing may slightly improve, but would not provide suitable habitat over the long-term or meet MFP objectives. As in Alternative A, the 3 miles of stream within the allotment that are currently providing suitable habitat for the long-term maintenance of redband trout populations (segments of WF Shoofly Creek and Rock Creek), or improving in condition, would continue to improve and provide

suitable habitat over the mid to long-term. The 0.3 mile of habitat on Sheep Creek degrading because of channel erosion due to the loss of beaver dams would continue degrading as in Alternative A.

Projects
The projects would not impact Fish Habitat.

3.7.1.3 **Alternative C – King Proposed Action**

The effects of Alternative C on fish habitat in the East Castle Creek allotment would be similar to Alternative A and B by providing slight improvements to some areas of fish habitat, but not making substantial progress towards meeting standards or MFP objectives for fish. Primary differences between this alternative compared to A and B are: 1) using utilization monitoring to determine stocking levels in years 5 through 10; and 2) a proposed pipeline extension project in pasture 8B. Utilization is a monitoring tool to determine annual production levels of key forage species, which is largely based on precipitation levels in a given year. Utilization monitoring does not provide information regarding fish habitat condition, long-term trends, or information regarding the stream environment (water quality, bank stability, stream shading, etc.). Utilization monitoring alone does not holistically consider fish habitat, and the resulting stocking rates could lead to long-term adverse impacts to fish habitat.

Projects
The proposed pipeline extension project into pasture 8B could benefit fish habitat of Shoofly Creek by providing an alternative water source and drawing livestock away of the creek.

Headcut Stabilizations: Three potential headcut projects on Sheep Creek in pasture 33 would have long term benefits to fish and fish habitat by increasing riparian vegetation and stabilizing stream banks and the eroding stream channel. Sediment would be reduced, oxygen increased and solar radiation decreased resulting in cooler stream temperatures.

3.7.1.4 **Alternative D**

As in Alternative A, the 3 miles of stream within the allotment that are currently providing suitable habitat for the long-term maintenance of redband trout populations (segments of West Fork Shoofly Creek and Rock Creek), or are improving in condition, would continue to improve and provide suitable habitat over the mid to long-term. The proposed reduction in AUMs and staggered turn-out between pastures 8B and 10B would reduce livestock pressure on Shoofly Creek, which would enable the riparian areas and fish habitat to improve faster than Alternatives A, B, and C. Managing utilization of key upland browse species at 30% could indirectly benefit fish and riparian habitat in the short-term if livestock are removed from the pasture, and could have long-term benefits if AUMs are reduced because of consistent violation of the AIC. Specific AIC (AIC 6 and 7) were developed under this alternative to benefit Shoofly Creek in pasture 8B. Application of these AIC would make substantial progress towards fish objectives in the short- and long-term by regulating browse of woody species, reducing utilization and bank alteration, and improving water quality. A 15% reduction in AUMs in pasture 28A may slightly

improve fish habitat conditions for the 0.25 mile of habitat on Sheep Creek, resulting in greater progress being made towards suitable habitat than Alternatives A, B, and C in this reach.

The proposed West Fork Shoofly Fence Realignment project would increase the effectiveness of the livestock grazing exclosure along West Fork Shoofly Creek, resulting in a sharp improvement of aquatic and riparian habitat along that reach, including important spawning and rearing habitat for redband trout.

Proposed Projects

West Fork Shoofly Fence Realignment project: This project would expedite improvements along West Fork Shoofly Creek (1.6 miles) relative to Alternative A by preventing unauthorized livestock use, preventing excessive bare ground along the floodplain and reducing the risk of erosion during high flow events. Fence construction would result in localized short term impacts, including trampling, vegetation removal, and soil compaction, which would elevate sediment in the stream. Effects would be short term and localized. Long term, fish habitat quality would improve by increased streamside vegetation, in-stream cover, cooler water temperatures, reduced bacteria, and increased oxygen.

Buck Spring Exclosure in Pasture 28: The downstream channel included within the exclosure, would improve to proper functioning condition which would have a positive impact downstream on fish habitat in Rock Creek. Long term, fish habitat quality would improve decreased bacteria and sediment, and cooler water flowing from this channel.

Battle Creek Headwaters Exclosure and Trough: The exclosure fence would result in a strong upward trend of the wet meadow area and spring complex. Protecting and increasing the overflow from the spring complex would contribute additional flow to Battle Creek. This would result in increase fish habitat (more water) and cooler water temperatures in the long term.

3.7.1.5 **Alternative E**

The proposed grazing system for Alternative E is based on rest rotations and reduced stocking levels, which would not result in additional benefits for fish habitat over Alternative D.

Projects
See discussion of projects under Alternative D.

3.8 **Affected Environment – Cultural Resources**

Cultural resources in the East Castle Creek Allotment are diverse and potentially represent evidence of approximately 10,000 years of human occupation. Known sites are physical manifestations of culture and represent the full range of human activity. Approximately 7% of the public lands within the allotment have been previously inventoried for cultural resources and a total of 52 sites have been recorded. Site types include lithic scatters, rockshelters, rock art,

hunting camps and habitation sites, middens, rock alignments, can scatters, dumps, dugouts, mining sites, roads and trails.

Information regarding site distribution is incomplete for the East Castle Creek Allotment. However, the existing data provides a reasonable and good faith effort to identify historic properties that may be affected by livestock use and the East Castle Creek Grazing Management. There appears to be a medium to high site density in the higher elevations of the allotment with greatest occurrence near water sources, riparian areas, and mountain slopes accessible to livestock. This evidence corresponds to the findings in the Boise District Class II Inventory (Young 1984). Site density is low in the steep mountainous areas and lower elevations.

Southwest Idaho is the homeland of two culturally and linguistically related tribes: the Northern Shoshone and the Northern Paiute. In the latter half of the 19th century, a reservation was established at Duck Valley on the Nevada/Idaho border west of the Bruneau River. The Shoshone-Paiute Tribes residing on Duck Valley today actively practice their culture and retain aboriginal rights and/or interests in this area.

3.8.1 Environmental Consequences – Cultural Resources

Table 26. Projects Proposed by Alternative

Project	Alt B	Alt C	Alt D	Alt E	Cultural Resource Inventory & Effects Analysis
Alt B Pasture 8B Division Fence	X				No CR inventory – no analysis
Mine Adit Trough	X	X	O	O	Alt B & C – adverse effect to site 10OE-3848 as proposed; Alt D & E no adverse effect to site 10OE-3848 / trough located off site (needs a map of the proposal and additional inventory where the pipeline & trough will be placed).
Pasture 29A Pond at Bill De Alder Draw	X		X	X	Alt B, D & E – CR inventory completed / No effect.
Relocation of Waterhaul Site in 5B		X	X	X	Alt C, D & E – CR inventory completed / No effect. Pending SHPO comment.
Birch Creek Pipeline Extension into Pasture 8BI		X	O	O	Alt C, D & E – CR inventory completed / No effect.
Horsehead Spring Pipeline Extension into 10B and 12		X			No CR inventory – no analysis
Pasture 11B Spring Development		X	O	O	No CR inventory – no analysis
Summit Springs Trough		X	O	O	No CR inventory – no analysis
Birch Creek Pipeline		X			No CR inventory – no analysis

Project	Alt B	Alt C	Alt D	Alt E	Cultural Resource Inventory & Effects Analysis
Extension into 8B					
Poison Creek Pipeline Extension into Pasture 8B		X			No CR inventory – no analysis
Adjustment to the Pasture 8B and 10B Division Fence		X			No CR inventory – No analysis
Headcut Stabilization in Pasture 10B - Birch Creek		X			No CR inventory – no analysis
Exclosure at Pasture 10B Spring 89310B4		X			No CR inventory – no analysis
Exclosure at Pasture 10B Spring 893110B10A		X			No CR inventory – no analysis
Headcut Stabilization at 11B on Birch Creek		X			No CR inventory – no analysis
Exclosure and Trough at Pasture 11B Spring 89311B19A		X			No CR inventory – no analysis
Exclosure at Pasture 11B Spring 2020039		X			No CR inventory – no analysis
Trough at Pasture 11B Spring 2020073		X			No CR inventory – no analysis
Pasture 12 Headcut Stabilizations on Lone Juniper Creek		X			No CR inventory – no analysis
Trough and Exclosure at Pasture 12 Spring 8931207A		X			No CR inventory – no analysis
Trough and Exclosure at Pasture 12 Spring 8931217B		X			No CR inventory – no analysis
Trough and Exclosure at Pasture 12 Spring 8931218B		X			No CR inventory – no analysis
Pipeline and trough from Bald Mountain Spring Trough in Pasture 12		X			No CR inventory – no analysis
Exclosure of Pasture 12 Spring at 8S1E20SWNW		X			No CR inventory – no analysis
Trough and Exclosure of Pasture 12 Spring at 8S1E17SWNWSW		X			No CR inventory – no analysis
Exclosure of Pasture 12 Spring at		X			No CR inventory – no analysis

Project	Alt B	Alt C	Alt D	Alt E	Cultural Resource Inventory & Effects Analysis
8S1E17SWSWNE					
Water Gap – Fence change in Pasture 12 fence to provide water to State/Private land in Pasture 20		X			No CR inventory – no analysis
Pasture 28 Headcut Stabilization at 8S2W24SWSW		X			No CR inventory – no analysis
Exclosure of Pasture 28 Spring 8932815A		X			No CR inventory – no analysis
Exclosure of Pasture 28 Spring 8932824A		X			No CR inventory – no analysis
Trough and Exclosure at Pasture 28 Spring at 8S1W20SWSW		X			No CR inventory – no analysis
Exclosure at Pasture 28 Spring at 8S1W31W		X			No CR inventory – no analysis
Sheep Creek Exclosure at 9S1W6SE		X			No CR inventory – no analysis
Headcut Stabilizations on Sheep Creek in Pasture 33		X			No CR inventory – no analysis
Half Moon Spring Exclosure		X	O	O	No CR inventory – No analysis
Pasture 11B Spring Exclosure #1		X	O	O	No CR inventory – no analysis
Pasture 11B Spring Exclosure #2		X	O	O	Alt C, D & E – CR inventory completed / No effect.
Eagle Spring Exclosure.		X	O	O	No CR inventory – no analysis
Magpie Creek Headwaters Exclosure and Trough		X	X	X	No CR inventory – no analysis
Battle Creek Headwaters Exclosure		X	X	X	No CR inventory – no analysis
Battle Creek Headwaters Trough		X	O	O	No CR inventory – no analysis
Pasture 44 Spring Excl. # 1		X	X	X	No CR inventory – no analysis
Pasture 44 Spring Excl. # 2		X	X	X	No CR inventory – no analysis
Buck Spring Exclosure (pasture 28 spring		X	X	X	No CR inventory – no analysis

Project	Alt B	Alt C	Alt D	Alt E	Cultural Resource Inventory & Effects Analysis
exclosure)					
Rat Spring Exclosure.		X	X	X	Alt D & E – CR inventory completed / No effect.
Rat Spring Additional Trough		X			No CR inventory – no analysis
Juniper Station Pond and Exclosure		X	X	X	Alt D & E – CR inventory completed / No effect.
Exclosure of Pasture 44 Spring 8934432B		X			No CR inventory – no analysis
Upland Grazing Exclosures in Pastures 8BI, 11B, 12, 28, 28A		X			No CR inventory – no analysis
Riparian Grazing Exclosures in 8B, 10B, 11B, 12		X			No CR inventory – no analysis
Monitoring Exclosures in 5B, 8B 10B			X	X	Alt D & E – CR inventory completed for 5B & 8B Exclosures / No effect. Alt D & E – no CR inventory for 10B Exclosure – No analysis
BLM Pasture 8B Division Fence	X			X	No CR inventory – No analysis
Pasture 12 Spring Exclosure (893-12-07A)		X	O	O	Alt D & E – CR inventory completed / No effect. Pending SHPO comment.
Gopher Spring Exclosure		X	X	X	Alt C No CR inventory – no analysis; Alt D & E – CR Inventory completed / No Effect. Pending SHPO comment.
Rock Spring Exclosure Expansion			X	X	Alt D & E – CR inventory Completed / No Effect.
Station Spring Exclosure Expansion			X	X	Alt A, B & C – CR inventory completed. Indicates adverse effect to site 10OE-1015. Alt D & E, No effect,
Pasture 29A Battle Creek Tributary Meadow Exclosure.			X	X	Alt D & E – CR inventory completed / No effect
West Fork Shoofly Creek Fence Realignment.			X	X	No CR inventory – No analysis

[1]An "X" indicates that the project is proposed under the alternative

[2]An "O" in Alt. D and Alt. E signifies that it is an optional project, not integral to the design of the Alternative. See Section 2.10.

3.8.1.1 **Alternative A – No Action/ Current Management**

Current management has resulted in improving conditions for preserving the integrity of cultural resources. This was achieved by imposing dates for season of use, resting pastures, delaying movement of cattle from lower elevation pastures to higher elevation pastures, deferring use of higher elevation summer pastures until June, alternating seasons of use in summer pastures, and the construction of riparian fences. Direct impacts to the soil surface from livestock hoof action would continue to impact locations containing cultural resources where livestock trail and congregate. This impact, although lessened by the current management, would remain heightened near water sources (i.e. wet meadows and riparian areas) when they are not protected by fencing or herding measures. No detectable variance of impacts can be ascertained between the Alternatives as there will be a continued presence of grazing animals within the allotment area. No projects are proposed under the current management Alternative.

Under Alternative A one site, 10OE-1015, a pre-historic hunting camp has sustained impacts from grazing. After BLM / SHPO / Tribal consultation for mitigation of impacts to the site under Alternative D & E it would continue to be part of the grazing management plan.

3.8.1.2 **Alternative B – Anchustegui Proposal**

Similar to Alternative A, management under Alternative B would continue to result in improving the integrity of cultural resources by lessening the impact of grazing animals at critical times throughout the year. However, the potential impacts of livestock on non-inventoried cultural resources, especially in high-traffic areas, would continue to be an unknown.

Under Alternative B one site, 10OE-1015, a pre-historic hunting camp would continue to sustain impacts from grazing. After BLM / SHPO / Tribal consultation for mitigation of impacts to the site it would continue to be part of the grazing management plan.

The following project was inventoried for cultural resources and there are no significant impacts resulting from project implementation: Pasture 29A Pond at Bill De Alder Draw.

The following project was not inventoried for cultural resources and impacts are not known at this time. The project area of potential effect would be inventoried prior to project implementation. If projects need to be re-designed for avoidance of significant cultural resources then a new NEPA document would be drafted: Alt B Pasture 8B Division Fence.

The Mine Adit Trough proposal would have significant impacts to site 10OE-3848 as proposed.

Project specific determinations of effect are pending SHPO consultation.

3.8.1.3 **Alternative C – King Proposal**

Similar to Alternative A, management under Alternative C would continue to result in improving the integrity of cultural resources by lessening the impact of grazing animals at critical times

throughout the year. However, the potential impacts of livestock on non-inventoried cultural resources, especially in high-traffic areas, would continue to be an unknown.

Under Alternative C one site, 10OE-1015, a pre-historic hunting camp would continue to sustain impacts from grazing. After BLM / SHPO / Tribal consultation for mitigation of impacts to the site under Alternative D & E it would continue to be part of the grazing management plan.

The following projects were inventoried for cultural resources and have no significant impacts resulting from project implementation: Relocation of waterhaul site in 5B, Birch Creek Pipeline Extension into Pasture 8BI.

