BATTLE CREEK ALLOTMENT

LIVESTOCK GRAZING PERMIT RENEWAL

PRE-DECISIONAL ENVIRONMENTAL ASSESSMENT

Bruneau Field Office, Boise District, Idaho BLM

November 2007

View from Bald Mtn across Shoofly Creek towards Snake River plain, May 24, 2007.

UNITED STATES DEPARTMENT OF THE INTERIOR
BLM, BOISE DISTRICT
BRUNEAU FIELD OFFICE

<table>
<tr><td colspan="2">Applicants (permittees) :
1. Bruneau Cattle Company # 1101613
2. Bruneau Cattle Company # 1101664 (lease from Paul & Mattie Black)
4. Lahtinen, David # 1100226
5. Sellman, Chester #1101979
6. Simplot Co. /Battle Creek a.k.a. Battle Creek Ranch #1101616
7. Urquidi, John #1102181</td><td colspan="3">Proposed Action: Re-Issue Grazing Permits for Battle Creek Allotment. See Purpose and Need</td><td>EA No.
ID-120-2007-3353</td></tr>
<tr><td>State:
Idaho</td><td>County:
Owyhee</td><td>District:
Boise</td><td>Field Office:
Bruneau</td><td colspan="2">Authority: 43 CFR 4100</td></tr>
<tr><td colspan="2">Prepared By :
Bruneau ID Team</td><td colspan="2">Title:
Various</td><td colspan="2">Report Date:
TBA</td></tr>
</table>

LANDS INVOLVED

Meridian	Township	Range	Section(s)	Acres (BLM)
Boise	**See maps**	**See maps**	**See maps**	**145,085**

Consideration of Critical Elements	N/A or Not Present	Applicable or Present, No Impact	Discussed in EA
Air Quality	X		
Areas of Critical Environmental Concern	X		
Cultural Resources			X
Environmental Justice (E.O. 12898)	X		
Farm Lands (prime or unique)	X		
Floodplains			X
Migratory Birds			X
Native American Religious Concerns NOTE: check this box after consultation			
Invasive, Nonnative Species			X
Wastes, Hazardous or Solid	X		
Threatened or Endangered Species			X
Social and Economic			X
Water Quality (Drinking/Ground)			X
Wetlands/Riparian Zones			X
Wild and Scenic Rivers (Eligible)			X
Wilderness Study Areas			X

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Environmental Assessment # ID-120-2007-3353

UNITED STATES DEPARTMENT OF THE INTERIOR
BLM, BOISE DISTRICT, BRUNEAU FIELD OFFICE

I. INTRODUCTION

A. Proposed Action

BLM proposes to renew the grazing permits for six permittees in the 145,085-acre Battle Creek Allotment, Bruneau Field Office, for a 10-year period. The total AUMs permitted would remain at the current level of 12,731, for about 1985 cattle. The management and actions prescribed in the permit renewals would make significant progress in correcting rangeland health problems identified in the Battle Creek Evaluation and Determination, signed June 8, 2007. In addition, they would correct grazing management issues that were the reasons for the appeal of the 1999 decisions for this allotment.

B. Purpose and Need

The purpose is to issue 10-year livestock grazing permits to six Battle Creek Allotment permittees, with changes in livestock grazing management that will result in making significant progress towards meeting Idaho's Standards for Rangeland Health and Guidelines for Grazing Management (Standards and Guidelines) (43 CFR 4180.1).

The purpose for the permittees would be to obtain a 10-year grazing permit on public lands, to operate in a practical and economical way, and to use the resources in a sustainable way.

The need for permit renewal is that the BLM must respond to the applications for permit renewal (CFR 4130.1). Three of the previous 10-year permits are expired, and grazing is being authorized under the 2004 Interior Appropriation Bill. Three other permits were renewed in 1999 and will expire in 2009. Additionally, the Evaluation and Determination identified that some of the Idaho Standards for Rangeland Health were not met in some places on the Battle Creek Allotment due to current livestock grazing. Changes in grazing management must be made before the next grazing season once such a determination is signed, that will make significant progress towards meeting the Standards. The Determination was based on the Final Rangeland Health Assessment for Battle Creek Allotment of January 2007, which presented information and data about whether the allotment was meeting Idaho's Standards, whether non-attainment was due to current livestock grazing management, and identified where the problems were. In general, the allotment meets Standards, or where it doesn't, it is due to historic livestock grazing. However, there were specific problem areas that did not meet Standards due to current livestock grazing. The specific Standards and Guidelines that are not met due to current livestock grazing management, and the places where they are not met are listed below:

1. Standards 2 (Riparian Areas and Wetlands), 3 (Stream Channel and Floodplain) and 7 (Water Quality) and Guidelines 5, 6, 10 and 17 are not being met in Battle Creek Allotment. Specifically, 5.6 miles of stream (lower Shoofly, West Fork of Shoofly, and

East Fork of Shoofly creeks, OX Prong, and upper Little Jacks Creek) in pastures 10, 12, 16R, 21 and 22 are not meeting Standards and Guidelines due to current livestock grazing.

2. Standard 8 (Threatened, Endangered and Sensitive Species) and Guidelines 1, 3, 5, 6, 7, 8, 9 and 12 are not being met in Battle Creek Allotment. Specifically, lower Shoofly, West Fork of Shoofly, and East Fork of Shoofly creeks, OX Prong, upper Little Jacks Creek, and Hutch Springs are not meeting Standards and Guidelines due to current livestock grazing.

Additionally, there were parts of the previous permit-renewal decisions in 1999 that were appealed by permittees. BLM made two settlements with the two groups of permittees, but the settlements were not covered by previous NEPA documents. The settlements are analyzed in this Environmental Assessment (EA) as the permittees' proposals (Alternative B). Actions proposed in Alternatives C and D also address issues raised by the appeals and problems with implementation of some of the 1999 decisions. Most of the management and projects in the 1999 decision addressed the same problems that are identified in the current Standards and Guides Determination. The key appeal points and implementation problems are discussed in more detail in the section titled 'Recent History" below.

C. Conformance with Land Use Plan

The Bruneau Management Framework Plan (MFP1983) is the land use plan for public land managed by the Bruneau Field Office. The proposed action to renew the grazing permits is in conformance with the Bruneau MFP, which authorizes up to 13,386 AUMs in the Battle Creek Allotment.

Specific projects and management within the alternatives vary in conformance with the MFP, as described below.

Alternative A:
This alternative would be in conformance with MFP objectives for range, soils, water, vegetation, wildlife, special status species, recreation, visual resources, cultural resources, and wilderness. It would not meet Bruneau MFP objectives for riparian areas and fisheries habitats (Wildlife-Aquatics Objectives 2 and 2.1) to improve habitat conditions for OX Prong, upper Little Jacks Creek, Shoofly, East Fork Shoofly, and West Fork Shoofly creeks.

Alternative B: Permittees' Application:
Portions of the permittee's application would not be in conformance with the Bruneau MFP, as required by 43 CFR 1610.5-3(a). It proposes new water developments in bighorn sheep habitat, Hutch Pipeline Extension and Big Buck Spring. These are contrary to Wildlife Objective 2.1 (3) to maintain a separation of use between cattle and bighorn sheep by not developing new water sources within 1 mi of bighorn habitat unless adverse effects can be avoided. They would also be contrary to BLM's Interim Management Policy for Lands under Wilderness Review (IMP) (H-8550-1) and with the Bruneau MFP objectives for wilderness (Wilderness Objective WN 4). These require the Little Jacks Creek WSA to be managed so as not to impair its wilderness

values until Congress acts on whether to designate it as Wilderness. Management of Shoofly and East Fork Shoofly creeks may not meet Wildlife-Aquatics Objectives 2 and 2.1.

Alternatives C and D:
These alternatives would be in conformance with MFP objectives for range, soils, water, vegetation, riparian/wetland, fisheries, wildlife, special status species, recreation, visual resources, cultural resources, and wilderness. Management of Shoofly and East Fork Shoofly creeks would meet Wildlife-Aquatics Objectives 2 and 2.1.

D. Relationship to Laws, Regulations, and BLM Policy

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 (April 2005) and Final (January 2007) Standards and Guidelines Assessments for the Battle Creek Allotment. The subsequent Evaluation and Determination for Battle Creek Allotment that identified what Standards were not being met was signed June 8, 2007. 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, including the Battle Creek Allotment. 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 Federal Land Policy and Management Act (FLPMA), 1976– organic act;
- The Public Rangelands Improvement Act (PRIA), 1978– manage for sustained yield;
- 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.

Other laws that are relevant to issuing grazing permits include:

- 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.

E. Allotment Information

1. Location and Size

The Battle Creek Allotment is located in southwest Idaho near the town of Grand Vview (Map 1). It extends from the Snake River Plain southwest to the headwaters of Battle Creek, and lies between Shoofly Creek and Little Jacks Creek. The allotment includes 145,085 acres of BLM-administered public land, 8,523 acres of State of Idaho land, and 14,197 acres of private land.

2. Exclusions from this EA

This EA will not address pasture 8B, which lies between Highway 78 and the Snake River. Livestock grazing has not been authorized in Pasture 8B for many years. Since the public lands north of Highway 78 are within the Snake River Birds of Prey National Conservation Area (NCA), they are being managed under the 1995 NCA Management Plan, and consistent with management direction in the Final NCA Resource Management Plan (RMP), which is slated for public release in December 2007. The Final NCA RMP provides that the area will continue to be closed to grazing. Pasture 8B south of Highway 78 would still be in the BFO, and grazing is authorized on this area. However, it is not fenced along Highway 78 and cannot be practically grazed at this time, and is not part of the grazing scheme for Battle Creek allotment.

Two grazing permits for winter use from November 1 through January 31 in pasture 8 are not discussed in this EA. John Anchustegui's (#1100397 - lease from Owyhee Calcium Products – 66 AUMs) and Craig Gillespie's (#1101620 - 155 AUMs.) season of use is in pasture 8. The Battle Creek Final AIE (1999) states "winter use presented little problem due to the low grazing preference and plant dormancy". John Anchustegui's and Craig Gillespie's permits were fully processed in 1999 (Standards and Guidelines Assessment and Determination in the Battle Creek Final AIE (1999), permit renewal EA #99045 and final decisions dated September 28, 1999), and are not due to expire until 2009.

3. Use Areas

The Battle Creek Allotment is divided into two areas, used by separate groups of permittees. Thus, the analysis in this Environmental Assessment (EA) is divided into the following two use areas:

Battle Creek use area. The Battle Creek use area encompasses pastures 8, 9, 12, 14, 18, 19, 20, 20R, 21, 22 and 22H. This use area involves the following permittees: Bruneau Cattle Company and Battle Creek Ranch, also known as Simplot/Battle Creek Company. Their season of use is April 1 through October 31. Bruneau Cattle Company holds two permits, and both permits will collectively be referred to as Bruneau Cattle Company in this assessment.

Little Jacks Creek use area. The Little Jacks Creek use area encompasses pastures 10 and 15 and involves the following permittees: David Lahtinen, Chester Sellman and John Urquidi. Their season of use is June 1 through September 30. These three permittees are collectively referred to as the Little Jacks users in this assessment.

4. Current grazing permits

The total AUMs currently permitted are 12,731, for about 1985 cattle, among 6 permits (Table 1). The season of use is April 1 to September 30 every year. Grazing permits for the Battle Creek use area expired in 1999, were renewed in 1999 and appealed, and the decision set aside in 2003. Since 2004, grazing has been authorized as per the pre-1999 permits, under the 2004 Interior Appropriation Act. Grazing permits for the Little Jacks users were renewed in 1999 for 10 years, and are currently in effect. For terms and conditions of these permits, see the description of Alternative A below.

Table 1: 2007 Battle Creek Allotment grazing permit information, Bruneau Field Office.

Permittee/ Operator number	Livestock		Season of use		Percent public land	Summary of Permitted AUMs			
	Number	Kind	Begin	End		Active	Sus-pended	Sub Total	Total
Battle Creek Use Area									
Bruneau Cattle Company #1101664	1,167	cattle	4/1	6/30	100	3,491	0	3,491	7,021
	1,167	cattle	7/1	9/30		3,530	0	3,530	
Bruneau Cattle Company #1101664 lease from Paul & Mattie Black	138	cattle	4/1	6/30	100	413	0	413	782
	123	cattle	7/1	9/30	100	369	0	369	
Battle Creek Ranch/ #1101616	567	cattle	4/1	6/30	100	1,696	0	1,698	3,395
	561	cattle	7/1	9/30		1,697	0	1,697	
								SubTotal of AUMs	**11,198**
Little Jacks Creek Use Area									
Dave Lahtinen #1100226	203	cattle	6/1	7/31	100	408	0	408	816
	203	cattle	8/1	9/30		408	0	408	
Chester Sellman #1101979	113	cattle	6/1	7/31	100	227	0	227	453
	113	cattle	8/1	9/30		226	0	226	
John Urquidi #1102181	67	cattle	6/1	7/31	100	135	0	135	264
	64	cattle	8/1	9/30		129	0	129	
								SubTotal of AUMs	**1,533**
								Total Battle Creek Allotment AUMs	**12,731**
								Total Battle Creek Allotment # Cattle	**1,985**

5. Recent History

In 1999, BLM issued the Battle Creek Allotment Analysis, Interpretation, and Evaluation (AIE). The AIE evaluated whether MFP objectives and Standards were being met and whether current livestock grazing was a factor where they were not met. The AIE was followed by EA #99045, which analyzed alternatives for grazing management in Battle Creek Allotment. The proposed action specified range improvements and changes in livestock grazing management to solve the problems. In September 1999, Final Decisions to implement the proposed action in the EA were issued to the Battle Creek Allotment permittees. The main features of the decisions that were later implemented were:

Battle Creek Use Area:

- Pasture dates were defined with 5 days flexibility before and after (formerly there was a single use period for the entire use area, without defined pasture dates);
- Every-other-year rest was instituted in pasture 8;
- Start date in pasture 21 was delayed until May 1, instead of the last 1-2 weeks of April;
- Shoofly electric fence was constructed to exclude Shoofly Creek in pasture 21 from grazing until objectives for fish habitat were met;
- East Fork of Shoofly Creek was used only for trailing every other year and not intentionally grazed;
- Dry Creek was fenced into a 3-mile long Riparian Pasture, to be rested until creek reached proper functioning condition;
- Snow Spring exclosure and trough built;
- Shoofly Cottonwood exclosure built.

Little Jacks Creek Use Area:

- 3 miles of pasture 10/15 boundary fence constructed parallel to OX Prong and the road that acts as the WSA boundary;
- Established dates for pasture 10 of June-July; and for pasture 15 of August-September (previously there had not been a fence between the pastures, and no set dates.)
- Tanks, Owen's, and Basin Reservoirs were repaired in pasture 15;
- Urquidi FFR pasture was eliminated by changing west fencelines; (FFR = Fenced Federal Range, a pasture composed of largely private land with small public parcels included).
- Little Jacks Creek Electric Fence was constructed to protect the portion of upper Little Jacks Creek below the road and mostly within the WSA;
- Little Jacks Creek Meadow exclosure was constructed of barb-wire to protect the portion between the road and the private land, upstream of the WSA.
- Hutch Pipeline Extension to pasture 15 was authorized to replace the water lost from OX Prong and Little Jacks Creek to pasture 15, but was never built due to water rights issues. As alternatives, water hauling or finding another water source were authorized but water rights issues precluded these options.

Four permittees appealed the Final Decisions and requested stays. The stay requests were denied by an Administrative Law Judge, so the decisions became final in 2000. Thus, in 2000, grazing

management in the Battle Creek Allotment changed to management prescribed in the final decisions.

The BLM and the Battle Creek use area permittees entered negotiations to settle the appeals out of court, and agreed to a settlement. In 2003, an Administrative Law Judge dismissed the appeals of Bruneau Cattle Company, Battle Creek Ranch, Paul and Mattie Black, and Owyhee County and replaced the final decisions with the settlement, known as "Stipulation To Modify Decisions And To Dismiss Appeals" dated December 2, 2003. This document is referred to as the "Settlement" in this EA, for the Battle Creek Use Area permittees.

The Boise District BLM prepared a Determination of National Environmental Policy Act (NEPA) Adequacy, dated April 26, 2004, to determine if additional NEPA analysis would be necessary to implement the Settlement. It was determined that additional NEPA analysis would be necessary; which led to this EA.

When BLM determined that the Settlement for Bruneau Cattle Company, Battle Creek Ranch and Paul and Mattie Black was not NEPA adequate, grazing management reverted to the terms and conditions of the pre-1999 grazing permits for these permittees. From the spring of 2004 through 2007, livestock grazing management has followed the terms and conditions of the pre-1999 grazing permits, except for areas within new exclosures that were built after 1999.

Two of the Little Jacks Use Area permittees, Lahtinen and Sellman, did not appeal the 1999 Final Decisions, thus the terms and conditions of the 1999 Final Decisions issued to these permittees are in effect. Urquidi appealed but was not granted a stay of the 1999 decision, so the terms and conditions of the 1999 Final Decision are currently in effect for him also. These three permittees entered into negotiations with the BLM and a contractor to resolve issues. A settlement document was prepared by the contractor, but no court action was taken on it. BLM determined that this settlement would need additional NEPA analysis to comply with BLM policy.

In 2005, the BLM considered only writing an EA that would analyze the settlements, but decided that a new Standards and Guides Assessment would be necessary because of the time that had passed since the 1999 determination. More field data was gathered, including rangeland health evaluations, trend studies, functioning condition assessments of springs and selected streams, and sage grouse habitat assessments. A new assessment and determination were finished in 2007. This EA analyzes the settlements, with modifications that the permittees have requested, as Alternative B.

II. ALTERNATIVES

A. Summary of the Alternatives

The alternatives are:

A: Current Livestock Management – no additional projects
B: Permittees' proposals, which are the two settlements, plus the most additional projects
C: Addresses grazing management and resource issues with the fewest additional rangeland projects
D: Addresses grazing management and resource issues with an intermediate number of additional of rangeland projects between B and C

In general, the Assessment and the Determination found that the allotment meets the Standards for Rangeland Health, and that the areas where Standards were not being met were limited and do not require overall adjustments to stocking levels, or large changes in grazing rotations. Thus, the alternatives vary most in the amount of proposed rangeland projects (Tables 2 and 3), and Maps 2-5), vary less in dates for grazing rotations (Table 4), and do not vary in numbers of AUMs or cattle. Maps 2 - 5 depict overall existing and proposed projects for each alternative, and maps 5 – 23 depict proposed projects in more detail.

The alternatives include proposals for making improvement where problems were identified in the 2007 Determination, proposals to address issues from the appeals of the 1999 decisions, and rangeland projects that might improve cattle management, flexibility, or practicality, in accord with the Bruneau MFP and 43 CFR 4100 grazing regulations.

Alternative A is the current grazing management, which is the 1999 decision for the Little Jacks Creek Use Area. For the Battle Creek use area, it was the 1999 decisions from 2000 to 2003, and the pre-1999 decisions from 2004 to 2007. Pasture dates before 1999 were essentially like Alternative B though they are not specified in the permit. It includes projects from the 1999 decisions that were implemented, listed above under 'Recent History'. Overall, for the Battle Creek use area, the current conditions in the allotment are the result of pre-1999 management, because this is the management that has occurred except for 3 years. Thus, for the Battle Creek use area, if this alternative were selected, it would mean that grazing would follow the pre-1999 permits rather than permits from the 1999 decisions. Additionally the projects that were built after the 1999 decision would remain. For the Little Jacks use area, grazing would continue to follow the 1999 decisions.

Alternative B is the permittees' application for grazing, which includes the settlements plus additional projects. In compliance with IM No. ID-2004-086, all six permittees submitted grazing permit renewal applications that they believe would attain Standards and Guides that are not being met due to current livestock grazing. IM No. ID-2004-086 states that "When the applicant's proposal is not likely to start making progress toward meeting the standard, BLM will develop and analyze at least one alternative that is likely to start making progress toward meeting the standard."
BLM prepared Alternatives C and D that contain improvements in livestock grazing management and range projects that would make significant progress toward meeting the

Standards where current livestock grazing is the cause, as well as addressing issues from the 1999 appeals.

1. Management common to all alternatives

- Gates and/or pass-throughs would be incorporated into all fence construction.
- In conformance with Bureau policy, motorized access would not be authorized for construction and maintenance of new projects within WSAs.
- Sensitive species and cultural clearances would be conducted before project implementation.

Table 2. Summary of existing (Alternative A) and proposed new projects (Alternatives B, C, and D) on Battle Creek Allotment, Bruneau Field Office, 2007.

Alternative	Existing	Proposed new		
	A	B	C	D
Miles of pasture fence	16 internal* 35 external**	1 ½	1 ¼	3 1/2
Miles of fence moved		3		3
Miles of pipeline	~60	24	5	11
No. of troughs	41	21	5	10
Proposed but not analyzed – not in conformance with the MFP:				
Miles of pipeline		16		
No. of troughs		10		

* Internal fences include pasture fences that divide BLM lands within Battle Creek Allotment, not including fences on BLM/private land boundaries.
** External fences include boundaries between Battle Creek and adjoining allotments, not including fences on BLM/private boundaries.

Table 3. Proposed projects by alternative in Battle Creek Allotment, Bruneau FO, 2007.

Name of Project	Pasture	Alternative		
Battle Creek Use Area		**B**	**C**	**D**
North Shoofly Pipeline Extension 2007, and Modified *Maps 6, 7*	8	1 trough		Modified location – 1 tr.
Triangle Dairy Pipeline *Map 6*	8	1 trough		
State Sec. Shoofly Pipeline Extension *Map 7*	8		1 trough	1 trough
Cove Pipeline *Map 8*	21	1 trough		
Shoofly Gap Fence *Map 9* (with management for Shoofly Creek)	21	Trailing plus limited grazing	Trailing only	Trailing only
Pasture 22H Fence Removal *Map 9*	21/22	None	Lower fence	Lower fence
Pasture 14/22 cattleguard, E. Fk Shoofly Res.	14/22	Same	Same	Same
IDL Pipeline *Map 10*	22	1 trough		1 trough
Shale Rock Gap Fence *Map 11*	12/22	200-300 ft		200-300 ft*
Snow Spr Exclosure Modification *Map 11*	12	same	same	same
Joes Basin Pipeline, & Modified *Maps 12, 13*	12, 14	4 troughs	1 trough	1 trough
Dry Creek Ribbon Fence and Water Gaps *Map 14*	20	Broken into 3 segments		
Dry Creek Exclosure and Trough *Map 15*	20		Continuous, 1 trough	Continuous, 1 trough
Hutch Springs Exclosure and Water Development *Maps 16, 17*	20	1 trough	Fence modified 1 trough	Fence modified 1 trough
Projects that do not conform to the MFP and will not be further analyzed in this EA				
Hutch Pipeline Extension 2007 *Map 10*	22	9 troughs		
Big Buck Spring Development *Map 12*	12	1 trough		
Little Jacks Creek Use Area				
Owens Pipeline *Map 18*	10, 15	12 troughs		
Tanks Pipeline (alternative to Owens & modified Owens PL) *Map 19*	15		1 trough	
Modified Owens Pipeline *Map 20*	10, 15			5 troughs
North Pasture 10/15 Division Fence Removal and Construction *Maps18, 20*	10/15	Fence moved	(Fence not moved)	Fence moved
OX Prong gap fences, pasture 10 *Map 18*	10	In WSA		
South Pasture 10 /15 Fences *Maps 18, 20*	10/15	Gaps along rim	Solid fence back from rim	
East Extension - Pasture 10/15 Fence *Map 20*	10/15			adds 3 mi.
Collier Meadow Excl. Modification *Map 21*	15	Same	Same	Same
Owens Reservoir # 2 *Map 21*		Same	Same	
Collier Spring Exclosure *Maps 22, 23*	15		Spring	Spr & pond
Little Jacks Cr Meadow Exclosure *Map 20*	10/15		1/10 mi	2/10 mi

*Would be built only if modifying Snow Spring exclosure does not resolve problem.

Table 4. Seasons of use by alternative, Battle Creek Allotment, Bruneau Field Office, 2007. Terms of flexibility for pasture dates are discussed under each alternative.

	Alternative A		**Alternative B Permittees' application**	**Alternative C**	**Alternative D**
	2000-2003 (1999 Decision)	**2004-2007** (Pre-1999 permit)			
Battle Creek Use Area					
Pasture 8	April 1 -30 Rest every other yr	April 1- Sept 30; but dates actually used were like Alt B	Apr 1 – May 31	Apr 1- May15	Apr 1- May15
Pasture 21	May 1- 31			May 1 - 31	May 1-31
Past 22& 9	June 1 - 30		May 6 - Jul 10	May 6– Jun 30	May 6 – Jul 10
Pasture 12	June 1-30		May 20- Jul 20	May 26- July 10	May 20 – Jul 20
Pasture 20 Year 1	Aug 1-Sept 30		Jul 17 – Sept 30	Jul 25 – Sept 30	Jul 17 – Sept 30
Year 2	Jul 1– Aug 31		Jun 20-Aug31	Jun 25 –Aug 31	Jun 20 - Aug 31
Pasture 14 Year 1	July 1- 31		Jun 20-Aug 6	Jun 25 – Jul 31	Jun 20 – Aug 6
Year 2	Sept 1 –30		Aug 25-Sept 30	Aug 25-Sept 30	Aug 25 -Sept 30
Total AUMs	11,198 / 10,391 in rest year	11,198	11,198	11,198	11,198
# CATTLE	1603		1603	1603	1603
Little Jacks Creek Use Area					
Pasture 10	June 1 –July 31		June 1- July31	June 1- July 31	June 1- July15
Pasture 15	Aug 1-Sept 30		Aug 1 –Sept 30	Aug 1-Sept 30	July 16-Sept 30
Total AUMs	1533		1533	1533	1533
# Cattle	382		382	382	382

*For the Battle Creek Use Area, Alternative A or "current management" was the 1999 decision from 2000-2003, then pre-1999 management. However, pre-1999 management was essentially like Alternative B, which reflects how the permittees had been using the allotment, though they did not have dates specified in their permits.

B. Alternative A (No Action or Current Livestock Management since 2000)

For the Battle Creek use area, current management is under the pre-1999 permits. However, management since 2000 included 3 years of operating under the 1999 decisions. Additionally, some projects and actions from the 1999 decisions have affected conditions; therefore, management under both permit eras is described. For the Little Jacks use area, current management is under the 1999 decisions.

1. Battle Creek use area – Alternative A

For the Battle Creek users, current management is a combination of the 1999 Final Decisions (2000-2003) and pre-1999 grazing management (2004-2007). The 1999 Final Decisions were implemented beginning with the 2000 grazing season. The decision defined pasture dates, which had not been part of the permit before (Table 5). It instituted every-other year rest in pasture 8, and delayed moving from pasture 8 into pasture 21 until May 1. For pastures 22, 9 and 12, it continued the same basic grazing scheme of delaying use until June. For the summer pastures 14 and 20, it continued alternating earlier and later use periods between them. As a result of the 1999 Decisions, several exclosures or riparian pastures were built to reduce localized impacts, including Dry Creek (20R) and Snow Spring.

From 2004 to 2007, the terms and conditions of the pre-1999 grazing permits became effective for the Battle Creek users. This basically allowed more flexibility in pasture dates than the 1999 decisions and did not require every-other year rest in pasture 8.

Pasture 8 was not grazed in April 2001 and 2003. In the two years that pasture 8 was not grazed in the spring, there was a reduction of 807 AUMs (502 AUMs for Bruneau Cattle Company and 305 AUMs for Battle Creek Ranch) in permitted use. The 807 AUMs were not authorized in any other pasture in the Battle Creek Allotment. In 2004 and 2005, pasture 8 was slightly used and turnout was earlier into pasture 21 (Table 6).

On Shoofly Creek in pasture 21, an electric fence was built at the mouth of Shoofly canyon to eliminate May use of Shoofly Creek. The fence was put up and used in 2000-2002, but not used in 2003-2006. It was used again in 2007. Beginning in 2000, Shoofly Creek in pasture 21 was to be rested until MFP objectives for good condition fish habitat were met; the actual rest period was 2000, 2001, 2002. Although MFP objectives were not met, grazing resumed in 2003. The 1999 Decision specified active trailing along Shoofly Creek in the spring (during the rest period) and in fall as long as utilization (6-inch residual stubble height) and streambank alteration (≤ 10%) standards were met.

On the East Fork Shoofly Creek in Pasture 22, use was allowed during May through June every year. However, permittees were to ensure that a 6-inch stubble height on herbaceous riparian vegetation during the grazing period was maintained. This grazing use was followed from 1999 through 2002. Beginning in 2003, East Fork Shoofly Creek in pasture 22 was grazed annually during the spring, summer, and fall. Then in 2007, Shoofly Creek has been rested except for trailing use.

Pasture 22H was used only for spring and fall trailing from 2000 through 2002 (as per the 1999 Grazing Permit). In the spring, livestock were herded through Pasture 22H and up the East Fork of Shoofly Creek in alternate years up to 2002. In the fall, cattle trailed down between the East and West Forks of Shoofly creek and then through pasture 22H. Pasture 22H was grazed annually in spring and summer during 2003 through 2006.

There is no fence between pastures 21 and 22, so cattle begin drifting up into 22 while they are in 21. The 23 existing water troughs on the Shoofly Pipeline in pasture 21 substantially reduce cattle drift into pasture 22. Livestock grazing use in pasture 9 occurs in conjunction with pasture 22; there are no fences or topographic barriers between the two. The 1999 decision required closure of Upper East Fork Shoofly Reservoir and herding to reduce use in that area of pasture 22, where cattle tend to pressure the upper pasture fence.

In pasture 12, the 1999 decision required herding to eliminate drift to pasture 22. During years when Joe's Basin Reservoir dries up during June use, water hauling was authorized. Snow Spring Exclosure was built in 2003, but the new trough did not always have water. In 2005, permittees were allowed to open the gate to allow access to the original, lower trough when there was not water in the new, upper trough, in accord with the settlement.

In pasture 20, the Dry Creek riparian pasture fence (pasture 20R) was built to protect about 3 miles of the creek from grazing. The pasture was made wide with the intention of eventually grazing it, rather than a narrow exclosure to protect only the creek. When it reached proper functioning condition, the pasture was to be grazed every other year by <=100 cattle for 10 days. Much of the creek is incised 3-4 feet into a meadow with deep soils, and the objective was to aggrade the stream channel by catching sediment in riparian vegetation. As a result, the meadow would eventually become wetter and provide quality late summer habitat for sage grouse. The creek has been improving in condition, with more bank and channel vegetation, and aggraded an average of 0.33 feet in 2005 (BLM unpublished data.) Hutch Springs exclosure was not built because of conflict over the 1999 decision, which excluded the springs without providing livestock water in a trough outside the exclosure.

Pasture 18 and 19 are designated FFR pastures. These pastures are utilized at the discretion of the permittees at any time from 4/1 through 10/31, provided that use of the public lands portion of these pastures is in conformance with the land use plan objectives and the Idaho's Standards for Rangeland Health and Guidelines for Livestock Grazing Management.

Table 5. Permitted use in the Battle Creek use area from 2000 through 2007, Battle Creek Allotment.

<table>
<tr><th rowspan="2">Pasture</th><th colspan="5">Year</th></tr>
<tr><th>2000</th><th>2001</th><th>2002</th><th>2003</th><th>2004-2007</th></tr>
<tr><td>8</td><td>4/1 – 4/30[1]</td><td>Rest[1]</td><td colspan="2">Repeat rotation</td><td rowspan="2">See Table 6 – Actual use. Flexible season of use and stocking rates to adjust for above normal precipitation and drought.</td></tr>
<tr><td>21</td><td colspan="4">5/1 – 5/31</td></tr>
<tr><td>12</td><td colspan="4">6/1- 6/30</td><td rowspan="2">Generally the same as from 2000-2003, but with more flexibility to adjust for above normal precipitation and drought.</td></tr>
<tr><td>9 & 22</td><td colspan="4">5/1 – 6/30. Not more than 25% of total cattle in pasture 21 are allowed to move into pastures 22 and 9 prior to 6/1.</td></tr>
<tr><td>22H</td><td colspan="4">Spring and fall trailing only.</td><td>See sections relating to Standards 2, 3, 7 and 8.</td></tr>
<tr><td>14</td><td>9/1 – 9/30</td><td>7/1 – 7/31</td><td colspan="2" rowspan="2">Repeat rotation</td><td rowspan="2">Generally the same rotation as from 2000 to 2003, but with more flexibility to adjust for above normal precipitation and drought.</td></tr>
<tr><td>20</td><td>7/1 – 8/31</td><td>8/1 – 9/30</td></tr>
<tr><td>20R</td><td colspan="4">Rest until 2006 and/or objectives for Dry Creek are met; then 7/1 – 7/10 use on alternate years. Livestock numbers will not exceed 100 cattle or the equivalent.</td><td>Not grazed.</td></tr>
<tr><td>18 (Bruneau Cattle Co.)</td><td colspan="5">4/1 – 10/31 Used at the permittees discretion, provided resource conditions on public lands are maintained or improving.</td></tr>
<tr><td>19 (Battle Creek Ranch)</td><td colspan="5">4/1 – 10/31 Used at the permittees discretion, provided resource conditions on public lands are maintained or improving.</td></tr>
</table>

[1] In year 1, when pasture 8 is authorized to be grazed, permitted use is 11,198 AUMs. In year 2, when pasture 8 is rested, permitted use in the allotment is 10,391 AUMs. The 807 AUMs associated with pasture 8 cannot be used in any other pasture.

Terms and Conditions for Battle Creek Use Area Grazing Permits:

1. All trailing to and from the Battle Creek Allotment will be approved by the authorized officer prior to the start of trailing.