The following projects were not inventoried for cultural resources and impacts are not known at this time. The project areas of potential effect would be inventoried prior to project implementation. If projects need to be re-designed for avoidance of significant cultural resources then a new NEPA document would be drafted: Horsehead Spring Pipeline Extension into 10B and 12, Pasture 11B Spring Development, Summit Springs Trough, Upland grazing exclosures in 11B, 12, 28, 28A, Birch Creek Pipeline Extension into 8B, Poison Creek Pipeline Extension into Pasture 8B, Adjustment to the Pasture 8B and 10B Division Fence, Headcut Stabilization in Pasture 10B - Birch Creek, Exclosure at Pasture 10B Spring 89310B4, Exclosure at Pasture 10B Spring 893110B10A, Headcut Stabilization at 11B on Birch Creek, Exclosure and Trough at Pasture 11B Spring 89311B19A, Exclosure at Pasture 11B Spring 2020039, Trough at Pasture 11B Spring 2020073, Pasture 12 Headcut Stabilizations on Lone Juniper Creek, Trough and Exclosure at Pasture 12 Spring 8931207A, Trough and Exclosure at Pasture 12 Spring 8931217B, Trough and Exclosure at Pasture 12 Spring 8931218B, Pipeline and trough from Bald Mountain Spring Trough in Pasture 12, Exclosure of Pasture 12 Spring at 8S1E20SWNW, Trough and Exclosure of Pasture 12 Spring at 8S1E17SWNWSW, Exclosure of Pasture 12 Spring at 8S1E17SWSWNE, Water Gap – Fence change in Pasture 12 fence to provide water to State/Private land in Pasture 20, Pasture 28 Headcut Stabilization at 8S2W24SWSW, Exclosure of Pasture 28 Spring 8932815A, Exclosure of Pasture 28 Spring 8932824A, Trough and Exclosure at Pasture 28 Spring at 8S1W20SWSW, Exclosure at Pasture 28 Spring at 8S1W31W, Exclosure at Pasture 28A Spring at 9S1W6SE, Headcut Stabilizations on Sheep Creek in Pasture 33, Half Moon Spring Exclosure, Pasture 11B Spring Exclosure #1, Magpie Creek Headwaters Exclosure and Trough, Battle Creek Headwaters Exclosure, Battle Creek Headwaters Trough, Pasture 44 Spring Excl. # 1, Pasture 44 Spring Excl. # 2, Buck Spring Exclosure (pasture 28 spring exclosure), Rat Spring Additional Trough, Exclosure of Pasture 44 Spring 8934432B, Upland Grazing Exclosures in Pastures 8BI, 11B, 12, 28, 28A, Riparian Grazing Exclosures in 8B, 10B, 11B, 12, Adjustment of the Pasture 8B and 10B Boundary Fence, Gopher Spring Exclosure.

The Mine Adit Trough proposal would have significant impacts to site 10OE-3848 as proposed. (needs a map of the proposal and additional inventory for cultural resources where the pipeline & trough will be placed)

Project specific determinations of effect are pending SHPO consultation.

3.8.1.4 **Alternative D**

Similar to Alternatives A-C, management under Alternative D would continue to result in the improvement of cultural resource integrity by lessening the impact of grazing animals. Further mitigation measures under Alternative D would also provide for the construction of protective wetland and riparian exclosures, in conjunction with the diversion of water resources, to ensure minimal impact in ecological sensitive areas.

Under Alternative D one site, 10OE-1015, a pre-historic hunting camp would be protected from further impacts occurring from grazing by expanding the exclosure fence and hardening the access to the trough. After BLM / SHPO / Tribal consultation for mitigation of impacts to the site it would continue to be part of the grazing management plan.

The following projects were inventoried for cultural resources and have no significant impacts resulting from project implementation: Pasture 12 Spring Exclosure, Rat Spring Exclosure, Section 20 Spring, Juniper Station Pond (BLM 28-13-20-20063), Relocation of Waterhaul Site in 5B, Pasture 29A Battle Creek Tributary Meadow Exclosure, Gopher Spring Exclosure.

The following projects were not inventoried for cultural resources and impacts are not known at this time. The project areas of potential effect would be inventoried prior to project implementation. If projects need to be re-designed for avoidance of significant cultural resources then a new NEPA document would be drafted: Pasture 8B Division Fence, Half Moon Spring Exclosure, Pasture 11B Spring Exclosure #1, Pasture 11B Spring Exclosure and Development, Eagle Spring Exclosure, Magpie Creek Headwaters Exclosure and Trough, Battle Creek Headwaters Exclosure and Trough, Pasture 44 Spring Excl. # 1, Pasture 44 Spring Excl. # 2, Pasture 28 Spring Exclosure, West Fork Shoofly Creek Fence Realignment, Rock Spring Exclosure Expansion.

The Mine Adit Trough proposal would have no significant impacts to site 10OE-3848 after the project is redesigned under this alternative.

Project specific determinations of effect are pending SHPO consultation.

3.8.1.5 **Alternative E**

Similar to Alternatives A-C, management under Alternative E would continue to result in the improvement of cultural resource integrity by lessening the impact of grazing animals. Further mitigation measures under Alternative E also provide for the construction of protective wetland and riparian exclosures, in conjunction with the diversion of water resources, to ensure minimal impact in ecological sensitive areas.

Under Alternative E one site, 10OE-1015, a pre-historic hunting camp would be protected from further impacts occurring from grazing by expanding the exclosure fence and hardening the access to the trough. After BLM / SHPO / Tribal consultation for mitigation of impacts to the site it would continue to be part of the grazing management plan.

The following projects were inventoried for cultural resources and have no significant impacts resulting from project implementation: Pasture 12 Spring Exclosure, Rat Spring Exclosure, Section 20 Spring, Juniper Station Pond (BLM 28-13-20-20063), Relocation of Waterhaul Site in 5B, Pasture 29A Battle Creek Tributary Meadow Exclosure, Gopher Spring Exclosure.

The following projects were not inventoried for cultural resources and impacts are not known at this time. The project areas of potential effect would be inventoried prior to project implementation. If projects need to be re-designed for avoidance of significant cultural resources then a new NEPA document would be drafted: Pasture 8B Division Fence, Half Moon Spring Exclosure, Pasture 11B Spring Exclosure #1, Pasture 11B Spring Exclosure and Development, Eagle Spring Exclosure, Magpie Creek Headwaters Exclosure and Trough, Battle Creek Headwaters Exclosure and Trough, Pasture 44 Spring Excl. # 1, Pasture 44 Spring Excl. # 2, Pasture 28 Spring Exclosure, West Fork Shoofly Creek Fence Realignment, Rock Spring Exclosure Expansion.

The Mine Adit Trough proposal would have no significant impacts to site 10OE-3848 after the project is redesigned under this alternative.

Project specific determinations of effect are pending SHPO consultation.

3.9 **Affected Environment – Recreation and Visual Resources**

Recreational activities in the allotment are dispersed over a large area. Dominant activities include big and small game hunting, driving for pleasure, OHV use, camping, hiking, fishing, bird watching, photography, and other pursuits. Most of the recreation is private, non-commercial use. Commercial outfitters are authorized by BLM to conduct big game hunts, trophy bighorn sheep hunts, camping, and hiking tours in the area, in coordination with the Idaho Outfitters and Guides Licensing Board. Motorcycle races are conducted every year on roads and trails in the allotment, by BLM special recreation use permit authorizations (RMIS 2007b). The quality of the recreational experience in many of these activities is partly dependent on good ecological condition (Sanderson 1988). For example, good condition upland and riparian vegetation mean good forage and cover for wildlife species, thus higher wildlife populations and better hunting, fishing, bird watching and wildlife observation opportunities. An abundant healthy mix of native vegetation in riparian areas and uplands enhances scenic quality, resulting in better recreational experiences.

There are three classifications for off-highway vehicle (OHV) use within the allotment. Within the Little Jacks Creek Wilderness Study Area (WSA), motor vehicle use is by policy limited to the roads and ways that were documented in the original wilderness inventory and are still in existence. Approximately 29% (11 miles) of the motorized routes inventoried within the WSA are unauthorized, and have developed subsequent to the wilderness inventory. Actions have been taken and additional actions are planned to close unauthorized vehicle routes within the Little Jacks Creek WSA. OHV restrictions and regulations apply to permitted operations, such as management of livestock grazing, as well as to general public use. Outside of the WSA,

cross-country (off-road) vehicle travel is allowed in most of the allotment. Within the Mud Flat Oolite Exclosure, 1,488 acres are closed to motor vehicle use.

The Owyhee Uplands Back Country Byway (Byway) transects the allotment. The Byway is a 101-mile improved gravel road between Grand View, Idaho and Jordan Valley, Oregon. The road, which is also known as the Mud Flat Road, is a popular scenic drive for visitors to public land, and serves as a staging area for trips into more remote scenic and primitive backcountry areas in Owyhee County.

Within the allotment, a portion of West Fork Shoofly Creek has been found eligible for further study as a component of the National Wild and Scenic Rivers System (NWSRS). To be found eligible for inclusion in the NWSRS, a river must be free-flowing and contain at least one outstandingly remarkable value. Two outstandingly remarkable values were identified for the West Fork Shoofly Creek. Outstanding wildlife values associated with the river include California bighorn sheep and redband trout habitat. Outstanding ecological values are pristine, reference-quality plant communities not known from other streams in southwestern Idaho, found along the ungrazed and unaltered stream segments.

Recreation Opportunity Spectrum (ROS) classification is a tool used to characterize the type of recreational opportunity settings, activities, and experience opportunities that can be expected in different areas on public land. The allotment provides a mix of roaded-natural, semi-primitive motorized and semi-primitive non-motorized settings for recreation. The majority of the allotment provides a semi-primitive motorized setting. Semi-primitive motorized settings dominate the lower pastures, there is more of a mix of semi-primitive motorized and non-motorized settings in the upper pastures, and the roaded-natural settings are located along more heavily-traveled road corridors including the Byway.

Currently, recreational users in the East Castle Creek Allotment experience some upland areas in good condition, with outstanding opportunities for recreation. The steeper slopes in higher elevation pastures feature a variety of native bunchgrasses, shrubs, and mountain mahogany. Approximately 2.5 miles of riparian corridors, inaccessible to cattle, feature outstanding scenery and lush vegetation, including short segments of Fall Creek, Sheep Creek, and West Fork Shoofly Creek. A substantial portion of the riparian corridors are improving in condition, with correspondingly improving opportunities for recreation, including 7.6 miles along Battle Creek, Birch Creek, Rock Creek, and West Fork Shoofly Creek. In some locations, recreationists also encounter unpleasant aesthetic and vegetation conditions related to grazing. Degraded areas where livestock impacts are evident include approximately 9.5 miles along stream corridors that are not in proper functioning condition and are not improving. Degraded areas for recreation are also evident at watering, salting, and loafing spots where livestock congregate, along heavily grazed slopes bordering the Back Country Byway, and in extensive portions of Pastures 5B, 8B, 8BI, 8BIII, 10B, 11B, 12, 28, 28A and 29A (USDI, 2008a). Recreation opportunities are reduced in areas of poor condition vegetation and livestock impacts (Hensiek, 2002).

Public land within the allotment is a mix of Visual Resource Management (VRM) Class I, II, III, and IV lands. The Little Jacks Creek Wilderness Study Area portion of the allotment, which represents about 6.2% of the public land in the allotment, is classified as VRM Class I. The

objective in Class I areas is to preserve the existing character of the landscape, and the level of change to the characteristic landscape should be very low and must not attract attention. A corridor on either side of the Byway is VRM Class II, where the general objective is also to retain the existing character of the landscape, and the level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. A travel influence zone established for ½ mile along both sides of the Byway is an area where "activities will preserve or enhance the scenic quality" (USDI 1983). In Class III areas, the objective is to partially retain the existing character of the landscape, and any changes to the characteristic landscape should be moderate. In Class IV landscapes, the level of change can be high, but attempts are made to minimize the impacts of activities. In much of the allotment, VRM objectives are being met. The natural character of localized areas in VRM Class I areas within the WSA and VRM Class II areas along the Byway corridor have been degraded by livestock grazing practices. As documented in the East Castle Creek Assessment (USDI 2008a), livestock grazing impacts include bare ground, loss of understory components, stream bank alteration, heavy utilization of bitterbrush and mountain mahogany, and changes in species composition and vigor of plant communities. These impact areas negatively affect the form, line, color, and texture of areas in the foreground of viewers.

3.9.1 **Environmental Consequences – Recreation and Visual Resources**

Under all alternatives, the majority of the allotment would continue to offer widespread opportunities for dispersed recreation. Negative effects on recreation that are currently occurring due to livestock grazing would continue to occur in areas where livestock congregate, both during and outside of the grazing season, particularly along easily accessed riparian areas and in heavily grazed portions of the upland pastures. Negative impacts include bare areas, mud bogs, reduced vegetative cover, and livestock waste. Proposed projects within the allotment have the potential to effect recreation in localized areas both positively and negatively. Positive effects would include improvements to soils, vegetation, wildlife habitat and recreation opportunities around spring developments and stream segments with exclosure fences. Negative effects would include the increase in the amount of fences and other structures related to grazing, barriers to easy travel through the allotment caused by new fences, and impacts of livestock trailing along fences. Trailing impacts along fences would be most evident in areas where there are nearby livestock water sources and concentrated livestock use. Trailing impacts would also be evident along newly constructed fences that exclude livestock from springs, wetlands and riparian areas that livestock had previously accessed. Trailing impacts along upland fence lines would be minimal. Trailing impacts along fence lines can include shrub loss, trampled vegetation, exposure of bare soil, soil compaction, and development of new visual contrast. Negative effects of projects would also include new areas of disturbance, reduced vegetation and livestock waste around new stock water troughs.

Design criteria for new range developments are meant to minimize the disturbance and effects on the area. There would be no construction requiring excavation of the soil for new roads. There would be limited disturbance of vegetation during fence construction. Areas disturbed during project construction would be contoured and reseeded, if necessary. Fences would not be constructed on horizons to reduce their visual impact, and fence posts would be colored to blend

in to the surroundings. All fences and exclosures would include gates to provide for recreational access.

Wild and Scenic River suitability for the eligible stream segment in the local area would be unaffected by the proposed alternatives. Recreational use levels would likely continue to gradually increase as the population in nearby communities increases, which is the trend throughout the area. Recreational use levels would also likely continue to increase as the Owyhee Canyonlands area gains more notoriety (Barker 2006).

3.9.1.1 **Alternative A – No Action/Current Management**

Portions of the allotment where upland and riparian areas are meeting rangeland health standards would continue to provide good opportunities for recreation and scenic values. In areas with an upward trend, recreation opportunities and scenic quality would improve over the mid to long term, but these changes would generally be too slow to be readily observed by recreational users. Negative impacts to recreation that are currently occurring would continue to occur, both during and outside of the grazing season.

Renewal of the current grazing system would continue the negative impacts to scenic quality that are currently occurring in areas of heavy livestock utilization. This would be particularly noticeable within the VRM Class II corridor along the Backcountry Byway.

3.9.1.2 **Alternative B – Anchustegui Alternative**

Upland and riparian areas in proper functioning condition would continue to provide the best opportunities for recreation and scenic values. Because riparian areas that are important for recreation would continue to be directly affected by livestock grazing (see Riparian section), this would negatively affect recreational experiences in those riparian corridors. Pastures with reduced livestock grazing may have improved recreation opportunities if habitat conditions improve; however these improvements would be transitory where the reductions are temporary. Within Mr. Anchustegui's portion of the allotment, 9 miles of pasture fence, one trough, and one pond with an exclosure would be constructed. The fence would slightly impede recreationists' access to the public land that borders the road. Livestock use of the new trough would create a concentrated area of disturbance in close proximity to the Byway.