2. Turnout is subject to Boise District Range Readiness Criteria.

3. Salt and/or supplement shall not be placed within one quarter (1/4) mile of springs, streams, meadows, aspen stands, playas, or water developments.

4. Changes to the scheduled use require prior approval.

5. Livestock exclosures located within your grazing allotment(s) are closed to all domestic grazing use.

6. You 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 consultation with the authorized officer.

7. 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 area, pasture or allotment when this utilization level has been reached.

Table 6. Actual use and dates of use for the Battle Creek Use Area from 2000 to 2006. Actual use is shown in Animal Unit Months (AUM = one cow/calf pair for one month). Winter use in pasture 8 (Nov.-Jan.) is not a part of this permit renewal EA, but is authorized every year, and is shown for completeness. Some winter and spring use permittees have elected to take non-use in pasture 8 in drought years.

Year		Pasture 8	Pasture 21	Pastures 9, 12 & 22	Pasture 14	Pasture 20	TOTAL AUMs**
2000	**AUMs**	894	1,020	1,581	545	3,895	**7,935**
	dates	4-1 to 4-30 11-1 to 1-31	5-1 to 6-15	5-1 to 6-30	9-1 to 9-30	7-1 to 8-31	
2001	**AUMs**	188	1,578	1,320	1,559	3,082	**7,727**
	dates	11-1 to 1-31	5-1 to 5-31	5-1 to 6-30	7-1 to 7-31	8-1 to 9-30	
2002	**AUMs**	576	1,360	1,601	1,435	2,479	**7,451**
	dates	4-1 to 4-30 11-1 to1-31	5-1 to 6-15	5-17 to 7-12	9-1 to 9-30	7-1 to 8-31	
2003	**AUMs**	30	1,911	443	1,219	2,917	**6,520**
	dates	11-1 to 1-31	5-19 to 6-15	6-15 to 7-25	7-1 to 7-31	8-1 to 9-30	
2004	**AUMs**	37	1,310	1,081	1,583	2,512	**6,523**
	dates	11-1 to 1-31	5-1 to 6-15	5-1 to 6-30	9-1 to 9-30	7-1 to 8-31	
2005	**AUMs**	82	2,756	1,578	908	2,681	**8,005**
	dates	4-22 to 5-5 11-1 to 1-31	4-2 to 6-1	5-1 to 6-30	7-1 to 7-31	8-1 to 9-30	
2006	**AUMs**	1,298*	Actual use is not available				
	dates	4-1 to 5-5 1-1 to 1-31					

* Actual use is not available, but use is estimated to be 1,298 AUMS based on bills
**Includes winter use by other permittees.

2. Little Jacks Creek use area – Alternative A

In 2000, a 3-mi fence was constructed to divide pastures 10 and 15, parallel to OX Prong and about ¼ mi from the road that forms the WSA boundary. This new fence is about 0.1 to 0.5 mile outside and southeast of the WSA boundary, which runs along a two-track road (Alternatives B and D propose moving this fence to just south of the road.) The fence allowed deferring use in pasture 15 until August, and was intended to reduce the grazing season in OX Prong and Little Jacks Creek from four to two months, by fencing it into pasture 10 and out of pasture 15. However, this division between pastures 10 and 15 has never been completely effective, because of gates left open, and from lack of fence maintenance both on the private land that forms part of the boundary, and on BLM land.

Three reservoirs were fixed in pasture 15, to help replace the water that was lost from OX Prong and Little Jacks Creek. Additionally, EA #99045 specified that Hutch Pipeline be extended from pasture 14 to a new trough in pasture 15. The new trough would have replaced water from OX Prong and Little Jacks Creek during August and September. However, because of a conflict with the water right for the proposed pipeline and trough, the pipeline extension was cancelled. Water hauling was authorized also, however lack of water rights at a nearby well precluded the use of water hauling.

The 1999 decision prescribed the following use for OX Prong: "No livestock are authorized to be on OX Prong Creek downstream of the water gap. If livestock drift into this portion of the creek and stubble heights are at the end of the grazing season are <6 inches or streambank damage is > 10%, then seven days of livestock use will be suspended at the end of the next grazing season in pasture 10." The stubble was not met in 2000-2004, and was not measured in 2005-2006. The 7-day suspension was enforced after the first year, but not since, because some of the water sources meant to replace OX Prong and Little Jacks Creek were not able to be developed.

The pasture 16 FFR between pastures 10 and 15 was eliminated by moving the west boundary to the private boundary. A barbed-wire exclosure was built on 0.5 mile of upper Little Jacks Creek downstream of the private land, and another mile of upper Little Jacks Creek in WSA was fenced into an exclosure by an electric fence. The purpose of the two exclosures was to improve wet meadow and reduce sediment delivery to lower Little Jacks Creek. The electric fence worked only for the first couple of years; after 2003 it was not maintained or rolled up each year as specified in the 1999 decisions.

Three other new exclosures were built to protect riparian and upland plant communities and cultural resources in the Little Jacks Creek use area. These are known as: Collier Spring Exclosure, Little Spring Exclosure and Collier Meadow Exclosure. In 2004, Collier Spring was modified to allow cattle access to the spring and pond.

Table 7. Permitted use for Little Jacks Creek use area, from 2000 through 2007 Battle Creek Allotment.

Pasture	Season of Use	Permitted Use (AUMs)
10	6/1 – 7/31	770
15	8/1 – 9/30	763
Total permitted use		1,533

Terms and Conditions for Little Jacks Use Area Grazing Permits: (additional to the standard ones)

1. All trailing across BLM will be in accordance with the Final Decision and will be coordinated with the authorized officer prior to initiating trailing activities. A trailing permit is required to move livestock across public land.

2. Livestock exclosures located within your grazing allotment are closed to all domestic livestock.

3. Any livestock not owned by the permittee must be controlled while on BLM land and must be under a valid and current livestock lease agreement prior to turn out. Leased livestock are subject to the surcharge rate as per grazing regulations.

4. Livestock turnout is subject to Boise District Range Readiness Criteria.

5. Changes to the scheduled use require prior approval.

6. The permittee is required to maintain range 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 Wilderness Study Areas requires consultation with the Authorized Officer.

7. The Land Use Plan allowable use level for upland vegetation is 50% of the current year's growth. Livestock should be removed from the use area, pasture or allotment, when this utilization level has been reached.

8. All grazing use must be carried out in accordance with the Final Decision issued by BLM pertaining to the Battle Creek Allotment. (This Term and Condition includes all changes identified including Contingency Actions, Grazing System, Permitted Use, Resource Operational Criteria, and other specific stipulations to the management of the allotment.)

9. The allotments listed on this grazing permit are subject to the requirements described in 43 CFR Subpart 4180 - Fundamentals of Rangeland Health and Standards and Guidelines for Livestock Grazing Administration. This permit shall be modified (if

necessary) to meet these requirements upon completion of a Standards and Guidelines Assessment and Determination scheduled by the Authorized Officer.

10. Five days flexibility in dates would be allowed in moving from early spring to late spring pastures, beginning two days before but not to exceed three days following the scheduled move date, with 95 percent of the herd moved by the scheduled move date. Movement to the summer pastures from the spring pastures contains the same flexibility.

11. Livestock would be removed from pastures within three days of reaching utilization limits for herbaceous riparian vegetation (Table 6) measured at key areas on the stream. Grazing use must be in compliance with the Operational and Resource Use Criteria.

12. Livestock numbers would be coordinated between BLM and the permittees annually. Permitted use periods and AUMs by season as permitted by the decision or pasture may not be exceeded.

Table 8. Actual use and dates of use for the Little Jacks Creek Use Area from 2000 to 2005. Actual use is shown in Animal Unit Months (AUM = one cow/calf pair for one month).

Year		Pasture 10	Pasture 15	TOTAL AUMs
2000	**AUMs**	634	636	**1,160**
	dates	June 1-July 31	Aug 1-Sept 30	
2001	**AUMs**	634	634	**1,158**
	dates	June 1-July 31	Aug 1-Sept 30	
2002	**AUMs**	663	657	**1,206**
	dates	June 1-July 31	Aug 1-Sept 30	
2003	**AUMs**	729	729	**1,332**
	dates	June 1-July 31	Aug 1-Sept 30	
2004	**AUMs**	630	630	**1,151**
	dates	June 1-July 31	Aug 1-Sept 30	
2005	**AUMs**	659	659	**1,204**
	dates	June 1-July 31	Aug 1-Sept 30	

C. Alternative B (Permittees' Alternative)

1. Battle Creek Use Area – Alternative B

The following is the Battle Creek Allotment permittees' (Bruneau Cattle Company, Paul and Mattie Black, and Battle Creek Ranch/Simplot) grazing permit renewal application and their alternative. It is the text of the Settlement verbatim, minus some non-relevant sections, except for the 'Range Project' section, which includes projects from the settlement, modified projects from the settlement, and new projects, developed in discussions with the permittees in 2007.

BATTLE CREEK USE AREA SETTLEMENT

Permitted Use

The permitted use of the Appellants within the Battle Creek Use Area of the Battle Creek Allotment shall be 7,021 AUMs for Bruneau Cattle Company of which 7,021 AUMs will be "active use" and 0 AUMs will be "suspended use", shall be 782 AUMs for Paul & Mattie Black of which 782 AUMs will be "active use" and 0 AUMs will be "suspended use", and shall be 3,395 AUMs for Battle Creek Ranch of which 3,395 AUMs will be "active use" and 0 AUMs will be "suspended use", except as related to Bruneau Cattle Company FFR Field (referred in the Decision as Pasture 18) and Battle Creek Ranch FFR Field (referred in the Decision as Pasture 19), which shall be separately allocated and assigned 214 AUMs and 89 AUMs of permitted use, respectively.

This permitted use will authorize Bruneau Cattle Company to graze 1173 head of cattle between April 1 and February 28 to the extent of 7,021 AUMs, will authorize Paul & Mattie Black to graze 131 head of cattle between April 1 and February 28 to the extent of 782 AUMs, will authorize Battle Creek Ranch to graze 567 head of cattle between April 1 and February 28 to the extent of 3,395 AUMs within the Battle Creek Use Area of the Battle Creek Allotment, consistent with this Grazing Plan. Livestock numbers may vary as long as they remain within the authorized permitted use and season of use.

In addition, Bruneau Cattle Company will be authorized 214 AUMs within Bruneau Cattle Company FFR Field and Battle Creek Ranch will be authorized 89 AUMs within Battle Creek Ranch FFR Field between March 1 to February 28 at the discretion of these permittees as long as applicable Land Use Plan objectives and Rangeland Health standards continue to be met.

There are eight (8) pastures within the Battle Creek Use Area. Table 9 identifies the yearly pasture rotation:

Table 9. Grazing Rotation and permitted AUMs for the Battle Creek Use area and the FFR pastures, Battle Creek Allotment, Bruneau Field Office, Alternative B.

Pasture	Year 1	Year 2	Duration of Use	AUMs # Cattle
8,21 - Shoofly North & South	4/1-5/31	Same	Up to 60 days	Bruneau Cattle Co – 7,021 AUMs; 1173 cattle Paul and Mattie Black - 782 AUMs 131 Cattle Battle Creek Ranch - 3,395 AUMs 567 cattle
9,22 - Johns and Shoofly Bench	5/6 – 7/10	Same	Up to 45 days	
12 - Joes Basin/ Snow Creek	5/20-7/20	Same	Up to 45 days	
20 Summer Side	7/17-9/30	6/20-8/31	Up to 70 days	
14 Spray Pasture	6/20-8/6	8/25-9/30	Up to 40 days	
			Total AUMS Total # Cattle	**11,198 1871**
FFR pasture 18 Bruneau Cattle Co				214
FFR pasture 19 Simplot				89

The overlap of periods of use is designed to allow the movement of livestock between pastures consistent with the phenological development of the plants as a result of weather patterns and climatic variations.

Bruneau Cattle Company historically moves cattle from East Canyon View Allotment to the Battle Creek Allotment. To facilitate this movement and to accommodate ecological resources, it is recommended that when the assessment and decision making process occurs on the East Canyon View Allotment, BLM consider authorizing Bruneau Cattle Company to extend its season of use in East Canyon View Allotment longer and thereby periodically defer turnout out Pastures 8 and 21 of the Battle Creek Allotment.

If Bruneau Cattle Company, Paul & Mattie Black, and Battle Creek Ranch does not use all of its permitted use prior to October 1, then Bruneau Cattle Company, Paul & Mattie Black, and Battle Creek Ranch, may use any remaining AUMs of permitted use within Pasture 8B, as long as use does not exceed 50% utilization and as long as applicable Land Use Plan objectives and Rangeland Health standards continue to be met.

Livestock Grazing Management Practices

Spring Pasture 8 and 21 – April 1 to May 31: Forage availability in Pastures 8 and 21 is materially dependent on production of annual grasses and palatable shrubs. Turnout will occur when range readiness occurs and climatic conditions are favorable for continued growth. These pastures may be grazed for a period of up to 60 days within the assigned dates of use. Also, use adaptive management to manage this pasture. Modify pasture 21 season of use to allow grazing prior to May 1st. The rationale is that cheatgrass needs to be grazed prior to May 1st before it dries out. If cheatgrass is dry then cattle will graze perennial grasses.

Spring/Summer Pastures 9, and 22 – May 6 to July 10: Some cattle will begin drifting into Pasture 22 in early May. Cattle will be actively trailed over the historic Shale Rock Trail to Pasture 12. These pastures may be used for up to 45 days within the assigned dates of use.

Spring/Summer Pasture 12 – May 20 – July 10: This pasture is used in conjunction with the spring pastures and serves to provide later spring and/or early summer use prior to moving to summer pastures. This pasture may be used up to 45 days within the assigned dates of use.

Summer Pastures 14 and 20 – June 20 to Sept 30: These two pastures receive deferred grazing use in alternating years. Pasture 14 is used approximately 30 days and Pasture 20 for approximately 60 days in an alternating year deferred use system. Calves are generally weaned so that only dry cows are grazed during the final use period. However, this is a discretionary action of the permittees and is not a required management action.

FFR Pastures (referred in the Decision as Pastures 18 and 19): Each of these Pastures consist of a series of private and/or private/state/public land pastures that are used at the discretion of the permittee.

Trailing

Cattle may be trailed at the discretion of the permittees between pastures and on and off the Battle Creek Allotment in conformance with historical practices.

Terms of Flexibility

The Grazing Preference owners in the Battle Creek Use Area of the Battle Creek Allotment have a long history of cooperation and active participation in management and improvement of grazing management to benefits all resource values in the allotment. Since 1970, the permittees have invested in the planning and construction of 15 water development projects including over 50 miles of pipeline (with an approximate cost of $2,000 per mile) serving 41 stock tanks. In addition, there have been 8 different fencing projects to improve grazing use distribution and initiate beneficial grazing treatments.

This grazing plan provides use periods and rotational grazing practices based on climatic conditions and events typical of the area. Recognizing that these factors may vary from year to year, the season of use for each pasture or group of pastures allows for alteration of use

necessary to optimize the benefit of grazing treatments. Additional flexibility of periods of use within the Grazing Rotation may be approved by BLM.

Terms and Conditions

The eight (8) Terms and Conditions and the twelve (12) "new terms and conditions" identified in the (*1999)* Decision are deleted and replaced with the following terms & conditions to be included in the Grazing Permits of the Bruneau Cattle Company, Paul & Mattie Black, and Battle Creek Ranch:

(1) Grazing shall be made in accordance with the Battle Creek Grazing Plan.

(2) Livestock turnout is subject to the *Boise District* range readiness criteria.

(3) Salt and/or supplement will not be placed within ¼ mile of springs, streams meadows, aspen stands, playas or water developments without prior approval of BLM.

(4) Livestock exclosures located within the Battle Creek Use Area are closed to livestock use.

(5) Maintenance activities within the WSA require prior consultation with the authorized officer.

(6) Pursuant to 43 C.F.R. §10.4(b)), the permittees must notify the authorized officer of 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 C.F.R.§ 10.2) on public land. Pursuant to 43 C.F.R. §10.4(c), the permittees must immediately stop any ongoing activities connected with such discovery and make a reasonable effort to protect the discovered remains of objects.

Annual Indicator Criteria

The grazing use by Bruneau Cattle Company, Paul & Mattie Black, and Battle Creek Ranch made in accordance with the Battle Creek Grazing Plan is designed to achieve objectives of:

(1) Managing the number of livestock, season of use and duration of use will result in a pasture wide average utilizations, by livestock, not exceeding 40% on key bunchgrass species, as measured at key areas, during the period of critical growth (5/1 to 6/30), and 50% on key bunchgrass species, as measured at key areas, at the end of the growing season.

(2) Managing the number of livestock, season of use and duration of use will result in a pasture wide average utilization, by livestock, of 30% or less on willow, as measured at key areas, at the end of the growing season.

(3) Managing the season of use and duration of use, by livestock, to allow an average residual plant height for key riparian species of 4" or greater over the applicable segment of Shoofly Creek.

Range Projects

*Projects that are additional from the Settlement are identified with *. Projects that are modified from the description in the Settlement are identified with **. BLM notes are in italics.*

1. *North Shoofly Pipeline Extension 2007**: Extend the Shoofly pipeline to the north end of pasture 8, with 1 mile of pipeline and 1 trough. This trough and the Triangle Dairy Pipeline would allow more utilization of the cheatgrass in the north end of the pasture, and allow longer use in pasture 8. Map 6.

2. *Triangle Dairy Pipeline**: Build a pipeline from Simplot private land south to the western part of pasture 8, with 1.5 mile of pipeline and 1 trough. *The purpose is the same as the North Shoofly pipeline extension.* Map 6.

3. *Cove Pipeline**: Build a pipeline from private land (Paul and Mattie Black) on Shoofly Creek to the west part of pasture 21, with 0.6 mile of pipeline and 1 trough. Currently, the cattle water at a watergap on the private land. The pipeline would allow use further out in the pasture. Map 8.

4. *Shoofly Gap Fence**: This approximately ¼-mi fence would replace the electric fence from the 1999 decision with a barbed-wire fence. The purpose is to create a separate pasture on Shoofly Creek between this fence and the 22H fence, which could be managed separately from pasture 21, to reduce use on the creek in May and cause an upward trend on the creek. Grazing use of the pasture would be for trailing in the spring and fall, and also for controlled use (numbers and duration) during May so that the end result would be 4" of stubble left on the creek at the end of the growing season. There are 2 possible fence locations very close to each other, depending on whether the private landowner at the mouth of the canyon fences off their 40 acres or not. If so, the gap fence would connect to the private fence, and run upslope to rimrock. If the private land were not fenced, the gap fence would be built where the electric fence from the 1999 decision has been. Both locations start near or at the WSA boundary and run into the WSA. Map 9.

5. *IDL Pipeline**. This pipeline would extend from the Hutch Pipeline in Pasture 14 to the southwest corner of pasture 22, in the state section, with 1 mile of pipeline and 1 trough. This trough would distribute grazing use more evenly by drawing use away from nearby heavier used areas. Map 10.

6. *Shale Rock Gap Fence*: This would prevent cattle from trailing out of Pasture 12 *and returning to pasture 22* through the Shale Rock Gap *after they have been pushed from pasture 22 into pasture 12*. Currently cattle can trail through the Shale Rock Gap then north along the ridgeline known as Between the Creeks. Cattle continue to the confluence of West and East Fork of Shoofly. *The purpose of the fence is improve the East Fork of Shoofly*

Creek by preventing cattle from drifting to and overusing the riparian area later in the season. It would involve constructing about 200 ft of fence within the WSA. Map 11.

7. *Snow Creek Spring Exclosure Modification***: First, access to the original water tank would be created. Second, part of the existing exclosure fence would be removed and rebuilt along the road to allow livestock trailing. Third, the southwest fence corner above the spring source would be modified to allow livestock to use the trail rather than climb uphill to get around the fence corner. *The purpose of modifying the exclosure is to ensure reliable water for cattle and to allow traditional trail routes through the area. The purpose is also to help improve the East Fork of Shoofly Creek by holding cattle at Snow Spring water trough, instead of drifting down through Shale Rock Gap, and onto East Fork of Shoofly Creek later in the season.* Map 11.

8. *Joes Basin Pipeline**: Build a new pipeline from private land (BCC ownership) on Battle Creek to the southwest corner of pasture 12 (BLM). Troughs would be on public land at existing reservoir locations in the southwest corner of pasture 12 and to a location in the northwest corner of pasture 14. Water has been hauled to two of these reservoirs in past years, if they dry up. The pipeline would be 4 miles with 4 troughs. *This pipeline would provide more reliable water for cattle and eliminate the need to truck water to the sites*. Map 12.

9. *Hutch Spring Exclosure and Water Development*: The Hutch Spring would be developed and piped to a trough in conjunction with fencing to exclude grazing from the spring source. The fence (approximately 0.75 miles) would exclude grazing from approximately 35 acres around natural springs and seeps. *The purpose of the exclosure is to improve the wet meadow, and the trough would replace the exclosed springs as a water source for cattle.* Map 16.

10. *Dry Creek Ribbon Fence and Water Gaps***: Ribbon fence Dry Creek to create a narrow exclosure along Dry Creek. Several water gaps would be built into the exclosure to allow cattle access to the creek and passage to the other side of the exclosure. This project would require the removal of the Pasture 20R Riparian Fence. *The purpose of changing the existing fence is to restore traditional cattle trailing patterns and to provide access to water.* Map 14.

11. *Dry Creek Reservoir #2 Reconstruction 2007*: This project was initially completed but the reconstruction effort was ineffective and additional work is necessary to make the reservoir useful. The project would thereby again be scheduled for reconstruction. *This project was already analyzed in the 1999 EA and will not be reanalyzed in this document.* Map 14.

12. *Cattleguard at pasture 14/22 fence at Upper East Fork of Shoofly Reservoir*. This cattleguard would help prevent the problem of this gate being left open by the public. It is part of the solution for improving Shoofly Creek and the East Fork of Shoofly Creek by stopping the stray cattle that have been drifting out of pasture 14 and finding their way to these creeks in the late summer and fall. Cattleguards do not require analysis in an EA, but it is mentioned here as part of the solution for improving these creeks. It will be constructed outside the WSA. Map 3.

The following proposed projects are not in conformance with the MFP and will not be analyzed further in this EA:

13. *Hutch Pipeline Extension 2007*: This project would extend the Hutch Pipeline to serve Pasture 22. The existing pipeline in Pasture 14 would extend along roads and/or trails to the extent practical to service tanks to be installed at or near locations on Map 10. This project is subject to final action to release the above public land within the Little Jacks Creek Wilderness Study Area to multiple use and subject to NEPA compliance. The pipeline would have 16 miles of pipeline and 9 troughs. Map 10. *This project has been determined not to be in accord with MFP objective WL 2.1(3) for managing bighorn sheep habitat by not developing livestock water within 1 mile of it, and will not be analyzed further in this EA.*

14. *Big Buck Spring Development*:* Spring development near the northwest side of Colyer's private land. Map 12. *This project has been determined not to be in accord with the MFP objective WL 2.1(3) for managing bighorn sheep habitat by not developing livestock water within 1 mile of it, and will not be analyzed further in this EA.*

Construction and Maintenance Agreements

BLM would construct and maintain all riparian exclosure fences. Annual maintenance would be completed prior to authorized use periods. Permittees would maintain all water developments and division and drift fences. Inspection and maintenance would be conducted prior to authorized grazing use.

Monitoring

Annual use monitoring and periodic trend monitoring would be jointly conducted by the permittees, BLM and any interested publics. Upland utilization studies, nested plot frequency studies, stream greenline transects PFC assessments and any other range use or habitat studies would be conducted in strict adherence to protocols and procedures established in Technical References and other official manuals. Technical References 4400-1 would be used to guide stratification and identification of key areas. Riparian area strata are generally identified as homogenous stream segments. Previously established key areas would be reevaluated to assure that they are representative.

2. Little Jacks Creek Use Area – Alternative B

The following is the Little Jack's Creek permittees' (Chet Sellman, David Lahtinen and John Urquidi) grazing permit renewal application and their alternative. The "settlement", dated December 8, 2004, was prepared by Wayne Burkhart (contractor to the BLM as range consultant) and Tom Miles (Idaho BLM State Office) in coordination with the permittees. Several meetings with the permittees in 2007 resulted in some modification of the projects and management in the settlement. The settlement is quoted verbatim, except that a few non-relevant

sentences are deleted, and where proposals were modified in the meetings. *BLM notes are in italics*.

LITTLE JACK'S USE AREA SETTLEMENT

The 1999 Decision for the Little Jacks Creek use area created several serious management problems that warrant major changes to that decision. The decision was appealed by the three permittees but only John Urquidi made a timely appeal. No stay was granted and the decision has been in effect.

The management problems and issues created by the 1999 Decision are as follows:

1. Watering sources for livestock: the 1999 decision resulted in new fencing that virtually eliminated late season dependable stock water in pasture 15 and at the same time prescribed only late season use (8/1/ to 9/30) every year. The only livestock access to Little Jacks Creek was at the road crossing immediately north of the riparian exclosure. This water gap and road crossing was located at the north end of a deep soil meadow. Consequently, the water gap and road crossing became an offensive bog early in the season for anyone who drove this road to see. Later in the season the creek dries up and cattle fight the exclosure fence and the Cottonwood electric fence trying to get to water.

2. The 1999 Decision created two new fences that blocked additional livestock access to the limited water in pasture 15. The boundary between BLM and Urquidi's deeded land was fenced which, along with the above mentioned meadow exclosure, completely excluded livestock access to the upper reaches of Little Jacks Creek (both on BLM and private land). Approximately three (3) miles of new BLM fence from the meadow exclosure westward to the Battle Creek allotment fence eliminated livestock access to the traditional water gap at the OX Prong spring on Little Jacks Creek. In addition, the new electric fence around Cottonwood, which is down on the ground and is tangled mess, was an attempt to prevent livestock access to this water course. Cattle routinely breached this fence when water dried up at the road crossing water gap.

Despite these management issues, resource conditions on the Little Jacks Creek allotment are remarkably good. The upland plant communities throughout the allotment are good to excellent condition Idaho fescue and bluebunch wheatgrass stands. Most of the Little Jacks Creek, with the exception of Cottonwood and OX Prong, is inaccessible to livestock due to the riparian exclosure and the rocky canyon. Even the 1999 decision recognized the lack of resource problems and appropriately continued the past stocking rates and season of use.

Subsequent to touring the Little Jacks allotment on September 22, 2004 with the permittees and again on October 27, 2004 with BLM state and field office staff, we propose the following changes to the 1999 Decision. These changes to the 1999 Decision have been discussed with and initially supported by BLM staff and each of the permittees.

Range Projects
*Projects that are additional to the settlement are designated by *.*

1. *Owens Pipeline.* Map 18.
The existing well *(known as Little Jacks Creek Well)* (located approximately in the NW NW sec 9, T10S, R2E) should be used to provide dependable stock water to pasture 15 and additional stock water in portions of pasture 10. This well is a BLM well drilled apparently sometime in the 1980s and never equipped. The well is reportedly a very good water source, and with the addition of a pump/generator system, pipelines, storage and stock water tanks could provide adequate stock water for dry portions of this allotment. If water from this well were to be piped to the northwest part of pasture 15, there would likely be no need for the traditional cattle access to the water gap at OX Prong. This portion of Little Jacks Creek is important fish spawning habitat. Water should also be piped from the well to the eastern portion of pasture 10. This would relieve the livestock pressure on Tigert Springs and better distribute grazing. *This pipeline would be 15 miles long and have 12 troughs. The well is a casing that has been capped and has no pump.*

2. *Little Jacks Electric Fence Removal*.
The 1999 Decision resulted in construction of several new fences that blocked livestock access to both OX Prong and Cottonwood water gaps. The new electric fence around Cottonwood needs to be removed (see Map 20). This fence is down on the ground and is a tangled mess. Cottonwood Spring is pot-hole permanent water source in the rocky boulder armored bottom of a reach of Little Jacks Creek that otherwise dries up in late summer. An inspection of this spring *(2004)* indicated there were no fishery habitat values and little, if any, stream channel erosion hazards due to the rock armor. (*But see impact analysis in Fish section below)* This spring, however, is a necessary stockwater source for both pastures 10 and 15. *The electric fence will be removed in all alternatives because it is non-functional and the removal does not need to be analyzed in an EA.*

3. *Collier Meadow Exclosure Modification and Owens Reservoir # 2**. Map 21.
Modify Collier Meadow Exclosure to exclude the riparian area and construct a pit reservoir. Location is T. 10 S., R. 2 E., Section 5. The purpose is to improve the wet meadow and still provide livestock water.

4. *Northern Pasture 10/15 Fence Removal and Construction**: same as Alternative D. Map 18.
The 3-mile fence built in 2000 that divides pastures 10 and 15 would be removed. That fence would then be replaced by a parallel fence along the southwest side of the road that acts as the WSA boundary. The fence would be built 50 feet away from the WSA boundary road. The fence would start at the Pasture 14/15 boundary fence on the north and connect to the 16R Little Jacks Meadow Exclosure on the southern end. A cattleguard and gate would be required at the northern end of the fence. Approximately 800 acres would be removed from pasture 10 and added to pasture 15. The reason for moving this fence closer to the road is for easier access for monitoring and maintenance.

5. *OX Prong gap fences**. Map 18.

To improve the condition of OX Prong, build a fence or fences in the WSA to exclude cattle from the creek completely. There are two options for fence locations, both of them making use of the rimrock that limits access to the creek in most places. The northerly option includes a cross fence that would project into the WSA from the pasture 10/15 fence and connect to the rimrock of OX Prong (T. 9 S., R. 2 E., Section 20). Additionally, old gap fence(s) along the rim of OX Prong canyon (T. 9 S., R. 2 E., Section 21, S1/2), (possibly T. 9 S., R. 2 E., Section 28, NE1/4, NE1/4 and T. 9 S., R. 2 E., Section 27, NW1/4, NW1/4) are in disrepair and would need to be rebuilt. The second option is for one cross fence further south, from the pasture 10/15 fence to the rim, and would not require gap fences along the rim.

*6. South Pasture 10 and 15 Boundary Gap Fence**. Map 18.
Gap fences are proposed to close gaps between pasture 10 and 15. Located in T. 10 S., R. 2 E., Sections 2, 9 and 10. This also includes the gap fence proposed in T. 10 S., R. 2 E., Section 9 from the rim to a corner of private land. The purpose of these gap fences is to make a more secure boundary between pastures 10 and 15 to reduce duration of use on wet areas in each pasture, thereby causing an upward trend in condition.

Table 10. Season of use proposed for the Little Jacks use area in alternative B (same as Alternatives A and C.)

Pasture	Season of Use	Permitted Use (AUMs)
10	6/1 – 7/31	770
15	8/1 – 9/30	763
Total permitted use		1,533

Terms and Conditions: none proposed

Annual Management Criteria: none proposed

Administrative Action: Create a new allotment that includes pasture 10 and 15. The new allotment would be called the Owens Allotment. Because this is an administrative action, analysis is not required in the environmental impacts section of this EA.

D. Alternative C

This alternative was designed to improve rangeland health in areas where Standards were not met, with the fewest number of new projects (pipelines, troughs, fences) and the least cost. It also addresses some of the issues from the appeals of the 1999 decision (for example, Snow Spring exclosure, Dry Creek riparian pasture, replacing water in pasture 15). It includes scaled-down versions of several projects requested by the permittees as a more practical way to operate, (for example, Joe's Basin pipeline). Additionally, it minimizes projects in and adjacent to Wilderness Study Areas.

It addresses riparian and wetland problems identified in the 2007 Determination and the issues from the appeals as follows:

- **East Fork of Shoofly and Shoofly Creek**: a let-down, barbed-wire fence at the mouth of Shoofly Canyon combined with the existing fence at the confluence of the East and West Forks of Shoofly Creek would create about a 1 ¾ mile section of Shoofly Creek that would be used only for trailing in the spring and fall. Additionally, above this section, the East Fork of Shoofly Creek would be only incidentally grazed, with regular herding to maintain a 6-inch stubble during the grazing period, as in the 1999 decision. The East Fork would also be used for trailing in the spring and fall. Additionally, a gate left open at the pasture 14/22 fence at the Upper East Fork of Shoofly Reservoir has been identified as part of the problem for stray cattle drifting onto the East Fork in late summer. Putting a cattleguard at this road crossing should help solve this portion of the problem, and it would be done in all alternatives.

- **Snow Creek Spring**: Same as Alternative B. The existing exclosure fence would be modified to allow cattle access to the lower-elevation, older trough (located in the spring drainage), to allow livestock to trail on the old road immediately adjacent to the spring drainage, and to allow livestock to trail around the southwest corner. These were points of disagreement with the 1999 decisions. A small cross-division fence would be added to form an upper and lower exclosure. Its purpose is to mitigate the less-secure location of the lower exclosure fence along the road by providing extra security to the upper exclosure, where most of the fragile soils and wetland vegetation are located, should cattle get into the lower exclosure.

- **Hutch Springs**: An exclosure would be built to protect the wet meadow and erodible soils in the drainage below the meadow, and a trough would be provided on a rocky bench downstream of the meadow. The condition of the meadow is the issue for sage grouse, and the proposal in the 1999 decision to build an exclosure without providing an exterior trough was a point of disagreement by the permittees.

- **Dry Creek Riparian Pasture (20R)**: This pasture would be made narrower to create an exclosure instead of a riparian pasture. A trough would be provided outside the exclosure, on State land, with a pipeline from a spring along the creek (not a gap into or across the creek). The modifications address some of the concerns of the permittees

about losing a water source and the difficulty of actually grazing the riparian pasture, but would maintain the upward trend occurring on the creek and adjacent meadow.

- **OX Prong Creek**: The pasture division fence built in 2000 between pastures 10 and 15 was intended to reduce the duration of use in OX Prong and Little Jacks Creek from June through September, to June and July. BLM recognized that the fence would exclude a major water source for Pasture 15, so various efforts were made to replace it: 3 reservoirs were repaired, and water was to be extended to pasture 15 from the Hutch pipeline in pasture 14, and three water haul sites were authorized. However, the water from the Hutch Pipeline comes from private land and the BLM did not have a water right, so that project was not feasible. Pasture 15 has several springs, but most water is concentrated around the private land. After the pasture division fence was built, cattle have consistently returned from pasture 15 into OX Prong Creek during August and September, due to the lack of water in pasture 15. Thus, the proposed fences would completely separate pastures 10 and 15, with the least impact to wildlife, the least fence, and without moving fence already in place. Additionally, to replace access to the water in OX Prong, a pipeline from Little Jack's Creek at Collier Meadow to a trough at Tanks Reservoir is proposed.

- **Upper Little Jacks Creek:** A 0.1 mi section of stream between the 16R exclosure and the WSA boundary would be fenced by barbed-wire and wood to protect part of the stream with soft soils that is currently unprotected. Below this, 0.1 miles of stream with soft soils would be left unfenced because it is within the WSA, and so it can be a watergap for cattle.

1. Battle Creek Use Area – Alternative C

Grazing Management

Grazing management would basically follow the 1999 decision, except for allowing more overlap in dates between pastures for flexibility for the permittees, and not prescribing alternate years rest in pasture 8 (Table 11). Instead, rest in pasture 8 would occur when cheatgrass production was low. Additional use in Pasture 8 may be authorized when production is high in order to turn out later into pasture 21 and delay use on perennial grasses there.

The overlap of dates between pastures allows for the movement of livestock between pastures and flexibility for the operator.

Table 11. Grazing rotation for Alternative C

Pasture No.	Season of Use	Comments
8	April 1 – May 15	Use contingent on adequate production of cheatgrass
21	May 1 - 31	Some stray cattle are allowed after off date (through June 15) because no physical barrier exists between 21 and 22.
Shoofly Cr		Spring and fall trailing only.
East Fork Shoofly Cr		Spring and fall trailing and incidental use to maintain 6" stubble throughout season.
22& 9	May 15 – June 30	Drift of up to 25% of the herd allowed from pasture 21 to 22 during May.
12	May 26- July 10	
20 Year 1	July 25 – Sept 30	Continue rotation with pasture 14.
Year 2	June 25 – Aug 31	
14 Year 1	June 25 – Jul 31	Continue rotation with pasture 20.
Year 2	Aug 25 – Sept 30	
18 and 19	April 1 - Oct 31	Used at the discretion of the permittees, provided resource conditions on public lands are maintained or improving.
Active AUMs	11,198 AUMs	
No. of Livestock	1,603 Cattle	

Pastures 8 and 21

Rest pasture 8 in dry years when the production of cheatgrass is too low to provide adequate forage. In the past the permittees have voluntarily rested the pasture in drought years. The rationale for not resting the pasture every other year, as the 1999 decision specified, is that it makes more sense to rest it in response to annual cheatgrass production: when annual grass production is low, the cattle utilize the few remaining native grasses more. In wet years when cheatgrass production is high, the cattle utilize the cheatgrass more and the native grasses less.

Adaptive management would be used to determine when to move to pasture 21 from pasture 8. When sufficient cheatgrass remains in pasture 8 the authorizing officer, in coordination with the permittee, can request livestock stay in pasture 8 up to the May 15 date to provide less use in pasture 21 on native perennials during the critical growth period.

Shoofly Creek between the Shoofly Gap Fence at the canyon entrance and Pasture 22 fence at confluence of the East and West Forks of Shoofly Creek would not be part of any pasture and would only be used for active livestock trailing in the spring and fall. Each group of cattle would be actively herded through in a day and no holding in Shoofly Cr would be authorized. Bank

alteration would be limited to 15%. "Shoofly Creek" would be the designated name of this trailing area between the fences.

Pastures 22 and 9
Livestock use pasture 9 in conjunction with pasture 22. Since there is not a fence or other barrier between pastures 9 and 22, these pastures would be combined and called "pasture 22".

Since there is no actual restrictive boundary (fence or topography) between pasture 21 and 22 these dates allow for drift of livestock from the lower pasture (21) up into pasture 22 (Bench).

The East Fork Shoofly Creek in Pasture 22 would be used for active trailing. When moving cows from pasture 21 up to 12 or 22, the usual practice has been to overnight cows on East Fork Shoofly Creek, and this would be authorized. The annual management objective would be to maintain ≥ 6-inches of residual stubble height on herbaceous riparian vegetation on East Fork Shoofly Creek throughout the growing season. If the stubble height was less in a particular year, the BLM authorized officer would evaluate whether the cause was grazing by Battle Creek cattle, and whether it affected long-term trend. Adaptive management would then be applied for Shoofly and East Fork Shoofly in the following year, to ensure the stubble height objective would be met. Additionally, throughout the summer, stray cattle would be moved out of the East Fork of Shoofly as soon as possible with a goal of within 1 day of discovery by the permittees or within 2 days of notification by the BLM.

Pasture 12
Pasture 12 is used almost as 2 pastures, with the lower end, or Snow Creek side used first and then the cows are pushed up to the Joe's Basin side later in the season. Thus the lower end is used more in conjunction with the Bench pasture (22) and the upper end is used more in conjunction with the Summer (20) or Spray (14) pastures.

Pastures 14 and 20
The 2-year rotation between these pastures would be continued, using the Spray pasture (14) first in one year and the Summer pasture (20) first in the next. This rotation provides deferment of use to after seed ripe every other year, and has successfully maintained upland plant health.

Annual Indicator Criteria

(1) Average utilization by livestock on key bunchgrass species measured at key areas:
During the period of critical growth: not exceeding 30%.
Outside the critical growth period: not exceeding 50%.

(2) Less than or equal to 30% of new leaders on young willows (6 ft. or less in height) nipped by cattle, as measured at key areas, at the end of the growing season.

(3) Annually, maintain a median of ≥ 6-inches of residual stubble height on herbaceous riparian vegetation on Shoofly and East Fork Shoofly Creek throughout the growing season.

(4) Bank alteration on Shoofly Creek from trailing livestock would be limited to ≤ 15%.

Terms And Conditions

(1) Livestock grazing use shall be made in accordance with the field manager's final decision for the Battle Creek Allotment.

(2) Livestock will be removed from each pasture by the grazing end dates listed in the season of use (Table 11), unless otherwise noted. The BLM authorized officer may make annual adjustments to the dates dependent on range readiness, production, water availability, and other factors.

(3) Livestock turnout is subject to the Boise District range readiness criteria.

(4) Salt and/or supplement will not be placed within ¼ mile of springs, streams meadows, aspen stands, playas or water developments without prior approval of BLM.

(5) Livestock exclosures located within the Battle Creek Use Area are closed to livestock use.

(6) Maintenance activities within the Little Jacks Creek WSA require prior consultation with the authorized officer.

(7) Pursuant to 43 C.F.R. §10.4(b)), the permittees must notify the authorized officer of 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 C.F.R.§ 10.2) on public land. Pursuant to 43 C.F.R. §10.4(c), the permittees must immediately stop any ongoing activities connected with such discovery and make a reasonable effort to protect the discovered remains of objects.

Range Projects

1. *State Section Extension of Shoofly Pipeline, Pasture 8* - Same as Alternative D. Map 7.
A spur pipeline 1 mile long would be added west from the Shoofly pipeline, with one trough in T6S R3E Section 36. Construction and use of this trough would be contingent on the private landowner agreeing to close access from Pasture 8 to a pond on private land (T6S R4E NW of Sec 18) in the NW corner of Pasture 8. Replacing the pond with the new trough is intended to reduce livestock use of the Biological Soil Crust Area in the northern portion of the pasture.

2. *Pasture 22H Fence Removal* – same as Alternative D. Map 9.
Remove the Spring Camp Field (Pasture 22H) north boundary fence. Fence would be removed without the use of motorized vehicles off of the established way.

3. *Shoofly Gap Fence* - same location as Alternative B and same management as D. Map 9. The electric fence from the 1999 decision would be replaced with a barbed-wire fence. The purpose of the Shoofly Gap Fence would be to improve the riparian condition of Shoofly Creek by preventing livestock from grazing Shoofly Creek when they are in pasture 21. Grazing use of the area between the gap fence and the southern pasture 22H fence would be for active trailing only, both in spring and fall. If the private landowner fences their 40 acres at the mouth of Shoofly Canyon, then the gap fence would connect to the private fence, and continue upslope to rimrock (approx 0.27 mile). If the private land were not fenced, the gap fence would be built at the location of the electric fence (approx 0.35 mile long). Both locations start near or at a WSA boundary and extend into the WSA. There would be a walk-through gate for public walking and horseback access through the fence. All fence construction, maintenance, and removal would be accomplished without driving motorized vehicles off existing roads. Bank alteration, and cover and residual stubble height of herbaceous riparian plants would be monitored annually on Shoofly Creek upstream of the gap fence. If the gap fence is no longer contributing to maintaining an upward trend in riparian health (increased plant cover and vigor), then it would be removed prior to April 1 the next grazing season.

4. *Snow Creek Spring Exclosure Modification Pasture 12* – same as Alternatives B and D. Map 11.

5. *Dry Creek Exclosure* - same as Alternative D. Map 15.
Modify the southwest side of the Dry Creek Riparian Fence, to reduce its size. Construct a pipeline from the spring on state land to a trough outside of the fenced area. The area enclosed by the fence would be excluded from livestock grazing, whereas with the existing larger exclosure was to have become a riparian pasture and grazed after it met objectives.

6. *Hutch Springs Exclosure and Water Development, modified* - Same as Alternative D. Map 17. The proposal in Alternative B would be modified to make a larger exclosure (about 100 acres); to include the section of drainage below the meadow that has soft soils. The pasture fence below Hutch Springs would be moved to the private boundary, to allow a corridor for cattle movements across the rocky part of the drainage below the springs; and to place the trough on a rocky flat downstream of the springs. About 15 acres of wet meadow would be excluded from grazing; livestock would water at the trough instead of springs and ponds in the meadow. The pipeline from the spring box to the trough would include a shut-off valve so that water is only diverted when livestock are grazing in pasture 20.

7. *Joes Basin Pipeline (1-trough version), pasture 12* - Same as Alternative D. Map 13.
Build a new pipeline about 1 1/4 mile long from private land (BCC ownership) on Battle Creek to pasture 12, with one trough. The trough would be located in an existing disturbed site at the reservoir in T8S R1E NW of Section 33. The pipeline and trough would provide more reliable livestock water and remove the need for the permittee to haul water to this site in years when the reservoir is dry.

8. *Cattleguard at pasture 14/22 fence at Upper East Fork of Shoofly Reservoir*. Same as Alternative B and D. Map 3.

2. Little Jacks Creek Use Area - Alternative C

Grazing management

Grazing management would continue the use of pasture 10 for June and July, and pasture 15 for August and September.

Table 12. Grazing rotation for the Little Jacks Use Area in Alternative C.

Pasture	Season of Use	Permitted Use (AUMs)
10	6/1 – 7/31	770
15	8/1 – 9/30	763
Total permitted AUMs		1,533
Number and kind of livestock		382 cattle

Annual Indicator Criteria

(1) (Same as Alternative D.)
Average utilization by livestock on key bunchgrass species measured at key areas:
During the period of critical growth: not exceeding 40%.
Outside the critical growth period: not exceeding 50%.

(2) (Same as Alternative D.) Less than or equal to 30% of new leaders on young willows (6 ft. or less in height) nipped by cattle, as measured at key areas, at the end of the growing season.

(3) (Same as Alternative D.) Annually, maintain a median of ≥ 4-inches of residual stubble height on herbaceous riparian vegetation on OX Prong and Upper Little Jacks Creek.

Terms And Conditions
Same as for Battle Creek use area, except where specific to the Battle Creek use area.

Range Projects

1. *Tanks Pipeline.* Map 19.
Provide water in a trough at Tanks Reservoir in pasture 15 by pumping water from the pit reservoir or the creek at Collier Meadow in a pipeline 1.7 miles long. The trough would be replacement for the water source lost in OX Prong Creek and Little Jacks Creek when the pasture 10/15 division fence was built in 2000. It would be an uphill pipeline, however, the trough would be serviced without a storage tank by a system that automatically turned the pump on and off from a float valve.

2. *South Pasture 10/15 Division Fence.* Map 19.
The existing northern pasture 10/15 division fence would remain as constructed. An additional division fence would be constructed to create a secure boundary between pastures 10 and 15, in the southeast part of the current pasture 10. Completely separating pastures 10 and 15 will prevent livestock from getting back to pasture 10 during August and September, thus reducing duration of use on wet areas and improving their condition. The fence would be west from the rim, on the flat of the plateau, to facilitate crossing by deer and antelope.

3. *Collier Meadow Exclosure Modification and Pit Reservoir* - Same as B. Map 21.
Modify the exclosure fence to protect the spring and adjacent wetland habitat within the exclosure, and provide cattle access to a stock pond outside of the exclosure. The existing exclosure below the pond would remain. The purpose is to improve the condition of the spring and still provide water for cattle at the pond.

4. *Little Jacks Meadow Exclosure.*
A 0.1 mi section of stream between the 16R exclosure and the WSA boundary would be fenced by barbed-wire and wood to protect part of the stream. The 0.1 miles of stream with soft soils below the WSA boundary would be left unfenced because it is within the WSA, and so it can be a watergap for cattle .

Administrative Action: Create a new allotment that includes pasture 10 and 15. The new allotment would be called the Owens Allotment. Because this is an administrative action, analysis is not required in the environmental impacts section of this EA.

E. Alternative D

Alternative D addresses the range management issues in the Battle Creek Use Area with the same solutions as alternatives B and C for Snow Creek Spring, and as alternative C for Hutch Spring and Dry Creek. Pasture dates are broader than C and the same as Alternative B except for pastures 8 and 21, to allow management flexibility for variation in production and water with the year.

For the Little Jacks Creek area, the differences from alternatives B and C are greater. It proposes three miles of fence relocation, three miles of new fence, and five troughs off the Jacks Creek Well to address the problems of OX Prong, upper Little Jacks Creek, and the lack of secure division between pastures 10 and 15.

The list below identifies problem areas and a brief description of the proposed solutions to the problem:

- **Shoofly Creek and East Fork Shoofly Creek -** same as Alternative C.

- **Snow Creek Spring** – Same as Alternative C.

- **Hutch Springs** - same as Alternative C.

- **Dry Creek Riparian Pasture** - same as Alternative C.

- **OX Prong and Little Jacks Creek**:
  After the pasture 10 and 15 division fence was built in 2000, cattle have consistently leaked from pasture 15 back into OX Prong Creek and Little Jacks Creek during August and September. The combined effect of the North pasture 10/15 fence Removal and Construction, East extension of pasture 10/15 fence and the Modified Owens Pipeline would be to stop the leakage, and reduce the season of use and end the late summer use on Little Jacks Creek and OX Prong. This would be accomplished by providing a more secure boundary between pastures 10 and 15, adding acreage from pasture 10 into 15, and providing livestock water in pasture 15. The grazing season would be reduced by two weeks in pasture 10 and on the creeks, and increased by two weeks in pasture 15, which has no creeks. The shorter season of use in pasture 10 would reduce hot season grazing use of OX Prong, upper Little Jacks Creek, and Tigert Springs, as well as in the WSA. The reason for moving the north pasture 10/15 fence, and for locating the east extension 50 feet south of the WSA boundary road, is that it would be easier for permittees to maintain. Currently, the northern edge of the road is the WSA boundary.

  The 1999 decisions fenced off water at OX Prong and Little Jacks Creek from pasture 15 but proposed an extension from the Hutch Pipeline and three water haul sites to replace that water. A spring development in pasture 10 proposed in the 1999 decisions is not feasible. This spring development would have been in the expanded pasture 15. This alternative proposes to replace these five proposed water sources with water from the

currently unused Little Jacks Creek Well. The well would supply water to a 5.5 mile long pipeline with five troughs into the expanded pasture 15. The pipeline would counteract distribution problems by providing five livestock water troughs on public land away from private land (see map 20).

- **Upper Little Jack's Creek Meadow**: After the 1999 decision, an electric fence was built to protect this meadow and improve riparian trend. The electric fence did not accomplish its purpose because it was not maintained. Electric fences in remote locations tend to be maintenance problems. Alternative D proposes a fence to protect the meadow portion of upper Little Jack's which has highly erodible soils, but not the entire length of stream that was enclosed by the electric fence, because it is within Little Jacks WSA and is rocky. This fence alignment also allows cattle access to Cottonwood Spring in Little Jack's Creek that was blocked by the electric fence location (see photos).

1. Battle Creek Use Area – Alternative D

Grazing Management

The proposed season of use for each pasture is the same as for Alternative B, except for pastures 8 and 21. Livestock grazing use in pasture 8 would be based on the availability of cheatgrass. In abundant cheatgrass years in pasture 8, livestock grazing use would be extended up to May 15th to delay use of the native perennial grasses in pasture 21. Livestock grazing use of pasture 21 would begin May 1st every year, except as noted above. Season of use for pastures 9, 12, 10, 14, 18, and 19 would be the same as Alternative B. Alternative B is generally based on the pre-1999 season of use for each pasture. All of these pastures were meeting the Standards for watersheds and native plant communities and were in conformance with the Guidelines.

Pasture 8
Current growth of cheatgrass, i.e. good cheatgrass production vs. poor cheatgrass production, and range readiness would be the key components of adaptive management that would be applied to pasture 8. The season of use would be April 1st to May 15th every year, however the turnout date, April 1st or later, would be dependent on range readiness.

The season of use in pasture 8 would be April 1st to May 15th. In most years, the use period in pasture 8 would end April 30th. Additional use in pasture 8 past April 30th and up to May 15th would be dependant on cheatgrass production in pasture 8. In years when use in pasture 8 is grazed later into May and up to May 15th, livestock turnout in pasture 21 would be delayed. Because an estimated 95% of pasture 8 is dominated by cheatgrass, a maximum allowable use level (utilization) for native perennial grasses is not applicable.

Pasture 21
Livestock use in pasture 21 would be nearly the same as described in the 1999 decisions (5/1 – 5/31 - all cattle removed by 6/15) except for the delayed turnout into pasture 21, up to May 15th, as described above under pasture 8. This would allow for occasional delayed livestock grazing of native perennial grasses during the critical growing season in pasture 21. For pasture 21, the

allowable use level (utilization) would not exceed 40% on key perennial bunchgrasses, as measured at key areas.

Pastures 9, 12, 14, 20 and 22
A deferred rotation grazing system would be continued for pastures 14 and 20 (Table 13) as initially adopted in the 1980's and continued in the 1999 decisions. Season of use for pastures 9, 12, 14, 20 and 22 would be as described in Table 13 below. The allowable use level in these pastures would not exceed 50% on key perennial bunchgrasses, as measured at key areas.

Livestock grazing use in Pasture 9 occurs in conjunction with pasture 22. Since there is not a fence between pastures 9 and 22, these pastures would be combined. The area between the proposed Shoofly Gap Fence and pasture 22H – to be called "Shoofly Creek" - would be used for spring and fall trailing only.

The East Fork Shoofly Creek in Pasture 22 would be used for active trailing, the same as Alternative C. When moving cows from pasture 21 up to 12 or 22, the usual practice has been to overnight cows on East Fork Shoofly Creek, and this would be authorized. The annual management objective would be to maintain ≥ 6-inches of residual stubble height on herbaceous riparian vegetation on East Fork Shoofly Creek throughout the growing season. If the stubble height was less in a particular year, the BLM authorized officer would evaluate whether the cause was grazing by Battle Creek cattle, and whether it affected long-term trend, and apply adaptive management to ensure that the stubble height objective would be met on Shoofly and East Fork Shoofly in the following year. Additionally, throughout the summer, stray cattle would be moved out of the East Fork of Shoofly as soon as possible with a goal of within 1 day of discovery by the permittees or within 2 days of notification by the BLM.

Table 13. Proposed livestock management for the Battle Creek Use Area from 2008 through 2017 for Alternative D. The overlap of periods of use would allow for the movement of livestock between pastures consistent with phenological development of the plants as a result of weather conditions and climatic variation.

Pasture	Year		
	2008	**2009**	**2010 -2017**
8	4/1 – 5/15 Duration of use would be up to 45 days.		
21	5/1 – 5/31 Flexibility would be extended 15 days to June 15th to allow for all cattle to be removed from this pasture.		
12	5/20 – 7/20 Duration of use would be up to 45 days.		
22 (combine pastures 9 & 22)	5/6 – 7/10 Duration of use would be up to 45 days.		
Shoofly Creek	Spring and fall trailing only.		
East Fork Shoofly Creek	Spring and fall trailing and incidental use to maintain >6" stubble throughout the season.		
14	6/20 - 8/6 Duration of use would be up to 40 days.	8/25 – 9/30 Duration of use would be up to 40 days.	Repeat rotation

20	7/17 – 9/30 Duration of use would be up to 70 days.	6/20 – 8/31 Duration of use would be up to 70 days.	
18 (Bruneau Cattle Co.)	4/1 – 10/31 Used at the discretion of the permittees as long as Idaho's Standards for Rangeland Health and Guidelines for Livestock Grazing Management continue to be met.		
19 (Battle Creek Ranch)	4/1 – 10/31 Used at the discretion of the permittees as long as Idaho's Standards for Rangeland Health and Guidelines for Livestock Grazing Management continue to be met.		

Annual Indicator Requirements

(1) Average utilization by livestock on key bunchgrass species measured at key areas (Key areas are the Nested Plot Frequency Trend sites):
During the period of critical growth (5/1 to 6/30): not exceeding 40%.
Outside the critical growth period: not exceeding 50%.

(2) Less than or equal to 30% of new leaders on young willows (6 ft. or less in height) nipped by cattle, as measured at key areas, at the end of the growing season. (Same as C.)

(3) Annually, maintain a median of ≥ 6-inches of residual stubble height on herbaceous riparian vegetation on Shoofly and East Fork Shoofly Creek throughout the growing season. (Same as C.)

(4) Bank alteration on Shoofly Creek from trailing livestock would be limited to ≤ 15%. (Same as C.)

Terms and Conditions

Same as Alternative C, except for # 2:

2. Ten days flexibility will be allowed when cattle are moved from pasture to pasture. The ten day flexibility period will begin five days before and end five days after the scheduled move date. Additional flexibility in livestock move dates beyond the ten day flexibility period requires prior approval by the field manager. Also, 15 days of flexibility after May 31st will be allowed to move livestock from pasture 21 to other pastures.

Range Projects – Battle Creek Use Area

1. *North Shoofly Pipeline Extension 2007 and State Section Shoofly Pipeline Extension* Both of these pipelines would be extensions of the existing Shoofly Pipeline. The existing water gap on private land at the northwest corner of pasture 8 would be closed as per an agreement with the permittee. The agreement with the permittee (Simplot/Battle Creek Ranch) is that if the North Shoofly Pipeline Extension 2007 and State Section Pipeline Extension would be built, then the permittee would close off access to the water gap on private land. Closure of the water gap on private land and the proposed pipeline extensions would further reduce livestock grazing use and trailing on the Biological Soil Crust area. In years when more cheatgrass is available in pasture 8, the proposed pipeline extensions would increase distribution of livestock in pasture 8, which would allow for delayed turnout into pasture 21. Map 7.

2. *Shoofly Gap Fence* – same management as Alternative C. Map 9.

3. *Shale Rock Gap Fence* - A 200-300 foot long gap fence would be built if the modifications to Snow Creek Spring exclosure did not solve the problem of stray cattle drifting onto East Fork of Shoofly and Shoofly Creek through the Shale Rock crossing in June and July, and if evaluation

of the problem showed it was needed. Once the proposed modifications to Snow Creek Spring Exclosure are completed, the need for the Shale Rock gap fence would be evaluated after two grazing seasons. Map 11.

4. *Joe's Basin Pipeline* - Same as Alternative C. Map 13.

5. *Snow Creek Spring Exclosure Modification* - Same as Alternatives B and C. Map 11.

6. *Pasture 22H Fence Removal* – Same as Alternative C. Map 9.

7. *IDL Pipeline* - Same as Alternative B. Map 10.

8. *Cattleguard at pasture 14/22 fence at Upper East Fork of Shoofly Reservoir*. Same as Alternatives B and C.

9. *Dry Creek Exclosure* - Same as Alternative C. Map 15.

10. *Modified Hutch Spring Exclosure and Spring Development* - Same as Alternative C. Map 17.

2. Little Jacks Creek Use Area – Alternative D

Grazing Management

Table 14 displays the proposed use for pastures 10 and 15. The season of use in pasture 10 would be reduced two weeks, and in pasture 15 it would be increased two weeks. This reduction in pasture 10 is intended to help improve OX Prong and upper Little Jacks Creek, and to reduce duration of use in the WSA. The allowable use level would not exceed 50% on key perennial bunchgrasses, as measured at key areas.

Table 14. Proposed livestock management for the Little Jacks Creek use area.

Pasture	Season of Use	Number &Kind of Livestock	Permitted Use (AUMs)	Pasture Acreage (BLM)
10 Turner	6/1 – 7/15	382 cattle	576	11,905
15 Owens	7/15 – 9/30	382 cattle	957	10,570
		Total # of cattle = 382	**Total permitted use = 1,533**	**Total acreage = 22,475**

Annual Indicator Requirements

1. (Same as Alternative C.) Average utilization by livestock on key bunchgrass species measured at key areas: During the period of critical growth: not exceeding 40%. Outside the critical growth period: not exceeding 50%.

2. (Same as Alternative C.) Less than or equal to 30% of new leaders on young willows (6 ft. or less in height) nipped by cattle, as measured at key areas, at the end of the growing season.

3. (Same as Alternative C.) Annually, maintain a median of ≥ 4-inches of residual stubbleheight on herbaceous riparian vegetation on OX Prong and Upper Little Jacks Creek.

Terms And Conditions - Same as Alternative C.

Range Projects – Little Jacks Use Area

1. *Little Jacks Creek Meadow Exclosure.* Map 20.
The proposed exclosure would be built on Little Jacks Creek, downstream from the 16R exclosure, to include the reach of creek with soft, erodible soils. Cattleguards would be used if the final fence design crossed the road, for better security than gates. Note that the WSA boundary departs from the road and follows the old FFR fence boundary to the north in this area. Thus, approximately 50% of the exclosure acreage would be located outside of the WSA and 50% would be located inside the WSA. The proposed riparian meadow exclosure would exclude livestock grazing and improve the condition of approximately 10 acres (see photos).

2. *North Pasture 10/15 Fence Removal and Construction* - same as B. Map 20.

3. *East Extension of Pasture 10/15 Fence.* Map 20.
This 3-mile fence would be a continuation of the north pasture 10/15 fence described above, starting at the Little Jacks Meadow exclosure and extending eastward 2 miles, then southward along the west side of a state section to connect to the Northwest Allotment/Battle Creek Allotment boundary fence. Like the north pasture 10/15 fence, it would also be located 50 ft to the south of the WSA boundary road. Near Little Jacks Creek, a cattleguard and gate would be used where the fence crossed a road, providing more security than a gate. This fence would create a new boundary between pastures 10 and 15, and add 3,305 acres to pasture 15 from pasture 10. It would eliminate use of the private land of the "Collier place" as a boundary between these pastures and allow shorter use in pasture 10 to help improve the riparian areas of OX Prong and Little Jacks Creek.

4. *Modified Owens Pipeline.* Map 20.
The Modified Owen's Pipeline would originate from the existing well, a.k.a. Little Jacks Creek Well, in pasture 15. From the well, a pipeline would be built to one trough located in the portion of pasture 10 to be added to pasture 15 (see East extension of pasture 10/15 fence above) and a pipeline would be built to four troughs located in pasture 15. The Modified Owens Pipeline

would replace livestock water proposed in the 1999 decisions, i.e. Hutch Pipeline Extension, three water haul sites and the spring in T. 9 S., R. 2 E., Section 10. These projects from the 1999 Decision were not implemented due to water right issues.

5. *Collier Meadow Exclosure Modification.* Map 21.
Same exclosure modification as Alternatives B and C, but no pit reservoir (Owen's Reservoir #2) would be built, because a tank from the modified Owen's pipeline would provide water that was excluded by removing the water gap onto Little Jacks Creek.

6. *Collier Spring Exclosure.* Map 23.
A fence would be built to totally exclude from livestock grazing the Collier spring source, pond, dam, riparian area below the dam, and ditch from the pond to private land. There is a conflict with the water right at this spring. Supplemental water in this area would be provided by the proposed Modified Owens Pipeline.

Administrative Action: Create a new allotment that includes pasture 10 and 15. The new allotment would be called the Owens Allotment. Because this is an administrative action, analysis is not required in the environmental impacts section of this EA.

III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

A. General Setting

The lower elevation pastures of the allotment (8 and 21) consist of gradually sloping flats cut by shallow dry washes. The overstory is dominated by salt desert shrubs and Wyoming sagebrush. The understory is dominated by the annual exotic cheatgrass in pasture 8 and the northern portion of pasture 21. From the flats, an escarpment rises 1000 feet in about 1 mile, to a higher plateau between the deep rhyolitic canyons of Shoofly and Little Jacks Creeks. Vegetation changes to a mosaic of big sagebrush and low sagebrush with native perennial bunchgrasses and wildflowers (pastures 22, 9, 12, 14, 20, 10, and 15.) Mountain big sage grows above about 5,500 feet, and Wyoming big sage grows below that elevation. The higher elevations support patches of mountain mahogany and bitterbrush. Most streams and riparian areas are within the deep canyons.

Annual moisture can vary from a low of 6 inches in the lower elevation areas to over 14 inches in the higher areas. Most of the precipitation comes in the form of rain or snow from storms tracking in typically from the northwest during the winter. Late summer is normally the driest period with only occasional thunderstorms bringing in monsoon moisture to the region from the south. Extreme temperatures vary from the high 90's (^{O}F) in July/August to lows of -0 (^{O}F) in December/January. Usually, temperatures are moderate, but day and night temperatures can vary as much as 50 degrees.

B. Soils

1. Affected Environment

The soils in this allotment are very diverse. This diversity is a result of the variability in parent material, slope, aspect, elevation, climate, and vegetative community. The major soil types can be divided into three areas and are described below.

Soils in the lower elevation areas (the northern portion) of the allotment occur on gently to strongly sloping alluvial fan terraces and dissected sedimentary beds (badlands). These soils formed in alluvium and residuum derived from sedimentary materials (dominantly lacustrine) and mixed alluvium. Soil profile characteristics have been influenced by wind deposited materials (loess) which is the major source of carbonates in the area. These soils are generally moderate to very deep and well drained to excessively drained. Surface soil textures range from loams and silt loams to various sandy loams. Subsoils can vary from sandy loam to clay loam with weak to strong development. Located in this area are some of the more fragile soils, based on surface structure and texture, found in the Bruneau Field office. Major soil series include the McKeeth and Escalante.

Soils in the mid-elevation areas (central portion) of the allotment occur on undulating to hilly foothills and structural benches. These soils formed in residuum and slope alluvium derived from welded rhyolitic tuff. These soils are generally shallow to moderately deep and well drained. Surface soil textures range from loam to silt loams with varying amounts of rock fragments.

Subsoils are generally clay loams and clays with course fragments. Major soil series include the Willhill, Dougal, Arbridge, Bedstead, and Buncelvoir.

Soils in the higher elevations (southern portion) of the allotment occur on undulating to steep structural benches and tablelands. These soils formed in residuum and alluvium derived from welded rhyolitic tuff, breccia, and basalt. Soils are generally shallow to moderately deep and well drained. Surface soil textures are loamy and subsoils are clayey. Major soil series include the Wickahoney, Monasterio, and Yatahoney.

The erosion potential from wind and/or water is low to very high depending on surface texture and slope. The lower elevation soils that formed in sedimentary materials have the highest potential for wind erosion. Soils in the allotment that occur on slopes exceeding 30% are also classified with a high erosion potential. Soils information sources are the Soil Survey of Elmore County Area, Idaho (NRCS, 1991) and the Soil Survey of Owyhee County Area, Idaho (NRCS, 2003).

Erosion processes are most active on soils that occur in the sedimentary beds and alluvial terraces (pasture 8 and northern portion of pasture 21). Anthropomorphic accelerated erosion in the allotment is dominantly related to livestock grazing (both current and historic) and to a lesser degree Off Highway Vehicle (OHV) use. Most of this is very localized.

2. Direct and Indirect Impacts - Soils

Alternative A - Current Management

Overall condition (being closely tied to the health of the biotic community and soil surface stability) is exhibiting little measurable change. The areas which currently are not fully meeting the Watershed Standard for Rangeland Health (low elevation pastures 8 and 21) are showing no progress towards meeting this standard. As stated in the evaluation/determination, pastures 8 and 21 were not meeting this standard and current livestock grazing management practices were not found to be a significant factor for this. It needs to be noted that due to the transition state (dominance of invasive annual grasses and low frequency of native perennial grass species) in most of pasture 8 and areas of pasture 21 it would take decades to notice any significant progress (defined as measurable and/or observable changes in the indicators) toward this standard. Any progress in these lower elevation areas would be slow and climatically dependent. Areas that are currently meeting the standard would continue to do so (up to 90% of the area in all other pastures). Watershed degradation around watering facilities would continue to be the most noticeable direct impact associated with livestock grazing and be most prominent in the initial ¼ mile of the facility and then lessen with distance out from the facility.