3.9.1.3 **Alternative C – King Alternative**

Upland and riparian areas in proper functioning condition would continue to provide the best opportunities for recreation and scenic values. Because riparian areas that are important for recreation would continue to be directly affected by livestock grazing (see Riparian section), this would negatively affect recreational experiences in those riparian corridors. Pastures with reduced stocking levels may have improved recreation opportunities if habitat conditions improve; however these improvements would be transitory where the reductions are temporary.

Within Mr. King's portion of the allotment, 15 spring developments and pipeline extensions would be constructed. Also, 45 to 53 riparian grazing exclosures, 16 to 32 upland grazing exclosures (with 23 to 32 miles of associated fencing), and 2 miles of new pasture fencing would be constructed. The Mine Audit Trough and Summit Springs Trough would be located along the Owyhee Uplands Back Country Byway, within the VRM Class II corridor. Livestock use of the new troughs would create concentrated areas of disturbance in close proximity to the Byway. The Horsehead Spring Pipeline Extension would require construction and periodic use of a new vehicle route in a formerly roadless area, which would lead to increased motorized use of the area. The new road access would be beneficial for some recreational uses and negative for other recreational uses. The proposed number and locations of some of the exclosures has not been specified in the permit application, so their effects on recreation and visual resources are unknown. Some projects would be constructed in areas of low sensitivity for recreation, and would have little impact on recreation or visual resources. The overall increase in the number of projects would have a slightly negative effect on recreation within the allotment.

3.9.1.4 **Alternative D**

Upland and riparian areas in proper functioning condition would continue to provide the best opportunities for recreation and scenic values. Potentially lower stocking levels in some pastures may lead to improvements in vegetative condition, which would positively affect recreational opportunities and scenic quality over the long term. This alternative includes 6 potential spring developments, one fence realignment project, 19 potential riparian grazing exclosures and 6 upland grazing exclosures (with 7.5 miles of associated fencing). The Pasture 12 spring development would create a concentrated area of disturbance in a VRM Class II area in close proximity to the Byway. Pasture 29A Battle Creek Tributary Meadow Exclosure would be located in a VRM Class II area adjacent to the Byway. Improvements to the vegetation that are realized within the large exclosure by removing livestock would have a positive effect on scenic values. The Shoofly Creek fence realignment project is located within the Little Jacks Creek WSA in a Class I VRM area. Since the project would not substantially change the amount of fencing in the area, the fence structure would have no effect on recreation or visual resources, and the anticipated improvement to West Fork Shoofly Creek from the fence realignment would be positive for recreation and scenic quality. The other projects would be constructed in areas of low sensitivity for recreation and visual resources.

3.9.1.5 **Alternative E**

Upland and riparian areas in proper functioning condition would continue to provide the best opportunities for recreation and scenic values. Lower stocking levels in some pastures would lead to improvements in vegetative condition, which would positively affect recreational opportunities and scenic quality over the long term. This alternative includes 6 potential spring developments, 19 riparian exclosures, 6 upland exclosures (with 7.5 miles of associated fencing), one 7 mile pasture division fence, and one fence realignment project. The pasture 8B division fence would be located along trails used for motorcycle races and casual OHV recreation. The fence would be designed to skirt the trails, or would incorporate OHV cattle guards so that

recreational trail use would not be cut off. The effects of the other projects would be the same as described in Alternative D.

The combination of lower stocking levels, changes in use periods, pasture rest, and anticipated improvement of resource conditions related to implementation of new projects would make Alternative E the most beneficial for recreation and VRM.

3.10 **Affected Environment – Wilderness Study Areas**

There are 6,072 acres of Wilderness Study Area (WSA) acreage in the East Castle Creek Allotment, located in portions of pastures 8B, 12 and 14. All of the acreage lies within the 58,040 acre Little Jacks Creek Wilderness Study Area. WSAs are managed by BLM to protect the values that made them eligible for designation as wilderness by Congress. These values include solitude, naturalness, opportunity for a primitive and unconfined recreation experience, and the presence of special features that enhance wilderness values. In the Little Jacks Creek WSA, those special features include exceptional scenic values of Little Jacks Creek canyon, bighorn sheep, redband trout habitat, valuable archeological sites, and near-pristine sagebrush steppe grasslands.

Some of the uplands and some of the riparian corridor within the WSA portion of the allotment are in good condition, and provide outstanding opportunities for visitors. The assessment also documents impaired stream functionality and altered vegetation due to livestock impacts along 2.1 miles of West Fork Shoofly Creek within the WSA portion of the allotment, and in the upland pastures 8B and 12. Upland conditions of Pasture 14 were not assessed (USDI 2008a). These conditions have a negative effect on naturalness, scenic quality, and special features. The assessment also documents that 1.6 miles of the stream within the WSA are in an upward trend, indicating that conditions there are improving.

When the Environmental Impact Statement for the Little Jacks Creek WSA was completed in 1989, there was 1 ½ miles of livestock fencing, two developed springs, and seven reservoirs documented within the WSA. The analysis of the structures in the WSA notes, "Few of the imprints are locate within the major corridors of travel…a primitive recreationist's visual encounter with imprints would be infrequent and brief" (USDI 1989). There are currently approximately 2 miles of permanent fencing in the WSA, in addition to the developed springs and reservoirs. None of the spring developments, reservoirs or authorized vehicle routes are located within the East Castle Creek Allotment portion of the WSA.

The Sierra Club conducted an extensive field inventory of the Bruneau Field Office, and provided a wilderness proposal to the Bruneau Field Office in 2003 as part of the Bruneau land use planning process. Their recommendation for wilderness includes 28,871 acres within the East Castle Creek Allotment, in addition to the existing wilderness study area. The proposal, excluding the existing WSA, includes all of the public land in pastures 8B1, 10B, 15 and 44. It also includes portions of pastures 8B, 11B, 12, 17, 28A and 29A.

The Sierra Club wilderness proposal in the East Castle Creek Allotment is located within four polygons that were inventoried for their wilderness characteristics by BLM in the late 1970's and early 1980's, but were not included within the boundaries of any wilderness study areas. The polygons were found unsuitable for wilderness for various reasons, including: isolated parcels less than 5,000 acres; poor land configuration around in-holdings; lacked outstanding opportunities for solitude due to combination of topographic features and minimal vegetative screening; lack of exceptional or unusual natural features and recreation attractions; adjustments in livestock use were anticipated to protect wildlife habitat; frequent visual contact with boundary roads; and the confining effects of gap fences.

Because identification of lands with wilderness characteristics is a land use and allocation issue, it is largely outside the scope of this EA. Analysis of wilderness characteristics identified in the Sierra Club proposal and on other public land outside of WSA will be done when the Bruneau Resource Management Plan is completed.

3.10.1 **Environmental Consequences – Wilderness Study Areas**

Livestock grazing in WSAs is considered a "grandfathered" use; grazing can continue in the same manner and degree in which it was being conducted on October 21, 1976, if it does not cause unnecessary or undue degradation of the lands and their resources. Changes in numbers of livestock or season of use may be allowed if the effects are found to be negligible. Changes cannot cause declining conditions or trend of the vegetation or soil (IMP 1995, IIID2a). A proposed grazing increase can not impair an area's wilderness values (IMP 1995, IIID2a(1)).

Proposed projects in WSAs are evaluated according to policies described in the Bureau's Interim Management Policy for Lands Under Wilderness Review, with supplemental Idaho guidance specific to range developments (IMP 1995, IM ID-2004-009). A proposed project must not impair the area's suitability for preservation as wilderness. A proposed permanent project must truly enhance wilderness values, and the effects of the action on all wilderness values identified in the wilderness inventory must be considered. Alternative methods for accomplishing objectives, including "minimum tool" alternatives, must be considered. In addition, a project must be substantially unnoticeable, which is defined as "something so insignificant as to be only a very minor feature of the overall area or not distinctly recognizable by the average visitor as being manmade".

Any new projects must not require motorized access if the area becomes designated wilderness. There are no authorized vehicle routes within the WSA portion of the allotment, and one unauthorized route that developed in the WSA in Pasture 8 was blocked off in 2008. BLM must insure that approval of a proposed action would not create a situation where the cumulative effect of existing and proposed uses would impair wilderness suitability.

3.10.1.1 **Alternative A – No Action/Current Management**

Continuation of current management would have no effect on upland portions of the WSA. Areas where livestock congregate, such as loafing areas, water sources, and upland areas with

moderate slopes, would continue to have reduced naturalness. Along West Fork Shoofly Creek, much of the canyon provides outstanding opportunities for solitude, primitive and unconfined recreation, and naturalness. If the upward trend in plant cover and diversity were to continue, it would enhance naturalness and redband trout habitat. Along the relatively short segments of the creek that have bare soil areas, inadequate vegetation, high levels of bank alteration, and lack of shrub recruitment (USDI 2008a), there would be a continuing negative effect on naturalness and opportunities for primitive recreation. In un-grazed and lightly grazed portions of the canyon, wilderness characteristics would continue to be outstanding.

Some areas in the Sierra Club wilderness proposal would have enhanced vegetation condition with expected continued improvements in riparian functioning condition, including Birch Creek and Fall Creek. Naturalness around Lone Juniper Creek and Poison Creek would not substantially improve. Some areas with deteriorated upland conditions, including portions of pastures 8B, 10B, 12, and 29A, would be expected to remain static.

3.10.1.2 **Alternative B – Anchustegui Proposed Action**

The grazing intensity in the WSA portion of Pasture 8B would increase, as the stocking rate in the pasture would increase from 17.5 acres per AUM to 13.7 acres per AUM. This increase, combined with repeated early season use, would not allow for improvement in the density, cover and vigor of perennial bunchgrasses (see Upland Vegetation section) within the WSA. The proposed increase in livestock use would reduce the wilderness value of naturalness. No projects are proposed in the WSA portion of the allotment.

One new project would be located within areas identified in the Sierra Club wilderness proposal, the Pasture 8B Division Fence. The fence would be located along the Byway. It would introduce a new man made structure and potential fence line impacts from livestock trailing (see Recreation along the 9 miles of new fencing. The project would have no effect on naturalness or scenic quality, due to its proximity to a major road. It would have a slight negative effect on primitive and unconfined recreation.

3.10.1.3 **Alternative C – King Proposed Action**

Adjustment of the Pasture 8B and 10B boundary fence would result in an increase in the grazing intensity in the WSA portion of Pasture 8B (which would become part of Pasture 10). The stocking rate in the WSA would initially increase from 17.5 acres per AUM to 13.0 acres per AUM, with further increases in the stocking rate possible in later years. This increase, combined with repeated early season use, would not allow for improvement in the density, cover and vigor of native plant communities, grasses, forbs, or shrubs, or watershed cover (see Soils and Upland Vegetation sections) within the WSA. The proposed increase would reduce the wilderness value of naturalness. No projects are proposed in the WSA portion of the allotment.

At least 20 new projects would be located within lands identified in the Sierra Club wilderness proposal. The projects include the Horsehead Spring Pipeline Extension; Pasture 11B Spring

Development; Summit Springs Trough; exclosures of wet meadow/riparian areas of Springs 89310B4A, 89310B10A, 2020039, 8934432B, 89311B19A, 89311B20A, 2020038, Eagle Spring, and Half Moon Spring; trough development and exclosures of wet meadow/riparian areas of Springs 8931217B and 8931218B; pipe overflow of Bald Mountain Spring trough; headcut stabilization projects along Birch Creek and Lone Juniper Creek; and an unspecified number of upland and riparian grazing exclosures. Access required for the installation and maintenance of the pipeline extension and troughs would result in surface disturbance and vehicle trails (two tracks). Livestock use of new stock water trough locations would result in surface disturbance, vegetation loss, and loss of naturalness in the areas around the troughs. Exclosures would have a positive benefit of small areas with increased naturalness within the exclosures, and a negative benefit of reduced naturalness from new structures, physical barriers to primitive recreational travel and potential fence-line impacts from livestock trailing (see Recreation section), fence construction and maintenance. Construction of the pipeline extension, trough and exclosures would reduce the area's naturalness, scenic quality, and opportunities for primitive and unconfined recreation. The pipeline extension and troughs, due to associated ground excavation, vehicle access, and livestock use, would have a greater effect on these characteristics than the fences.

3.10.1.4 **Alternative D**

Removal of livestock from WSA pastures 8B and 12 when AIC are met would lead to improvements in native plant communities, which would enhance naturalness and primitive recreation opportunities. One project is proposed within the WSA portion of the allotment. The West Fork Shoofly Creek Fence Realignment project would remove approximately 340 meters of existing fence from the WSA. This would be replaced by approximately 340 meters of fence to be placed along the private land/WSA boundary and 10 meters of new fence to be placed in the WSA. This surface disturbance would be short-term and confined to the immediate area of the fence. The disturbance would be along a private property boundary which is also the boundary of the WSA. The purpose of the fence realignment would be to exclude cattle from a portion of the West Fork Shoofly Creek, which would enhance the stream corridor's naturalness and opportunities for primitive recreation. Motor vehicles, including ATVs, would not be authorized to construct, remove, or maintain the fences or fence materials, which would help to minimize surface disturbance associated with implementation of the project.

Thirteen new projects would be located within areas identified in the Sierra Club wilderness proposal. The projects include the Birch Creek Pipeline Extension, Summit Springs Trough, and some upland grazing exclosures, with similar impacts as described in Alternative C. It also includes Half Moon Spring Exclosure, Pasture 11B Spring Exclosure #1, Pasture 11B#2 Spring Exclosure and Development, Eagle Spring Exclosure, Pasture 44 Spring Exclosure #1, Pasture 44 Spring Exclosure #2, Buck Spring Exclosure, Gopher Spring Exclosure, and Pasture 29A Battle Creek Tributary Meadow Exclosure. Access required for the installation and maintenance of the pipeline extension and trough would result in vehicle trails (two tracks). Livestock use of new stock water trough locations would result in surface disturbance and vegetation loss in the immediate areas around the troughs. Exclosures would have a positive benefit of areas with improved riparian vegetation condition within the exclosures, and a negative impact with the

presence of new structures use and potential fence-line impacts associated with livestock trailing (see Recreation section), fence construction and maintenance. Construction of the pipeline extension, trough and exclosures would reduce the area's naturalness, scenic quality, and opportunities for primitive and unconfined recreation. The pipeline extension and trough, due to associated ground excavation, vehicle access, and livestock use, would have a greater effect on these characteristics than the fences.

3.10.1.5 **Alternative E**

Improvements in native plant communities anticipated with AUM reductions, delayed turn-out, and pasture rest would enhance naturalness and opportunities for primitive and unconfined recreation within the WSA. Effects of the proposed fence realignment would be the same as described in Alternative D.

Fourteen new projects would be located within areas identified in the Sierra Club wilderness proposal. The projects include all those described in Alternatives B and D, with effects as described for those alternatives.

The combination of lower stocking rates, a shorter season of use, pasture rest, and anticipated improvement of resource conditions along West Fork Shoofly Creek would make Alternative E the most beneficial to wilderness values within the WSA.

3.11 **Affected Environment - Economics**

The BLM does not have specific social and economic information on permittees; therefore, information and analyses are based on county data from the period 1970 through 2005. The following data were derived from the Economic Profile System (EPS) developed by the Sonoran Institute. The EPS uses data from the Economic Analysis, Labor Statistics, and Census bureaus. Ranch related data is contained in the farm/agricultural datasets and is not presented separately. Data, in part, are presented for farm proprietors. "Proprietors" refers to employment and income from sole proprietorships, partnerships, and tax-except cooperatives and probably most closely describes permittees. Many permittee households may have income from wages and salaries, a separate category in the EPS which is not reported here except where proprietors are reported as a percent of the total.

Owyhee County has an agricultural sector that generates approximately 25 percent of the personal income within the county. In Owyhee County livestock production plays a major role in generating agricultural income. Dairies, other livestock production and farming are included in the 25 percent personal income category.