Rest has been incorporated into the rotation for pasture 8 every other year initially, and then at the discretion of the permittee in more recent years. This could, if continued, improve watershed health by increasing native biotic community component values (plant and biological crust composition, density, structure, cover, and litter) and lessening the physical impacts from livestock trampling (especially during wet periods)

The spring and spring/summer pastures (9, 10, 12, 21, and 22) are grazed during portions of the key bunchgrass species growth period every year and when soils have the potential to be saturated. Use has been generally light to moderate on these species in these pastures except in the vicinity of water where use is more moderate to heavy.

Use in the summer pastures (14 and 20) occurs dominantly when the growth period of the key forage species is complete and soils are dry.

Pastures 18 and 19 are used at the discretion of the permittee from 4/1 to 10/30 and no analysis for these pastures has been made.

Utilization limits and livestock grazing guidelines incorporated by the BLM allow for residual material to be left on site for watershed protection and nutrient cycling. Holecheck (1988) suggests residues of approximately 160 lb/acre should aid in maintaining or improving rangeland health on most big sagebrush/bunchgrass sites. Based on past utilization levels in this allotment (see Final assessment 2007), under this alternative, this residual amount should be met most years on most sites.

Direct negative impacts to the soil surface from livestock hoof action (physical destruction of surface structure) would continue where livestock tend to trail and congregate (within ¼ mile of water sources, at mineral licks, along fence lines and gates, and in riparian corridors and meadows). This represents less than 10 percent of the analysis area based on the 1999 AIE, 2004 digital photo coverage, 2007 Rangeland Health Assessments, and other field visits.

Alternative B: Permittees' Application – Impacts to Soils

Overall impacts to the watershed and soil resource (being closely tied to the biotic community and soil surface stability) would be similar to Alternative A based on the general grazing system and show little improvement. The areas which currently are not fully meeting the watershed standard (low elevation pastures 8 and 21) would continue to show little significant progress towards meeting this standard. Areas that are currently meeting the standard would continue to do so (large portions, up to 90 percent, of all other pastures). Watershed degradation around watering facilities would continue to be the most noticeable direct impact associated with livestock grazing and be most prominent in the initial ¼ mile of the facility and then lessen with distance from the facility. Where new water facilities are constructed or where existing water facilities (catchments) are upgraded to troughs, supplying a more reliable source of water (less climatically dependent), new areas of impact to the vegetation and soil surface would be created or existing ones amplified.

The direct impact of water developments on the soil resource, by concentrating use, results in trampling (causing soil compaction and/or physical structural breakdown), stripping of vegetative cover, and opening areas to invasive species colonization. These direct impacts would be confined to the immediate area around the development, initial ¼ mile, and dissipate with distance out from the development. Where these types of developments improve the distribution of livestock and

prevent negative impacts to riparian areas (by keeping livestock on the upland areas) there would be an overall direct benefit.

Direct impacts to the soils from pipeline construction are in the form of soil disturbance and displacement (the mixing and mounding of excavated soils). Maintenance roads are commonly constructed in association with these pipelines. These impacts are localized and vary in degree depending on rehabilitation success. Many times these disturbed sites become inhabited by invasive annual grasses and forbs that provide little permanent soil protection. Newly constructed roads are directly impacted by the forces of erosion and subsequent increases in sediment delivery.

Actions associated with fence construction and removal would have minimal direct impacts on the soil resource. Fences often create localized areas where livestock tend to trail along the fence, get bottle necked, or bunch up at gates. These actions can lead to soil trampling, vegetative overuse, and can foster invasive species colonization. Again, where these range improvement actions aid in the distribution and management of livestock, a positive direct impact could occur on the watershed as a whole.

Alternative C – Impacts to Soils

Overall impacts to the watershed and soil resource (being closely tied to the biotic community and soil surface stability) would be similar to Alternative A based on the general grazing system. The areas which currently are not fully meeting the watershed standard (low elevation pastures 8 and 21) could show slight progress towards meeting this standard over time with the adaptive management practices planned for these pastures. Areas that are currently meeting the standard would continue to do so. Watershed degradation around watering facilities would continue to be the most noticeable direct impact associated with livestock grazing.

Direct and indirect impacts associated with water developments (pipelines and troughs) would be as described under Alternative B. However, under this alternative the number of water developments is greatly reduced compared to Alternative B, and less than under Alternative D. There is only one trough proposed for the North Shoofly pipeline extension in pasture 8 thereby limiting impacts to this fragile area.

Direct and indirect impacts associated with fence construction and removal would be similar to those described under Alternative B.

Alternative D- Impacts to Soils

Overall impacts to the watershed and soil resource (being closely tied to the biotic community and soil surface stability) would be similar to Alternative C based on the general grazing system. The areas which currently are not fully meeting the watershed standard (low elevation pastures 8 and 21) could show slight progress towards meeting this standard over time with the adaptive management practices planned for these pastures. Areas that are currently meeting the standard would continue to do so. Watershed degradation around watering facilities would be as discussed under the other alternatives.

Direct and indirect impacts associated with water developments (pipelines and troughs) would be as described under alternative B. However, under alternative D, the number of water developments is greatly reduced compared to Alternative B but more than under Alternative C.

Direct and indirect impacts associated with fence construction and removal would be similar to those described under Alternative B.

C. Upland Vegetation and Livestock Grazing Management

1. Affected Environment

Control of livestock grazing management on public land was established by the Taylor Grazing Act (TGA) of 1934. 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.

To the extent practical and feasible by the TGA, injury to public land was curtailed. Reductions in livestock numbers and shorter seasons of use were implemented. The TGA authorized the construction of range improvements such as water developments and partitioning of grazing units into allotments and pastures. Partitioning has been accomplished by fencing. Fencing of early spring pastures allowed for delayed livestock turnout into these pastures. Range improvements allowed for the implementation of deferred and rest rotation grazing systems on many allotments. As a result of these actions on a broad scale and over a lengthy time period, improvement in condition of upland vegetation has occurred since 1934.

The Federal Land Policy and Management Act of 1976 (FLPMA) 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 (MFP 1983). The Bruneau MFP identified objectives, Range Management (RM)-1.1, 1.4, 1.5, 2, 2.1, that allows for direct and indirect improvement in upland vegetation.

The Public Rangelands Improvement Act (PRIA) (1978) mandates that livestock grazing be managed to improve range condition and maintain the highest level of productivity. These objectives were integrated into the range section of the Bruneau MFP as RM-1.1, 1.4, 1.5, 2, 2.1.

Past Analyses of Battle Creek Allotment

The first evaluation of livestock grazing management in the Battle Creek Allotment was the Battle Creek Allotment (0802) Analysis, Interpretation and Evaluation (AIE) (1983-1989). This AIE integrated the Bruneau MFP requirement that livestock AUMs be reduced by 13% in the Battle Creek Allotment. 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. Therefore, the 13% reduction wasn't implemented. This was in compliance with BLM policy resulting from court decisions.

The Battle Creek Allotment Final AIE (1999) concluded that Standard 4 (Upland Vegetation) wasn't being met in pasture 8. Livestock grazing prior to 1999 was determined to be the cause for

Standard 4 (Upland Vegetation) not being met in pasture 8. In an attempt to correct the problem, livestock grazing was adjusted to allow for every other year use in April in pasture 8. However, as explained in the affected environment for native plants (see discussion below), cheatgrass dominance, e.g. crossing of a threshold, in pasture 8 precludes any potential for recovery of native perennial grasses and forbs in pasture 8. Standard 4 was met in all other pastures.

The Battle Creek Evaluation and Determination (2007) is the third in-depth analysis of livestock grazing management in the Battle Creek Allotment. Standard 4 wasn't being met in pastures 8 and 21; however current livestock grazing isn't the cause. Standard 4 was met in all other pastures.

Vegetation condition in pasture 8

Pasture 8 once was a salt desert shrub community prior to the introduction of domestic livestock. A salt desert shrub plant community in pristine condition has native perennial grasses such as Indian ricegrass, bottlebrush squirreltail, Sandberg bluegrass, Thurber needlegrass and perennial forbs such as milkvetch, primrose, fleabane daisy, longleaf phlox and globe mallow in the interspaces among shrubs such as shadscale, budsage, saltbush and spiny hopsage. Table 15 Pasture 8 lists the ecological sites within the salt desert shrub plant community in pasture 8.

Table 15. Pasture 8 Ecological Sites, Battle Creek Allotment

Ecological Site name	Vegetation
Calcareous loam 7"-10"	**shadscale-budsage/Indian ricegrass-Thurber's needlegrass**
Saline Bottom 8"-12"	**greasewood/basin wildrye**
Saline silty 7"-10"	**Nuttall saltbrush/Indian ricegrass**
Silty 7"-10"	**winterfat/Indian ricegrass**
Sandy loam 8"-12"	**Wyoming big sagebrush/Indian ricegrass**
Sandy 8"-12"	**fourwing saltbush/Indian ricegrass**
Saline meadow	**greasewood/saltgrass**

Plants from the original salt desert plant community are found in scattered areas of pasture 8 and are more commonly associated with sandy soils, badlands areas and north facing slopes.
Currently, Sandberg bluegrass, squirreltail and Wyoming big sagebrush are scattered throughout pasture 8 on sandy loam and loamy ecological sites. In wet years, a significant amount of cheatgrass covers the interspatial areas between shrubs on sandy loam, loamy and saline bottom sites (see utilization and trend photos in the Final Rangeland Health Assessment for Battle Creek Allotment (2007)). Cheatgrass with a shrub overstory is estimated to cover 95% of pasture 8. Native perennial grasses with a shrub overstory are estimated to cover 5% of pasture 8.

Cheatgrass is competitive with native perennial grasses because it can germinate in the fall with favorable precipitation then lie dormant during the winter. Upon favorable precipitation and temperature in late winter and early spring, cheatgrass will begin growth.

Monsen (1992) states "The competitive features of this weedy annual *(cheatgrass)* prevents natural recovery of native species and requires extensive control measures to assure other species become established after seeding." Monsen also states "Remedial treatments conducted in areas receiving

less than 10 inches of annual rainfall is hazardous, consequently restoration is still quite limited." Precipitation at nearby Grandview, Idaho averages 6.47 inches/year (Final Rangeland Health Assessment for Battle Creek Allotment #00802 - January 2007). Although, Monsen's statements relate to the establishment of seedings, the current sparse distribution of native perennial grasses (squirreltail, Sandberg bluegrass and Indian ricegrass) in pasture 8 results in a minimal seed source for the reestablishment of these grasses. Consequently, the lack of a sufficient native perennial grass seed source and the competitive nature of cheatgrass prevent recovery of native perennial grasses in pasture 8.

The competitiveness of cheatgrass was studied by Tausch, Svejcar and Burkhart (1992) on Anaho Island National Wildlife Refuge located in Pyramid Lake northeast of Reno, Nevada. Anaho Island once was influenced by domestic livestock in the early 1900's, however for a least the last several decades impact of domestic livestock has been none existent. They state "Anaho Island National Wildlife Refuge, northeast of Reno, NV, is dominated by annuals *(cheatgrass)* despite a general absence of human-caused disturbance and fire." They state "Anaho Island receives 12 to 18 cm *(4.8 inches to 7.1 inches)* precipitation annually. Native vegetation is composed of plant species common to the salt-desert shrub zone throughout the Great Basin." and "The most important implication for management is the increase in annual grass dominance despite the absence of significant herbivory or other disturbance from human activity or fire. Those changes appear related to the competitive superiority of annuals for the limited available moisture." They conclude with this statement "Once such a disturbance occurs in this zone, a threshold is crossed (Laycock 1991) and an annual-dominated community results. Large areas of western Nevada appear to be somewhere in this transition zone." The salt desert plant community in pasture 8 has also crossed this threshold.

Vegetation condition in pasture 21

The salt desert shrub plant community in the northern portion of pasture 21 transitions to a plant community intermixed with cold desert species (Wyoming big sagebrush, Sandberg bluegrass, and bluebunch wheatgrass) towards the south end of the pasture. Cheatgrass is common in the interspaces among shrubs in the northern 1/3 of the pasture. The increase in precipitation from north to south in pasture 21 coincides with an increase in production of native perennial vegetation and in composition of native grasses in the understory. The northern one-third of the pasture is in early and mid-seral condition. The southern two-thirds of the pasture are mostly in mid-seral condition. Table 16 lists the ecological sites for pasture 21.

Table 16. Pasture 21 Ecological Sites

Ecological Site name	Vegetation
Calcareous loam 7"-10"	**shadscale-budsage/Indian ricegrass-Thurber needlegrass**
Saline Bottom 8"-12"	**greasewood/basin wildrye**
Saline silty 7"-10"	**Nuttall saltbrush/Indian ricegrass**
Silty 7"-10"	**winterfat/Indian ricegrass**
Sandy loam 8"-12"	**Wyoming big sagebrush/Indian ricegrass**
Sandy 8"-12"	**fourwing saltbush/Indian ricegrass**
Loamy 7"-10"	**Wyoming big sagebrush/Thurber needlegrass**

Loamy 10”-13”	**Wyoming big sagebrush/bluebunch wheatgrass**

Vegetation condition in pastures 9, 10, 12, 14, 15, 20 & 22
Pastures 9, 12 and 22 have areas dominated by low sagebrush communities; areas that have a mosaic of low and mountain big sagebrush communities and areas that are dominated by mountain big sagebrush plant communities. Pastures 10, 14, 15 and 20 generally have the same plant communities as described above for pastures 9, 12 and 22 with the addition of the mountain mahogany and alkali sagebrush communities. Table 17 lists the ecological sites for pastures 9, 10, 12, 14, 15, 20 & 22.

Table 17. Pastures 9, 10, 12, 14, 15, 20 & 22 Ecological Sites

Ecological Site name	Vegetation
Shallow stony 8”-12”	**black sagebrush/Thurber needlegrass**
Loamy Bottom 12”-16”	**basin big sagebrush/basin wildrye**
Loamy Upland 12”-16”	**basin big sagebrush/Idaho fescue**
Loamy 10”-13”	**Wyoming big sagebrush/bluebunch wheatgrass**
Loamy 13”-16”	**mountain big sagebrush/Idaho fescue**
Loamy 16”+	**mountain big sagebrush/Idaho fescue**
Shallow claypan 12”-16”	**Low sagebrush/Idaho fescue**
Stony clayey 12”-16”	**Low sagebrush/Idaho fescue**
Very shallow stony loam 10”-14”	**Low sagebrush/Sandberg bluegrass/bluebunch wheatgrass**
Clayey 12”-15”	**alkali sagebrush/Idaho fescue**
Mahogany savanna 16”-22”	**mountain mahogany/snowberry/Idaho fescue**
Semi-wet meadow	**sedge/bluegrass**

Pastures 9, 10, 12, 14, 15, 20 & 22 are generally dominated by decreaser (grasses that decrease with increased levels of grazing) grasses, such as bluebunch wheatgrass and Idaho fescue. The dominance and vigor of these species is an indicator of good grazing management. The dominant shrub species are Wyoming big sagebrush, mountain big sagebrush, low sagebrush and alkali sagebrush. The ecological condition rating in these areas is late seral with the ecological site dominated by decreaser species.
Additional information about the ecological condition of plant communities in the Battle Creek Allotment is available in the Final Rangeland Health Assessment for Battle Creek Allotment #00802 - January 2007, the Battle Creek Allotment # EA 99045 - Affected Environment section and the Battle Creek Final AIE – Range Condition section.

2. Direct and Indirect Impacts - Upland Vegetation and Livestock Grazing Management

Alternative A

Pasture 8

This alternative would allow every year livestock use as early as April 1st in pasture 8. Since pasture 8 is generally dominated by cheatgrass in the interspaces between shrubs (estimated to be 95% of the pasture), the impact on remnant native perennial grasses would be minimal.

There are areas where native perennial grasses are more common (estimated to be 5% of the pasture) in pasture 8. In past, these areas have been lightly grazed. These areas would continue to be lightly grazed under this alternative; therefore there would be minimal effect.

However, as noted in the affected environment section, the competitiveness of cheatgrass would prevent the reestablishment of native perennial plants and may even be more competitive than native perennial grasses without any livestock grazing. Since a threshold has been crossed in 95% (est.) of the pasture, there would not be any substantial decline or improvement in native perennial grass frequency in pasture 8. Long term trend of native perennial grasses in pasture 8 would be static.

Pasture 21

The proposed season of use in pasture 21 would essentially be the same as the terms and conditions of the pre-1999 grazing permits. The proposal to allow livestock grazing in pasture 21 as early April 1st each year would increase the potential for grazing of the native perennial grasses during the critical growing season. This proposal would also allow livestock grazing use of cheatgrass when it is still palatable (green) rather than after it begins to cure (red), thereby potentially reducing use of native perennial grasses. There could potentially be more use of the cheatgrass and less use of native perennial grasses.

However, in dry years cheatgrass is less palatable. In dry years there would be increased use of Sandberg bluegrass during the critical growing season compared to use after May 1st. This would cause a slight decline in the long term trend in pasture 21.

Even though the terms and conditions of the pre-1999 grazing permits allowed use as early as April 1st, actual use records indicate that the permittees generally didn't move cattle into pasture 21 every year as early as April 1st. Instead, permittees moved cattle into pasture 21 from April 1st (1983) to as late as May 2nd (1997). Range readiness was commonly a factor in determining when cattle were moved in pasture 21. From 1983 to 1997, the most common dates cattle were moved into pasture 21 were between April 14th and April 21st. Also, prior to the early 1990's, livestock grazing use in pasture 21 commonly began prior to April 14th. After the early 1990's, livestock grazing use in pasture 21 commonly began after April 14th. For comparison purposes, a general beginning grazing date of April 15th will be used.

If permittees would move cattle into pasture 21 every year between beginning April 15th, then livestock grazing use of perennial native grasses during the critical growing season would be delayed compared to every year use of pasture 21 beginning April 1st. However, there would still be use of native perennial grasses during the critical growing season. There would be a slight decline in upland ecological condition compared to livestock grazing use every year beginning May 1st. There would be a slight improvement in upland ecological condition when compared to livestock use of beginning April 1st.

If cattle are allowed into pasture 21 on April 15th, then some cattle drift could occur as far south as pasture 22 since there isn't a division between pastures 21 and 22. There would be some livestock grazing use of native perennial grasses in pasture 22 during the critical growth period. Livestock grazing during the critical growth period of native perennial grasses would be delayed if the beginning use date is May 1st. However, the 23 existing livestock water sources in pasture 21 substantially reduce cattle drift into pasture 22 regardless of the date livestock move into pasture 21.

Pastures 9, 10, 12, 14, 15, 18, 19, 20 and 22

The Battle Creek Allotment Final Evaluation and Determination (June 8, 2007) indicated that Standard 4 is being met in pastures 9, 10, 12, 14, 15, 18, 19, 20 and 22. Long term trend in pastures 9, 10, 12, 14, 15, 18, 19, 20 and 22 was determined to be static or upward in the Battle Creek Allotment Final Evaluation and Determination (June 8, 2007) and the Battle Creek Final AIE (1999).

The Battle Creek Final AIE (1999) analyzed management that is very similar to current management. Current livestock grazing management in pastures 9, 10, 12, 14, 15, 18, 19, 20 and 22 since 1999 is very similar to management analyzed in the Battle Creek Final AIE (1999). Therefore, current management would result in static or upward long term trend as described in the Battle Creek Final AIE (1999).

Alternative B – Impacts to Vegetation and Livestock Grazing Management

Pasture 8

The effect of season of use change in Alternative B on pasture 8 will be the same as for Alternative A. However, range development projects are proposed for pasture 8.

Triangle Diary Pipeline- Map 6

Currently, a well supplies a water gap on private land and supplies livestock water to the northwest part of pasture 8. The proposed pipeline would move the concentration of livestock to an area approximately one mile to the southwest of this water gap inside the pasture. This would increase use in areas that generally are dominated by cheatgrass in the interspaces between shrubs. Overall, there would be increased distribution of livestock grazing in the northwest corner of pasture 8.

North Extension of the Shoofly Pipeline- Map 6

The proposed pipeline would increase distribution of livestock in northeast corner of pasture 8. This would increase livestock grazing use in areas dominated by cheatgrass.

In the remaining 5 % (est.) of the pasture that supports native perennial grasses and shrubs, overall distribution of livestock would improve and result in slightly less overall livestock grazing use of native perennial grasses and shrubs. However, the Biological Soil Crust Area identified by Pellant, Kalteneker and Rosentreter (1999) located between the proposed Triangle Diary Pipeline and the

proposed North Extension of the Shoofly Pipeline would receive slightly higher livestock grazing use.

Pasture 21
The effect of Alternative B on pasture 21 would be the same as for Alternative A. However, range development projects are proposed for pasture 21.

Cove Pipeline – Map 8
Water for this pipeline would be supplied by a source on private land. The proposed Cove Pipeline would increase livestock grazing in an area that is approximately one mile from an existing water gap on private land. There would be an increase in livestock grazing use of native perennial grasses and shrubs in the immediate area of the trough. Overall distribution of livestock grazing would increase slightly in this area of pasture 21. In pasture 21, there are currently 23 other sources of livestock water, therefore distribution of livestock grazing would not improve substantially. Long term trend in pasture 21 would remain static as a result of the proposed Cove Pipeline.

Pasture 22
The proposed season of use, May 6th to July 10th with duration of use of up to 45 days, would be a slight change from current management season of use from May 1st to June 30th. Current management allows duration of use of up to 60 days (see Table 5). So, the proposed shorter duration of use would benefit native perennial grasses. Delay of the turnout date by six days is not long enough to reduce livestock use of perennial grasses during the critical growing season. Extension of the livestock removal date by 10 days would not affect native perennial grasses since it would be the end of the critical growing season. There would not be any positive or negative change in long term trend in pasture 22 from the proposed season of use.

Shoofly Gap Fence- Map 9
The proposed Shoofly Gap Fence would have a slight impact in long term trend in pasture 21. Livestock grazing would continue to be concentrated north of the gap fence, just as with the electric fence. Long term trend would decline north of the proposed Shoofly Gap Fence. However, long term trend south of the fence would improve. The effect of both impacts would be a net improvement in long term trend in pasture 22 as a whole, since greater improvement in long term trend would be realized south of the proposed fence.

IDL Pipeline- Map 9
The livestock grazing use prior to 1999 has changed very little compared to current management in pasture 22. Therefore, the utilization maps in the Final Battle Creek AIE (1999) are applicable to the analysis of this proposed project.

The IDL pipeline would be located west of the use area described below. The area just north of the south boundary fence of pastures 14 and 22 has received moderate livestock grazing use (41%-60%) in the past (see map 15 –Battle Creek Allotment Final AIE (1999). Heavy livestock grazing use (61%-80%) was recorded immediately surrounding the existing troughs in the area just north of the south boundary fence of pastures 14 and 22 (see map 15 – Battle Creek Allotment Final AIE (1999). Moderate livestock grazing use (41%-60%) partially exceeds the allowable livestock

grazing use level of 50%. Heavy livestock grazing use (61%-80%) exceeds the allowable livestock grazing use level of 50%. Utilization in excess of the allowable use level during the critical growing season can cause a downward trend.

Photos of the fenceline contrast between pastures 14 and 22 illustrate the difference in ecological condition in this area (see Appendix J – Final Rangeland Health Assessment for Battle Creek Allotment #00802). The photos indicate lower overall ecological condition north of the pasture 14 and 22 fence. The rangeland health assessment (2005) for this area is a moderate departure from the reference condition, however, both pastures 14 and 22 were determined to still be meeting the Standard for Native Plant Communities (Standard 4).

The proposed trough would shift some livestock grazing use to the southwest area of state land (T. 8 S., R. 1 E., Section 36). The proposed trough would cause a reduction of moderate and heavy livestock grazing use east of the proposed IDL pipeline area. The reduction in livestock grazing use in the area located just north of the south boundary fence of pasture 14 and 22 (Little Jacks WSA) would cause a slight upward trend of upland vegetation. Standard 4 would continue to be met because long term trend of upland vegetation would slightly improve.

<u>Pasture 12</u>
The proposed dates, May 20th to July 20th, would begin 10 days earlier and end 20 days later than the 1999 decision, but would be the same as pre-1999 use.

The proposed earlier use period, beginning May 20th, would extend livestock grazing use during the critical growth period. However, livestock movement into pasture 12 has been staggered, i.e. 150-200 head are moved into the pasture 12 at any single time. Over a 7 -14 day period (this would begin May 20th) all cattle are moved into the pasture. So, the maximum number of cattle is not reached under after June 1st. This a slight change from current management. Current management in pasture 12 was found to be meeting Standard 4 and long term trend was static to upward in the Battle Creek Final AIE (1999). There would not be any positive or negative impact in long term trend in pasture 12 from the proposed season of use dates.

The proposed change of extending the season of use from July 1st to July 20th would extend the season of use in pasture 12. This would affect the southern end of the pastures because livestock use this area during this time period rather the north end of the pasture. The proposed use would be near the end of the growing season for native perennial grasses. Also, relatively low utilization was recorded in the south end of the pasture 12 (p. 35 - Final Rangeland Health Assessment for Battle Creek Allotment #00802). The proposed season of use for pasture 12 would add flexibility for the permittees use period. This flexibility was generally exercised under the terms and conditions of the pre-1999 grazing permits and Standard 4 was determined to be met and long term trend was static to upward as determined in the Battle Creek Allotment Final AIE (1999) under this type of management for pasture 12. The consequences of later livestock grazing use would be minimal. Long term trend in pasture 12 would not change and Standard 4 would continue to be met.

Joe's Basin Pipeline – Map 12

The proposed Joe's Basin Pipeline trough locations would be at current reservoirs. Water for this pipeline would be supplied by a source on private land. There would not be any overall increase or decrease in livestock grazing use in pasture 12. Livestock grazing use at these reservoir/trough locations would increase since there would be more water available for livestock. Livestock grazing use in other areas of pasture 12 would slightly decline. There would not be any positive or negative impact in long term trend in pasture 12 resulting from the proposed Joe's Basin Pipeline.

Shale Rock Gap Fence – Map 11
The proposed Shale Rock Gap Fence would stop livestock drift from pasture 12 to pasture 22. There would be reduced impacts of livestock trailing from pasture 12 through the Shale Rock Gap and down the trail located on Between the Creeks. There would be a slight decrease in livestock grazing use in trailing area. There would be a slight increase in livestock grazing use in pasture 12 and a slight decline in livestock grazing use in pasture 22. There would not be any positive or negative impact in long term trend in pasture 12 and 22 resulting from the proposed Shale Rock Gap Fence.

Snow Creek Spring Exclosure Modification – Map 11
The proposed exclosure modification would not have any effect on long term trend in pasture 12 because very little upland vegetation is affected. Trailing of livestock on the Jeep Trail downstream of the Snow Creek Spring would be allowed. Overall trailing of livestock around the proposed exclosure would improve.

<u>Pasture 14 and 20</u>
Joe's Basin Pipeline – Map 12
The extension of the Joe's Basin Pipeline into pasture 14 would improve distribution of livestock in pasture 14. It would also increase use in a lightly used northeast portion of pasture and cause long term trend to decline in the immediate area of the trough. There would not be any overall increase or decrease in livestock grazing use in pasture 14. Overall, there would not be any positive or negative impact in long term trend in pasture 14 resulting from the proposed extension Joe's Basin Pipeline because existing troughs in pasture 14 also distribute livestock to areas away from this proposed trough location.

The proposed dates (June 20 to September 30) for livestock grazing in pasture 14 and 20 would be 10 days earlier than the 1999 decision. The result would not be any overall increase or decrease in livestock grazing use in pastures 14 and 20. This would be near the end of the critical growing period of most native perennial grasses. The deferred rotation system prescribes alternate year livestock grazing at end of the critical growing season (see Table 5) alternating with livestock grazing use after seed ripe in these pastures.

Dry Creek Ribbon Fence and Water Gaps – Map 14
The proposed Dry Creek Ribbon Fence and Water Gaps would allow livestock grazing in an upland area that is currently fenced into pasture 20R. Livestock grazing and trailing would increase around the perimeter of the proposed fence. But, this would have minimal impact of the overall upland ecological condition in pasture 20 considering that overall livestock grazing use is low (see Table A4-5 – Final Rangeland Health Assessment for Battle Creek Allotment (2007)). There would not

be any overall positive or negative impact in long term trend in pasture 20 resulting from the proposed Dry Creek Ribbon Fence. Standard 4 would continue to be met.

The proposed water gaps in the Dry Creek Ribbon Fence would improve distribution of livestock in the southwest part of pasture 20. Increase use would occur on IDL land. Because past utilization measurements on public land (see Table A4-5 - Final Rangeland Health Assessment for Battle Creek Allotment (2007)) are low, there would not be any overall positive or negative impact in long term trend in pasture 20.

Pastures 10 and 15

Owen's Pipeline – Map 18

Currently, substantial livestock grazing use is occurring on private land in Little Jacks Creek Basin (pastures 10 and 15). The livestock grazing use on private land reduces the amount of use of the surrounding public land. However, the private landowner (Urquidi) has proposed to exclude livestock grazing on his private land. Most of the reliable livestock water in pasture 15 is adjacent to private land. Other water sources such as Owen's and Tank Reservoir are unreliable sources of water. If the private landowner (Urquidi) excludes livestock grazing from his private land then, the result would be increased livestock grazing use on public land around his private land. The proposed project would counteract the resulting distribution problem by providing reliable water away from the public land surrounding private land. The proposed project would also improve overall distribution of livestock grazing use in pastures 10 and 15. There would not be any overall positive or negative impact in long term trend in pasture 10 and 15 caused by the proposed Owen's Pipeline.

Collier Meadow Exclosure and Owen's Reservoir #2 – Map 21

The Collier Meadow Exclosure and Owen's Reservoir #2 would not change livestock distribution in the area surrounding these proposed projects since the Collier Meadow Exclosure already has a water gap that provides water to livestock. There would not be any overall increase or decrease in livestock grazing use in pasture 15. There would not be any overall positive or negative impact in long term trend in pasture 15 caused by the proposed projects.

North Pasture 10/15 Fence Removal and Construction – Map 18

The rationale for locating the fence along the WSA boundary road is that it would be easier to maintain by the permittees because it would be closer to the road.

The new location of the north pasture 10/15 fence is similar to the pre-1999 livestock grazing use in pastures 10 and 15 in terms of the amount acreage in each pasture. Pre-1999 incidental use of pasture 10 resulted in more balanced livestock grazing use of both pastures. The proposed addition of 860 acres to pasture 15 would be similar in impacts to the pre-1999 grazing management. Overall, the result would have a slight overall decrease in livestock grazing use in the proposed pasture 10 since this corner of the pasture would be further away from livestock water. There would not be any overall positive or negative impact in long term trend in pastures 10 and 15 resulting from moving the north pasture 10/15 fence.

The new gap fence and reconstruction of the gap fences along the rim of OX Prong or an alternative gap fence would stop livestock from trailing down to OX Prong to use water. The canyon areas of OX Prong would be excluded from livestock grazing use. Upland ecological condition would improve in this area. Because the proposed area is small relative to the overall size of pasture 10, there would not be an overall decline or improvement in long term trend. Standard 4 would continue to be met.

South Pasture 10/15 Gap Fences – Map 18
The proposed South Pasture 10/15 Gap Fences would take approximately 800 acres from pasture 10 and add it to pasture 15. This fence would create a secure boundary between the two pastures and assure that livestock use pastures during the correct season of use. The proposed change would not increase or decrease livestock grazing on the 800 acres since rimrock limits access by livestock and nearby water sources are not present. This plateau area has historically received very little grazing use (see Utilization map 15 of the Battle Creek Allotment Final AIE (1999)). There would not be any overall increase or decrease in livestock grazing use in pastures 10 and 15. There would not be any overall positive or negative impact in long term trend in pastures 10 and 15 resulting from the proposed fence.

Alternative C – Impacts to Vegetation and Livestock Grazing Management

Pasture 8
Pasture 8 is generally dominated by cheatgrass in the interspaces between shrubs (estimated to be 95% of the pasture); the potential impact on remnant native perennial grasses would be minimal when cheatgrass is abundant. In normal or above normal years, use of native perennial grasses is low (see Table A4-4 Utilization … Final Rangeland Health Assessment for Battle Creek Allotment).

The remaining 5% (est.) of the pasture with remnant perennial grasses would be rested (no livestock grazing) in years of low cheatgrass production. In these years, use of perennial grasses is heaviest on perennial grasses north of the fence between pastures 8 and 21. During rest years, perennial grasses would not be grazed in this area. This would cause long term trend in this area to remain static or slightly improve.

Livestock use of perennial grasses in the middle and north areas of the pasture is not noticeably heavier in low cheatgrass production years. Livestock also browse shrubs more when cheatgrass production is low. Overall throughout pasture 8, long term trend of upland vegetation would remain static.

Extended use in pasture 8, past May 1st and up to May 15th would be dependant on cheatgrass production. Only in abundant cheatgrass production years would livestock grazing use be extended to May 15th.

Pasture 21
Even though the terms and conditions of the pre-1999 grazing permits allowed use as early as April 1st, actual use records indicate that the permittees generally didn't move livestock into pasture 21

every year as early as April 1st. Instead, permittees moved livestock into pasture 21 from April 1st (1983) to as late as May 2nd (1997). Range readiness was commonly a factor in determining when livestock were moved in pasture 21. So for comparison purposes, the use proposed under Alternative C will be compared to a general begin livestock use date of April 15th.

Delaying use in pasture 21 until May 1st each year would decrease the potential for grazing of the native perennial grasses during the critical growing season. This proposal would not allow livestock grazing use of cheatgrass when it is still palatable (green), since it generally is cured by May 1st. However, livestock grazing use on or after May 1st, when compared to April 15th, would delay livestock use of Sandberg bluegrass to near the end of the critical growth of this grass and delay livestock use of Indian ricegrass and squireltail to the middle of the critical growth period of these grasses. The delay and the allowable use level of 30% would assure that the physiological needs of the native perennial grasses are being met.

Delaying use in pasture 21 until to May 15th would benefit the native perennial grasses because use would be even later in the critical growth period.

The livestock grazing use described above would cause a slight improvement in long term trend in pasture 21. Standard 4 would continue to be met in pasture 21.

Pastures 9, 12, 14, 18, 19, 20 and 22

Current livestock grazing management was analyzed in the Final Evaluation and Determination for Battle Creek Allotment (2007) and found that current livestock grazing management is meeting Standard 4 and long term trend in pastures 9, 12, 14, 18, 19, 20 and 22 is static or upward.

Because livestock would be allowed into pasture 21 on or after May 1st and the lack of a division fence separating pastures 21 and 22, some livestock drift as far south as pastures 9 and 22 as early as May 1st. It is assumed that the 23 existing livestock water sources in pasture 21 would limit cattle drift.

In pastures 9 and 22, some livestock grazing use of native perennial grasses (Indian ricegrass, squireltail, bluebunch wheatgrass and Sandberg bluegrass) would occur during the critical growing season (Indian ricegrass, squireltail, bluebunch wheatgrass) and toward the end of the critical growing season (Sandberg bluegrass).

Past utilization of the key forage species in pasture 22 (Table A4-6 – Final Rangeland Health Assessment for Battle Creek Allotment (2007)) has been low. Since existing water troughs in pasture 21 reduce livestock drift and past utilization has been low, this use would allow for the physiological needs of the key forage plants to be met. Also, past utilization on key forage species in these pastures has been low (p. 35 – Final Rangeland Health Assessment for Battle Creek Allotment #00802 (2007)).

The allowable use level of up to 50% near the end of the critical growing season of key forage species in pasture 12 and after the critical growing season of key forage species in pastures 14, 18, 19 and 20 would assure that the physiological needs of the native perennial grasses are being met.

The livestock grazing management (season of use changes) proposed in Alternative C would result in static or upward long term trend and allow for the continued attainment of Standard 4.

Range Improvements

Pasture 8

State Section Extension of Shoofly Pipeline – Map 7

The proposed pipeline extension would increase distribution of livestock in the southwest corner of pasture 8. Currently, this area is lightly grazed. This area is generally dominated by cheatgrass in the interspaces between shrubs and livestock grazing use would increase. Overall, there would be better distribution of livestock grazing in the southwest part of pasture 8.

In the remaining 5% (est.) of the pasture that supports native perennial grasses and shrubs, overall distribution of livestock grazing would slightly improve and result in slightly less overall livestock grazing use of native perennial grasses and shrubs, since more use would occur in cheatgrass dominated areas in the southwest part of the pasture.

The Biological Soil Crust area identified by Pellant, Kalteneker and Rosentreter (1999) is located about 2 miles south of the State Section Extension of Shoofly Pipeline. A condition of this proposed pipeline extension would be to eliminate the existing water gap located on private land in the northwest corner of the pasture 8 which is located ½ mile to 1 mile northwest of the crust area. Overall, there would be a slight decrease in livestock grazing use in the crust area resulting from the construction of the pipeline extension and elimination of the existing water gap.

Pasture 22

Shoofly Gap Fence – Map 9

Livestock grazing would continue to be concentrated north of the gap fence, just as with the electric fence. However, this area would be small and not affect overall long term trend in pasture 21. Long term trend of upland vegetation south of the fence would improve because the Shoofly Creek area would be used for trailing only. Improvement in long term trend of upland vegetation would occur south of the proposed fence because livestock grazing would be reduced during the critical growing season of native perennial grasses. Standard 4 would continue to be met in pastures 21 and pasture 22.

Pasture 22H – Map 9

The removal of the north boundary pasture 22H boundary fence would not affect long term trend or Standard 4. The south pasture 22H fence located at the confluence of East and West Shoofly Creek would remain in place.

Pasture 12

Modified Joe's Basin Pipeline – Map 13

The proposed Modified Joe's Basin Pipeline trough location would be at an existing reservoir where disturbance has already occurred. Water for this pipeline would be supplied by a source on private land. There would not be any overall increase or decrease in livestock grazing use in pasture 12. Livestock grazing use at this reservoir and trough location would increase since there would be

more water available for livestock. Livestock grazing use in other areas of pasture 12 would slightly decline. There would not be any positive or negative impact in long term trend in pasture 12 resulting from the proposed Modified Joe's Basin Pipeline. Standard 4 would continue to be met.

Snow Creek Spring Exclosure Modification - Same as Alternatives B and D.

Pasture 20

Dry Creek Exclosure – Map 15

The fenced area within the exclosure would be excluded from livestock. The upland vegetation condition within Pasture 20R, prior to the construction of the pasture 20R fence was late seral or better due to the past relatively low utilization of this area and the season of use which is generally after the critical growing of the native perennial grasses. Livestock haven't grazed pasture 20R for five years, consequently vegetation condition in pasture 20R is still late seral or better. Decreasing the size of the protected area would not change the condition of upland vegetation outside of the exclosure. Long term trend of upland vegetation inside the proposed exclosure would be static or improve. Standard 4 would continue to be met both inside and outside of the exclosure.

An off-site water development would be developed on IDL Land on the southwest side of the exclosure (see map 15). The upland vegetation impacted by this water development would be on IDL. On the public land surrounding IDL located southwest of the proposed exclosure and trough, long term trend of upland vegetation condition would be static. This is due to the past low use of this area by livestock and the season use which is generally after the critical growing of the native perennial grasses. Standard 4 would continue to be met southwest of the proposed trough.

Modified Hutch Spring Exclosure and Spring Development – Map 17

There would be an increase in livestock grazing use in the localized area surrounding the proposed trough. Long term trend of upland vegetation would decline slightly around the immediate area of the trough. In the larger area around the proposed exclosure and trough, long term trend of upland vegetation condition would not change. This is due to the past low use of the uplands around Hutch Springs by livestock and the season use which is generally after the critical growing of the native perennial grasses. Long term trend of upland vegetation condition inside the proposed exclosure would improve. Long term trend of upland vegetation condition outside the proposed exclosure would be static. Standard 4 would continue to be met both inside and outside of the proposed exclosure.

Pastures 10 and 15

The season of use and stocking rate proposed here in alternative C is same as current management (Alternative A). Current management has resulted in static and upward trend and Standard 4 to be met. The allowable livestock grazing use level of up to 50% will assure that the physiological needs of the native perennial grasses are being met. The upland vegetation condition in pastures 10 and 15 was late seral or better due to the past relatively low utilization of this area and the season of use which is generally toward the end or after the critical growing season of the native perennial grasses. Since the proposed livestock grazing use and current livestock grazing use are the same, long term trend of upland vegetation would continue to be static or upward in pastures 10 and 15. Standard 4 would continue to be met in pastures 10 and 15.

Range Improvements for pastures 10 and 15

Southern Pasture 10/15 Division Fence – Map 19

This fence would create a secure boundary between the two pastures and assure that livestock use pastures during the correct season of use. The 800 acres added to pasture 15 is currently lightly grazed and this is not expected to change after the fence would be built. The stocking rate would change slightly for each pasture, however on-the-ground grazing use patterns would not change. Long term trend of upland vegetation would not change and neither would the status of Standard 4.

Collier Meadow Exclosure, Pit Reservoir and Tanks Pipeline – Map 19

The current water gap at Collier Meadow Exclosure would be fenced to exclude livestock use. However, livestock grazing use is not expected to change in the Collier Meadow area because water would be available at the proposed Pit Reservoir. When unreliable sources of livestock water (Owen's Reservoir and Tanks Reservoir) dry up in late August and September, livestock grazing use would be concentrated in the Collier Spring area, Pit Reservoir and at the proposed trough at Tanks Reservoir. Long term trend of upland vegetation would remain static in this area since use has occurred in this areas in the past and only slightly more use would occur at the trough on Tanks Pipeline. Long term trend at distances of one mile or more from Collier Spring and Tanks Reservoir would be static or improve, since livestock grazing use would be reduced in these areas late in the grazing season. Standard 4 would continue to be met.

The proposed automatic pump system located in the Pit Reservoir would need to filter water before it is pumped into the proposed pipeline. Because the Pit Reservoir is proposed to be filled with water diverted from Little Jacks Creek and would also be used to supply water to livestock, the water would carry suspended sediment. This would require the water filter to be cleaned or replaced on a regular basis. This would be a maintenance burden for the permittees.

The water to be diverted from Little Jacks Creek would need to be regulated to provide a constant amount of water to the automatic pump system in the Pit Reservoir. The water regulating structure from Little Jacks Creek to the Pit Reservoir would have to be engineered because it would be site specific. The regulating structure would have to be adjusted on a regular basis to assure that the correct amount of water flows into the Pit Reservoir. This would be an additional maintenance burden for the permittees.

Collier Spring Exclosure Modification – Map 22

An exclosure fence would be built to exclude the Collier Spring source and riparian area below the dam. The pond that is fed by Collier Spring would remain accessible to livestock. Since the acres of upland vegetation proposed to be excluded would be very small, there would not be any overall improvement or decline in long term trend of upland vegetation. There would not be any affect on Standard 4.

Alternative D – Impacts to Vegetation and Livestock Grazing Management

Table 13 displays the proposed livestock grazing management under Alternative D for the Battle Creek Use Area.

Pasture 8

Adaptive management would be used in pasture 8. This could increase livestock grazing use to every year use, if cheatgrass production is normal or above normal. Normal or above normal cheatgrass production would allow for livestock grazing use as earlier as April 1st. If cheatgrass production is below normal and range readiness standards are not met, livestock grazing would be reduced and turnout dates would be delayed to after April 1st. Table 6 – Battle Creek Use Area Actual Use … indicates generally minimal or moderate actual use in the pasture from 2000 through 2005. This trend would continue in the future, since in the past (see Table 6), livestock grazing use in pasture 8 has been based on production of cheatgrass and range readiness.

Pasture 8 is generally dominated by cheatgrass in the interspaces between shrubs (estimated to be 95% of the pasture). The impact on remnant native perennial grasses would be minimal. When cheatgrass is abundant, such as in normal or above normal years, use of native perennial grasses is low (see Table A4-4 Utilization … Final Rangeland Health Assessment for Battle Creek Allotment). Long term trend of upland vegetation at the trend site would be static.

Pasture 21

The proposed season of use is the same as Alternative C. The only difference in management would be the allowable use level of 40% on native perennial grasses. Livestock grazing use after May 1st which is toward the middle (Indian ricegrass and squireltail) to late (Sandberg bluegrass) portion of the critical growing season of these grasses and the allowable use level of up to 40% would assure that the physiological needs of the native perennial grasses are being met (see utilization on page 36 of the Final Rangeland Health Assessment for Battle Creek Allotment #00802 (2007).

Extending the livestock grazing use period, past May 1st and up to May 15th, in pasture 8 would benefit the native perennial grasses in pasture 21. This would delay livestock grazing use in pasture 21 to later in the critical growth period of native perennial grasses.

The livestock grazing use described above would cause a slight improvement in long term trend in pasture 21. Standard 4 would continue to be met in pasture 21.

Pastures 9, 12, 14, 18, 19, 20 and 22

Alternative D would have the same season of use as Alternative B. The affect on upland vegetation would be the same as Alternative B. Standard 4 (Native Plant Communities) was being met in these pastures.

The allowable use level of up to 50% near the end of the critical growing season of key forage species in pasture 12 and after the critical growing season of key forage species in pastures 14, 18, 19 and 20 would assure that the physiological needs of the native perennial grasses are being met and Standard 4 to continue to be met.

The livestock grazing management (season of use changes) proposed in Alternative D would result in static or upward long term trend and allow for Standard 4 to continue to be met.

Range Improvements

Pasture 8
State Section Extension of Shoofly Pipeline and North Extension of Shoofly Pipeline – Map 7
The proposed pipeline extensions would increase distribution of livestock in areas that currently are lightly grazed. These areas are generally dominated by cheatgrass in the interspaces between shrubs and livestock grazing use would increase. Overall, there would be increased distribution of livestock grazing in the northeast and southwest corners of pasture 8 and throughout pasture 8.

In the estimated 5% of the pasture that supports native perennial grasses, overall distribution of livestock grazing would improve and result in slightly less overall livestock grazing use of native perennial grasses and shrubs, since more use would occur in cheatgrass dominated areas. Long term trend at the trend site would be static.

The Biological Soil Crust Area identified by Pellant, Kalteneker and Rosentreter (1999) is located about 1.5 miles to the west of the proposed North Extension of Shoofly Pipeline and two miles south of the State Section Extension of Shoofly Pipeline. A condition of the proposed pipeline extensions would be to eliminate the existing water gap located on private land in the northwest corner of the pasture 8 which is located ½ mile to one mile northwest of the crust area. Overall, there would a slight decrease in livestock grazing use and livestock trailing in the crust area resulting from the construction of these pipeline extensions and elimination of the existing water gap.

Pasture 22
Shoofly Gap Fence - Same as Alternative C.

Pasture 22H- Same as Alternative C.

IDL Pipeline - Same as Alternative B

Pasture 12
Modified Joe's Basin Pipeline - Same as Alternative C.

Shale Rock Gap Fence – Map 11
The proposed Shale Rock Gap Fence as described in Alternative B would not be built until after the modifications to the Snow Creek exclosure and spring development were completed and monitored for two grazing seasons to determine if the increased water available at Snow Creek spring is able to curtail drift back into pasture 22 and onto Shoofly Creek and East Fork Shoofly Creek.

Snow Creek Spring Exclosure Modification - Same as Alternative C.

Pasture 20
Dry Creek Exclosure - Same as Alternative C.

Modified Hutch Spring Exclosure and Spring Development - Same as Alternative C.

Little Jacks Creek Use Area - Pastures 10 and 15

Table 14 displays the proposed livestock grazing management for pastures 10 and 15. The season of use in Alternative D is slightly different than other alternatives, e.g. two weeks shorter in pasture 10 and two weeks longer in pasture 15. The two weeks shorter period in pasture 10 would be near the end of the critical growing season for perennial grasses and long term trend would be static or slightly improve. The two weeks longer period of use in pasture 15 would be after the critical growing season for perennial grasses and long term trend would not be affected.

The increased use period in pasture 15 would be compensated by an increase in acreage of pasture 15. Alternative D prescribes increasing the acreage of pasture 15 by approximately 4,025 acres (see below - range improvements for pasture 10 and 15). This would result in pasture 10 being grazed at 20.7 acres/AUM and pasture 15 being grazed at 11 acres/AUM. Current management (Alternative A) has caused pasture 10 to be grazed at 22 acres/AUM and pasture 15 to be used at 11 acres/AUM (not based on production but geographic area/AUMs only). The Final Determination and Evaluation determined that Alternative A (current management) resulted in a static to upward long term trend of upland vegetation in pastures 10 and 15. Since the proposed livestock grazing use and current livestock grazing use are nearly the same, long term trend of upland vegetation would continue to be met in pastures 10 and 15. Standard 4 would continue to be met in pastures 10 and 15.

The allowable livestock grazing use level of up to 50% will assure that the physiological needs of the native perennial grasses are being met.

The 1980-1981 forage inventory found that pasture 10 has a mean production of 7.2 acres/AUM and pasture 15 has a mean production of 9.2 acres/AUM. However, these data assumed 50% overall utilization, which is not realistic under current management or this alternative.

Range Improvements for pastures 10 and 15
North Pasture 10/15 Fence Removal and Construction – Map 20
Same as Alternative B.

East extension of pasture 10/15 fence – Map 20
This project would require a new fence be built (T. 9 S., R. 2 E., Sections 33, 34 and 35) 50 feet south of the WSA boundary fence road. The rationale for locating the fence 50 feet south of the WSA boundary road is that the fence would be easier to maintain by the permittees since it would be closer to the road.

The combined effect of moving the north pasture 10/15 fence and constructing the east extension of pasture 10/15 fence would be to add 4,105 acres to pasture 15. The additional acreage in pasture 15 would allow a season of use change, that is, two to three weeks shorter in pasture 10 and two to three weeks longer in pasture 15. The additional 4,025 acres to be added to pasture 15 would cause pasture 15 to be grazed at 11 acres/AUM and pasture 10 to be grazed at 20.7 acres/AUM (not based on production but on geographical area per AUM only). Current management (Alternative A) has

caused pasture 10 to be grazed at 22 acres/AUM and pasture 15 to be used at 11 acres/AUM. The difference between current management (Alternative A) and Alternative D are insignificant in term of acres/AUM. Since the long term trend of upland vegetation is static under current management (Alternative A), then long term trend of upland vegetation would be static under Alternative D. Under Alternative D, Standard 4 would continue to be met in pastures 10 and 15.

The combined affect of these fences and exclosure in the road crossing area of Little Jacks Creek would be to allow a vehicle lane, a water gap for livestock and connect the east part of the proposed pasture 15 to the west part of the proposed pasture 15 to allow livestock movement between the two areas.

Modified Owens Pipeline – Map 20
The rationale for this project is the same as for Alternative B. However, the difference is that only five troughs are proposed rather than 10 and only 5.5 miles of pipeline would be required. This project proposes five water troughs to replace four troughs (Hutch Pipeline Extension and three water haul sites) that were to be built as the result of the 1999 decisions.

Well water would be cleaner than water pumped from the proposed Pit Reservoir and Tanks Pipeline system. Less maintenance would be required of the water filter for the well. Also, this project would not require a water regulating structure such as would be needed for the proposed Pit Reservoir and Tanks Pipeline. The maintenance of this system would be less than for the proposed Pit Reservoir and Tanks Pipeline system.

In pasture 10, a spring development was proposed in the 1999 decisions (T. 9 S., R. 2 E., Section 10). The proposed spring development is not feasible because of the lack of sufficient water at the spring. This spring development would have been in pasture 10, however in this alternative it would be in the expanded pasture 15 (see East extension of pasture 10/15 fence above). Yet, since it is not feasible, it contributes to the livestock water deficit in the proposed pasture 15.

All troughs would be located near a road, near a current water source or salt areas, rather than lightly used areas such as proposed in Alternative B. The impacts to native vegetation would less than alternative B.

Currently, substantial livestock grazing use is occurring on private land in Little Jacks Creek Basin. The livestock grazing use on private land reduces the amount of use of the surrounding public land. However, the private landowner (Urquidi) has proposed to exclude livestock grazing on his private land. If this happens, then that would result in a livestock distribution problem surrounding the private land in late August and September since late season reliable water sources are concentrated around the private land.

The proposed Modified Owen's Pipeline would counteract the distribution problem by providing five livestock water troughs on public land away from private land (see map 20). Since livestock use would be relocated to areas away from the private land in Little Jacks Creek basin, overall distribution of livestock grazing use would improve in pasture 15. There would be a slight positive change in long term trend of upland vegetation in the vicinity of the private land in Little Jacks

Creek basin. There would be a slight negative change in long term trend of upland vegetation in the immediate areas surrounding the proposed troughs (1/4 mile circumference or less). Since there would be better distribution of livestock grazing use in pasture 15 and the season of use is after the critical growing season of the native perennial grasses, long term trend of upland vegetation would remain static or slightly improve. Standard 4 would continue to be met in pasture 15.

Little Jacks Creek Meadow Exclosure – Map 20
This exclosure would improve the long term trend of the small amount of upland vegetation that would be in the exclosure.

Collier Spring Exclosure – Map 23
Because the acres of upland vegetation proposed to be excluded would be very small, there would not be any overall improvement or decline in long term trend of upland vegetation.

D. Riparian and Wetlands

1. Affected Environment

Riparian Areas
About thirty miles of stream in three major drainages (Battle, Little Jacks, and Shoofly creeks) are located in the Battle Creek Allotment. The majority of the riparian habitat of these streams is in proper functioning condition (17.0 miles), or functional at risk with an upward trend (7.8 miles), with 5.7 miles of stream functioning at risk with static to downward trends in condition (USDI 2007a, BLM unpubl. data, Map 24). Habitat conditions of individual streams are described below.

<u>OX Prong Creek</u>
OX Prong Creek is a 1.6-mile long perennial tributary stream to Little Jacks Creek located in Pasture 10. The headwater springs of OX Prong are the primary source of perennial stream flows in the Little Jacks Creek drainage. OX Prong Creek is moderately confined by side valley slopes with gradients of 2-4% (B channel type; Rosgen 1996). Stream substrates are composed primarily of cobble-sized rocks (USDI 1999). Streamside vegetation is dominated by Kentucky bluegrass (*Poa pratensis*), baltic rush (*Juncus balticus*), and sword leaf rush (*J. ensefolius*). Remnant willows (*Salix* sp.) and aspen trees (*Populus tremuloides*) are scattered along the upper portion of the stream and become more common downstream. Riparian areas on 0.9 mile of OX Prong are functional at risk with a static trend (USDI 1999,2007a, Map 24). Unvegetated and unstable banks on 25% of the stream are contributing fine sediment to downstream segments of Little Jacks Creek.

The most rugged, inaccessible portions of OX Prong canyon with greater amounts of rock in the floodplain to armor streambanks and channels have a slow upward trend in riparian condition (0.4 mile of stream), resulting from a reduction in August and September grazing use since 2000 (USDI 2007a,b), when a fence was built separating Pastures 10 and 15 (per the 1999 Grazing Decision). The purpose of the fence was to eliminate late summer (August and September) grazing use of OX Prong and Little Jacks Creek in Pasture 10. Some cattle have continued to graze on OX Prong Creek after July because the fence between Pastures 10 and 15 is in disrepair, the rimrock forming the southern pasture boundary has livestock trails through it, and a gate between private and BLM land is often left open such that cows return to Pasture 10 in late summer. Livestock were also present in Pasture 10 in April and May 2007 prior to the authorized use period. The upper 0.3 miles of OX Prong Creek is located on private land and is fenced into three segments to provide water for livestock grazing in pastures 10, 14, and 22.

Cattle congregate on the more accessible portions of OX Prong during the summer (June through September), resulting in high utilization of streamside vegetation. Median stubble heights of herbaceous vegetation adjacent to the stream ranged from 1.5-3.0 inches at the end of the growing season during 1999-2004 (USDI 2007a). In 1998, livestock were actively herded away from the creek and the median stubble height was 6 inches.

<u>Little Jacks Creek</u>

About 19 miles of Little Jacks Creek is located on public land in the Battle Creek Allotment. The headwaters of Little Jacks Creek are located in Pasture 15 and on private lands just downstream of Pasture 15. Little Jacks Creek has perennial flows of water in Pasture 15 at Collier Meadow, and in Pasture 10 at Cottonwood Spring where bedrock forces groundwater to the surface. Stream flows in other portions of Little Jacks Creek upstream of the OX Prong confluence are intermittent and the duration of flow in the summer is dependent on winter snowpack levels. Springs in OX Prong maintain perennial stream flows of 1 to 3 cfs in late summer in Little Jacks Creek, downstream of the OX Prong confluence to the northern boundary of Battle Creek Allotment (Zoellick 1999).

Upper Little Jacks Creek flows through a low gradient valley in pastures 15 and 16R (Little Jacks Meadow exclosure), and the upper end of pasture 10. Channels have gradients of 1-1.5%, with alternating riffles and scour pools on meander bends (C channel type, Rosgen 1996). The headwater segment of Little Jacks Creek was probably originally a highly meandering stream channel (E channel type; Rosgen 1996). In pastures 15 and 16R the channel is slightly incised, but high flows still spread out into the original floodplain level of the meadows. At the downstream end of pasture 16R, about a 0.3 mile length of channel has eroded 2 to 3 feet down into silt-clay soils, and high flows no longer spread into the meadows. In Pasture 10, Little Jacks Creek drops from the flat, unconfined valley reach into a rugged canyon. Stream channels in the lower canyon portion of Pasture 10 have gradients of 2-4% and are moderately to highly confined by side slopes, with cobble-dominated substrates (B channel type, Rosgen 1994).

Streamside vegetation of the upper 1.6 miles of Little Jacks Creek in Pastures 10, 15, and 16R (Little Jacks Creek Meadow exclosure) is dominated by baltic rush, Nebraska sedge (*Carex nebracensis*), and Kentucky bluegrass. Remnant willows and aspens are present on the segment transitioning from the meadow to the canyon reach in Pasture 10. Willows (*Salix lasiandra, S. exigua, S. lutea*) are common in the lower 1.2 miles of Little Jacks Creek in Pasture 10 that is located in a steep, highly confined canyon that prevents most livestock access.

Most of Little Jacks Creek at Collier Meadow in pasture 15 (0.2 of 0.3 mile) was fenced to exclude livestock use in 2001 and is functioning at risk with a slow upward trend. The Little Jacks Creek Meadow exclosure (Pasture 16R) was also fenced to eliminate livestock use in 2001, but continued to be grazed in summer for 3 to 4 years by cattle that forced their way through the fence, primarily at the upstream and downstream fence crossings on Little Jacks Creek. Few cattle grazed in the Little Jacks Creek Meadow exclosure (16R) in 2007, and the recent trend in riparian condition is upward.

Cattle congregate on two easily accessible portions of Little Jacks Creek with predominantly silt-clay soils in Pasture 10 (0.3 mile of stream at Cottonwood Spring, and 0.2 mile of a meadow segment at the upper end of the pasture), during June through September. These riparian areas are functioning at risk with static trends in condition (USDI 1999, 2007a, Map 24). Willow and aspen recruitment is lacking and young and middle-aged shrubs are absent in the Cottonwood Spring segment. About 25% of stream banks are unvegetated and unstable and contributing fine sediment to downstream segments of Little Jacks Creek. Median stubble heights of herbaceous vegetation adjacent to the stream ranged from 1.5–4.0 inches at the end of the growing season during 1998-2004 (USDI 2007a). In 2001, a temporary electric fence was constructed on the upstream 1.1 miles

of Little Jacks Creek in Pasture 10. The purpose of the fence was to rest accessible riparian areas from livestock grazing until plant cover and density improved, such that they would remain in functioning condition when grazing resumed. The fence was not maintained and livestock grazed this portion of Little Jacks Creek during 2002-2007.

Approximately 0.6 mile of Little Jacks Creek in Pasture 10 that is accessible to livestock, but has an extremely rocky floodplain, is functioning at risk with an upward trend (USDI 2007a, Map 24) due to the reduction of late summer livestock grazing with the construction of a fence separating Pastures 10 and 15 in 2000 (per the 1999 Grazing Decision). Some cows graze Little Jacks Creek in Pasture 10 after July because the fence between Pastures 10 and 15 is in disrepair, the rimrock forming the southern pasture boundary has livestock trails through it, and a gate between private and BLM land is often left open such that cows return to Pasture 10 in late summer. The canyon segment (1.2 miles) of Little Jacks Creek in Pasture 10 that is predominantly inaccessible to livestock use is in proper functioning condition (USDI 2007a).

Little Jacks Creek is inaccessible to livestock starting about one mile downstream of the confluence with OX Prong Creek, downstream to the southern boundary of pasture 21. This segment of Little Jacks Creek (11.5 miles in length) supports some of the highest quality riparian habitat of streams draining the northern flank of the Owyhee Mountains (USDI 1999, Zoellick 2004). The stream is moderately confined by valley side slopes with a narrow floodplain inside a 150-200 m deep canyon (B-channel type; Rosgen 1994). Riparian vegetation is dominated by willows (*Salix lasiolepsis, S. lutea, S. lasiandra, S. exigua*), red-twig dogwood (*Cornus sericia*), and scouring rush (*Equisetum arvense*). In pasture 21, Little Jacks Creek is in proper functioning condition or functioning at risk with an upward trend in condition (USDI 2007a). Livestock access to the 2.6 miles of stream in pasture 21 is limited. Riparian vegetation is similar to that further upstream in Little Jacks Creek canyon.

Portions of Little Jacks Creek in Pastures 10 and 21, and Ox Prong were identified to be improved in condition in the 1983 Land Use Plan (LUP; USDI 1983, Map 23). Improving fisheries and riparian habitat conditions for redband trout and riparian dependent wildlife was identified in the LUP as the primary management objective for those streams (USDI 1983). In 2007, 2.4 miles of these streams in Pasture 10 were not meeting this LUP objective (USDI 1999, 2007a).

<u>Shoofly Creek</u>
The majority of the Shoofly Creek drainage is located in the Battle Creek Allotment, including 1.8 miles of Shoofly Creek on BLM-managed land, the length of East Fork Shoofly Creek (4.7 miles on BLM-managed land), and 1.8 miles of West Fork Shoofly Creek. The East and West Forks of Shoofly Creek are first order tributaries to Shoofly Creek. Channels of all three streams are located in narrow canyons, are moderately confined by valley side slopes, and have stream gradients of 2-4% (B channel types; Rosgen 1996). Stream substrates of upper portions of the East and West Forks are dominated by gravels and small-sized cobbles (USDI 1999). The lower end of the East and West Forks of Shoofly Creek and much of Shoofly Creek flow through floodplains with silt-clay alluvial soils with little rock, and stream substrates are composed primarily of silts and sands.

The upper ends (4.1 miles) of the West and East Forks of Shoofly Creek in pastures 12 and 22 are largely inaccessible to livestock and are in proper functioning condition (USDI 2007a,b, Map 24). Streamside vegetation is dominated by shrubs (willows including *S. lasiolepsis,* and *S. lasiandra* and red-twig dogwood), and trees (quaking aspen and water birch *Betula occidentalis*). The downstream ends of East and West Forks of Shoofly Creek and Shoofly Creek in pastures 22 and 22H (2.5 miles) are functioning at risk with a downward trend in condition (Map 24). Much of the riparian vegetation is composed of early seral species and riparian shrub cover is lacking (USDI 1999, 2007a). During 1998–2002, trend in functioning condition was strongly upward, with the implementation of livestock management prescribed in the 1999 grazing decision for the Battle Creek allotment (USDI 2007a,b). These management actions were discontinued in 2002. Since 2003, riparian vegetation on Shoofly Creek and the East and West Forks of Shoofly Creek in pasture 22 has received high levels of livestock use and streambanks have been extensively altered by livestock, resulting in a reversal in the trend in stream condition (USDI 2007a, b). Noxious weeds (Scotch Thistle [*Onopordum acanthium*] and Russian Knapweed [*Acroptilon repens*]) have invaded highly disturbed riparian areas on East Fork Shoofly and Shoofly Creek and are increasing in number (USDI 2007a).

About 0.2 mile of West Fork Shoofly Creek centered on the Shale Rock Crossing in pasture 12 is functioning at risk with a downward trend. The stream is actively down-cutting into silt-clay alluvial soils because of extensive bank trampling by livestock and lack of obligate riparian vegetation to stabilize banks and channels. This is the one place that cattle can cross the canyon of the West Fork of Shoofly Creek and access pasture 12 from pasture 22, thus it is a major cattle trail. Additionally, livestock congregate on the ¼ mile segment of stream centered on the crossing because it is one of two water sources in the northern end of pasture 12.

Most of Shoofly Creek in pasture 21 (0.8 mile) is functioning at risk with a downward trend due to high levels of alteration (hoof shearing and pugging) of silt-clay soil streambanks by livestock during May grazing during 2003-2006 (USDI 2007a,b). This segment had an upward trend in condition during 2000-2002, when it was rested from livestock grazing to facilitate late-seral vegetation colonizing and stabilizing stream banks (USDI 2007a,b). A temporary electric fence was constructed in 2000 across the mouth of the Shoofly Creek canyon and used through 2002 and again 2007 to rest public land segments of Shoofly Creek in Pasture 21 from grazing. Shoofly Creek within the Cottonwoods exclosure (0.25 mile of stream) and 0.45 mile of stream in a rugged, highly confined canyon area of pasture 21 are functioning at risk with upward trends in condition.

East Fork Shoofly, West Fork Shoofly, and Shoofly Creek were identified to be improved in condition in the 1983 LUP (USDI 1983, Map 23). Improving fisheries and riparian habitat conditions for redband trout and riparian dependent wildlife was identified in the LUP as the primary management objective for those streams (USDI 1983). In 2007, these streams, with the exception of the headwater reach of the East Fork of Shoofly Creek (USDI 1999, 2007a), were not meeting this LUP objective.

<u>Battle Creek</u>
A short segment of Battle Creek (0.2 mile in length) at the southern boundary of pasture 20 is located on public land. This segment is located in a low gradient (< 0.1% slope) valley and largely

unconfined by valley side slopes (C channel type; Rosgen 1994). Streamside vegetation is dominated by sedges (*Carex nebrascensis, C. rostrata*), baltic rush, Kentucky bluegrass, and Geyer's willow (*Salix geyeriana*). Stream substrates are dominated by silts. This segment is fenced to provide water to livestock grazing in pasture 20, and is functioning at risk with a static trend.

Dry Creek

About 3 miles of Dry Creek is located on public lands in pasture 20R. Springs that supply water to Dry Creek are located on private land upstream of pasture 20R. The stream is a first order tributary to Battle Creek and stream flows are generally intermittent, with duration of flow dependent of winter snowpack levels. Dry Creek had perennial flows in 2005, and in most years has pools of water throughout the summer. Upstream of the private land at the west end of pasture 20R, Dry Creek is ephemeral with surface flows only during snowmelt or thunderstorms.