Social and Economic Factors		Owyhee County
Population (2005)		11,037
Number Employed (2005) (Percent proprietors)		2,664 (37.7%)
Percent unemployed (2006)		2.2%
Median Household Income (2000)		$28,339
Farm Proprietors	Number in 1995	579
	Number in 2005 (Percent of Total)	610 (14.3%)
	New Employment (1995 to 2005) (Percent of new employment)	31 (5.0%)
Farming and Ranching income and expenses	Gross farming and ranching income 2005	$180,851,000
	Cash receipts from marketing livestock & products (not crops) change 1995-2005	10%
	Realized net income 2005	$39,431,000

3.11.1 Environmental Consequences – Economics

3.11.1.1 Alternative A – No Action/ Current Management

There would be no impact to the county economy from this alternative.

3.11.1.2 Alternative B – Anchustegui Proposed Action

In area that are not meeting S&Gs and are in a static or downward trend there would be lowered range productivity. Realized net income from ranching could decrease as expenses for supplemental feed increase as a result of lowered range productivity. In areas that are meeting upland standards, other market forces (e.g. increased fuel costs) could have a greater potential adverse impact on the ranching sector of the economy. The overall diversity of employment and income sources in the county would minimize the impacts to social and economic aspects from changes in livestock production sector. There would be no measurable impact to the local economy as a result this alternative.

3.11.1.3 Alternative C – King Proposed Action

Impacts would be the same as described as under Alternative B.

3.11.1.4 Alternative D

The overall impact to county economy from changes in grazing management would be negligible over the long term. There would 1,692 fewer AUMs under this alternative which would have an undisclosed economic impact to the individual permit holders. In areas where standards are not

being met and livestock grazing management is being changed to improve conditions, long term improvements could reduce expenses related to supplemental feeding and the movement of livestock as a result of the loss of forage. These economic impacts, both positive and negative would be negligible as a factor in the county economy.

3.11.1.5 **Alternative E**

The overall impact to county economy would be the same as described in Alternative D.

3.12 **Environmental Justice**

National Historic Preservation Act, Native American Graves Protection and Repatriation Act, and American Indian Religious Freedom Act

Southwest Idaho is the homeland of two culturally and linguistically related tribes: the Northern Shoshone and the Northern Paiute. In the latter half of the 19th century, reservations were established at Duck Valley on the Nevada/Idaho border west of the Bruneau River. The Shoshone-Paiute Tribes residing on Duck Valley today actively practice their culture and retain aboriginal rights and/or interests in this area. The US government has a trust responsibility to federally recognized Native American Tribes that covers lands, natural resources, money, or other assets held by the Federal government in trust or restricted against alienation for Native American Tribes and Native American individuals. The Shoshone-Paiute Tribes claim aboriginal rights to their traditional homelands as their treaties with the United States, the Boise Valley Treaty of 1864 and the Bruneau Valley Treaty of 1866, which would have extinguished aboriginal title to the lands now federally administered, were never ratified.

The Bureau of Land Management (BLM) is required to consult with Native American tribes to "help assure (1) that federally recognized tribal governments and Native American individuals, whose traditional uses of public land might be affected by a proposed BLM action, will have sufficient opportunity to contribute to the decision, and (2) that the decision maker will give tribal concerns proper consideration" (U.S. Department of the Interior, BLM Manual Handbook H-8120-1). Tribal coordination and consultation responsibilities are implemented under laws and executive orders that are specific to cultural resources which are referred to as "cultural resource authorities," and under regulations that are not specific which are termed "general authorities." Cultural resource authorities include: the National Historic Preservation Act of 1966, as amended (NHPA); the Archaeological Resources Protection Act of 1979 (ARPA); and the Native American Graves Protection and Repatriation Act of 1990, as amended (NAGPRA). General authorities include: the American Indian Religious Freedom Act of 1979 (AIRFA); the National Environmental Policy Act of 1969 (NEPA); the Federal Land Policy and Management Act of 1976 (FLPMA); and Executive Order 13007-Indian Sacred Sites. The proposed action is in compliance with the aforementioned authorities.

Executive Order 12898 (February 11, 1994) directed all Federal agencies to evaluate their proposed actions to determine the potential for disproportionate adverse impacts to minority and low-income populations.

In the memorandum to heads of departments and agencies that accompanied Executive Order 12898, the President specifically recognized the importance of procedures under NEPA for identifying and addressing environmental justice concerns. The memorandum states that "each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by [NEPA]."

Implementation of either of the alternatives evaluated in this EA would not result in adverse impacts to environmental resources and socioeconomic conditions. Therefore, disproportionate direct, indirect or cumulative adverse impacts on low income or minority populations would not occur.

3.13 **Environmental Consequences – Cumulative Impacts**

CEQ regulations stipulate that the cumulative effects analysis in an EA should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). Recent CEQ guidance in *Considering Cumulative Effects* affirms this requirement, stating that the first steps in assessing cumulative effects involve defining the scope of the other actions and their interrelationship with the proposed action. The scope must consider other projects that coincide with the location and timetable of the proposed action and other actions.

In this section, an effort has been made to identify past and present actions in an appropriate geographical area and those reasonably foreseeable actions that are anticipated at this time. Actions that have details and that have a potential to interact with the proposed action are included in this cumulative analysis. This approach enables decisionmakers to have the most current information available so that they can evaluate the environmental consequences of grazing range improvements.

3.13.1 **Geographical and Temporal Scale**

The area used to assess cumulative impacts includes all public, State and private land within the East Castle Creek, West Castle Creek, Battlecreek, and Northwest allotments, unless otherwise stated under a particular resource. Public land in the area is managed by the Bruneau Field Office (BFO). The applicable Land Use Plan for the BFO is the Bruneau Management Framework Plan (MFP) (1983).

The long-term temporal scale begins with the 1934 Taylor Grazing Act which was intended to manage public grazing lands by preventing overgrazing and soil deterioration and to provide an orderly manner which to stabilize the livestock industry. Short-term actions include the effects of overall grazing practices on various resources. These will vary depending on the resource. For example, some upland areas may recover over a few seasons, but degradation from overgrazing an entire area may take several years to recover. Future foreseeable impacts are addressed until 2018, which is the expiration date for the East Castle Creek Allotment grazing permit.

3.13.2 Tiering of Cumulative Impacts to the Bruneau–Kuna EIS

In 2000, the BFO analyzed the Bruneau-Kuna Grazing EIS (1982) and determined that it contained a comprehensive and still relevant cumulative impact analysis of livestock grazing. The EIS included analysis of resource issues involving past, present and reasonably foreseeable future actions of private and State land that affect federal public land management. While the BLM staff in the early 1980's did not always use the terminology "direct, indirect, and cumulative impacts", the required analyses were included in the EIS and supporting Unit Resource Analysis (URA), and the findings and conclusions were incorporated into the MFPs (Bruneau MFP). The significant issues identified in scoping for the EIS remain issues today.

The geographic scope and time frames were defined and existing resources were described. The stresses affecting these resources, including non-grazing actions (e.g., mining, recreation, vandalism) were adequately analyzed. The URA provided detailed analysis of resource conflicts that exist in the Bruneau and Kuna Planning Units, including analysis of issues on adjacent private and State land that affect federal public land management. Livestock grazing remains the single most significant commodity use of the public lands. Recreation is still primarily associated with hunting, fishing, and hiking, with few developed sites. Fish and wildlife species that were of concern in 1982 remain a concern today (2000), with localized exceptions. Water quality, special status species management, and erosion hazards were all issues when the URA and Grazing EIS were prepared, and they remain so today. Therefore, the cumulative impacts of the proposed grazing permit renewal are essentially the same as identified in the Grazing EIS (1982), and the analysis of cumulative impacts in still relevant and appropriate.

3.13.3 Cumulative Effects of Past, Present and Reasonably Foreseeable Future Actions

Cumulative effects are the past, present and reasonably foreseeable future actions that add to the direct and indirect effects considered in this EA. The following activities have been identified as potentially contributing to the effects analyzed herein. These activities and occurrences have contributed incrementally to changes in ecological conditions in the project area and may continue to influence conditions in the project area over the term of the project. Foreseeable future actions are those for which a proposed action has been approved or those proposed for NEPA analysis in the future. Other possible future actions are considered too speculative to include in this analysis.

Watershed and Soils

Cumulative impacts to the watershed and soils of the East Castle Creek Allotment are dependent on past, present, and reasonably foreseeable land use in the allotment itself and in adjacent areas. In the plateau portion of the allotment, further spread of juniper and overstory closure would result in decreased hydrologic function within the affected area. Similarly, lakebed and foothill areas with expanding cheatgrass dominance could experience increased potential for erosion.

Thus, the primary potential impact to the allotment from existing change agents would be the expansion of dominance of invasive plant species such as cheatgrass and western juniper into new areas. This is an unlikely outcome under all alternatives because cheatgrass has been the predominant species in the same areas since the late 1950's or before; and the other communities

show evidence of stabilizing with an understory of at least increaser perennial grasses, particularly, Sandberg bluegrass. A few localized areas that are not showing adequate progress but have potential to improve are being addressed by actions in Alternatives B through E. In areas where cheatgrass dominates shrub understories, its availability as a watershed cover fluctuates with climate, and the situation is unlikely to change without deliberate restoration measures for the understory. Similar trends have been observed in adjoining allotments.

While juniper can invade neighboring habitats from its rocky refugia, its distribution and potential for increase is confined to particular portions of the late spring and summer pastures, and cutting measures have been employed on an ongoing basis to retard or prevent overstory closure by juniper. Prescribed burns have also been completed on federal land in adjoining allotments or on other ownerships nearby. An expansion of juniper dominance is also an unlikely outcome under all alternatives.

Other management actions or human activities that contribute to increased ground disturbance in areas adjacent to the subject allotment [road construction, off-highway vehicle (OHV) use, grazing systems that increase the occurrence of bare ground or degrade desirable native plant populations] could potentially increase invasive plant populations in the disturbed areas, particularly, noxious weeds. If invasions of these species occur in nearby grazing allotments or lands, there is an increased opportunity for these species to impact the subject allotment, particularly in already degraded areas. However, Boise District has an ongoing weed control program in addition to appropriate grazing prescriptions, and noticeable expansion of noxious weeds is also unlikely under all alternatives.

Upland Vegetation

Cumulative effects on upland plant communities were analyzed by considering impacts to the East Castle Creek and adjacent allotments. Such impacts are dependent upon past, present, and reasonably foreseeable land use. Past, present, and future natural events (e.g. wildfire) and effects of activities (e.g. grazing and recreation) on site as well as surrounding federal, private, and state lands influence the amount, rate, and direction of change in upland communities within the allotment and beyond.

The encroachment of cheatgrass into upland plant communities is a common concern across public, state, and private lands in the area. Impacts related to grazing, recreation (e.g OHV use) and fire tend to facilitate the spread of this invasive exotic species. Future actions to stem the spread of invasives would be beneficial over the long-term for this resource.

Attainment of allotment-specific objectives set forth for East Castle Creek and the surrounding grazing lands – to meet or make progress toward Standard 4 (USDI 1997) - would have an overall net positive effect on the native vegetation resource in the region. Gradual improvements in overall health and vigor of native plant communities would also promote better soil protection and organic matter content. Improvements to sagebrush-steppe plant communities are important in view of their general decline in Southwest Idaho.

Riparian Areas, Water Quality and Wetlands

For analysis of cumulative impacts to riparian habitats, the impact analysis area considered encompasses the Castle Creek and Shoofly Creek Watersheds. Past decisions by the BLM to

manage livestock grazing on adjacent allotments (Battle Creek, Northwest, and West Castle Creek) such that the associated riparian areas meet or make progress toward Standard 2 (USDI 1997) would help riparian segments within the analysis area make progress towards Standard 2 over the long-term. No actions are known to be taking place, or planned for the future for State and private lands in these watersheds that would cumulatively affect riparian and wetland area functional condition.

Special Status Plant Species

Because globally rare but locally abundant species are more at risk than species not as rare globally, cumulative effects are considered on a regional level. Livestock and recreational use such as OHV patterns on public lands as a result of past decisions largely affect the condition of vegetation. The Final Rangeland Health Assessment (USDI 2008a) spotlights deleterious changes in upland vegetation from a system dominated by deep rooted, perennial buchgrasses to one of residual natives with cheatgrass dominance across much of the East Castle Creek allotment. The encroachment and spread of cheatgrass is a regional threat to vegetative communities and SSP habitat. Conversely, future rangeland management and recreation actions that improve habitat quality and directly protect SSP in this allotment would greatly enhance the viability and persistence of SSP at the regional level.

Fish

The cumulative effects of this project combined with BLM management of streams on adjacent allotments (Northwest, West Castle Creek, Battle Creek allotments) that are that are partially in the Shoofly, Castle, or Battle Creek watersheds would be to improve existing conditions of riparian and fish habitats over the long-term. Similarly, existing water quality conditions would be slightly improved. No actions are known to be taking place, or planned for the future, for State and Private lands in these watersheds that would cumulatively add to BLM's actions to improve existing water quality, and fish and riparian habitat conditions.

Wildlife

The effects of proposed actions in East Castle Creek allotment, combined with historic and future actions that are reasonably foreseeable, would not be cumulatively significant for wildlife. The scope of the wildlife cumulative effects analysis is the Bruneau Field Office. Many species of wildlife are highly mobile, such as big game and bird species. For example, southern Idaho migratory sage-grouse can occupy an area greater than 50 square miles or more (Robertson 1991, ISAC 2006).

Habitat changes at a landscape level pose the largest cumulative threat to wildlife in southern Idaho. Habitat change agents can include, but are not limited to: livestock grazing, wildfire, recreation, and noxious and invasive species. These change agents are often interrelated.

Grazing

Past grazing management in the Bruneau Field Office has been directed towards the improvement of wildlife habitat. The improvement of riparian and wetland areas has been a primary focus in the recent past, which has benefitted most species of wildlife. Current and future grazing permit renewals in the Bruneau Field Office would follow the same course of

correcting rangeland health issues, primarily by making progress towards meeting the Standards for Rangeland Health.

Winter range for big game and other species is a finite resource with limited abundance. Changes to livestock management in low elevation pastures could cumulatively improve wildlife winter range in basin and foothill areas, primarily by reducing forage competition and allowing the maintenance or improvement of vegetation structure and function. The inverse could be expected if overuse of livestock occurs in winter range habitat.

Wetland/riparian habitats in arid regions are used by more vertebrate animals than any other habitat. Riparian habitats may harbor from 2-10 times as many individual birds as does adjacent, non-riparian, vegetation (USDI BLM 1998). Many riparian and wetland areas serve as livestock water sources where congregation leads to habitat degradation. Managing these areas to improve to PFC and benefit wildlife is a consistent goal in all permit renewals in the Bruneau Field Office, and cumulative improvements are expected.

For sage grouse, past and currently in-process permit renewals in adjacent allotments (Battle Creek, West Castle Creek and Big Springs) also focus on wet meadows and riparian areas for late-summer habitat, and the condition of sage grouse breeding habitat. Other actions to improve sage grouse habitat are being implemented by the Owyhee County Sage Grouse Working Group, mainly focusing on wet meadows on private lands. The intent is that the cumulative effect of all management of sagebrush habitats would be to increase sage grouse populations, however, there is no way to know now whether that will be true. The relative importance of various factors impacting sage grouse populations is not clearly understood, and it is not possible to predict that, for example, improving a piece of habitat would have any measurable effect on sage grouse populations. Other factors are likely driving the current trend in sage grouse populations.