Dry Creek is located in a low gradient valley with silt-clay alluvial soils. Streamside vegetation is dominated by baltic rush, Nebraska sedge, sword leaf rush, and Kentucky bluegrass. Much of Dry Creek in pasture 20R was probably originally a meandering stream channel (E channel type; Rosgen 1996) through a meadow plant community. The upper 0.8 mile of the segment is slightly incised, but the stream still has access to the original floodplain level of the meadows. The lower 2.2 miles of Dry Creek in pasture 20R has eroded 3–4 feet down into an F channel type (Rosgen 1996). Remnant meadow plant communities located adjacent to Dry Creek are reduced in size and quality because of the loss of soil moisture resulting from the Dry Creek channel down-cutting. Water no longer spreads out into the meadows during high flows in spring. Dry Creek was fenced into a riparian pasture (20R) and rested from livestock grazing since 2000 and 2.2 miles of the stream is functioning at risk with an upward trend in condition and 0.8 miles is in proper functioning condition (USDI 2007a, Map 24). Stream channel form and floodplain function is improving. Increased riparian plant cover is contributing to the channel aggrading (an average of 0.33 feet in 2005; BLM, unpubl. data).

Spring Wetlands

Eighteen wetlands are located at springs on public lands in the Battle Creek Allotment. Many springs have surface flows year-long that provide water for wildlife and livestock, and wetland vegetation maintained by the spring flows provides important habitat for sage grouse. All of the springs are located in the higher elevation pastures that are grazed in late spring or summer. Wetland vegetation at 9 springs with rocky substrates is dominated by woody shrubs and trees including willows (*Salix lutea, S. lasiandra*), currants (*Ribes* spp.), chokecherry (*Prunus virginiana*), and quaking aspen. An herbaceous understory of rushes (*Juncus* spp.) and sedges (*Carex* spp.) is also usually present at these wetlands. Herbaceous vegetation dominates wetlands with clay-silt soils at one-half of the springs on the allotment.

Six spring wetlands are in proper functioning condition (USDI 2007a). Two spring wetlands were recently fenced to exclude livestock use and are functioning at risk with an upward trend in condition (USDI 2007a). Seven spring wetlands are functioning at risk with static to downward trends in condition and three are non-functioning (USDI 2007a, BLM unpubl. data).

Two spring wetlands that are functioning at risk are located at Hutch Springs which supports a large wetland area (about 15 acres in size; BLM, unpubl. data). All of the other springs on the allotment combined support about 3.5 acres of wetland habitat (BLM unpubl. data). Meadows (approximately 15 acres in size) associated with Dry Creek comprise the majority of the remaining wetland habitat on the allotment.

2. Direct and Indirect Impacts – Riparian Areas and Wetlands

Alternative A - Current Management

Stream riparian areas located in rugged, rocky canyon areas that are inaccessible to livestock, or rarely used by livestock when grazed in the spring (Little Jacks Creek and 0.4 mile of Shoofly Creek in Pasture 21) would remain in proper functioning condition (17 miles) or functional at risk with an upward trend (4.8 miles). Inaccessible streams include most of Little Jacks and some canyon segments of East and West Forks of Shoofly creeks. Dry Creek in the riparian pasture (20R, 3 miles of stream) would continue to improve in condition to PFC over the long term (Table 18).

Of 5.7 miles of streams currently not meeting standards (Table 18), 0.5 miles of Little Jacks Creek in the Little Jacks Creek Meadow exclosure (Pasture 16R) would improve to PFC over the mid term (5-15 years), if most livestock are kept out of the exclosure similar to that observed in 2007. The condition of 5.2 miles of riparian areas on Battle, Little Jacks, OX Prong, East Fork Shoofly, West Fork Shoofly, and Shoofly creeks would continue to be directly impacted by the high utilization of riparian plants by livestock and excessive levels of bank alteration. Riparian areas on these stream segments that are easily accessible to livestock in pastures 10, 12, 15, 20, 21, and 22 would remain in functional at risk condition with static to downward trends (Table 18). Segments of Shoofly, East and West Forks of Shoofly, OX Prong, and upper Little Jacks (in pasture 10) creeks (a total of 4.7 miles of stream) would continue to not meet LUP objectives for riparian habitat.

Streambanks on Shoofly and West Forks of Shoofly creeks and portions of Little Jacks and East Fork Shoofly creeks are composed of silt-clay soils that are highly 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 streams would continue to receive too extensive of levels of bank alteration by livestock and conditions would remain static to downward. High disturbance levels would facilitate increased numbers of noxious weeds, which would further retard or prevent establishment of bank-stabilizing species.

Table 18. 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, 5.7 miles of stream are in functional at risk condition with static or downward trends (FARS or FARD; USDI 2007a,b, BLM unpubl. data). Segment identifies distance from confluence.

Stream (segment)	Pasture	Current Condition	Length (mi)	Projected Condition over the Long Term			
				Alt A	Alt B	Alt C	Alt D
Shoofly (18.0A)	21	FARD	0.8	FARD	FARS	PFC	PFC
Shoofly (18.0B)	22H	FARD	0.3	FARD	PFC	PFC	PFC
W.F. Shoofly (0.0)	22H	FARD	0.2	FARD	PFC	PFC	PFC
W.F. Shoofly (5.4)[d]	12	FARD	0.2	FARD	FARD	FARD	FARD
E.F. Shoofly (19.3)	22	FARD	2.0	FARD	FARS	PFC	PFC
Battle (36.8)[e]	20	FARS	0.2	FARS	FARS	FARS	FARS
Dry (2.9)	20R	FARU	3.0	PFC	FARD	PFC	PFC
OX Prong (0.4)	10	FARS	0.9	FARS	PFC	PFC	PFC
Little Jacks (23.4)	10	FARS	0.3	FARS	FARS	PFC-0.2[a]	PFC-0.2[a]
Little Jacks (24.3) [b]	10	FARS	0.2	FARS	FARS	PFC [c]	PFC
Little Jacks (24.5)	16R	FARS	0.5	PFC	PFC	PFC	PFC
Little Jacks (26.2)	15	FARS	0.1	FARS	PFC	PFC	PFC
Totals (miles)			8.7	3.6 PFC 5.1 FAR	2.0 PFC 6.7 FAR	8.1 PFC 0.6 FAR	8.2 PFC 0.5 FAR

[a] 0.2 mile would improve to PFC and 0.1 mile immediately adjacent to Cottonwood Spring would remain in FAR condition (static trend).
[b] This 0.2 mile long segment of meadow type stream is located immediately downstream of pasture 16R (the existing Little Jacks meadow grazing exclosure).
[c]0.1 mile of Little Jacks Creek upstream of the WSA would improve to PFC by fencing it exclude livestock grazing; 0.1 mile would improve slightly, but would remain in FAR condition (static trend).
[d]This segment of W. Fk. Shoofly Creek is the Shale Rock Crossing, which is the only trail into pasture 12 from 22, and a watergap.
[e]This segment of Battle Creek is a watergap for pasture 20.

Spring Wetlands

Five wetlands at undeveloped springs would continue to be in PFC and one undeveloped spring that was recently excluded from livestock grazing would improve to PFC over the mid term. Two undeveloped springs in summer grazing pastures would remain in FAR condition due to high use of wetland plants and pugging and trampling of wetland soils (OX Prong Spring and the spring at T.10S, R.1W, Sec. 11).

One wetland at a developed spring (Rock Spring) would continue to be in PFC. The developed spring at Snow Creek, which was recently fenced to exclude livestock from most of the wetland, would improve to PFC over the mid term as late-seral sedges and rushes colonize bare soil areas. Eight wetlands at developed springs would remain in functional at risk or non-functional condition because of high levels of livestock use of wetland plants and trampling and pugging of wetland soils or development impacts (partial to complete dewatering of the wetland).

Alternative B (Permittees' Application) – Impacts to Riparian Areas

Similar to Alternative A, stream riparian areas located in rugged, rocky canyon areas that are inaccessible to livestock, or rarely used by livestock when grazed in the spring (Little Jacks Creek and 0.4 mile of Shoofly Creek in Pasture 21) would remain in proper functioning condition (17 miles) or functional at risk with an upward trend (4.8 miles). Inaccessible streams include most of Little Jacks and some canyon segments of East and West Forks of Shoofly creeks. Of stream segments currently not meeting standards or projected to not meet standards in the future, fewer segments would improve under this Alternative compared to Alternative A (Table 18), largely because the upward trend on Dry Creek would be reversed under this alternative; see the following discussion of individual stream segments.

The condition of Dry Creek (3 miles of stream) in Pasture 20 would be reversed from functional at risk with an upward trend to functional at risk with a static to downward trend. The stream would be at risk of channel erosion and degradation as a result of a new project (*Dry Creek Ribbon Fence and Water Gaps*) that would eliminate the riparian pasture (20R) on Dry Creek, and ribbon fence the stream into 3 to 6 exclosures separated by multiple (2 to 5) water gaps that would receive high levels of use and alteration by livestock. During high stream flows the channel in the water gap areas would be at risk of incising because of the lack of vegetation (or engineered stream-hardening structures) to stabilize banks and channels in silt-clay soils (Beeson and Doyle 1995, Micheli and Kirchner 2002). The channel would incise until it hits a hardened surface (sufficient rock armoring), cutting both vertically and upstream into the fenced exclosures. Battle Creek (0.2 mile of stream) in Pasture 20 would remain in functional at risk condition due extensive riparian plant use and bank alteration associated with annual hot-season grazing.

Streambanks on accessible portions Shoofly, East Fork Shoofly, and West Fork Shoofly creeks in pastures 12, 21, and 22 are composed of silt-clay soils that are highly 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). The fence at the entrance of Shoofly Creek canyon (*Shoofly Gap Fence Project*) would create a separate pasture from pasture 21, but Shoofly Creek would continue to be grazed during May. Most of Shoofly Creek in this pasture (0.8 mile of stream) would remain in FAR condition with a static trend. High levels of bank alteration of fragile silt-clay streambanks associated with high grazing use in May (USDI 2007a,b) that results in a 4-inch median stubble height at the end of the growing season would inhibit the increases in riparian plant cover and density needed to stabilize streambanks and channels (Clary and Webster 1989, Micheli and Kirchner 2002).

East Fork Shoofly Creek in pasture 22 would be grazed from May 6 to July 10 and West Fork Shoofly Creek at Shale Rock crossing would be grazed from May 20 to July 20. Accessible segments of these streams with fragile silt-clay soils (2.0 miles of East Fork Shoofly, and 0.2 mile of West Fork Shoofly Creek at Shale rock crossing in Pasture 12) would continue to be directly impacted by high utilization of riparian plants by livestock and excessive levels of bank alteration that would inhibit increases in cover and density of bank-stabilizing plant species. High disturbance levels would facilitate increased numbers of noxious weeds on East Fork

Shoofly Creek (USDI 2007a), which would further retard or prevent establishment of bank-stabilizing species. This alternative does not include management actions for East Fork Shoofly Creek (USDI 1999) to minimize bank alteration and limit riparian plant use that resulted in the stream having an upward trend in condition during 1998-2002 (USDI 2007a,b). As a result these stream segments (2.2 miles of stream) would remain in functional at risk condition with static to downward trends. Shoofly, and West Fork Shoofly creeks in Pasture 22H (0.5 mile of stream) would improve to PFC over the mid term, if only used for trailing of livestock as during 2000-2002 (USDI 2007a,b). Accessible portions of Shoofly and East Fork Shoofly creeks (2.8 miles of stream) in pastures 21 and 22 would continue to not meet LUP habitat objectives for riparian habitat.

The fence at West Fork Shoofly Creek (*Shale Rock Gap Fence Project*) is not needed to improve the condition of East Fork Shoofly and Shoofly creeks as shown by upward trends in condition of these streams during 1998-2002 (USDI 2007a,b), and absence of livestock grazing on these streams in 2007. The Shale Rock Gap fence also would not improve the degraded condition (>50% bare banks, 4-foot deep channel erosion) of West Fork Shoofly Creek at Shale Rock crossing as the purpose of the fence is to prevent livestock movement from pasture 12 to pasture 22 (constructed on the pasture 22 side of the stream), rather than to limit the duration or intensity of use of the stream by livestock in pasture 12. Instead, the fence would likely increase bank alteration and trampling of riparian areas on the upper end of this segment (where only riparian shrubs shield the stream from livestock impacts); grazing use in pasture 12 would slightly increase with the fence (see the Upland Vegetation and Livestock Grazing Management section). West Fork Shoofly Creek (0.2 mile of stream) would continue to receive high levels of bank alteration from livestock watering at the Shale Rock crossing, and would remain in functional at risk condition with a downward trend.

The rugged canyon and rock-armored sections of streams in pasture 10 (0.4 mile of OX Prong and 1.8 miles of Little Jacks Creek) would remain in proper functioning condition or functional at risk with an upward trend. The proposed gap fences in the WSA (*OX Prong Gap Fence Project*) would eliminate livestock access to OX Prong from Pasture 10 and 0.9 mile of riparian habitat would improve in condition. The functioning condition of 0.5 mile of riparian habitat that is easily accessible to livestock on Little Jacks Creek in Pasture 10 (at Cottonwood Spring and the meadow segment adjacent to pasture 16R) would continue to be directly impacted by high utilization of riparian plants by livestock and excessive levels of bank alteration. Too many cows would congregate on Little Jacks Creek during the months of June and July, and some cows would get back to Little Jacks Creek and graze riparian areas during August and September (because the fence between Pastures 10 and 15 is in disrepair, and a gate between private and BLM land is often left open) such that streamside vegetation vigor, cover, and density would not increase on this accessible stream segment. Relocating the northern portion of the existing fence that divides pastures 10 and 15 (*North Pasture 10/15 Fence Removal and Construction Project*) would not repair the portion of the fence in disrepair, nor address the issue of the gate being left open. Completely fencing the Pasture 10/15 boundary (*Southern Pasture 10 / 15 Boundary Gap Fence Project)* would eliminate some, but not all of the routes used by livestock to return to pasture 10. As a result, riparian areas on this segment of Little Jacks Creek would remain in functional at risk condition with a static trend. OX Prong would meet LUP habitat objectives for

riparian habitat in the mid to long-term, but 0.5 mile of Little Jacks Creek would not meet LUP objectives.

Low gradient, meadow segments of Little Jacks Creek that are FAR with static trends in Pastures 15 and 16R (0.6 miles) would improve in condition to PFC over the mid term (Table 18). Alternate water source development (*Owens Pipeline Project*) would reduce the likelihood of livestock pushing through the pasture 16R fence, and the segment of Little Jacks Creek on BLM land in pasture 15 would be completely excluded from livestock rather than partially excluded with a fenced water gap (*Collier Meadow Exclosure Modification and Owens Reservoir #2 Project*). Little Jacks Creek in pastures 16R would make significant progress toward LUP objective for riparian habitat over the mid to long-term.

Spring Wetlands

Similar to Alternative A, six wetlands at undeveloped springs would continue to be in PFC or functional at risk with an upward trend, and 2 undeveloped springs in summer grazing pastures would remain in FAR condition.

One wetland at a developed spring (Rock Spring) would continue to be in PFC. Nine wetlands at developed springs would remain in functional at risk or non-functional condition because of high levels of livestock use of wetland plants and trampling and pugging of wetland soils or development impacts (partial to complete dewatering of the wetland). Individual spring wetland projects are discussed below.

Hutch Spring Exclosure and Water Development

The development project at Hutch Springs (pipeline, trough, and fencing) would concentrate livestock trailing and trampling on the downstream end of the wetland (not all of the wetland would be fenced into the exclosure), causing loss of wetland vegetation and destabilizing soils. The lower end of the wetland would be at risk of incising when receiving overland flows because of the lack of vegetation to stabilize banks and channels in silt-clay soils (Beeson and Doyle 1995, Micheli and Kirchner 2002). The wetland would incise until it hits a hardened surface (sufficient rock armoring), cutting both vertically and upstream into the exclosure. As a result the 2 Hutch Springs wetlands would continue to be in functional at risk condition because of the potential for loss of wetland soils and dewatering (lowering of the water table) of the wetland.

Snow Creek Spring Exclosure Modification

Overall the wetland associated with Snow Creek spring would improve to the low end of PFC over the long term with the realignment of the fence into two grazing exclosures. The exclosure on the upper one-third of the wetland would completely exclude livestock from the spring source and most easily-erodible soils of the wetland, and this area would improve to PFC over the mid term. About 7% of the wetland immediately adjacent to the trough located in the spring drainage would not be excluded from grazing and would receive high levels of riparian plant utilization and bank alteration. The existing exclosure fence on the lower two-thirds of the wetland would be realigned to the steep slope immediately adjacent to the wetland. Cattle would likely go through or over the realigned fence and into the lower exclosure because the new fence location is on a steep slope immediately adjacent to palatable wetland vegetation and water. As a result vigor, density, and cover of wetland and riparian vegetation would not improve or improve very

slowly on this portion of the wetland. Soils are rocky in the lower portion of the spring drainage and would likely not be extensively disturbed by livestock that periodically enter the lower exclosure, and also would not likely erode or downcut.

Collier Spring Wetland Exclosure
Collier Spring (T.10S, R.2E, Sec. 5) would not be excluded from livestock grazing and would remain in functional at risk condition because of pugging and trampling of wetland soils and high use of wetland plants. The small wetland area located downstream of the small reservoir located below the spring would continue to be excluded from grazing use.

Alternative C – Impacts to Riparian Areas

Similar to Alternative A, stream riparian areas located in rugged, rocky canyon areas that are inaccessible to livestock, or rarely used by livestock when grazed in the spring (Little Jacks Creek and 0.4 mile of Shoofly Creek in Pasture 21) would remain in proper functioning condition (17 miles) or functional at risk with an upward trend (4.8 miles). Inaccessible streams include most of Little Jacks and some canyon segments of East and West Forks of Shoofly creeks. In contrast to Alternative B, 3 miles of Dry Creek would improve in condition to PFC over the mid to long-term (Table 18), with the change in use from a riparian pasture (20R) to a grazing exclosure (*Dry Creek Exclosure Project*). Alternative C would improve substantially more stream segments that are currently in functional at risk condition compared to Alternative A (Table 18). See the following discussion for details regarding conditions of individual stream segments.

Streambanks on accessible portions of Shoofly, East Fork Shoofly, and West Fork Shoofly creeks in pastures 12, 21, and 22 are composed of silt-clay soils that are highly 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). Of 3.5 miles of stream in the Shoofly Creek drainage that are currently in functional at risk condition, 3.3 miles of stream would improve to PFC over the mid to long term (5 to >15 years). The fence at the entrance of Shoofly Creek canyon (*Shoofly Gap Fence Project*) would eliminate livestock access from pasture 21, and with the repair and maintenance of the fence at the confluence of the forks of Shoofly Creek (*Pasture 22H Fence Removal Project*), 1.1 miles of Shoofly Creek and 0.2 miles of West Fork Shoofly Creek with riparian areas with fragile silt-clay streambanks (Clary and Webster 1989, Micheli and Kirchner 2002) that are functional at risk with static to downward trends would only receive livestock use when livestock are actively trailed along Shoofly Creek in the spring and fall. These streams would improve to proper functioning condition over the mid to long-term by eliminating the bank alteration and riparian plant use that was preventing recovery (Kauffman et al. 1997). Minimal levels of bank alteration associated with active trailing of livestock would not prevent riparian recovery. Similarly, limiting the use of East Fork Shoofly Creek to the active trailing of livestock along the creek to Pasture 12 and the southern portion of Pasture 22 in the spring, and removing any livestock drifting back to the creek, would allow a 6-inch median stubble height to be maintained on herbaceous riparian vegetation and minimize bank alteration, which would result in 2 miles of East Fork Shoofly Creek improving to proper functioning over the mid term (Clary and Webster 1989, Platts 1991). These stream segments of Shoofly and East and West Forks of Shoofly creeks would meet LUP habitat

objectives for riparian habitat over the mid to long-term. The section of West Fork Shoofly Creek with the trail and watergap at Shale Rock crossing (0.2 mile of stream) in Pasture 12 would continue to receive high levels of use by livestock watering from May 26 to July 20, and would remain in functional at risk condition with a downward trend.

The rugged canyon and rock-armored sections of streams in Pasture 10 (0.4 mile of OX Prong and 1.8 miles of Little Jacks Creek) would continue to be in proper functioning condition or functional at risk with an upward trend. The more easily accessed segment of OX Prong in Pasture 10 (0.9 mile of stream) would improve in condition over the long term by fencing Pasture 10 separate from Pasture 15 (thereby removing August and September grazing; *Southern Pasture 10/15 Division Fence Project*), provided livestock are removed from OX Prong at the end of the Pasture 10 use period. Limiting livestock use of riparian areas on OX Prong during June and July such that a 4-inch median stubble height is met at the end of the growing season, should result in riparian shrubs colonizing streambanks (Clary and Webster 1989, Kovalichik and Elmore 1992); shrub cover on the less accessible segments of OX Prong has increased since 1999 with the partial elimination of August and September grazing use.

Of 0.5 mile of riparian habitat that is FAR with a static trend and easily accessible to livestock on Little Jacks Creek in Pasture 10, 0.3 mile of riparian habitat is located at Cottonwood Spring. Cows congregate on this portion of Little Jacks Creek when obtaining water at the spring-influenced reach during the months of June and July such that streamside vegetation vigor, cover, and density would improve very slowly, with riparian plant cover increasing primarily in the rockiest areas of this reach. About 0.2 mile of this segment would improve to PFC (low range of the condition rating) over the long term (>15 years), primarily areas with greater amounts of rock in the floodplain. About 0.1 mile would improve slightly, but likely remain in FAR condition. Livestock also congregate on a 0.2 mile long meadow segment at the upper end of pasture 10, particularly when water is present. About 0.1 mile of the low gradient meadow segment of Little Jacks Creek in pasture 10 upstream of the WSA boundary (Segment 24.3; Table 18) would improve to PFC over the long term with the exclusion of livestock grazing (*Little Jacks Creek Meadow Exclosure Project*). About 0.1 mile of the meadow segment inside of the WSA would improve slightly over the long term with the removal of August and September use, but would remain in FAR as the silt-clay soil streambanks are too fragile to fully revegetate under annual June and July grazing (Clary and Webster 1989). OX Prong and 2.0 miles of Little Jacks Creek in Pasture 10 would meet LUP habitat objectives for riparian habitat in the long term, while 0.3 mile of Little Jacks Creek would continue to not meet LUP objectives.

Low gradient, meadow segments (0.6 miles) of Little Jacks Creek that are FAR with static trends in Pasture 15 and the Little Jacks Creek Meadow exclosure (Pasture 16R) would improve in condition to PFC over the mid term (Table 18). Alternate water source development (*Collier Meadow Exclosure Modification and Pit Reservoir, and Tanks Pipeline projects*) would reduce the likelihood of livestock pushing through the exclosure fence, and the segment of Little Jacks Creek on BLM land in pasture 15 would be completely excluded from livestock rather than partially excluded with a fenced water gap (*Collier Meadow Exclosure Modification Project)*. Little Jacks Creek in the Little Jacks Creek Meadow exclosure would make progress towards the LUP objective for riparian habitat over the mid to long-term.

Spring Wetlands
Similar to Alternative A, 6 wetlands at undeveloped springs would continue to be in PFC or functional at risk with an upward trend, and 2 undeveloped springs in summer grazing pastures would remain in FAR condition.

One wetland at a developed spring (Rock Spring) would continue to be in PFC. Four wetlands at developed springs would improve to PFC over the mid to long term as a result of excluding livestock grazing from the spring source and adjacent wetland (see discussion of individual wetland projects below). Five wetlands at developed springs would remain in functional at risk or non-functional condition because of high levels of livestock use of wetland plants and trampling and pugging of wetland soils or development impacts (partial to complete dewatering of the wetland).

Hutch Spring Exclosure Modification and Spring Development
The development project at Hutch Springs (pipeline, trough, and fencing) would exclude all easily eroded portions of the wetland from livestock grazing. As a result of excluding livestock use, the two Hutch Springs wetlands (totaling about 15 acres in size) would improve to PFC over the mid term as wetland vegetation cover and density increases.

Snow Creek Spring Exclosure Modification
Same as Alternative B; the wetland at Snow Creek spring would improve to the low end of PFC over the long term with the realignment of the existing exclosure fence into two grazing exclosures.

Collier Spring Exclosure
The wetland at Collier Spring (T.10S, R.2E, Sec.5) including the spring and down slope to the small reservoir excavated in the lower portion of the wetland would be excluded from livestock grazing and would improve to PFC over the mid term. The area adjacent to the reservoir would continue to receive high levels of riparian plant utilization and soil disturbance.

Alternative D – Impacts to Riparian Areas

Similar to Alternative A, stream riparian areas located in rugged, rocky canyon areas that are inaccessible to livestock, or rarely used by livestock when grazed in the spring (Little Jacks Creek and 0.4 mile of Shoofly Creek in Pasture 21) would remain in proper functioning condition (17 miles) or functional at risk with an upward trend (4.8 miles). Inaccessible streams include most of Little Jacks and some canyon segments of East and West Forks of Shoofly creeks. Similar to Alternatives A and C, 3 miles of Dry Creek would improve in condition to PFC over the mid to long-term with the change in use from a riparian pasture (20R) to a grazing exclosure (*Dry Creek Exclosure Project*). Substantially more riparian areas that are currently in functional at risk condition would improve under this alternative compared to Alternative A (Table 18). See the following discussion for details regarding conditions of individual stream segments.

Of 3.5 miles of stream in the Shoofly Creek drainage that are currently in functional at risk condition and accessible to livestock, 3.3 miles of stream would improve to PFC over the mid to long term, similar to Alternative C (Table18). The Shale Rock Gap fence (*Shale Rock Gap Fence Project*) would not improve the degraded condition (>50% bare banks, 4-foot deep channel erosion) of 0.2 mile of West Fork Shoofly Creek at Shale Rock crossing, as the purpose of the fence is to prevent livestock movement from pasture 12 to pasture 22 (constructed on the pasture 22 side of the stream), rather than to limit the duration or intensity of use of the stream by livestock in pasture 12. The fence would likely increase bank alteration and trampling of riparian areas on the upper end of this segment, as grazing use in pasture 12 would slightly increase with the fence (see the Upland Vegetation and Livestock Grazing Management section). West Fork Shoofly Creek at Shale Rock crossing (0.2 mile of stream) would continue to receive high levels of bank alteration from livestock watering at the Shale Rock crossing from May 6 to July 20, and would remain in functional at risk condition with a downward trend. The Shale Rock Gap Fence is not needed to improve the condition of East Fork Shoofly and Shoofly creeks in pastures 21 and 22, as shown by upward trends in condition of these streams during 1998-2002 (USDI 2007a,b), and absence of livestock grazing on these streams in 2007.

The rugged canyon and rock-armored sections of streams in Pasture 10 (0.4 mile of OX Prong and 1.8 miles of Little Jacks Creek) would continue to be in proper functioning condition or functional at risk with an upward trend. The more easily accessed segment of OX Prong in Pasture 10 (0.9 mile of stream) would improve in condition over the long term by fencing Pasture 10 separate from Pasture 15 (thereby removing August and September grazing; *East extension of pasture 10/15 fence Project*), and shortening the authorized use period for Pasture 10 from July 31 to July 15 (Clary and Webster 1989, Platts 1991, Kovalichik and Elmore 1992), provided livestock are removed from OX Prong by July 15. Thus OX Prong would meet LUP objectives for riparian habitat in the long term.

On Little Jacks Creek in Pasture 10, 0f 0.5 mile of riparian habitat that is FAR with a static trend and easily accessible to livestock, 0.3 mile located on the Cottonwood spring would improve slowly, with increasing streamside vegetation vigor, cover, and density. Similar to Alternative C, by eliminating August and September grazing and shortening the authorized grazing period by two weeks to July 15, about 0.2 mile of the rockiest areas would improve to PFC (low range of that condition rating) over the long term. The 0.1 mile at Cottonwood Spring would likely improve to the upper end of the range in FAR condition, but not reach PFC, because cows would congregate on this portion of Little Jacks Creek when obtaining water during the months of June and July. Thus, even with two weeks shorter season than other alternatives, this section would continue to be impacted by high utilization of riparian plants by livestock and high levels of bank alteration. The upper 0.2 mile of Little Jacks Creek in pasture 10 would improve from FAR to PFC over the mid-to long term by adding this portion into an exclosure (*Little Jacks Creek Meadow Exclosure Project*). Thus Little Jacks Creek in pasture 10 would meet LUP objectives for riparian habitat condition in the long term, except for the 0.1 mile at Cottonwood Spring. This section would almost reach LUP objectives.

Low gradient, meadow segments (0.6 miles) of Little Jacks Creek that are FAR with static trends in Pasture 15 and the Little Jacks Creek Meadow exclosure (Pasture 16R) would improve in condition to PFC over the mid term (Table 18). Alternate water source development (*Modified*

Owens Pipeline) would reduce the likelihood of livestock pushing through the exclosure fence, and the segment of Little Jacks Creek on BLM land in pasture 15 would be completely excluded from livestock rather than partially excluded with a fenced water gap (*Collier Meadow Exclosure Modification Project)*. Little Jacks Creek in the Little Jacks Creek Meadow exclosure would make progress towards the LUP objective for riparian habitat over the mid to long-term.

Wetlands
Similar to that in Alternative A, 6 wetlands at undeveloped springs would continue to be in PFC or FAR with an upward trend. Two undeveloped springs in summer grazing pastures would remain in FAR condition.

One wetland at a developed spring (Rock Spring) would continue to be in PFC, and 4 wetlands at developed springs would improve to PFC over the mid to long term as a result of excluding livestock grazing from the spring source and adjacent wetland (see discussion of individual wetland projects below). Five wetlands at developed springs would remain in functional at risk or non-functional condition because of high levels of livestock use of wetland plants and trampling and pugging of wetland soils or development impacts (partial to complete dewatering of the wetland).

Hutch Spring Exclosure Modification and Spring Development
Same as Alternative C; as a result of excluding the 2 Hutch Springs wetlands (totaling about 15 acres in size) from livestock grazing, they would improve to PFC over the mid term.

Snow Creek Spring Exclosure Modification
Same as Alternatives B and C; the wetland at Snow Creek spring would improve to the low end of PFC over the long term with the realignment of the existing exclosure fence into two grazing exclosures.

Collier Spring Exclosure
The wetland at Collier Spring (T.10S, R.2E, Sec.5) including the spring and all wetland areas adjacent to the spring and the small reservoir excavated down slope of the spring would be excluded from livestock grazing and would improve to PFC over the mid term.

E. Water Quality

1. Affected Environment

Six major perennial streams are located in the allotment. Cold water aquatic life and salmonid spawning are the primary beneficial uses for Little Jacks, OX Prong, West Fork Shoofly, East Fork Shoofly, and Shoofly creeks (USDI 2007a). The primary 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 for streams in the Battle Creek Allotment). 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).

Battle Creek is the only stream on the allotment designated by the State of Idaho as a Water Quality Limited Segment (WQLS; IDEQ 2003). Idaho Department of Environmental Quality (IDEQ 2003, 2004) found that Battle Creek is not supporting the cold water aquatic life beneficial use, and recommended that the stream be de-listed for bacteria, but listed for temperature (IDEQ 2003). Additionally, IDEQ (2004) found that Shoofly Creek is not fully supporting the cold water aquatic life beneficial use.

In 1994, BLM implemented a water quality monitoring program to evaluate the effectiveness of land management actions on the allotment in meeting State of Idaho (State) water quality standards for protecting existing beneficial uses. BLM temperature monitoring supported IDEQ's findings of non-support of the cold water aquatic life beneficial use for Shoofly Creek (USDI 1999, 2007a,b). Low levels of stream shading (22-41%) allowed solar heating of water to temperatures exceeding State criteria (USDI 1999). In 1998, State criteria for fecal coliform bacteria (for support of the secondary contact recreation beneficial use) were met in Shoofly and East Fork Shoofly creeks, but in previous years the bacteria criteria were exceeded (USDI 1999). Levels of fine sediment in Shoofly and East Fork Shoofly creeks continued to remain higher than expected from the landscape setting and were impairing salmonid spawning and cold water aquatic life uses (USDI 2007a).

BLM temperature and bacteria monitoring indicated State water quality criteria for the beneficial uses of cold water aquatic life and secondary contact recreation were fully met for Little Jacks and OX Prong creeks during 1994-1997 (USDI 1999). Fecal coliform bacteria levels increased in OX Prong and Little Jacks Creek in pasture 10 during the summer grazing period during the 1990s, but did not exceed state criteria for supporting secondary contact recreation. However, in 2005 *E. coli* bacteria levels in upper Little Jacks Creek in pasture 10 exceeded State criteria for full support of secondary contact recreation use (USDI 2007a). Additionally, maximum water

temperatures increased quickly in OX Prong Creek downstream of headwater springs due to solar heating from low levels of stream shading (USDI 1999).

2. Direct and Indirect Impacts – Water Quality

Alternative A - Current Management – Impacts to Water Quality

Stream segments inaccessible to livestock (15.1 miles of stream, primarily in the Little Jacks Creek drainage) would continue to provide high quality water. Water quality would improve over the mid to long-term on 6.7 miles of stream located in rocky canyons that greatly restrict livestock access when grazed in spring and early summer. Additionally, water quality of Dry Creek in Pasture 20R (3 miles of stream) would continue to improve (decreased erosion and sediment delivery as riparian plant cover increases) over the long term.

Water quality would continue to be impaired on 5.7 miles of stream that is accessible to livestock and receiving excessive levels of bank alteration and too high of levels of use of riparian vegetation. These streams include upper Little Jacks and OX Prong creeks in pastures 10, 15, and 16R, and East Fork Shoofly, West Fork Shoofly, and Shoofly creeks in pastures 12, 21, and 22. Water quality of these streams is impaired due to impacts to stream shading (which when present blocks the direct rays of the sun from heating the water column; Johnson 2004), bank stability (unstable banks are sources of fine sediment, which adversely impacts fish habitat; Beeson and Doyle 1995, Micheli and Kirchner 2002) and channel dimensions (overwidened and shallow channels receive more solar radiation than narrow, deeper channels; Poole and Berman 2001). A short segment of Battle Creek (0.2 mile in length) would remain in functioning at risk condition, but BLM management of this segment would have little affect on the water quality of this reach of Battle Creek (most [>90%] land on this reach of Battle Creek from mile 33 to the headwaters [approx. mile 60] is private or State owned).

Alternative B – Impacts to Water Quality

Similar to Alternative A, stream segments inaccessible to livestock (15.1 miles of stream, primarily in the Little Jacks Creek drainage) would continue to provide high quality water. Water quality would improve on 6.7 miles of stream located in rocky canyons that greatly restrict livestock access when grazed in spring and early summer.

In contrast to Alternative A, water quality of Dry Creek would be impaired by increased erosion and sedimentation resulting from destabilizing stream channels by concentrating livestock use at 2 to 5 watering areas on Dry Creek in areas composed of easily erodible silt-clay soils. As in Alternative A, 0.2 mile of Battle Creek in pasture 20 would continue to be in functioning at risk condition, but would have little impact on the overall water quality of the stream because this segment comprises such a small portion of the drainage.

Most segments (3 of 3.5 miles) of East Fork Shoofly, West Fork Shoofly, and Shoofly creeks that are easily accessible to livestock (2.8 miles in pastures 21 and 22, and 0.2 mile of West Fork Shoofly at Shale rock crossing in Pasture 12) would continue to be impacted by high utilization of riparian plants by livestock and excessive levels of bank alteration when grazed during May, June,

and July (See Riparian and Wetlands section). Water quality of these stream segments would continue to be impaired due to elevated sedimentation and erosion, and solar heating of wide and shallow channels that lack shade from riparian plant cover (Li et al. 1994, Poole and Berman 2001, Micheli and Kirchner 2002, Johnson 2004). The fence at Shale Rock crossing on the West Fork of Shoofly Creek (*Shale Rock Gap Fence Project*) would not improve water quality of the stream, as the purpose of the fence is to prevent livestock movement from pasture 12 to pasture 22 (constructed on the pasture 22 side of the stream), rather than to limit livestock use to reduce streambank and channel erosion.

Water quality of OX Prong in Pasture 10 would improve over the mid to long-term as a result of eliminating livestock use of OX Prong by constructing gap fences in the WSA. Water quality of 0.5 mile of Little Jacks Creek in Pasture 10 that is easily accessible to livestock and relied on by livestock for water would remain impaired (high levels of sediment and *E. coli* bacteria concentrations). The accessible portion of Little Jacks Creek would continue to receive late season grazing (See Riparian and Wetlands section). The water quality of Little Jacks Creek in rugged canyon and rock-armored sections of pasture 10 (1.8 miles of stream) would not be directly impacted by livestock, but would receive sediment and *E. coli* bacteria from impaired reaches located upstream.

Water quality of low gradient, meadow segments of Little Jacks Creek in Pastures 15 and 16R (0.8 miles) would improve in condition as alternate water source development (*Owens Pipeline Project*) would reduce the likelihood of livestock pushing through the pasture 16R fence, and the segment of Little Jacks Creek on BLM land in pasture 15 would be completely excluded from livestock (*Collier Meadow Exclosure Modification and Owens Reservoir # 2 Project*) rather than partially excluded with a fenced water gap.

Alternative C – Impacts to Water Quality

Similar to Alternative A, stream segments inaccessible to livestock (15.1 miles of stream, primarily in the Little Jacks Creek drainage) would continue to provide high quality water. Water quality would continue to improve on 6.7 miles of stream located in rocky canyons that greatly restrict livestock access when grazed in spring and early summer.

Similar to Alternative A, water quality of Dry Creek (3 miles of stream) would improve over the long term (decreased erosion and sediment delivery as riparian plant cover increases; Beeson and Doyle 1995, Micheli and Kirchner 2002) as a result of converting the riparian pasture (20R) to an exclosure (*Dry Creek Exclosure Project*). As in Alternative A, 0.2 mile of Battle Creek in pasture 20 would continue to be in functioning at risk condition, but would have little impact on the overall water quality of the stream because this segment comprises such a small portion of the drainage.

In contrast to Alternative A, most streams (3.3 of 3.5 miles) in the Shoofly Creek drainage that are easily accessible to livestock and currently in functional at risk condition, would improve to PFC over the mid to long term (see Riparian and Wetlands section). Water quality of these streams would improve over the mid to long-term as late-seral plant species, particularly willows, increase on streambanks and channel stability and stream shading increases (Li et al. 1994, Micheli and

Kirchner 2002, Liquori and Jackson 2001). Similar to Alternative A, the watergap and trail section of West Fork Shoofly Creek at Shale Rock crossing (0.2 mile of stream) in Pasture 12 would continue to receive high levels of bank alteration from livestock watering from May 26 to July 20. Water quality of this reach would be impaired by excessive sediment delivery from eroding banks and channels (Beeson and Doyle 1995).

Water quality of OX Prong in Pasture 10 would improve over the long term as a result of fencing Pasture 10 separate from Pasture 15 (*Southern Pasture 10/15 Division Fence Project*), provided livestock are removed from OX Prong at the end of the Pasture 10 use period (June 1 to July 31). Water quality would also improve as a result of applying an annual indicator of grazing use to OX Prong to manage for a 4-inch residual stubble height at the end of the growing season.

In contrast to Alternative A, water quality of 0.3 mile of Little Jacks Creek in Pasture 10 at Cottonwood Spring that is easily accessible to livestock and relied on by livestock for water would improve slightly over the mid term, but remain impaired (high levels of sediment and *E. coli* bacteria concentrations) due to continued heavy use at Cottonwood Spring. Similarly, sediment levels would be reduced slightly on the 0.1 mile long meadow segment of Little Jacks Creek in pasture 10 below the proposed Little Jacks Meadow exclosure by eliminating August and September grazing use. Sediment from 0.1 mile of creek in the proposed exclosure would be greatly reduced. The water quality of Little Jacks Creek in rugged canyon and rock-armored sections of pasture 10 (1.8 miles of stream) would not be directly impacted by livestock, but would receive less sediment and *E. coli* bacteria from upstream, impaired reaches.

Water quality of low gradient, meadow segments of Little Jacks Creek in Pasture 15 and the Little Jacks Creek Meadow exclosure (formerly referred to as Pasture 16R) would improve in condition (reduced levels of sediment from eroding banks and channels; Beeson and Doyle 1995, Micheli and Kirchner 2002) as alternate water source development (*Little Jacks Pit Reservoir and Tanks Pipeline projects*) would reduce the likelihood of livestock pushing through the Meadow exclosure fence, and the segment of Little Jacks Creek on BLM land in pasture 15 would be completely excluded from livestock rather than partially excluded with a fenced water gap (*Collier Meadow Exclosure Modification Project*).

Alternative D – Impacts to Water Quality

Similar to Alternative A, stream segments inaccessible to livestock (15.1 miles of stream, primarily in the Little Jacks Creek drainage) would continue to provide high quality water. Water quality would continue to improve on 6.7 miles of stream located in rocky canyons that greatly restrict livestock access when grazed in spring and early summer. Similar to Alternative A, water quality of Dry Creek (3 miles of stream) would improve over the long term (decreased erosion and sediment delivery as riparian plant cover increases; Micheli and Kirchner 2002) as a result of converting the riparian pasture (20R) to an exclosure (*Dry Creek Exclosure Project*). As in Alternative A, 0.2 mile of Battle Creek in pasture 20 would continue to be in functioning at risk condition, but would have little impact on the overall water quality of the stream because this segment comprises such a small portion of the drainage.

Of 3.5 miles of stream in the Shoofly Creek drainage that are easily accessible to livestock and currently in functional at risk condition, 3.3 miles of stream would improve to PFC over the mid to long term (see Riparian and Wetlands section). Water quality of these streams would improve over the mid to long-term as late-seral plant species, particularly willows, increase on streambanks and channel stability and stream shading increases (Li et al 1994, Liquori and Jackson 2001, Johnson 2004). Authorized use of East Fork Shoofly Creek would be limited to the active trailing of livestock along the creek to upper elevation areas of the allotment, and annual indicator criteria are included to deal with livestock drifting back to East Fork Shoofly Creek from other portions of Pasture 22 during the May 6 to July 10 grazing period. With these management prescriptions, water quality of the lower 2 miles of East Fork Shoofly Creek would also improve over the mid to long term by reducing high levels of sediment from unstable, eroding streambanks and solar heating by increasing riparian canopy cover. Similar to Alternative A, the watergap and trail section of West Fork Shoofly Creek at Shale Rock crossing (0.2 mile of stream) in Pasture 12 would continue to receive high levels of bank alteration from livestock watering from May 26 to July 20. Water quality of this reach would be impaired by excessive sediment delivery from eroding banks and channels (Beeson and Doyle 1995).

Water quality of OX Prong in Pasture 10 would improve over the long term as a result of fencing Pasture 10 separate from Pasture 15 and shortening the authorized use period from July 31 to July 15, provided livestock are removed from OX Prong at the end of the Pasture 10 use period.

Water quality of 0.3 mile of Little Jacks Creek in Pasture 10 that is easily accessible to livestock and relied on by livestock for water would improve slightly by shortening the authorized grazing period by two weeks to July 15, but would remain impaired (higher levels of sediment than appropriate for the landscape setting, and elevated *E. coli* bacteria concentrations). Sediment delivery would be reduced on 0.2 mile of Little Jacks Creek in Pasture 10 that would be added to an existing exclosure (*Little Jacks Creek Meadow Exclosure Project*). The water quality of Little Jacks Creek in rugged canyon and rock-armored sections of pasture 10 (1.8 miles of stream) would not be directly impacted by livestock, but would receive less sediment and *E. coli* bacteria from upstream, impaired reaches.

Water quality of low gradient, meadow segments of Little Jacks Creek in Pasture 15 and the Little Jacks Creek Meadow exclosure (formerly referred to as Pasture 16R) would improve in condition (reduced levels of sediment from eroding banks and channels; Beeson and Doyle 1995, Micheli and Kirchner 2002) as alternate water source development (*Modified Owens Pipeline Project*) would reduce the likelihood of livestock pushing through the Meadow exclosure fence, and the segment of Little Jacks Creek on BLM land in pasture 15 would be completely excluded from livestock rather than partially excluded with a fenced water gap (*Collier Meadow Exclosure Modification Project*).

F. Special Status Plants

1. Affected Environment

Sensitive plant species discussed below are those listed on the 2005 BLM sensitive species list. No populations of Proposed, listed Threatened, or listed Endangered plants (Type 1) occur within the boundary of the BLM Bruneau Field Office. However, U.S. Fish and Wildlife Service (USFWS) considers all of Idaho to be within the potential range of Ute ladies'-tresses (*Spiranthes diluvialis*), a federally threatened orchid species, which occurs in springs, seeps, and riparian habitats. USFWS applies a loose habitat definition and requires Section 7 consultation only in three counties of southeast Idaho, or areas where the plant is actually found (USFWS 2002). Specific surveys for this plant are recommended, but not required, prior to authorizing federal actions in southwest Idaho.

Four BLM Special Status Plants (SSP) are documented in the Battle Creek Allotment. All four SSP are either Type 3 or Type 4 BLM Sensitive species. The Type 3 plants include Mud Flat milkvetch (*Astragalus yoder-williamsii*) and Janish's penstemon (*Penstemon janishiae*). BLM Type 3 species are species that are globally rare, with moderate risk of endangerment. The Type 4 species are Newberry's milkvetch (*Astragalus newberryi var. castoreus*) and Howell's one-flowered goldenweed (*Haplopappus uniflorus var. howelli*). Type 4 species, or *Species of Concern*, are species with localized distributions or small populations and low threat risks. Two other plants that occur in the Battle Creek Allotment are on the BLM Watch List (Type 5); these include Simpson's hedgehog cactus (*Pediocactus simpsonii*) and Snake River Milkvetch (*Astragalus purshii var. ophiogenes*). Type 5 plants are not BLM Sensitive species, but are on the BLM Watch List, indicating that they may be of conservation concern if populations decline or new threats emerge.

The Battle Creek Allotment also provides suitable habitat for other species designated by BLM as "sensitive", most notably Mulford's milkvetch (*Astragalus mulfordiae*), a Type 2 SSP. Type 2 species are plants that have a high likelihood of being listed in the foreseeable future due to their global rarity and significant endangerment factors. Mulford's milkvetch has not been found in this allotment, however scattered and small populations do occur on both sides of the allotment, where habitat conditions are suitable. This perennial species grows on deep, sandy slopes and flats in shrub-steppe communities at relatively low elevations (2,000 to 3,600 feet). Mulford's milkvetch is noteworthy because this species is of particular conservation concern due to its global rarity, limited range, limited suitable habitat, and adverse impacts to many populations. Suitable habitat for this species occurs in low elevation pastures.

Overall, management of plant communities in this allotment is generally good. The two lower elevation pastures (8 and 21) are in poor habitat condition due to historic grazing, but the higher elevation pastures are generally in good habitat condition.

Pastures 8 and 21
The salt desert shrub plant communities in the lower elevation pastures (8 and the northern one-third of 21-early spring and spring range) have been historically altered and exhibit a lack of

interspatial native perennial grasses between shrubs, with cheatgrass dominating the interspaces in wet years. This condition is more pronounced in pasture 8 than pasture 21. There are currently no known populations of SSP in pasture 8, however three SSP are located in pasture 21: Janish's penstemon, Newberry's milkvetch, and Snake River milkvetch. As stated above, Mulford's milkvetch is not presently known from the allotment; however, appropriate habitat for this SSP does occur in both pastures 8 and 21.

One population of Newberry's milkvetch is known to occur in pasture 21. This population was discovered in 1998, however location data is vague. Due to a lack of accurate location information, this population could not be relocated during site visits in May and June of 2005. Furthermore, population and site descriptions were not provided in the original site report making it difficult to analyze the current condition of this population. This species occurs on lacustrine deposits in sagebrush, pinyon-juniper communities, and badlands. Newberry's milkvetch is a Great Basin species that is apparently disjunct in our area.

Janish's penstemon is also located east of Little Jacks Creek in pasture 21. This species is known from the Owyhee Front area on clay soils derived from volcanics or on lake bed sediments in Wyoming sagebrush. It also occurs in California, Oregon, and Nevada. The populations located in this use area were originally discovered in 1981 and 1982. During site visits in 2005, numerous Janish's penstemon plants were relocated in this area. These plants appeared vigorous and reproductively capable. Habitat quality varied throughout the population from fair (areas closer to the road and on flatter terrain where mechanical impacts and weed cover was higher) to excellent (on slopes and tables, and in areas where native plants were dominant and the surface was stony). Based on site visits in both 2005 (May and June) and 2007 (May), livestock grazing does not appear to be a threat at this time since the area is too sparsely vegetated to attract much livestock use. This perennial plant is usually not impacted by grazing because it grows on sparsely vegetated outcrops of soil, which grazers typically avoid unless a water source is placed too close to a population. Some of the plants were located in the vicinity of mechanical damage (trampling) and in areas where invasive species, such as cheatgrass and halogeton, were prevalent, although no direct impacts were observed on individual plants. Many of the plants were located in areas where mechanical damage and trailing was either minimal or was not observed. Off Highway Vehicle (OHV) use typically poses the greatest potential threat to this species. During site visits to the general area in 2005 and 2007, OHV use did not appear to be a threat at this time.

One population of Snake River milkvetch has also been reported in pasture 21. Although there is no information available about the status or impacts to this population, this Watch list species is of low conservation risk due to its relative abundance and slightly higher tolerance for disturbance.

Pastures 9, 12, & 22

Simpson's hedgehog cactus is the only SSP currently known from the late spring pastures. Hedgehog cactus occurs on rocky or sandy benches and canyon rims. This plant has no specific phenologically "critical" period since it remains above ground all year and is subject to herbivory or mechanical disturbance at any time. However, hedgehog cactus is typically resilient to disturbance due to its rocky habitat and its protective spines, which prevent trampling and herbivory. This population is located in a rocky area of pasture 22 (near the pasture 21 and 22 boundary). During

the original site visit in 1999, it was noted that cattle appeared to avoid the rocky areas where this population was growing. In addition, the historic ecological condition rating in these pastures has been good, with the vegetative community being dominated by decreaser grasses.

Pasture 14, 18, 19, 20 & 20R

The higher elevation pastures (late spring through summer range) are in better ecological condition with native communities dominating these pastures. Two SSP are located in these pastures: Howell's one-flowered goldenweed (pasture 20R) and Mud Flat milkvetch (pastures 14, 18, 19, and 20).

A large population of Howell's one-flowered goldenweed was located in 2001. This plant typically grows in grassy springs or streambanks, and wet or dry meadows up to 8,200 feet in elevation. On Dry Creek it occurs on the streambanks and the lower slopes. During the 2001 cursory visit, the population vigor was assessed as good. The majority of this population is located within pasture 20R, which is currently protected from grazing.

Mud Flat milkvetch populations occurring on BLM land were found in pastures 14, 18, 19, and 20. 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 plant is restricted to uplands in the upper forks of the Owyhee River in Idaho and one disjunct location in Nevada. A large portion of the species' range is in the Battle Creek allotment. Mud Flat milkvetch occurs on fine loamy soils in low sagebrush and mountain big sagebrush communities, sometimes on the edge of the juniper zone. Surveys for this species have not been comprehensive and due to the amount of appropriate habitat in the higher elevation pastures of the Battle Creek allotment, it is likely that other undiscovered populations exist in this area. This plant is a diminutive perennial, usually less than 3 inches in height. It begins flowering as early as May and has mature fruits in mid-July.

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 mountain big and low sagebrush, Idaho fescue, and bitterbrush. Therefore, the health of these communities can be helpful when assessing the potential for impacts to Mud Flat milkvetch populations. As stated above, the summer pastures are the higher elevation sites and most of these pastures have a historic ecological condition rating of good, and many places are generally at or near site potential.

In addition, Mud Flat milkvetch is rarely eaten by cattle due to its small stature. Generally, impacts from livestock grazing have been reported from concentrated use (Mancuso & Moseley 1993), such as water developments, troughs, or salting sites within ¼ mile of existing populations. The most serious direct effect of livestock grazing throughout the species' range is trampling near these concentrated areas, which can limit long-term viability. Loss of Mud Flat milkvetch plants has been documented within the Battle Creek allotment, i.e. during construction of a water development project at the Big Sagehen Reservoir (Mancuso and Moseley 1993). During site visits in 1992 and 2005, the milkvetch populations in these pastures were reported to have good to excellent population vigor.

Pastures 10 & 15
Special status plants are not presently known to occur in these pastures. However, appropriate habitat exists for Mud Flat milkvetch.

Biological Soil Crust Area
A portion of the western part of pasture 8 in the Battle Creek Allotment is composed of fairly extensive, undisturbed, and continuous remnant communities and well-developed biological soil crusts. This area is referred to as the biological soil crust (BSC) area (Pellant 1999, unpublished report). The area is characterized by salt desert plant communities and biological soil crust communities associated with sedimentary lakebed soils. The BSC area is located at low elevation, receives 6-8 inches of precipitation annually, and has highly variable soils, which range from sandy loams to silts. A significant amount of badlands are also located within this area.

General vegetation is salt desert shrub, and Wyoming big sagebrush and rabbitbrush. Areas receiving little to no livestock grazing still have remnant native grasses including Indian ricegrass, bottlebrush squirreltail, needle-and-thread and Sandberg bluegrass. More disturbed areas have a higher amount of cheatgrass, halogeton, and Russian thistle; however, this is a minor component compared to the surrounding areas in this pasture. Research conducted in the BSC area, which recently has been submitted for publication, indicates that lichen-dominated biological soil crust can inhibit germination and root penetration, which could partly explain the low density of cheatgrass in this intact portion of the pasture (Deines et al. unpublished data).

The majority of pasture 8 has been altered by past disturbance, with a near dominance of cheatgrass in the understory. In the lower elevation pastures there are small and fragmented pockets of relatively undisturbed vegetation with well-developed biological soil crusts, but areas of healthy plant communities and intact biological soil crust are not extensive making the BSC area unique and sensitive within the larger landscape. Biological soil crust cover in general has decreased in the western United States as a result of trampling, OHV use, and exotic weed invasion which has transformed relatively stable and diverse sagebrush steppe communities into exotic annual grasslands (Entwistle et. al 2000, Belnap et. al 2001).

The BSC area in general has complex topography with a good representation of all vegetation types. It also includes smaller, intact native communities which are typically restricted to steep north facing slopes, such as needle-and-thread and moss-dominated communities, with mosses sometimes forming a continuous carpet between grasses. Biological soil crusts can be found throughout this area to varied extents and where found are diverse and well-developed. The occurrence of these crusts in sandy soils is uncommon since these soils are easily impacted by trampling. On steeper slopes, crust cover most likely contributes to soil stability. More gentle east and west facing slopes also contain lichen-dominated biological soil crusts which have formed an obvious microtopography atypical for this region. This roughened soil surface may serve to slow overland water flow and increase water infiltration.

This area is locally valuable and unique due to the remnant plant communities, the distribution and diversity of biological soil crust communities, the soil stabilizing capability of these communities, and its reference quality for monitoring, inventory and educational purposes.

In general, the biggest potential threats to this area are increased OHV use and increased livestock trailing, both of which can disturb the fragile soils making them susceptible to erosion, weed invasion, and reduced biodiversity. The fragile nature of these soils makes them susceptible to erosion and weed invasion with even minor disturbance. The greatest threat to the lower elevation pastures in general is most likely wildfire. However, the potential for the BSC area to burn in its current condition is low due to the low frequency of cheatgrass. In a report on the BSC area, Evaluation of Ecological Characteristics of Pasture 8-Battle Creek Allotment, submitted on January 29, 1999 by Mike Pellant and Roger Rosentreter (BLM State Office) and Julie Kaltencher (Research Associate, BSU), it was recommended that exclusion of livestock grazing is the best option to ensure adherence to Idaho's Guidelines for Grazing Management (1, 3, 8, 9, 11, and 17).

2. Direct and Indirect Impacts - Special Status Plants

Alternative A - Current Management – Impacts to Special Status Plants

Overall, management of plant communities in this allotment is generally good. The two lowest pastures (8 and 21) are in poor habitat condition due to historic grazing, but the higher elevation pastures are generally in good habitat condition. The current management system for this allotment has only been in place since 2000 and has included some modifications, making it difficult to fully document its effect on SSPs. Under the current system rest was incorporated into the rotation for pasture 8 every other year during 2000–2002, and during years of low rainfall during 2003–2007 (Table 5). Periodic rest would enhance habitat protection for SSPs, particularly for Mulford's milkvetch habitat, since the soft sandy soil where it typically grows is easily disturbed. However, progress in the lower elevation pastures (both 8 and 21) would be slow and would be greatly influenced by climatic conditions.

One population of Newberry's milkvetch is known to occur in pasture 21. Due to a lack of accurate location information, this population could not be relocated during site visits in May and June of 2005. Furthermore, population and site descriptions were not provided in the original site report. Thus, the current condition of this population is unknown.

Other SSP in pasture 21 would continue to be stable over the long term since known populations in these pastures appear to be maintaining themselves. Special Status Plant populations in these pastures are specialized and inhabit micro-sites that only represent a small fraction of the total landscape (i.e. Janish's penstemon) or have a higher relative abundance and slightly higher resilience to livestock grazing (i.e. Snake River milkvetch). One potential concern in the lower elevation pastures is increased OHV use. Although not a concern at this time, increased use could impact SSP populations since the slopes and sandy soils where some of these plants grow is particularly attractive to OHV users.

The majority of the population of Howell's one-flowered goldenweed in pastures 20 and 20R is located in the Dry Creek riparian pasture (20R), which has been rested from grazing since 2001. Under this alternative, the riparian pasture will be rested until objectives for Dry Creek are met; then 7/1 – 7/10 use will be authorized on alternate years, with livestock numbers not exceeding 100 cattle. Little is known about this plant or how it responds to grazing. Research conducted by Kaye (2003) on a related species (Snake River goldenweed) indicated that plants exposed to grazing were smaller, flowered less, and had lower population growth rates than protected plants. However, population viability did not differ (as measured by extinction probability in grazed vs. ungrazed plots). Although this research was conducted on a different species of *Haplopappus*, these data indicate that minimizing livestock grazing (i.e. through rest or other protection measures) could promote population vigor and increase reproduction. Therefore population vigor under this alternative is expected to remain static with periodic grazing. In addition, long-term streambank improvement would indirectly maintain or improve habitat quality for this plant.

Current management is not expected to change the condition of the sensitive plant populations in the remaining pastures and these populations would continue to be stable over the long term. Use has been generally light in these pastures except in the vicinity of water where use is more moderate to heavy.

In all pastures, site specific degradation around salt and water sites would continue to be the most noticeable direct impact associated with livestock grazing. Salt and water placement locations and other activities that concentrate livestock would be periodically monitored to ensure viable SSP populations are being maintained. Under this alternative, no new projects are proposed.

Biological Soil Crust Area

Occasional livestock trailing and cross country motorcycle use are present in the BSC area, although this use is minimal. Under the current management some minor livestock use in this area would continue to occur. However, cattle will primarily continue to avoid this area because there is only a minimal amount of forage within this area due to a naturally low production on the badland soils and lack of cheatgrass in the understory, steep hills on the south limit access by cattle, and there is an adequate amount of forage in the remainder of this pasture in most years. The watergap at the Triangle Dairy on private land is near the north side of the BSC area, while existing troughs are to the south, thus possibly causing some trailing through it (see Map 6). Current grazing management is not expected to change the condition of this area, because it is the same as what has been occurring for years.

Off-highway vehicle use in this area could increase in the future as the local population and interest in this activity increases. Off-highway vehicle users are typically attracted to badland areas due to their sandy soils and hill climbs. Currently, OHV use is not having a significant impact on the structure and function of this area.

Alternative B – Impacts to Special Status Plants

Compared to the current situation, the long-term protection of SSP habitat would be less secure under this alternative, particularly in the lower elevation spring pastures.

Under the proposed system pastures 8 and 21 would be used at the discretion of the permittee from 4/1 to 5/31 for a maximum of 60 days each year. The area would continue to receive some rest in years when forage availability is low and cattle do not turnout. However, the frequency of this rest is unpredictable and without knowing how pasture 8 would actually be grazed in any given year it is difficult to analyze the direct impacts of this grazing system to SSP habitat.

The Triangle Dairy pipeline proposed in pasture 8 would concentrate and trail cattle into a better condition portion of the pasture. This area includes potential Mulford's milkvetch habitat. The major direct impact of this proposed pipeline on SSP habitat would be ground disturbing activities from livestock trampling. The area where the pipeline is planned has some of the more fragile soils in the allotment, which are easily disturbed. In addition to trampling, trailing could lead to an increase in invasive species in this area, further degrading the habitat condition. An increase in cheatgrass in particular, which currently is only a minor component in this area, could also increase the potential for fire in this portion of the pasture. Therefore, overall habitat quality for SSPs in pasture 8 is expected to decline over the long term.

Under this alternative pasture 21 has the potential to be grazed in the spring when soils are saturated and would be grazed during the critical growth period for Janish's penstemon. However, this species is usually not impacted by grazing because it grows on sparsely vegetated outcrops of soil, which grazers typically avoid unless a water source is placed too close to a population. Based on site visits in 2005, some Janish's penstemon plants were located in the vicinity of mechanical damage (trampling) and in areas where invasive species, such as cheatgrass and halogeton, were prevalent, although no direct impacts were observed on individual plants. Although an earlier turnout into this pasture when soils are saturated could increase soil disturbance, many of the plants are located in areas where mechanical damage and trailing is either minimal or not observed. Therefore, no change is expected to occur compared to the current situation, as long as a water trough (*Cove Pipeline Project*) and salt placements are located an adequate distance from SSP populations based on field inventories conducted prior to implementation of range development projects. See alternative A for a discussion of potential OHV impacts.

One population of Newberry's milkvetch is known to occur in pasture 21. A lack of accurate location and condition information preclude analysis of how this alternative would impact this population.

Simpson's hedgehog cactus is the only SSP currently known from the late spring pastures (9 and 22). Hedgehog cactus is resilient to disturbance typically due to its rocky habitat and its protective spines, which prevent trampling and herbivory. A new pipeline with 1 trough on State land is proposed in pasture 22 *(IDL Pipeline Project*). The new trough would increase use on both State

and BLM lands in an area that has had little livestock grazing and would negatively impact habitat quality over the long term because livestock grazing use would be increased during the critical growing season of native perennial grasses. Direct impacts to SSPs from pipeline construction also could result from localized soil disturbance during construction and the associated weed invasion into these disturbed areas. In addition, increased cattle grazing around the associated artificial water sources can create disturbance areas referred to as "piospheres" (Brooks et al. 2006). This water development would concentrate use, resulting in trampling, which can cause soil compaction, seedbank disturbance, and direct crushing of plants and can contribute to increased invasive species colonization. These impacts typically radiate up to ¼ mile from the water source, which would include BLM land to the west of the trough site. To minimize impacts to SSP populations, the IDL Pipeline Project area would be surveyed for SSP and the project modified if necessary prior to construction.

Mud Flat milkvetch populations occurring on BLM land have been documented in pastures 14, 18, 19, and 20 and appropriate habitat for this species is also present in the other late spring and summer pastures. These pastures comprise a large portion of the range of Mud Flat milkvetch. Direct impacts to SSPs from pipeline development in Pasture 14 (*Joes Basin Pipeline Project*) would be the same as described for pasture 22. One of the lightest used area in pasture 14 is where this trough is proposed. Increasing livestock grazing within lightly grazed range and developing water in currently unwatered areas would increase cattle use, negatively impacting range condition adjacent to the new water trough, and directly impacting Mud Flat milkvetch populations due to increased trampling and trailing. Surveys to locate and thereby avoid SSP populations before construction would minimize direct impacts associated with this pipeline

Howell's one-flowered goldenweed occurs in pastures 20 and 20R, particularly within and adjacent to the riparian pasture (20R). Under this alternative a Dry Creek ribbon fence and multiple water gaps are proposed in place of the existing riparian pasture. This change is expected to cause a downward trend in bank and channel stability of Dry Creek. At a minimum, careful placement of fences and water gaps would need to be implemented in order to avoid direct impacts to goldenweed plants. Potential impacts include ground disturbing activities associated with fence reconstruction, and trampling and trailing of livestock through water gaps. Water gaps should not be placed on goldenweed populations as livestock will likely remove all plants within the gaps by trampling and shearing streamside soils. Little is known about this plant or how it would respond to degraded conditions associated with channel erosion. However, a downward trend in the condition of Dry Creek would likely result in reduced vigor of goldenweed populations.

Proposed fence projects throughout this allotment are not expected to have substantial impacts to SSP providing surveys to avoid SSP populations are conducted prior to project implementation.

Biological Soil Crust Area

The proposed range improvement projects in pasture 8 would cause a long term decline in habitat conditions within the BSC area. Currently, water is available via a pipeline located in the southern portion of this pasture and in the northwest part of pasture 8 via a well that supplies water to a water

gap on private land at Triangle Dairy. Cattle movement between the southern pipeline and the water gap in the northwest portion of the pasture has resulted in minor trailing through the BSC area. The proposed Triangle Diary Pipeline, which would extend from the water gap on private land, would increase distribution of livestock in an area approximately one mile to the southwest of this water gap. In addition, the proposed Shoofly Pipeline Extension 2007 would originate from the existing pasture 8 pipeline and extend to the northeast. The increased livestock use associated with proposed pipeline and pipeline extension could affect growth of remnant native perennial grasses in years when forage availability is limited, i.e. low production of cheatgrass, if livestock grazing occurred during low production years. These extensions would also border the BSC area on both sides with the intent of the livestock trailing from one trough to the other. Trailing could thus increase in the BSC area.

This area has received little livestock use in the past and is in good condition, with intact biological soil crust communities and native perennial vegetation. Cattle trailing through this area will break up the crust community which is currently providing valuable soil protection for this fragile sandy soil. Due to its extremely sandy nature, this soil is highly susceptible to erosion and weed invasion with even minimal disturbance. In this sandy soil, crusts are easily buried (directly or through disruption of the soil which leaves adjacent crusts vulnerable to indirect burial through wind and water-moved sediments), which kills non-mobile, photosynthetic components of the crust. The pipelines may increase cattle access to some of the small, isolated, remnant good stands of native grasses (estimated at <5% of the pasture). These impacts combined will over the long term degrade this area through the loss of biodiversity and native vegetation. In addition, the increase in cheatgrass cover could potentially increase fire potential in a portion of the pasture which currently has a low susceptibility due to its sparse vegetation and minimal cheatgrass cover. On a landscape scale, this area is important because it has the largest, contiguous good-excellent condition biological soil crust community in the Wyoming sagebrush zone known to occur in the Bruneau Field Office. These communities, once widespread on the Snake River Plain, have been altered through the cycle of disturbance, cheatgrass invasion, and wildfire and are now sparsely scattered on the Snake River Plain.

Some OHV activity in this area has already damaged the vegetation and disturbed the biological soil crusts. The 'badlands' type areas, such as those in this area are attractive to hill-climbing OHV users due to their sparse vegetation. Increased OHV use in this area would lead to irreparable damage.

Alternative C– Impacts to Special Status Plants

The long-term protection of SSP habitat in pasture 8 would be more secure under this alternative compared to all other alternatives. The State Section pipeline proposal combined with closing off the Triangle Dairy watergap onto private land could pull trailing away from potential Mulford's milkvetch habitat in the BSC area. It would thus offer more protection for SSP habitat than Alternative A. Impacts to SSP in pasture 21 would be similar to Alternative B.