Wildfire

Millions of acres of sagebrush-steppe habitat in southern Idaho and northern Nevada have burned in recent decades. The substantial loss of habitat has contributed to greater sage-grouse population declines in the region. In 2007, the Murphy Complex Fire burned 483,000 acres in southcentral Idaho, and was the largest fire in Idaho since 1910. In the Boise District, wildfire has removed sagebrush from approximately 10% of the Bruneau Field Office (Figure B), and nearly 68% of the adjacent Snake River Birds of Prey National Conservation Area.

In the Bruneau Field Office, most of the sagebrush loss from wildfire has occurred in the lower elevation Wyoming sage, which was never the most productive sage-grouse habitat. The historic database shows only a few leks in the areas where sagebrush has been lost (Figure B). The grazing management proposed in this EA would have small positive effects for sage grouse habitat, thus slightly countering the negative effects that would result from past or future large wildfires if they occurred in prime sage grouse habitat like the Murphy fire.

Not all fires are detrimental to sage grouse. Smaller fires in the mountain sage zone, where most of the sage-grouse occur in the BFO, have recovered to sagebrush within 10-20 years. From IDFG telemetry data, one of the three large summer concentration areas in Owyhee County for sage grouse is a large fire that burned in the 1990's, now recovering to mountain big sage. There

are currently active leks within the boundaries of fires that burned in the 1980s and have recovered to mountain big sage (see Figure B).

Another regional threat to sage-grouse is West Nile virus, spread by mosquitoes. An outbreak of West Nile Virus occurred in southwest Idaho during 2006, and a number of sage-grouse in Owyhee County died, mostly localized along Big Springs Creek to the south of East Castle Creek allotment, and in Duck Valley Reservation, to the south on the Nevada border (IDFG 2008). These two areas have irrigated agricultural fields. The management proposed for East Castle Creek allotment might increase mosquito habitat in the spring exclosures that are proposed, by increasing wetted area and submerged vegetation, but the effect on mosquito populations would not be measurable. The total acres of mosquito habitat affected by spring exclosures (<10 acres estimated) would be a small percentage of the several thousands of acres in Duck Valley and Big Springs Ranch. Additionally, there is a tradeoff, in that the spring exclosures would also improve food resources for sage-grouse in late summer and fall. Troughs do not provide the proper habitat for the mosquitoes that spread West Nile Virus.

Other factors that may cumulatively act to degrade habitat include increased OHV use and spread of noxious or invasive weeds. Efforts to manage these threats and improve rangeland health are helping to maintain or improve wildlife habitat across the BFO. Nothing in the management proposed for East Castle Creek allotment would increase these threats above the existing condition.

In general, other than the Snake River Plain, the Bruneau Field Office has intact sagebrush ecosystems dominated by native shrubs, grasses and forbs. The impacts from the changes to grazing management in East Castle Creek allotment would not cumulatively degrade that general habitat condition, but would instead improve it.

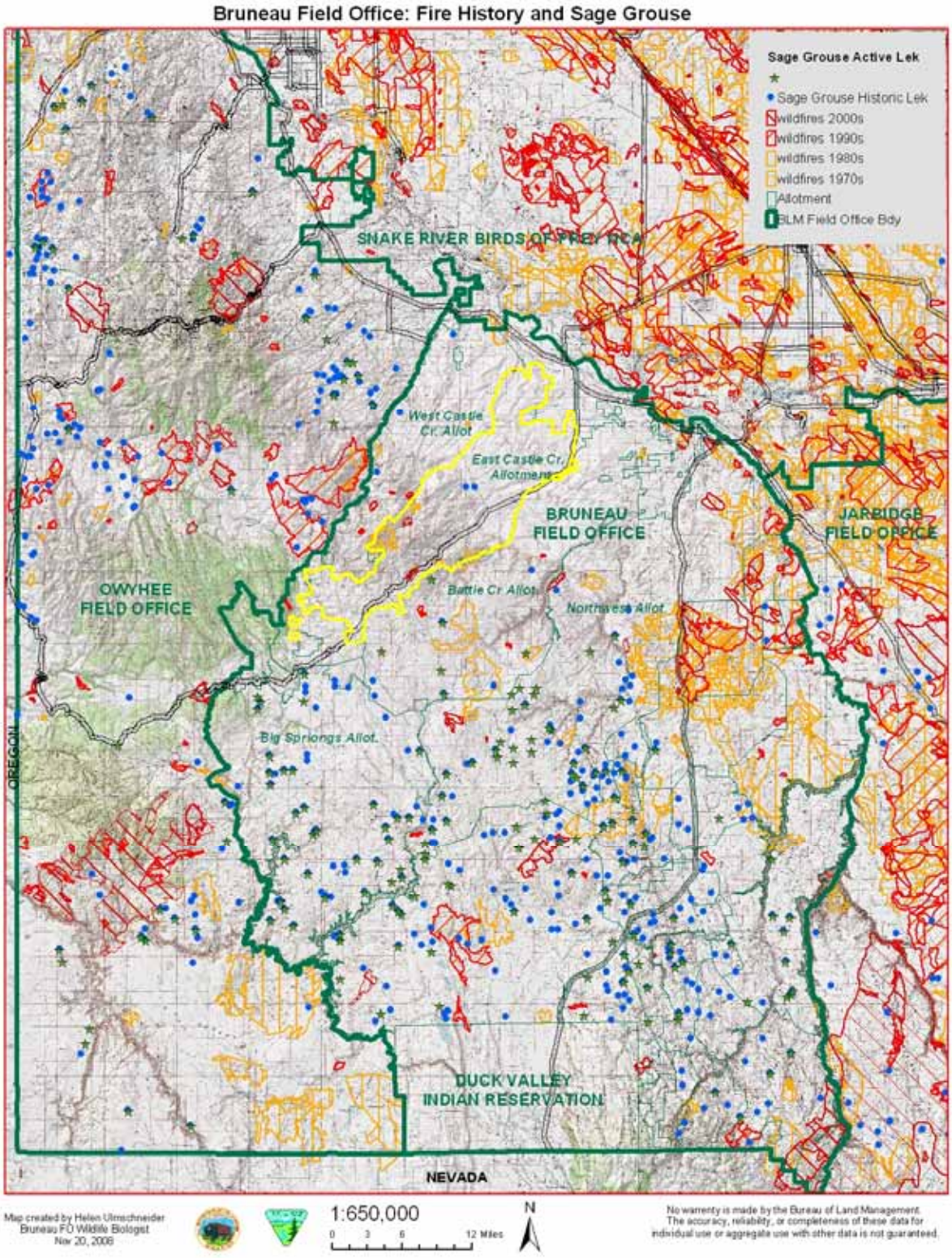


Figure B. Fire History and Sage-grouse

Wilderness, Recreation and Visual Resources

This analysis examines the effects of the five alternatives considered in combination with other actions or occurrences that affect recreation, visual resources and wilderness. The geographic area of consideration is the northern portion of the Bruneau Field Office bounded by Highway 78 on the north, Castle Creek on the west, Highway 51 on the east, and the Wickahoney Crossing Road on the south. This area contains approximately 630,000 acres. The time scale for analysis is the previous five years through the next 5 years (2003 through 2013). The landscape across the analysis area is similar in geology, topography, hydrology, biology, and in its convenient proximity to expanding urban populations that are visiting the area to recreate in increasing numbers.

Within the analysis area, there are two other grazing allotments besides East Castle Creek Allotment: Battle Creek and the Northwest Allotment. The Battle Creek Allotment incorporates most of the Little Jacks Creek WSA. The Northwest Allotment contains portions of the Big Jacks and Duncan Creek WSAs. The permit authorization process was completed for Battle Creek in 2008 and will commence for Northwest Allotment in 2010. Collectively, the three WSAs of the Jacks Creek Complex comprise approximately 120,000 acres.

A major factor in the analysis area is the expanding use of off-highway vehicles (OHVs) resulting from rapidly increasing urban populations. Since 1980, the Treasure Valley has almost doubled to its current population of about 500,000, and many of these people travel to Owyhee County for recreational pursuits. Between 2001 and 2005, the number of registered OHVs in southwestern Idaho increased 67% (IDPR 2007).

The combination of rising population and an extensive public lands base easily accessible by mostly paved highway has created an expanding network of OHV trails on public lands in the area. For example, in Little Jacks Creek WSA, BLM's inventory data shows that from the time of the initial wilderness inventory in 1981 to present, such unauthorized routes have expanded by 29% in Little Jacks Creek WSA (11 new miles), by 41% in Big Jacks Creek WSA (18 new miles of routes), and by 33% in Duncan Creek WSA (2 new miles). This increase in motorized recreation in areas formerly little visited by OHVs decreases opportunities for semi-primitive and primitive recreation experiences, and affects scenic quality, naturalness, solitude and other wilderness values. This problem will continue as OHV use continues to increase, although public information efforts to educate users may ultimately lead to compliance with restrictions on OHV travel. Some efforts to close and rehabilitate unauthorized routes within wilderness study areas have been undertaken, but these efforts have been difficult to fund, and have been sporadic and limited in their effectiveness to date. The proposed action includes removal of fence within the WSA and installing new fence on a private boundary. This project would further negate potential vehicle access the WSA for maintenance of the project.

The Owyhee Field Office is currently developing a comprehensive transportation plan that is expected to continue over the next five years. By designating routes, closing redundant or damaging routes, and providing the public with accurate maps and information, this effort should help control the expansion of the route system there, but in the short to mid-term (1 to 8 years), efforts in the OFO would result in some displacement of motorized recreation use from the heavily-visited Owyhee Front area to other less-used nearby areas in the Bruneau Field Office,

where there are fewer restrictions on travel in place. It is unlikely that the Bruneau FO would have its transportation plan in place during that period, and the likely consequence of that is continued expansion of the unauthorized trail network in WSAs, and continued expansion of the motorized route network outside of WSAs in open areas.

There has been a gradual increase in the number of projects developed for livestock on these allotments. As a result of the Battle Creek permit renewal process (USDI 2008d), BLM is in the process of constructing new fences, pipelines, troughs, and exclosures. The East Castle Creek permit renewal would add up to 14 new projects, including fences, spring developments, pipelines, and exclosures. The upcoming West Castle Creek and Northwest Allotment permit renewals may result in additional project development for livestock. This process results in an incremental change from more primitive to more developed settings for recreation. This trend would be positive or neutral for some recreational activities such as driving for pleasure, and would be negative for activities such as hunting and hiking that benefit from the current undeveloped settings within semi-primitive non-motorized portions of the analysis area.

Climate Change

The actions proposed in the East Castle Creek allotment would have a negligible additive effect on atmospheric carbon dioxide levels and climate change in general. Information for this section was provided by the BLM *guidance on addressing climate change in the planning process* (BLM Land Use Planning Handbook H-1601-1). Climate change analyses are comprised of several factors, including greenhouse gases, land use management practices, the albedo effect, etc. The tools necessary to quantify climatic impacts are presently unavailable. As a consequence, impact assessment of specific effects of anthropogenic activities cannot be determined. Additionally, specific levels of significance have not yet been established. Therefore, climate change cumulative impact analysis for the purpose of this document is limited to a brief qualitative discussion.

The consequences of weather and climate change on livestock grazing, and grassland use can be subtle and complex. The projected changes in climate – increases in temperature, reductions in soil moisture, and more intense rainfall events – may require changes in livestock management over the long-term. The availability of forage plants and water for livestock grazing is extremely vulnerable to drought; hence the carrying capacity of land may influence livestock management. Other resources that could be affected include, but are not limited to:

Fish and Wildlife: habitat composition changes, shifts to higher elevation/latitudes, reduced vegetation food sources, altered migration routes, less available water sources, and streamflow change impacts on migratory species.

T&E Species: effects of moisture stress on species, habitat community changes, and changes to migration patterns.

Vegetation: increased establishment of invasive species, pathogens, warm/cool season plant shifts, and growing season changes.

Water: changes to quality, quantity, precipitation, flow regimes, dilution, water temperatures, annual snow pack longevity, groundwater elevations, and water rights.

Wildfire: fire frequency, fuel load quantity and composition, fuel temperatures, relative humidity, water availability (e.g. for suppression), tree mortality due to drought and infestations.

4.0 Consultation, Coordination and Public Participation

4.1 List of Preparers

This Environmental Assessment was prepared by the following Bureau of Land Management, Bruneau Field Office staff:

Holly Beck, Natural Resource Specialist
Mike Boltz, Rangeland Management Specialist
Gene Dana, Geographic Information Systems Specialist
Pam Druliner, Fish Biologist
Michael O'Donnell, Planner
Lois Palmgren, Archeology Technician
Helen Ulmschneider, Wildlife Biologist
Judi Zuckert, Outdoor Recreation Planner

Review was provided by Bureau of Land Management Boise District staff and Idaho State Office staff.

4.2 List of Agencies, Organizations, and Individuals Consulted

The following agencies, organizations and individuals were consulted during this process:

Stan Boyd, Boise District Grazing Board
High Desert Coalition
Idaho Cattle Association
Idaho Department of Lands
Alan Schroeder
Land and Water Fund
The Wilderness Society
Idaho State Department of Environmental Quality
Ranges West
Katie Fite, Committee for Idaho High Desert, Western Watersheds Project
Gene Bray
Mike Stanford
Idaho Department of Agriculture
Ramona Pascoe
Resource Advisory Council

United States Fish and Wildlife Service
Bill Platts
R&S Enterprise
Jim Desmond
Idaho Wildlife Federation
Idaho Department of Fish and Game
Idaho Farm Bureau
Knight Veterinary Clinic
Sierra Club
Natural Resources Defense Council
Westbrook Enterprises
Shoshone Bannock Tribe
Shoshone Paiute Tribe
Dr. Chad Gibson
Robert Schweigert, Intermountain Range Consultant
Ross Cameron, Bruneau Rodeo Association
Gilbert King
John Anchustegui
David Lahtinen
Terry Field
Paul Turcke
Idaho Conservation League
John Urquidi
Owyhee County Commissioners
Owyhee Calcium Products, Inc.
Mitchell Jaurena
Eric Davis
Stuart Murray, High Desert Ecology
Herb Meyr
Holland and Hart LLP
Owyhee County Extension Service
Chuck Jones, Dickshooter Cattle Company
John Robison
Gordon King
Paul Black
Chester Sellman
Craig Gillespie
ICB
Grant Simonds, Idaho Outfitters and Guides Association
Jon Marvel, Western Watersheds Project
Bill Marlett
Kathy Barker-McCoy, Audobon Society
Idaho Native Plant Society
John Barringer
Russ Heughins
Blair Wilson

Bill Sedivy
Land Water Fund of the Rockies
Steve Jakubowics
Vale District Office, BLM
Oregon Natural Resources Council
Richard Bass
Pam Marcum
Michael Roach, Farmers and Merchants State Bank
Idaho Department of Parks and Recreation
Ron Mitchell, Idaho Sporting Congress
David Meyers
Owyhee Land Use Planning Committee
Brian Goller
Marty Marzinelli
Rusty Tews

5.0 Literature Cited

Aldridge, C.L., S. E. Neilsen, H. L. Beyer, M. S. Boyce, J. W. Connelly, S.T. Knick, M. A. Schroeder. 2008. Range-wide patterns of greater sage-grouse persistence. Diversity and Distributions 14:983-994.

Autenreith, R.E. 1981. Sage Grouse Management in Idaho. Idaho Dept. Fish and Game Wildlife Bulletin No. 9. 238 pp.

Baines D. and R.W. Summers. 1997. Assessment of Bird collisions with Deer Fences in Scottish Forests. Journal of Applied Ecology 34:941-948.

Barker, R. 2006. Seven Wonders of Idaho, the Owyhee Canyonlands, the Wildest Part of Idaho. Idaho Statesman. November 22, 2006, Pages 1, 6-8.

Bartolome, J.W., M.C. Stroud, and H.F. Heady. 1980. Influence of natural mulch on forage production on differing California annual rangeland sites. Journal of Range Management. 33(1): 4-8.

Bawtree A. H. 1989. Recognizing range readiness. Rangelands. 11:67-69.

Beeson, C. E., and P. E. Doyle. 1995. Comparison of bank erosion at vegetated and non-vegetated channel bends. Water Resources Bulletin 31: 983-990.

Blaisdell, J.P. and R.C. Holmgren. 1984. Managing Intermountain Rangelands – Salt-Desert Shrub Ranges. United States Department of Agriculture, Forest Service. Intermountain Forest and Range Experiment Station, Ogden, Utah. General Technical Report INT-163.

Blaisdell, J. P. and J. F. Pechanec. 1949. Effects of Herbage Removal at Various Dates on Vigor of Bluebunch Wheatgrass and Arrowleaf Balsamroot. Ecology. 30 (3): 298-305.

Brewer, T. K., J. C. Mosley, D. E. Lucas, and L. R. Schmidt. 2007. Bluebunch Wheatgrass Response to Spring Defoliation on Foothill Rangeland. Rangeland Ecology and Management. 60(5) 498-507.

Burak, Gregory S. 2006. Home ranges, Movements, and multi-scale habitat use of pygmy rabbits (Brachylagus idahoensis) in Southwestern Idaho. MS thesis, Boise State University, Boise Idaho. 106 pp.

Clary, W.P., and B.F. Webster. 1989. Managing grazing of riparian areas in the Intermountain Region. U.S. Department of Agriculture, Forest Service. General Technical Report INT-263. 5 pp.

Clary, W. P. and B.F. Webster. 1990. Riparian Grazing Guidelines for the Intermountain Region. Rangelands. 12(4): 209-212.

Coates, P. S. 2007. Greater Sage-Grouse (Centrocercus urophasianus) Next Predation and Incubation Behavior. Ph.D Dissertation, Idaho State University, Pocatello, Idaho. 181 pp.

Connelly, J. W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines 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. Unpublished Report. Cheyenne, Wyoming.

Cook, Wayne C. and L. A. Stoddart. 1963. Journal of Range Management. 16(6) 315-317.

Dahlgren, D. K. and E. Thacker. 2007. Use of Bird Dogs in Prairie Grouse Research.: Field Case Study. Paper presented at the 27th Prairie Grouse Technical Council. Chamberlain, South Dakota, October 7-8, 2007.

Ganskopp, D. 1988. Defoliation of Thurber needlegrass: herbage and root response. Journal of Range Management. 41(6) 472-476.

Ganskopp, D. 1998. Thurber needlegrass: seasonal defoliation effects on forage quantity and quality. Journal of Range Management. 51(1): 276-281.

Hensiek, J. 2002. Owyhee Canyonlands: Recreation and Aircraft Noise, University of Idaho.

Holechek J. L. 1988. An Approach for Setting the Stocking Rate. Rangelands. 10(1): 10-14.

Holechek, J. L., R. D. Pieper, and C. H. Herbel. 1998. *Range Management*. New Jersey: Prentice Hall.

Holechek, J. L. and D. Galt. 2000. Grazing Intensity Guidelines. Rangelands. 22(3): 11-14.

Idaho Conservation Data Center. 2008. Mulford's Milkvetch (*Astragalus mulfordiae*) Monitoring in Southwestern Idaho: 2007 Results. Idaho Department of Fish and Game, Boise, ID. 39 pp. plus appendices

Idaho Conservation Data Center. 2003. Special Status Plant Inventory of the Owyhee Front Between Castle Creek and Mud Flat Road. Idaho Department of Fish and Game, Boise, ID. 26 pp.

Department of Parks and Recreation(IDPR). 2007. Idaho Motorbike/ATV Registration Statistics. http//www.idahoparks.org/datacenter/recreationstatistics.aspx

IDEQ (Idaho Department of Environmental Quality). 2002. Water Body Assessment Guidance. Second Edition-Final. January 2002.

- 2003. Upper Owyhee Watershed Subbasin Assessment and Total Maximum Daily Load. EPA approved March 2003.

- 2004a. Middle Snake River/Succor Creek Subbasin Assessment and Total Maximum Daily Load. EPA Approved January 2004.

- 2004b. 2002 Integrated Report Results. Updated July 21, 2004. http://www.deq.state.id.us/water/data_reports/surface_water/monitorng/integrated_report_cfm

  2004c. Beneficial Use Reconnaissance Protocol (BURP) Database Viewer. http://mapserver/deq.stat.id.us/Websit/deqwaters/viewer.htm

- 2007. Jordan Creek Subbasin Assessment and Total Maximum Daily Load.

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

Jankovsky-Jones, M., C. Murphy, and C. Coulter. 2001. Riparian and wetland plant associations of southwestern Idaho, with a focus on the Bureau of Land Management's Lower Snake River District. United States Department of Interior, Bureau of Land Management, National Science and Technology Center. Denver, Colorado. 191 pp.

Johnson, D. H., and M. S. Boyce. 1990. Feeding trials with insects in the diet of sage-grouse chicks. Journal of Wildlife Management 54:89-91.

Johnson, S. L. 2004. Factors influencing stream temperatures in small streams: substrate effects and a shading experiment. Canadian Journal of Fish and Aquatic Sciences 61:913-923.

Kozfkay, C. C., M. Campbell, A. Fonner, K. Meyer, and D. J. Schill. 2006. Population Studies of Redband Trout: Genetic Investigation of Population Structure. Idaho Department of Fish and Game Report Number 06-40. 18 pp.

Laycock, W.A. 1991. Stable states and thresholds of range condition on North American rangelands: A viewpoint. J. Range Manage. 44(5) 427-433.

McLean, Alistair and Sandra Wikeem. 1985. Influence of season and intensity of defoliation on bluebunch wheatgrass survival and vigor in southern British Columbia. J. Range Manage. 38(1): 21-26.

Meuggler W. F. 1975. Rate and Pattern of Vigor Recovery in Idaho Fescue and Bluebunch Wheatgrass. Journal of Range Management. 28(3):198-204.

Micheli, E.R., and J.W. Kirchner. 2002. Effects of wet meadow riparian vegetation on streambank erosion. 2. Measurements of vegetated bank strength and consequences for failure mechanics. Earth Surface Processes and Landforms 27:687-697.

Munger, J. C, C.R. Peterson, M. McDonald, T. Carrigan. 2003. Conservation Strategy for the Columbia Spotted Frog (*Rana luteiventris)* in Idaho. Draft submitted to the Idaho State Conservation Effort. 14 pp.

Munger, J.C. and Oelrich. 2006. Columbia Spotted Frog Great Basin Population, (Owyhee subpopulation), Long-term Monitoring Plan, Year 2005 Results. Challenge Cost Share Report, 19 pp.

Poole, G.C., and C.H. Berman. 2001. An ecological perspective on in-stream temperature: natural heat dynamics and mechanisms of human-caused thermal degradation. Environmental Management 6:787-802.

Quinton D. A., McLean A., and Stout D. G. 1982. Vegetative and Reproductive Growth of Bluebunch Wheatgrass in Interior British Columbia. Journal of Range Management. 35(1):46-51.

Rachlow, J., J. Witham, D. Sanchez, W. Estes-Zumpf, A. Price, H. Roberts, V. Guyer, and B. Waterbury. 2008. Dynamics of pygmy rabbit burrows: variation across space and time. Paper presented at Annual meeting of Idaho Chapter of the Wildlife Society, 4-6 March, 2008, Boise, Idaho.

Rich, Terrell. 1985. Sage grouse population fluctuations: evidence for a 10-year cycle. Technical Bulletin 85-1, US. BLM, Idaho State Office. 29 pp.

Rosentreter R. 1992. Displacement of Rare Plants by Exotic Grasses. Proceedings -Symposium on Ecology, Management, and Restoration of Intermountain Annual Rangelands, Boise, ID, May 18-22, 1992.

Rosgen, D. 1996. Applied River Morphology. Printed Media Companies, Minneapolis, Minnesota.

Sanchez, D. M. 2008. Pieces of the pygmy rabbit puzzle: space use, survival, and survey indicators. PhD dissertation, Univ of Idaho, Moscow, ID. 146 p.

Sanderson, R., R.A. Meganck, and K.C. Gibbs. 1988. Range Management and Scenic Beauty as Perceived by Dispersed Recreationists. Journal of Range Management 39 (5): 465-469.

Stoddart, Smith and Box. "Range Management".1975. 3rd Edition. Pg. 291.

United States Department of Interior. Bureau of Land Management. 1983. Bruneau Management Framework Plan. 350 pp.

- 1989. Jacks Creek Wilderness Environmental Impact Statement.

- 1995. Interim Management Policy and Guidelines for Lands Under Wilderness Review. 59 pp.

- 1993. Riparian Area Management: Process for Assessing Proper Functioning Condition. Technical Reference 1737-9, Revised 1995.

- 1994. Riparian Area Management: Process for Assessing Proper Functioning Condition for Lentic Riparian-Wetland Areas. Technical Reference 1737-11. 1994.

- 1997. Castle Creek Allotment. Analysis, Interpretation, and Evaluation. Boise District. 201. Pp.

- 1997. Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management Final. 19 pp.

- 1997. Riparian Area Management: Grazing Management for Riparian-Wetland Areas. Bureau of Land Management Technical Reference 1737-14. 63pp.

- 2001. A framework to assist in making sensitive species habitat assessments for BLM-administered public lands in Idaho: Sage Grouse. 42 pp.

- 2003. Grazing permit issuance for Rabbit Creek/Peters Gulch, Jump Creek, East Reynolds Creek, Gaging Station FFR, Evans FFR, and Jaca FFR. EA #ID 096-03-61, 189 p.

- 2007a. Noxious and Invasive Weed Treatment for the Boise District and Jarbidge Field Office. Environmental Assessment. ID-100-2005-EA-265. 97 pp.

- 2007b. Recreation Management Information System.

- 2008a. Final Rangeland Health Assessment for East Castle Creek Allotment. Bruneau Field Office. 214 pp.

- 2008b. East Castle Creek Evaluation and Determination. 2008. Bruneau Field Office. 62 pp.

- 2008c. Monitoring Strategy for Rangelands, Instruction Memorandum ID-2008-022, Appendix C, Grazing Response Index. 43-46.

- 2008d. Battle Creek Livestock Permit Renewal Final Environmental Assessment EA# ID-120-2007-3353, January 2008. Bruneau Field Office. 196 pp.

U.S. Fish and Wildlife Service, Snake River Basin Office. 2002. Section 7 Guidelines – Snake River Basin Office. *Spiranthes diluvialis,* Ute ladies'-tresses (threatened). August, 2002. 11 pp..

Wallestad, R. O., J. G. Peterson, and R. L. Eng. 1975. Foods of adult sage-grouse in

central Montana. Journal of Wildlife Management 39:628-630.

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

Wilson, A. M. and G.A. Gates. 1966. Cumulative Effects of Clipping on Yield of Bluebunch Wheatgrass. Journal of Range Management. 19(2) 90-91.

Young, J. 1984. Class II Cultural Resource Inventory of the Owyhee, Bruneau, and Jarbidge Resource Areas, Boise District BLM. U.S. Department of the Interior, Bureau of Land Management, Boise District

Young, J.A., and C.D. Clements. 2007. Cheatgrass and grazing rangelands. Rangelands 29(6): 15-20.

Zoellick, B.W., D.B. Allen, and B.J. Flatter. 2005. A Long-Term Comparison of Redband Trout Distribution, Density, and Size Structure in Southwestern Idaho. North American Journal of Fisheries Management 25:1179–1190.

Zoellick, B.W., and B.S. Cade. 2006. Evaluating Redband Trout Habitat in Sagebrush Desert Basins inSouthwestern Idaho. North American Journal of Fisheries Management 26:268–281.

6.0 Appendices

6.1 Appendix A: Bruneau Management Framework Plan Objectives

Table 1: MFP Objectives applicable for the East Castle Creek Allotment

Bruneau MFP Objectives		
Range Management (RM)	RM 1	Increase the vigor, density and production of desirable vegetation on 421,436 acres within 20 years. Increase 333,532 acres currently in poor range condition to fair condition in 20 years. Increase 343,522 acres currently in fair condition to good condition in 20 years. Maintain the condition class of 283,849 acres currently in good condition and excellent condition. Maintain and/or improve 86,367 acres currently in a disturbed, burned, or seeding condition. Following this 20 year period, the goal would be to improve all range to good condition.
	RM 1.1	Establish livestock rest or deferment on critical sage grouse and antelope areas.
	RM 1.4	Maintain a separation of use between cattle and bighorn by not developing livestock water sources within 1 mile of bighorn habitat or potential habitat unless the potential adverse impact to bighorn can be avoided.
	RM 1.5	Implement grazing systems on spring and summer ranges to meet minimum needs of preferred plant species
	RM 2[1]	Treat suitable land to increase forage production and reduce acres in poor condition.
	RM 2.1[1]	Spray or burn 1,132 acres in castle Creek Allotments to improve range condition.
	RM 2.2[1]	Treat suitable native range to improve ecological condition and increase forage.
	RM 3	Allocate livestock forage in each of the allotments in the Bruneau planning unit within the limits necessary to maintain and/or enhance the range and soil resources.
	RM 3.1	Provide sufficient food, cover, space, and water for big game in accordance with The Bruneau MFP objectives, WL-2.1, 3.1, 3.2 and 3.3 and fisheries condition decisions in WL-AQ-2.1, 2.2.
	RM 3.2	Provide sufficient food, cover, and water for big game. Monitor key wildlife areas.
	RM 5.1	Provide for or enhance rare and endangered plants.
Watershed (WS)	WS 1	Maintain stability of moderate, high, and critical erosion hazard classes.
	WS 1.1	Minimize erosion by maintaining good perennial vegetation cover where it exists and where feasible/ economical strive for establishing perennial vegetation cover to benefit all uses. If not feasible/economical to

Bruneau MFP Objectives		
		establish perennial vegetation manage to achieve stable watershed conditions.
Wildlife (WL)	WL 2	Manage sensitive species habitats to maintain existing or potential populations.
	WL 2.1	Manage canyonland habitat for the priority of bighorn and other wildlife and allow other reasonable compatible uses.
	WL 2.7	Implement intensive livestock management or protective riparian habitat fencing to improve mountain quail habitat Shoofly Creek (both forks).
	WL 3	Manage 1,143,000 acres of big game habitat to obtain good ecological condition.
	WL 3.1	Allow 30% livestock utilization on key shrub species in mule deer winter range.
	WL 3.2	Allow 50% combined utilization on key shrub species in deer/spring/summer/fall range.
	WL 3.3	Manage pronghorn habitat for good ecological condition where feasible.
	WL 4	Manage upland game and waterfowl habitats to increase populations.
	WL 4.3	Manage springs, seeps, and meadows and adjacent upland areas as key wildlife habitats for upland game. Specifically: Control livestock grazing on these habitats by the implementation of grazing systems, season of use and other management practices. Protect areas if necessary.
	WL 4.4	Improve sage grouse nesting and brood rearing habitats to good ecological condition.
	WL 6.1	Riparian habitats and meadows will be managed to attain and/or maintain a good ecological condition class.
Wildlife/ Aquatic (WL-AQ)	WL-AQ 2	Improve fisheries physical habitat to fair and good condition. Standards are: tall cover provides 60-80% stream shading; low cover >4"; ≤10% of streambanks actively eroding; ≤5% lateral channel movement in stream reach; <15% channel bottom covered by fine sediments; >25% channel contains fish cover.
	WL-AQ 2.1	Improve fisheries habitat from poor to fair and good condition through grazing exclusion on Battle Creek (1.2 miles), Magpie Creek (1.0 mile).
	WL-AQ 2.2	Improve fisheries habitat from poor and fair to good condition through intensive livestock management on Birch Creek (5.6 miles), Poison Creek (1.2 miles), Rock Creek (3.1 miles).

Bruneau MFP Objectives		
	WL-AQ 2.3	Improve fisheries habitat by augmenting stream flows through restoration efforts (vegetation, drift fencing, beaver introduction) including 3.00 miles of Birch Creek.
	WL-AQ 2.6	Designate watershed areas that drain into major streams as special watershed areas to be managed for watershed protection. This applies to the headwaters of Birch Creek in Castle Creek Allotments.
	WL-AQ 3	Protect and manage seasonal flows to maintain habitat conditions for redband trout on segments of Castle and W. Fork Shoofly that were rated in good condition in 1980.
	WL-AQ 3.1	Provide flow recommendations to IDFG. Manage flows for good water quality.

[1]These MFP Objectives have been achieved.

6.2 Appendix B: Monitoring Plan

East Castle Creek Monitoring Plan

The following is a description of monitoring practices that would be implemented to measure progress toward meeting the Standards for Rangeland Health and RMP objectives. This monitoring plan was developed in accordance with the Idaho BLM Draft Monitoring Strategy for Rangelands (2007). Monitoring practices are divided into two categories: Implementation Monitoring is done more frequently to determine adherence to Annual Indicator Criteria, while Effectiveness Monitoring allows comparisons of resource conditions between years, to determine trends and whether significant progress is made toward meeting standards. Coordination with the permittee, local and state agencies and the interested public would occur during monitoring site (key area) establishment and data collection.

Technical Reference 1734-4, Sampling Vegetation Attributes, defines key areas as follows: "[k]ey areas are indicator areas that are able to reflect what is happening on a larger area as a result of on-the-ground management actions. A Key Area should be a representative sample of a large stratum, such as a pasture, grazing allotment, wildlife habitat area, herd management area, watershed area, etc., depending on the management objectives being addressed by the study."

Key areas on the East Castle Creek allotment will be selected by the Bruneau IDT, with input from grazing permittees and interested publics, using several criteria, including, but not limited to:

Known livestock and wildlife use patterns
Proximity to water or other range developments such as fences
Topographic position
Ecological site type
Vegetation type
Historic disturbance (i.e. past fire or vegetation treatments)

Implementation Monitoring (Short-Term)

- Upland Utilization Monitoring:
  Upland utilization and/or use pattern mapping will include browse and herbaceous removal methods. Herbaceous removal would be measured using Key Species or Height-Weight methods.

  Woody browse would be measured using the Extensive Browse Method. However, if browse approaches 50% using the Extensive Browse Method, the twig length method will be used to ascertain actual utilization. Utilization measurement methods are described in *Utilization Studies and Residual Measurements Interagency Technical Reference 1734-3* (USDI 1996).

  Upland utilization will be conducted annually during and at the end of the growing period or grazing period (whichever is later) in pastures 5B, 8B, 8BI, 8BIII, 10B, 12, 28, 28A, 29A and 29B, and on approximately a 3-year interval in all other pastures. Additionally,

seasonal utilization will be conducted as needed during the grazing period when key species are actively growing.

When utilization estimates approach the established maximum levels, a statistical test will be applied. Standard deviation and confidence intervals will be calculated for utilization data at $p \leq 0.1$.

- Riparian Utilization Monitoring: Riparian utilization monitoring will consist of stubble height and woody browse measurements, in accordance with methods described in *Monitoring Stream Channels and Riparian Vegetation - Multiple Indicators* (Idaho BLM Technical Bulletin [TB] 07-01). Stubble height and woody browse would be monitored annually on Poison Creek and Sheep Creek, and on approximately a 3-year interval on all other streams on the allotment.

- Streambank Alteration: Streambank alteration would be measured in accordance with methods described in TB 07-01. Streambank alteration would be monitored annually on Poison Creek and Sheep Creek, and on approximately a 3-year interval on all other streams on the allotment.

- Special Status Plants Monitoring: Mulford's Milkvetch populations near the water haul site in Pasture 5B will be monitored for habitat disturbance (livestock trampling). A line-point or step-point method would be used to annually assess intensity of trampling within the Mulford's Milkvetch populations. A paired monitoring site, equidistant from the new water-haul location, will be compared to the Mulford's site to determine whether moving the water haul site effectively reduced trampling disturbance within the population. If trampling impacts are found to decrease over a three year period the sampling interval would shift to a five year interval.

- Water Quality Monitoring: *Escheria coli*/fecal coliform levels in Battle, Birch and Poison creeks will be monitored annually during the grazing season and other times of the year to determine whether State of Idaho Water Quality Standards for primary and/or secondary contact recreation are being met.

- Actual Use: Actual use records will be compiled from the actual use reports submitted by the grazing permittees, in accordance with permit terms and conditions.

Effectiveness Monitoring (Long-Term)

- Upland Trend Monitoring: Established nested-plot frequency transect (NPFT) studies and Photo Plots will continue to be read on established key study sites currently located within the allotments in accordance with TR 1734-4 *Sampling Vegetation Attributes Interagency Technical Reference* (BLM, 1996). The need for additional monitoring sites will be evaluated. Additional NPFT or Photo Plots may be established, including sites in Pastures 8B, 12 and 14 within the Little Jacks Creek Wilderness Study Area. In some cases, inappropriately situated sites may be removed, and replaced with sites in more representative areas.

NPFT and Photo Plot monitoring may be augmented with other vegetation monitoring methods described in TR1734-4 and other references and manuals. Rangeland health will be assessed prior to the next ten-year permit renewal process, and may be periodically assessed at other times, in accordance with BLM Technical Reference 1734-6, Interpreting Indicators of Rangeland Health (USDI, 2005).

- Riparian Trend and Condition Monitoring: Multiple Indicator Monitoring (MIM) will be periodically conducted at existing greenline sites identified in the 2008 East Castle Creek Grazing Permit Renewal EA. Additional riparian monitoring sites may be established as determined to be necessary by the BLM IDT, in accordance with established MIM (USDI 2007) procedures or other BLM accepted protocols. PFC assessments will be conducted prior to the next ten-year permit renewal process, and may be conducted periodically at other times on spring and stream riparian areas (USDI 1996, USDI 2003).

- Water Quality Monitoring: In addition to short-term *E. coli* monitoring, certain creeks on the allotment will be periodically monitored for other pollutants. Birch, Poison and West Fork Shoofly creeks will be monitored for sediment approximately a 5-year cycle. Birch, Battle, Poison, Rock, Sheep and West Fork Shoofly creeks will be monitored for temperature on a 3 to 5-year cycle.

- Special-Status Plants Monitoring: The CDC monitors special-status plant populations in the area. CDC monitoring of Mulford's milkvetch populations will continue on a three year cycle and data related to total plant numbers, habitat condition, and age class structure will continue to provide information pertinent to permit renewals.

Monitoring Data Review

Implementation monitoring data would be reviewed as it is collected during each grazing season to determine compliance with the Annual Indicator Criteria. If Annual Indicator Criteria are not met, the authorized officer will make the necessary grazing management modifications, such as redistributing livestock in a pasture or removing livestock from the pasture in which the criteria are not met. Specific management actions related to results of implementation monitoring can be found in Table 15 of the East Castle Creek EA (2008).

Effectiveness monitoring data would be formally reviewed prior to the expiration of the term grazing permits. However, if informal review of effectiveness monitoring data by the IDT reveals resource issues, a formal review may be completed sooner, to determine necessary modifications to grazing management practices in order to ensure progress towards meeting the Standards for Rangeland Health.

6.3 Appendix C: Special Status Animals

Idaho BLM Special Status Animal Species known or potential in the East Castle Creek Allotment

Type 1. Federally Listed, Proposed and Candidate Species: Includes species that are listed under the Endangered Species Act as Threatened (T) or Endangered (E), and proposed (P) or candidates (C) for listing.
Type 2. Rangewide / Globally Imperiled Species: Includes species that are experiencing significant declines throughout their range with a high likelihood of being listed under the Endangered Species Act in the foreseeable future due to their rarity and/or significant endangerment factors. These species are addressed individually in the plan.
Type 3. Regional / State Imperiled Species: Includes species that are experiencing declines in population or habitat and are in danger of regional or local extinctions in Idaho in the foreseeable future.
Type 4. Peripheral Species in Idaho: Includes species that are generally rare in Idaho with the majority of their breeding range outside the state.
Type 5 - Watch List Species: Includes species that are not considered Idaho BLM sensitive species but current population or habitat information suggests that species may warrant sensitive species status in the future.

Type 1: Threatened, Endangered and Candidate Species

Threatened, Endangered, Candidate Species	Habitat and Notes	Type
Birds		
Yellow-billed Cuckoo*(Coccyzus americanus)* (C)	Thick, wide riparian trees and shrubs, known only as vagrant along the Snake River in our area	1
Amphibians		
Columbia Spotted Frog *(Rana luteiventris)* - Great Basin Population only (C)	Ponds and slow moving, meandering streams	1

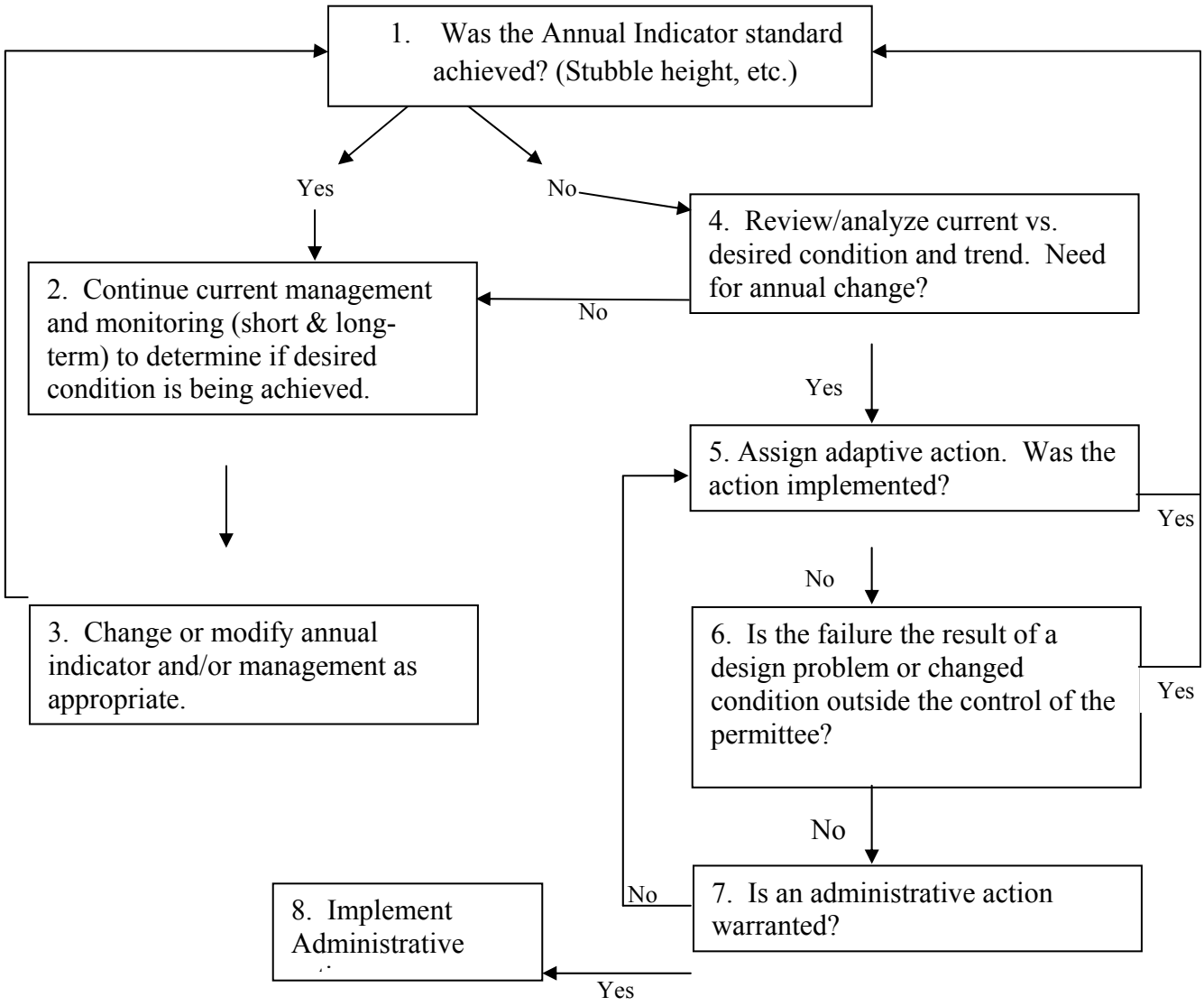
Sensitive Species (Type 2, 3, and 4)

Sensitive Species	Habitat and Notes	Type
Mammals		
Pygmy Rabbit *(Brachylagus idahoensis)*	Thick big sage with deep soils; currently known from mahogany savannah along Mudflat Rd, Wickahoney, Grasmere, and Riddle areas	2
Spotted Bat *(Euderma maculatum)*	Rocky canyons and cliffs, forages over sage and juniper, widespread in resource area	3
Townsend's Big-eared Bat *(Plecotus townsendii)*	Winters in stable-climate caves, forages over juniper, sage, canyons	3
California Bighorn Sheep *(Ovis canadensis californiana)*	Rocky canyons; Bruneau, Big and Little Jacks Cr, Deep Creek, Battle Creek, Dickshooter Creek	3
Kit Fox *(Vulpes velox)*	Edge of potential range, vagrants	4
Birds		
Greater Sage Grouse (*Centrocercus urophasianus)*	Sagebrush obligate, uses wet meadows in summer; is petitioned for listing as endangered.	2
Peregrine Falcon *(Falco peregrinus anatum)*	Nests on tall, sheer rocky cliffs; eats birds	3
Prairie Falcon *(Falco mexicanus)*	Nests on cliffs, hunts over open country, ground squirrels are common prey	3
Northern Goshawk *(Accipiter gentilis)*	Aspen clumps, forest; rare	3
Ferruginous Hawk *(Buteo regalis)*	Open country, nests on ground or rock outcrops	3
Mountain Quail *(Oreotyx pictus)*	Apparently extirpated from area; Riparian and shrubby hillsides with berry-producing shrubs.	3
Willow Flycatcher *(Empidonax trailii)*	Dense willow riparian	3
Hammond's Flycatcher *(Empidonax hammondii)*	On migration, nests in deep evergreen forest	3
Loggerhead Shrike *(Lanius ludovicianus)*	Nests in tall sagebrush	3

Sensitive Species	Habitat and Notes	Type
Sage Sparrow *(Amphispiza belli)*	sagebrush	3
Brewer's Sparrow *(Spizella breweri)*	sagebrush	3
Black-throated Sparrow *(Amphispiza bilineata)*	Edge of species range; sagebrush draws	4
Fish		
Redband Trout (*Oncorhynchus mykiss gibbsi)*	Streams	2
Reptiles		
Mojave Black-collared Lizard *(Crotaphytus bicinctores)*	Rocky outcrops, arid and sparse vegetation, lower elevations	3
Longnose Snake *(Rhinocheilus lecontei)*	Deserts, grasslands and rocky canyons.	3
Western Ground Snake *(Sonora semiannulata)*	Deserts with loose or sandy soil	3
Common Garter Snake *(Thamnophis sirtalis)*	Closer to water, many habitats	3
Amphibians		
Western Toad *(Bufo boreas)* -(Northern Rocky Mountain Group only)	Near water in variety of habitats, from sagebrush desert to montane meadow	3
Woodhouse Toad *(Bufo woodhousii)*	Lower elevation habitats, farmlands, sagebrush desert, grasslands, and woodlands; quiet water	3

6.4 **Appendix D: Adaptive Management Decision Tree from IM ID-2005-074**

Decision Tree – Implementation of Annual Grazing Adaptive Mgt.



A. In Block 1, the grazing permittee(s) and/or land manager evaluates whether the annual grazing use indicator or standard was met. This assumes that the correct indicator and value was being used. This may be subject to reevaluation later in the process.

B. Annual Indicator or Standard is Met: If the annual grazing use indicator is met, current management will continue, including short- and long-term monitoring as indicated in Block 2.

B1. Continue Current Management and Monitoring (Block 2): Long-term monitoring indicators are used to assess whether management objectives for resource conditions and values are being achieved. This data will be used over time to determine the effectiveness of annual grazing use indicators or standards in achieving the desired conditions.

B2. Modify the Annual Indicator and/or Management as Appropriate (Block 3): If the desired condition objective is not being achieved, there is a need to change management and/or modify either the type or value of annual grazing use indicator being used.

If the desired condition objective is achieved, it may be possible to modify either the value or type of annual grazing use indicator and still maintain the desired condition. An example would be relaxing the numerical value (i.e., 4-inch versus 6-inch stubble height) or changing the type of annual grazing use indicator being used (i.e., change indicator from herbaceous utilization to woody utilization).

C. Annual Grazing Use Indicator or Standard Is Not Met: If the grazing use exceeds the annual grazing use indicator or standard, proceed to the evaluation steps in Block 4.

C1. Analysis and Determination of the Need for an Adaptive Management Adjustment (Block 4): If the grazing use exceeds the established annual grazing use indicator or standard, the resource manager, in consultation with the permittee(s) and others as appropriate, evaluates: 1) the potential cause for exceeding the standard, and 2) the significance of the excessive grazing use relative to its impact on the achievement of the desired resource conditions.

The resource manager, in consultation with the permittee(s), should determine whether the failure to meet the annual grazing use indicator is an infrequent occurrence or whether there is routine difficulty in meeting annual grazing use standards. A one-time occurrence due to some unique variable may not be significant and may not require further evaluation or adaptive management adjustments. Routine difficulty in meeting the annual grazing use indicator may indicate further evaluation and the need for adaptive management adjustments.

If further evaluation is warranted, comparison of the current condition with the desired condition should be made. If there is a large departure between current conditions and desired resource conditions, it may be fairly obvious that the need to achieve the annual use indicator is significant and that adaptive management actions are needed to provide for the achievement of the annual use indicator.

While the evaluation of current versus desired conditions should be made with the use of long-term monitoring data, this information may not be available. In that case, utilize the best available information or complete a simple and rapid qualitative analysis to compare current conditions with desired conditions. While long-term trend and condition information is preferred, the lack of such information should not delay the evaluation of the current rangeland condition and needed adaptive management adjustments. Adaptive management adjustments should be temporary modifications until quantitative long-term condition and trend information is available to support permanent changes.

If the resource manager's evaluation concludes that current conditions are close to desired resource conditions, then failure to achieve the annual grazing use indicator during that grazing season may not be significant in terms of achieving long-term objectives. In this case, adaptive management adjustments may not be necessary. Existing management and monitoring to achieve desired conditions would continue (blocks 2 and 3). The exception to this situation may be where available information indicates that the long-term trend is negative, and adaptive management adjustments are needed.

If the resource manager's evaluation concludes that there is a significant gap between current and desired conditions and there is no indication of a positive trend, then the need for adaptive management adjustments are indicated.

C2. Development and Implementation of Adaptive Management Adjustments (Block 5): If adaptive management adjustments are warranted, the resource manager develops these actions in collaboration with the permittee(s) and others, as appropriate. The adaptive actions are implemented through annual authorizations or operating instructions issued by the resource manager.

Once adaptive management adjustments are developed and assigned, the resource manager, in collaboration with permittee(s) and others, as appropriate, must assess whether the adaptive management adjustments were implemented as designed during the following grazing period.

If adaptive management adjustments were implemented by the permittee(s), then a determination as to whether these adjustments achieved the annual grazing use indicator would be made the following grazing period (Block 1). If the adaptive management adjustments were effective in achieving the annual grazing use indicator, then management and monitoring would continue as planned (Blocks 2 and 3). If they were not effective, then the resource manager, in collaboration with permittee(s) and others, as appropriate, must determine what additional adaptive management actions are needed (return to Block 5).

C3. Adaptive Management Adjustment Not Implemented (Block 6): If the adaptive management adjustments were not implemented, the resource manager must determine if the failure results from a design problem or changed condition, outside the control of the permittee(s). If there were problems with the design or ability to implement the adaptive management adjustments outside the control of the permittee(s), the resource manager and/or permittee(s) would revisit the design or selection of the adaptive management adjustment (return to Block 5).

C4. Determination of Non-compliance (Block 7): If failure to implement the adaptive management adjustment is not related to the design or inability to implement the adaptive action by the permittee(s), the resource manager would assess the need for an administrative action. If the resource manager determines that an administrative action is not warranted, additional changes or adaptive management direction should be considered (return to Block 5).

C5. Issue Notice of Non-compliance (Block 8): If failure to implement adaptive management adjustments is an issue of permittee(s) performance and compliance or is repetitive, then take appropriate action under the grazing regulations (43 CFR Subpart 4100) that may involve

Prohibited Acts (43 CFR 4140.1), Unauthorized Grazing Use (43 CFR 4150.1) or the issuance of a decision prescribing the grazing management that will be followed or the appropriate administrative remedy (43 CFR 4100).

6.5 **Appendix E: Photos of the East Castle Creek Allotment**

Photo 1. Pasture 5B, winter range. Indian ricegrass, cheatgrass, four-wing saltbush. 8/16/2006. 5S 2E 27 SE.

Photo 2. Pasture 8B III (seeding) on left, Poison Creek exclosure on right. Cheatgrass and sagebrush are visible. Crested wheatgrass largely gone from the seeding. 8/15/2006. 7S 2E 21|28.

Photo 3. Pasture 8B. Some squirreltail grass visible under the protection of the sagebrush. Foothills of pasture 10B and Rough Mountain (right) in background. 3/26/2008. 6S 2E 31.

Photo 4. Birch Creek in pasture 10B. Birches line the creek; the channel shows grazing use. 1/16/2008. 7S 1E 29 NE.

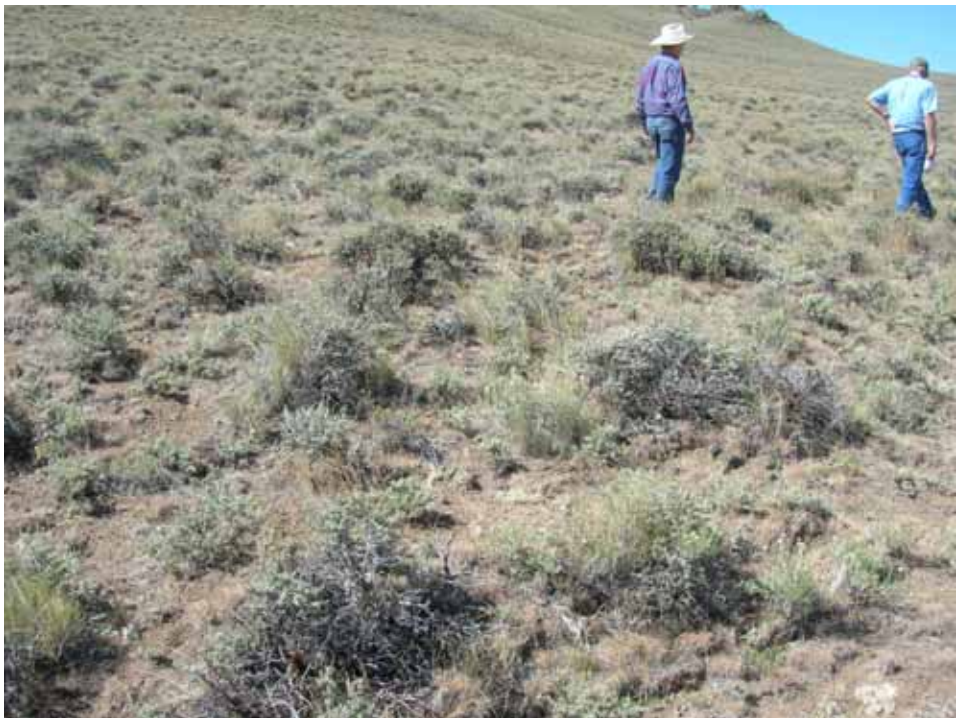


Photo 5. Pasture 10B. Native grasses visible. 6/6/2007, 7S 1E 22.

Photo 6. Pasture 10B. Native grasses in the shrubs, cheatgrass in the interspaces. 6/6/2007. 7S 1E 23.

Photo 7. Pasture 11B. Birch Creek is the drainage.

Photo 8. Birch Creek in pasture 11B, monitoring site 9.6C showing upward trend. 8/14/2006.

Photo 9. Pasture 12 on right, Anchustegui's private land on left. At a distance from the creek, vigorous bluebunch wheatgrass and Idaho fescue on both sides of fence. 9/22/2006, 8S 1E 15SE|14.

Photo 10. Poison Creek in pasture 12 on left, Anchustegui's private land on left. Same fenceline as Photo 3, but at the creek. In pasture 12, note bank alteration and lack of willows on the creek, and lack of grasses in the uplands. June 21, 2006. 8S 1E 10|11.

Photo 12. Pasture 12. Hoof-sheared cut below meadow at top of pasture 12. 9/6/2006. 8S 1E 20.

Photo 11. Pasture 12. Hoof-shearing below hanging meadows at top of pasture. Wetland vegetation has not regrown even after almost 3 months since grazing use. 9/11/2006. 8S 1E 17.

Photo 12. Pasture 12. Hoof – sheared cut below meadow at top of pasture 12. 9/6/2006. 8S 1E 20.

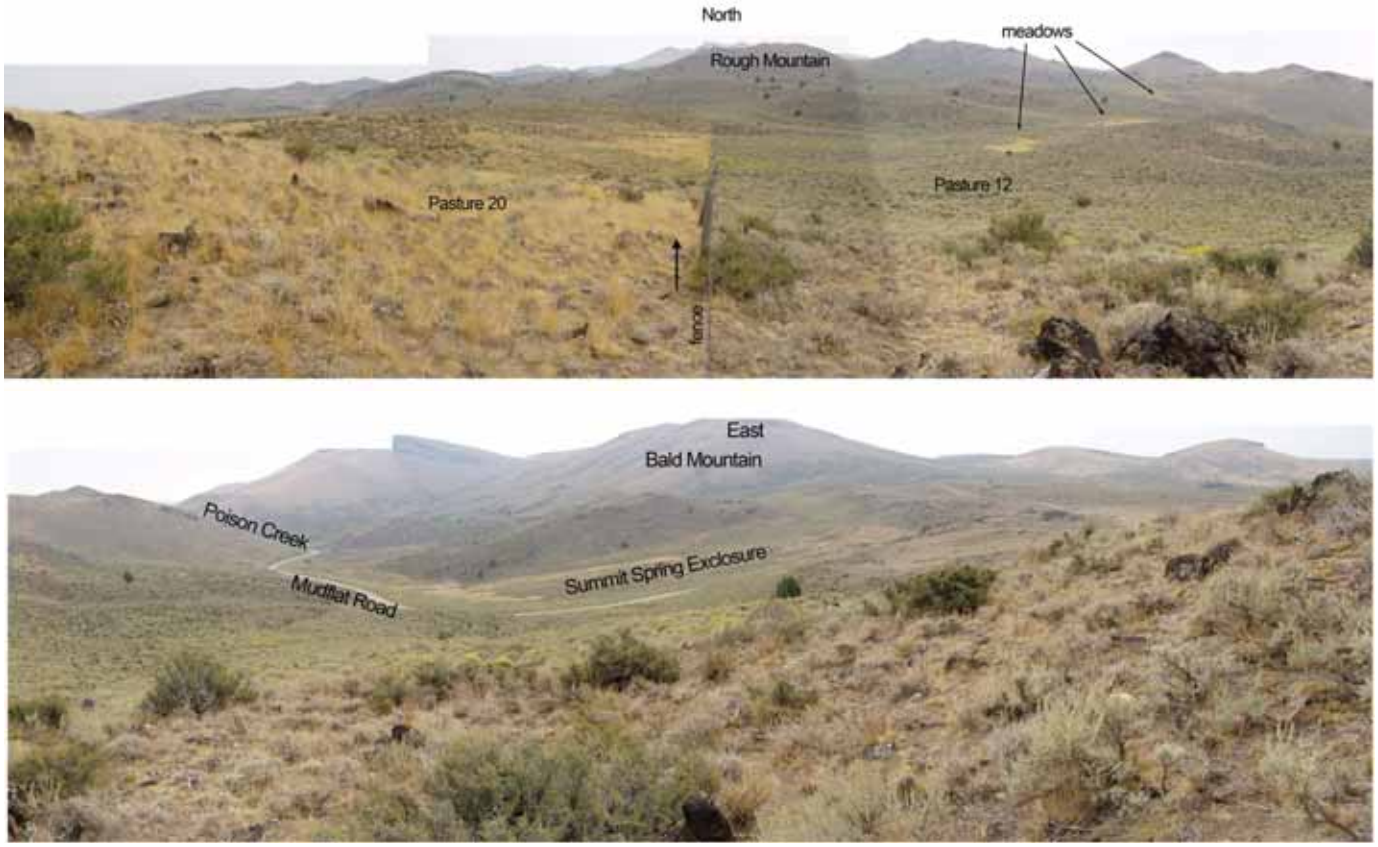


Photo 13. Panorama of the top end of pasture 12, with pasture 20 on the left of top photo. Bottom photo joins on right side of top photo. Grasses are lacking at the top of pasture 12 on the landscape level and not just on the fenceline, contrasting with vigorous native grasses in pasture 20. 9/6/2006. Photo taken from 8S 1E section line 19|20.

Photo 14. Pasture 29D, Battle Creek. Recovery of wetland plants and gentler banks evident, since creation of this riparian pasture after the 1999 EA. 10/19/2006.

Photo 15. Pasture 29A. Suitable nesting habitat for sage-grouse. 6/20/2006. 8S 1W 34.

Photo 16. Pasture 28A. Suitable sage-grouse nesting habitat, adequate cover of grasses and sagebrush to hide nests, and of forbs for food. 6/22/2006. 9S 1W 3 SW.

Photo 17. Pasture 28. Marginal sage-grouse nesting habitat. Grasses 16% cover and forbs lacking. 7/12/2006. 8S 1W 28.

Photo 18. Pasture 28. Low sage community: large vigorous native grasses evident, forbs are common. 7/27/2006. 8S 2W 13.

Photo 19. Mountain mahogany showing normal growth form on right of fence, in pasture 31, and heavily hedged or browsed growth form on left, in pasture 30 of West Castle Creek allotment. 10/25/2006.


Photo 20. Pasture 28A. Mountain mahogany showing heavily hedged growth form and 79% of this year's leaders browsed by cattle. 9/20/2007. 8S 1W 27 SW.

Photo 21. Pasture 28. Example of wet meadow habitat for sage-grouse, showing heavy use, proposed for an exclosure. 9/28/2006. 8S 1W 20, 'Juniper Station Spring'.

Photo 22. Pasture 28. Headcut moving up drainage to meadow at Buck Spring, proposed for an exclosure. 10/20/2008. 8S 2W 24.

7.0 Maps