This alternative will have similar impacts compared to alternative A for all other SSP habitat. Good to excellent condition Hedgehog cactus and Mud Flat milkvetch populations in the higher elevation pastures would continue because the Joe's Basin trough and Tanks pipeline trough would be located in reservoir sites where there is already water in favorable years. Impacts of pipeline construction would be similar to Alternative B, but affect less area because less pipeline is proposed.

Impacts to the Howell's one-flowered goldenweed population located in pastures 20 and 20R could be negative in the short term and would primarily be associated with potential ground disturbing activities associated with fence reconstruction, pipeline construction and trough placement, and trampling and trailing of livestock associated with the new water trough placed adjacent to the Dry Creek Exclosure. To avoid impacts to SSP populations, the spring development, new fence location, and pipeline project would be surveyed for SSP with the project modified if necessary prior to construction. Long-term streambank improvement associated with the change in use from a riparian pasture (20R) to a grazing exclosure would indirectly maintain or improve habitat quality for this plant. To avoid impacts to SSP populations, potential range development projects would be surveyed for SSP and projects modified if necessary prior to construction.

Biological Soil Crust Area

The long-term protection of the BSC area in pasture 8 would more secure under this alternative compared to all other alternatives. The State Section pipeline proposal combined with closing off the Triangle Dairy watergap onto private land could pull trailing away from the Biological Soil Crust area and thus lessen current impacts to this area.

Alternative D – Impacts to Special Status Plants

The long-term protection of SSP habitat in the low elevation pastures would be similar to Alternative A. However, similar to Alternative C, closing off the current watergap onto the private land at Triangle Dairy could decrease trailing through the potential habitat for Mulford's milkvetch.

For the remainder of the Battle Creek use area, long term protection of SSP habitat and potential impacts from pipeline construction would be the same as Alternative C. In the Little Jacks use area, there are more troughs proposed than in Alternative C, but all are at locations where there is already water or salt. This lessens the potential to impact SSP populations. To avoid impacts to SSP populations, potential range development projects would be surveyed for SSP and projects modified if necessary prior to construction.

Impacts to the Howell's one-flowered goldenweed population located in pastures 20 and 20R would be the same as Alternative C.

Biological Soil Crust Area

The configuration of the two proposed troughs (*Modified North Extension and State Section Extension of Shoofly pipeline*) combined with closing off the watergap at Triangle Dairy on private

land could lessen trailing through the biological soil crust area compared to Alternative A but might have more trailing than Alternative C, which only proposes one trough.

G. Wildlife, including Special Status Species

1. Affected Environment

A wide variety of native wildlife species are found or potentially found in the Battle Creek allotment, including 28 BLM sensitive species (Appendix C). Below we discuss the species for which we have some information on habitat conditions in the Battle Creek allotment that are affected by grazing.

The higher portions of Battle Creek allotment contain good condition, essentially native sagebrush habitats for wildlife. Sage grouse, pygmy rabbits, bighorn sheep, sage thrashers, brewer's sparrows, antelope, and deer are typical species. The lower elevations of the Snake River plain (pastures 8 and the northern one-third of 21) are dominated by cheatgrass and lack most of the native grasses and forbs, but still retain native shrubs. Black-tailed jackrabbits, antelope ground squirrels, short-horned lizards, loggerhead shrike, and sage sparrows are typical species. Mojave Black-collared Lizards are found in the Chalk hills of pasture 21. Pasture 22, the bench above the Snake River plain, is the place where many wildlife habitats overlap: bighorn sheep range, sage grouse winter range, mule deer and antelope winter range, and mountain quail habitat in Shoofly Creek (Map 26).

Sage grouse are used in this analysis as an umbrella species for other sagebrush obligates, including pygmy rabbit, sage sparrow, and brewer's sparrow. This is because the specifics of habitat needs are not as well studied for the other species as for sage grouse, but enough is known to validate the assumption that good condition native vegetation is important to these species for food and cover, and that is essentially what sage grouse need also.

Sage Grouse (Type 2 - rangewide concern). Most of the higher elevations of the allotment (all except pastures 8 and 21) are sage grouse habitat, used for wintering, nesting and summer brood rearing. In the 1999 EA, nesting habitat was defined as a 2-mile radius around leks, and those were the areas analyzed for habitat condition. However, for this EA, all of the higher elevations are considered potential nesting habitat, because leks have been found in new locations with new surveys, and because grouse may nest 10 miles away from leks (Kemner 2004).

In April 2004 and 2005, BLM surveyed for sage grouse leks from a helicopter. These surveys covered most of the sage grouse habitat in the Battle Creek Allotment. Four active leks were found within the allotment (Table 19): three were in new locations different from those found during the mid-1990's and analyzed in the 1999 EA, and different from locations in the historical data base, and only one lek was in both an historical location and the 1999 EA. The numbers of grouse at this lek 7– 42 to 62 - were higher than any reported in the 1999 AIE: "Four leks were found active and were monitored during 1996 and 1997. …counts varied from 5 to 29 birds per lek".

Table 19. Sage grouse lek locations, years, and numbers of grouse seen, Battle Creek Allotment, Bruneau Field Office, BLM Idaho.

Lek location	Number sage grouse seen					
	1988	1996-97	2003	2004	2005	2007
T. 9S. R. 1E. Sec 35				12		
T. 8S. R. 1E. Sec 22				16		
T. 9S R. 2E Sec 25					50	
T. 9S R. 1E Sec 11	32	29	62	56	>52	42

In late May and early June 2005, 5 sage grouse breeding habitat evaluations were completed. Locations were selected to represent big sage in a pasture, and were done close to known leks where possible. However, muddy road conditions precluded getting near every lek. Four of the five assessments showed suitable habitat conditions for sage grouse breeding. The assessment in Bench pasture (22) showed marginal conditions, due to lack of herbaceous cover for nests from a lack of tall bunchgrasses (USDI 2007a). It was near East Fork of Shoofly Reservoir, one of the lower condition areas in the pasture because of the proximity to water. However, much of the Bench pasture is low sage in good condition, and it contains limited areas of big sage suitable for grouse nesting.

Mountain Quail (Type 3-state concern). Shoofly Creek in pasture 22 is the last known place where mountain quail persisted in the Bruneau FO, disappearing sometime in the mid-1980's. Reasons for their disappearance are not known, but there has been a general decline in Idaho. However, Battle Creek permittees say they may have seen them in that drainage in recent years. Mountain quail need fruiting shrubs such as chokecherry and elderberry to provide food in the winter. They use tall thick shrubs for cover, which in this desert country means riparian habitat. Shoofly Creek is identified in the MFP to improve for mountain quail habitat.

Pygmy Rabbit (Type 2 – rangewide concern). Pygmy rabbits, a BLM sensitive species, were surveyed for and found in 2002, 2003, and 2005 at 9 sites within Battle Creek Allotment, scattered in the higher elevation pastures at almost every site inventoried (Map 26). Since 2002, this species has been found in big sagebrush throughout the mahogany savannah along the Mudflat Road, including the higher parts of the Battle Creek Allotment. Its habitat extends southeast to the Duck Valley Indian Reservation and the Nevada border. Pygmy rabbits use denser taller sage, digging their burrows at the base of sagebrush. They eat sage almost exclusively in the winter, and, in the summer, about half sage and half grasses and forbs.

In 2002, pygmy rabbits were petitioned to be listed as endangered; however, the U.S. Fish and Wildlife Service did not find it warranted to list them. Since then, substantial populations have been found in Wyoming, Utah, Nevada, California, Oregon and Idaho in places they were previously unknown. In the Bruneau FO, before 2002, pygmy rabbits were known only from 3 historical locations and 2 recent observations. From 2002 to 2007, BLM has mapped over 500 currently and recently active burrows, from the mahogany savannah along the Mud Flat Road southeast to the Nevada border.

Spotted Frog (Type 1- federal candidate). Spotted frogs have been found in the private lands of Rock and Battle creeks on the south end of the Summer pasture (20). There is a tiny piece mapped habitat (CDC records) on each creek which extends onto public land: about 75 meters on Battle Creek and 150 meters on Rock Creek Most of the habitat is on private land, and Rock Creek on BLM land is only seasonally wet. Additionally, spotted frog tadpoles were found during the 1990's at the "boghole" on upper Little Jacks Creek, which is at the road crossing between the WSA and the exclosure 16R. Because this part of Little Jacks usually dries up in late summer, the core habitat is probably upstream on the private land above the WSA boundary.

The key element needed by spotted frogs is pooled water or slow moving water with refuge from predatory fish, if they are present (Pilliod and Peterson, 2001). Riparian areas in good condition provide pools and refuge in the form of oxbow pools, aquatic vegetation, and vegetated wet meadows. The effects of cattle grazing on spotted frogs may be negative, neutral, or positive, depending on the intensity and timing of grazing and on habitat characteristics (Munger 1997). When cattle grazing causes erosion and downcutting of streams, and eliminates aquatic and wet meadow vegetation, it adversely affects frog habitat by reducing pools and refuges (Munger 1997, Munger et al. 1998). However, lesser levels of grazing that do not eliminate or reduce habitat, increase erosion and eliminate plant refuges may benefit some aspects of frog habitat, by opening dense stands and keeping open water in pools (Munger 1997).

California Bighorn Sheep (Type 3 – State concern). The drainages of Shoofly and Little Jacks creeks are home to a herd of about 110 California bighorn sheep, reintroduced there in 1967. Most of their range in the allotment is found within pasture 22. These sheep are part of a herd complex with Big Jacks Creek, which has another 125 sheep (2006 counts by IDFG). For unknown reasons, numbers have dropped substantially since a peak in 1994 of an estimated 375 sheep in the Little Jacks area. This herd is one of several large herds in Owyhee County, which is home to about one-fifth of the California bighorns in the US.

A 5-year study of the relationship between bighorn sheep and cattle was conducted on the Battle Creek Allotment from 1987-1991, by the BLM and IDFG. The area between Shoofly and Little Jacks Creeks was flown weekly during April, May and June, and bighorn and cattle locations were recorded. This covered essentially the Bench pasture (22). A map depicting all the locations over all years gives a picture of areas used by bighorns and cattle during those months (Map 27). In general, there was a lot of separation in use areas: the bighorns used the canyons more and the cattle ranged more through the flats. However, there were areas of overlap: Halfway and the other gulches between Shoofly and Little Jacks Creeks that reach up into the bench from the flats; the bench around Twin Lakes and OX Lake; OX Prong and upper Little Jacks Creek; and Tigert Springs.

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. However, they can range many miles from the steep canyons. There is potential for competition with cattle for grasses and forbs.

Antelope. Antelope use the southern end of pasture 21 and the northern end of pasture 22 in the winter, and the higher elevation pastures in the summer. A herd of over 300 was seen in pasture 21 in January 2005. Antelope eat sage and other shrubs in the winter, and forbs and grasses in the summer. They use open flats where they can see a long distance. Maintaining the shrub component in pasture 21 and 22 is important for these animals.

Mule Deer. Mule deer are present throughout the year on the Battle Creek allotment. The low pastures (8 and 21) are used year-round. Most of the Bench, pasture 22, is winter range as well as year round habitat, and the pastures above 22 are used spring-summer-fall. The higher elevations have bitterbrush and mountain mahogany, which are preferred browse species. Shrubs are particularly important in the winter, but are browsed any time of the year. The 1999 AIE and EA did not find overuse of browse by cattle as an issue in this allotment

2. Direct and Indirect Impacts – Wildlife

Alternative A - Impacts to Wildlife

Overall, current management of the higher elevation pastures of this allotment (22, 9, 12, 14, 20, 10, and 15) has resulted in good habitat condition for sage grouse breeding habitat, pygmy rabbits, bighorn sheep, mule deer and antelope. Native tall bunchgrasses and forbs are present and have good vigor in most places, providing suitable cover and food. This condition would be expected to continue with current management. However, current management is not improving the condition of East Fork of Shoofly and Shoofly Creek, most of OX Prong, ½ mile of upper Little Jacks (mostly inside the WSA), and Hutch Springs.

The two lowest pastures (8 and 21) would continue in poor habitat condition, due to historic grazing. Even without grazing, it would take decades to see any significant progress in pasture 8 and the northern part of 21 due to the prevalence of cheatgrass and low frequency of native perennial grasses.

East Fork Shoofly and Shoofly Creek in pastures 21and 22 are on a downward trend now after having been on a strong upward trend from 1998-2002, due to heavy-to-severe livestock use in the late summer 2003-2006, after cattle were supposed to be there. Elderberry, a key food shrub for mountain quail, was broken down to the ground by severe use in Shoofly Creek in 2006. In 2007, Shoofly Creek was used only for trailing, and grazing use was very light through the beginning of August. The herbaceous vegetation grew to 1-2 feet, and elderberry shrubs resprouted 5-10 feet tall and produced fruit. Cattle use then occurred during August and/or September, although the ownership of the cattle was not determined. Elderberry leaves and fruit were used up to the level cattle could reach, but stems were not broken down.

If the management from 2003-2006 were to continue, the habitat conditions in Shoofly Creek for bighorn sheep, mountain quail, and riparian birds would continue to deteriorate. Although elderberries resprouted strongly in 2007 and produced fruit, their root reserves would not be able to sustain such a draw year after year. Willows and other shrubs important to riparian birds

would not expand with the heavy browsing they received in 2003-2006. The wet meadow vegetation would continue to be depleted and be unavailable for bighorn sheep. However, if the management from 2000-2002 and 2007 were to continue, the creek would be on an strong upward trend, improving the habitat components of shrub cover and herbaceous production, thus increasing food and cover for a variety of riparian-using wildlife.

Without protection from late summer grazing, Hutch Springs would continue to have reduced areas of wet meadow, low amounts of green plants as late summer food for sage grouse, and would continue to erode. Without protection, the part of upper Little Jacks meadow below pasture 16R would continue to have severe use levels leading to downcutting, loss of meadow habitat, and almost no green forbs available for sage grouse to eat in late summer.

In the current Dry Creek riparian pasture, built in 2002, the largest piece of potential wet meadow (3 mi) in the allotment is on an upward trend. This trend would continue, assuming the fence is maintained. Eventually, wet meadow could be restored on much of the reach within the exclosure as the creek aggrades and bank storage of water is restored. This would create a large increase in late summer habitat for sage grouse on the public lands in the allotment and the region. Although Hutch Springs, upper Little Jacks meadow, and Dry Creek are some of the few wet areas on BLM lands in these pastures, an estimated more than 90% of wet meadow habitat for sage grouse is on private lands that are intermingled with the public lands.

Alternative B - Impacts to Wildlife

Grazing Management:
The proposal is to use pastures 8 and 21 in April and May, without delineating separate dates for each pasture. Using pasture 21 anytime during April and May would allow grazing on Sandberg's bluegrass and squirreltail during the critical spring season, and reduce their vigor. The permittees state that cattle would focus on cheatgrass when it is green in April and not eat the native perennial grasses, but BLM observations are that cattle will also eat the natives when they are green, especially when the cheatgrass production is low. For the last 20 years, turnout into pasture 21 has been the third week of April or later. This proposal would allow livestock grazing even earlier, during the critical growth period. Therefore, this proposal would not allow improvement in condition of native grasses in pasture 21 and might cause a downward trend. Native grasses are important for food and cover for small mammals and birds. Maintaining native grasses and discouraging cheatgrass is important to wildlife because cheatgrass increases risk of wildfire that would take out the shrubs. Shrubs are important food, particularly for wintering antelope in pasture 21. If they were eliminated by fire, antelope would lose an important wintering area, approximately ¼ of the wintering area in the BFO, probably for the foreseeable future.

In the other pastures, continuing with the present management would maintain the good condition habitat of the uplands. Bighorn sheep, sage grouse, pygmy rabbits, antelope, mule deer and other wildlife would continue to have suitable habitat for maintaining viable populations.

The impacts of proposed grazing management for the problem areas identified above are discussed below under specific projects connected to the management.

Projects: Battle Creek Users

North Shoofly Pipeline Extension 2007 and Triangle Dairy Pipeline, pasture 8:

In combination, these troughs would be on either side of and close to the biological soil crust area. They may cause increased trailing through the area, and thus trampling and destruction of the crust. One of the most important functions of the biological soil crust is preventing cheatgrass invasion; currently there is relatively little cheatgrass there. Thus the biological soil crust also acts as a protector of the sagebrush and other shrubs from fire, by keeping out the fine fuel of cheatgrass. If the biological soil crust deteriorated from cattle trampling, cheatgrass would invade because the area is surrounded by cheatgrass, and the chances of losing the shrub stand to fire would increase. This would be negative for rabbits, deer, and other wildlife that use the shrubs for food and cover. In general, shrub cover in the low elevations of the Snake River Plain is at risk for loss to wildfire because of cheatgrass invasion, and areas of intact biological soil crust are few.

Cove Pipeline, pasture 21:

No distinguishable effects expected to wildlife, because it moves a water source about 1 mile within a cheatgrass area.

S*hoofly Gap Fence, pasture 21.*

With only a stipulation for 4" of stubble at the end of the growing season and no limits on bank alteration during May use, the soft soils of the creek banks – and thus the plants - could continue to be damaged by heavy trampling. The May use in 2003-2006 resulted in high levels of bank alteration, and no increase in riparian shrubs or bank stabilizing vegetation (USDI 2007a). Herbaceous vegetation and particularly the sedges needed to hold the banks together during floods would not increase to potential (see analysis in Riparian section above). Herbaceous vegetation is important for preventing erosion of the stream banks, and thus maintaining the entire stream habitat, and is also important as a source of food for wildlife that graze, and as a source of insects for insectivorous birds. Shrubs provide nesting habitat for birds as well as cover and food for other animals.

IDL pipeline, pasture 22.

This pipeline would go into bighorn sheep habitat, with the trough located on State land. The MFP (W/L-2.1(3))states "maintain a separation of use between cattle and bighorn by not developing livestock water sources within 1 mile of bighorn habitat…unless the potential adverse impacts can be avoided." Data from a four- year study, from 1998-2001, of locations of bighorns and cattle during April-June show that bighorns do not use this area or within over a mile of this area during the time cattle are there. Thus, it does not appear from these data that the basic goal of maintaining separation of cattle and bighorns would be violated by the location of this proposed trough. However, a zone of bare ground would develop around the trough for several hundred yards, with weeds such as burr buttercup, judging from field observations of nearby troughs. For ¼ to ½ mile around the trough, which would include portions of BLM land, grasses and forbs would be reduced, thus reducing habitat quality for sage grouse and other

wildlife. This trough would be about 1 1/2 mile from a large sage grouse lek, and would cause reduction in nesting habitat quality in an area that is close to the lek and currently gets slight to light grazing use. Nest success could be reduced through reduced cover and reduced availability of nutritious forbs for the laying hen.

Joes Basin Pipeline, pastures 12 and 14:
Of the three reservoir sites where troughs are proposed in pasture 12, the northern and southwestern ones have had water or water has been hauled to them, and the southeast one has not had water for some years. The northern reservoir has a bare zone around it for 100-200 ft and then a zone of depleted grasses and forbs for several hundred yards; the southwestern one has a smaller bare zone. There are pygmy rabbits and sage grouse throughout this area. The largest sage grouse lek in the mahogany savannah is about 2 ½ to 3 miles away, which means this area is important for nesting. Putting water at the northern and southwestern reservoirs would not change conditions there, but around the other location it would degrade nesting habitat for at least ¼ mile radius, judging from the northern reservoir. In pasture 14, which is already watered by 5 troughs from the Hutch Pipeline, the proposed trough would be in the only part of the pasture further than one mile from water. Additionally, it is about 1 1/2 miles from the largest lek in the mahogany savannah, which means it is important nesting habitat. A trough in this area would degrade some of the better condition habitat in the local area around this major lek.

Shale Rock Gap Fence:
This fence would only minimally impede movements by deer and bighorn sheep, being only 200-300 feet long. There are other routes up out of the canyon (see photo in Section VII below). The 1988-1991 aerial location data does not show bighorn sheep use in this area, at least during April-June (Map 27), however, areas that bighorn sheep use can change over time and thus they could use this area now or in the future.

The purpose explained for this fence is to help prevent drift of cattle from pasture 12 back down through pasture 22 and into the East Fork of Shoofly Creek. It is proposed as part of the solution for improving the condition of the creek, and if true, could contribute to improving wildlife habitat. However, the causes of stray cattle use on East Fork of Shoofly Creek are varied and not completely known. Pastures 12 and 22 are used concurrently during June and July, except that pasture 12 is used for ten days longer than 22 in this alternative. There are few waters in this part of pastures 12 and 22. In managing the cattle, during June and July, the permittees move groups of cattle from 22 into12, and put them on Snow Spring. Without access to water at Snow Spring, some of the cattle would drift back through Shale Rock crossing and down Between the Creeks to the East Fork of Shoofly Creek. If most of the cattle problem in East Fork Shoofly and Shoofly Creek during June and July is due to the current Snow Spring exclosure, then modification of the exclosure may resolve much of the problem. It is difficult to predict now whether and how much the Shale Rock Gap Fence might further help improve the East Fork of Shoofly Creek by reducing June and July use. During 2000-2002, Shoofly and East Fork of Shoofly creeks were on a strong upward trend without this fence in place. Additionally, for the last 4 years (2003-2006), evidence is that it has been summer-long stray cattle, not just during June and July, causing the heavy-to-severe use on the creeks, and reversing the trend in riparian condition from upward to downward. The Shale Rock Gap Fence would not help eliminate stray

cattle on the creeks in August or September, because they are in pastures 14 or 20 by then, not pasture 12.

Snow Creek Spring Exclosure Modification, pasture 12:
This modification is proposed because the current exclosure blocks cattle movements and restricts their use of Snow Spring, causing cattle to cross the Shale Rock Crossing and drift back down Between-The-Creeks into East Fork of Shoofly and Shoofly Creek. Thus the modification could have positive benefits for wildlife in the form of a renewed upward trend in East Fork of Shoofly and Shoofly Creek riparian habitat. The drainage below the spring is mainly valuable for the mesic fruiting shrubs along its slopes, such as gooseberry, rose, and cherries, as food for birds and potentially mountain quail. These shrubs should continue to improve.

Hutch Springs Exclosure and Water Development, pasture 20:
The general proposal to fence the springs and put water in a trough would be positive for wildlife, particularly sage grouse, because it would lessen the current heavy-to-severe use of the wetland and allow healing of the erosion in the wet meadows associated with the springs. However, the potential downcutting at the bottom of the wet area (see riparian section above) would counteract the healing within the exclosure, acting to dry the wet meadows, with negative effects to the green forbs favored by sage grouse for summer food. This area is currently used by sage grouse in the summer. Additionally the proposed location of the upper fence may go through pygmy rabbit burrow areas, causing trailing and destruction of sagebrush at their burrow locations. Compared to Alternatives C and D, the fence location closer to the wet area would be less secure for excluding cattle, thus increasing the chances of the exclosure not functioning as intended.

Dry Creek Reservoir #2 Reconstruction 2007, pasture 20:
Current nesting habitat condition is suitable, judging from a nesting habitat assessment conducted about ¼ mile above Dry Cr. Reservoir #2 (USDI 2007a). There has been a pool of water remaining even with the dam breached. With repair of the dam, there should not be much change in range condition, or in habitat conditions for wildlife.

Dry Creek Ribbon Fence and Water Gaps.
The stream would not aggrade to reform the wet meadows that we are trying to restore for sage grouse (see riparian section above). A ribbon fence between the road and the stream would not include all the currently protected meadow, thus reducing the protected area for late summer food for sage grouse. The current fence as built is causing an upward trend on the downcut stream, leading to eventual restoration of wet meadows that would provide quality summer food for sage grouse. Modifying it as proposed would reduce or reverse that upward trend.

Projects: Little Jacks Creek Users – Alternative B
Owens Pipeline.
These are two pipelines proposed off of the old "Little Jacks Creek" well, one into pasture 10 and one into 15. These pipelines are within 1 to 2 miles of 3 sage grouse leks found active in 2004, plus a lek found in the 1990's (Map 26). The basic question for analysis of these pipelines is whether they are important for improving OX Prong, by reducing use on the creek by

providing water in the uplands, and whether the tradeoff of upland effects is worth possible gains in habitat condition on the creek. A secondary question is whether all of the proposed troughs are needed to replace water from OX Prong, because each trough causes a zone of depletion around it of grasses and forbs for cover and forage. With 10 troughs, habitat value would be reduced in an estimated 2 ½ to 10 square miles of land, based on ¼ -mile zones of depleted grasses and forbs that has been observed at other troughs in the allotment.

The pasture 10 proposal would put water into country that is in generally good condition, and is not well-watered now. The proposed troughs are not within 1 mile of bighorn habitat, and so the issues with bighorns that were important with the old Jack's Cr. Pipeline proposal are not relevant. However, the issues for increasing livestock grazing within slightly grazed range are similar (see the utilization maps in the 1999 AIE), but not as large or intense as with the old Jack's Creek Pipeline proposal, which extended for another 11 or so miles into pristine range. The proposed troughs would increase cattle use, degrade range conditions for ¼ - mile radius around the troughs, and cause bare weedy areas around the tanks as much as several hundred yards across. All of this is in prime sage grouse habitat, and would be negative for grouse habitat by reducing forbs for food and grasses for cover. Nest success could decline, though it is impossible to predict by how much. These troughs might pull use from the riparian meadows of the private land in Little Jacks Creek Basin, which are prime sage grouse late summer habitat. However, without fence repair on the private land, the attraction of all the green feed in the meadows would be too much for troughs in the dry upland grasses to counteract. The meadows would continue to receive heavy grazing.

The pipeline proposed into pasture 15 would put water into currently unwatered areas, again causing bare areas at troughs and degradation of surrounding range condition, with the potential for spread of cheatgrass and other weeds. After the Anthill Well pipeline was built in adjacent Castle Cr. allotment, areas under mahoganies near water tanks have gone to cheatgrass, because the cattle loaf underneath them. Pasture 15 is sprinkled with mahoganies, and 3 of the 5 proposed troughs would be near mahoganies. More cheatgrass increases the risk of wildfire, which would kill the mahoganies and sagebrush. Mahoganies are important to a variety of birds which use them for both nesting and migration habitat; they are also important to deer for hiding cover and browse. Sagebrush is important to sage grouse, pygmy rabbits, and sagebrush songbirds.

Collier Meadow Exclosure Modification and Owens Reservoir # 2.
The proposed fence relocation would help the wet meadow by eliminating the watergap to the creek. Improving wet meadows has a positive effect for sage grouse, providing late summer food.

North Pasture 10/15 Fence Removal and Construction, and OX Prong Gap Fences.
Removing one fence and replacing it with another about ¼-mile away would have small adverse impacts to big game movements (mule deer and antelope). Most individuals jump or go under a fence, but occasionally an animal hits a post or gets tangled in the wire. This effect would be greatest for the first several years until they got used to the new fence location. The gap fences if correctly located and maintained would create an exclosure of OX Prong. The effects on the streamside habitat would be beneficial to riparian wildlife, and to bighorn sheep, by improving

vegetation condition and reducing cattle use in an area used by bighorn sheep. However, the gap fences at the rim would be negative for movements of bighorn sheep and deer. A fence across a steep slope, or at the break of a steep slope is difficult for these animals to jump. The routes that the fences would close off to cattle would be the same routes used by deer and bighorn sheep. In this proposal, there are two options for fencing out OX Prong. For wildlife, the southern option of a single fence perpendicular to the rim (Map 18) would be preferable to the northern option of a perpendicular fence plus gap fences at the rim.

Southern Pasture 10 and 15 Gap Fences.
Assuming that this fence would prevent drift from Pasture 15 back into 10 in late summer, the condition of upper Little Jacks meadow would still not change very much, because it would still get heavy use for 2 months when soils are wet. Green forbs for sage grouse in late summer would still be unavailable. Additionally, the proposed locations of the gap fences cross deer trails. The rim along which the fence is proposed has good stands of aspen, willow and chokecherry below it, and is used by mule deer. There are deer trails going up onto the plateau from the shrub stands. A fence right at the rim would be the most difficult location for deer to jump.

Alternative C - Impacts to Wildlife

***Grazing Management**:*
This alternative has the potential to improve native grasses in pasture 21 by delaying use until after May 1 in some years, and by deferring use until May 1 in all years, compared to Alternatives A and B. Improvement in native grasses is positive for wildlife because these grasses are more reliable producers of food than cheatgrass in dry years.

Projects: Battle Creek Users
State Section Pipeline Extension, pasture 8.
This project could reduce use in the biological soil crust area by pulling use to the south while closing off a water source to the north, reducing trailing across the biological soil crust area. Keeping the biological soil crust area intact would help prevent cheatgrass invasion, less cheatgrass means less risk of wildfire, which means better chance of keeping the shrubs intact. Shrubs are important for wildlife cover and food.

S*hoofly Gap Fence and Pasture 22H Fence Removal* - Same as Alternative D.
These proposals create a separate area on Shoofly Creek that can be managed differently than pastures 21 and 22. Being grazed only during active trailing in the spring and fall would allow for a rapid upward trend in herbaceous and woody vegetation on about 2 miles of creek. This would be positive for riparian birds as well as other riparian wildlife, and for bighorn sheep, which use this area. Vegetation that provides cover and food for many species, including bighorn sheep, migratory birds, and mountain quail, would improve to potential at essentially natural rates.

Joes Basin Pipeline (1-trough version)- Same as Alternative D.
Putting water to the northern reservoir by pipeline instead of the current situation of water hauling if the reservoir dries up would have minimal impacts to wildlife habitat. A pipeline

would make water a little more reliable than it was with water hauling, thus potentially increasing the use in some years. Cover and forbs could decline slightly.

Snow Creek Spring Exclosure Modification - Same as Alternatives B and D.

Dry Creek Riparian Fence modification – Same as Alternative D.
Without the crossings proposed in Alternative B, this modification should continue to allow the upward trend seen with the current riparian pasture fence, with the same amount of potential wet meadow (Alternative A). It would be years before the meadow would be restored, but when it regained moisture, it would create an important late summer habitat for sage grouse, providing green forbs for food.

Hutch Springs Exclosure and Water Development - Same as Alternative D.
Protecting the meadows and springs would improve late summer habitat for sage grouse, by increasing the amount of green forbs available for food. Installing a trough outside the exclosure would not change the amount of use by cattle, because they already use the waters of the springs, so it would not measurably change the surrounding habitat condition for sage grouse or other wildlife.

Projects: Little Jacks Creek Users- Alternative C

Collier Meadow Exclosure Modification and Owens Reservoir # 2, pasture 15 -
Same as Alternative B.

Collier Spring Exclosure Modification
This proposal would protect wetland habitat for sage grouse and other wildlife, while providing water for cattle. Food plants would increase in the spring area and below to the pond. Providing water at the pond would not change the condition of surrounding upland habitat, because it has been a water source for cattle for years.

Southern Pasture 10/15 Division Fence
This alternative would provide a more secure division between pastures 10 and 15 than currently exists, while avoiding putting it across deer trails that are found along the rim where Alternative B would put gap fences. It would provide benefits of helping to manage use levels in OX Prong Creek in pasture 10, which would in turn lead to increasing riparian shrubs and herbaceous vegetation that are important as food and cover many species of wildlife, including bighorn sheep and migratory birds.

Tanks Pipeline
This trough is intended to replace water for livestock that was lost from fencing OX Prong Creek out of pasture 15, by the 1999 decisions. The trough would be located where there is currently a reservoir that doesn't always hold water into August and September. It is currently a higher cattle use area which means it would not increase use of the surrounding uplands substantially. The trade-off is improvement of the riparian area of OX Prong, as discussed above.

Little Jacks Meadow Exclosure

A 0.1 mile exclosure is proposed to protect about half of Little Jacks Creek meadow below the current exclosure 16R. Inside the exclosure the riparian area would improve the meadow and provide habitat for sage grouse. The lower 0.1 mile and would be left as a water gap and would remain in poor condition, supporting few green forbs for sage grouse food, because it would continue to get 2 months of use in June and July when soils are wet. The rockier 0.3 mile section below this, down to Cottonwood Spring, would improve in habitat condition slowly.

Alternative D – Impacts to Wildlife

Grazing Management
The small differences in dates for pasture changes between this and Alternative C or current management would not cause measurable differences to wildlife habitat. The increased length of overlap in dates between pastures compared to Alternative C is intended to allow flexibility for the user and would not result in increased AUMs overall. It also follows the use that the permittees have been making and thus would not change the effects to vegetation from current management.

Projects: Battle Creek Users
Shoofly Pipeline Extension 2007 and State Section Pipeline Extension, pasture 8.
Adding the North extension to the Shoofly pipeline as well as the State Section extension has a slight potential to increase trailing across the biological soil crust area compared to Alternative C but less than the current situation. No measurable effect to wildlife expected.

S*hoofly Gap Fence* - Same as Alternative C.

Pasture 22H Fence Removal - Same as Alternative C.

Shale Rock Gap Fence –This fence would only be built if needed, when the situation was evaluated after several other pieces of the solutions for improving East Fork and main Shoofly Creek had been implemented. If built, it would be for the purpose of reducing use on these creeks, thus it could be expected to improve habitat for wildlife, including mountain quail, bighorn sheep, and riparian songbirds.

Joes Basin Pipeline (1-trough version) - Same as Alternative C.

IDL pipeline, pasture 22 - Same as Alternative B.

Snow Creek Spring Exclosure Modification - Same as Alternatives B and C.

Dry Creek Exclosure - Same as Alternative C.

Hutch Springs Exclosure and Water Development - Same as Alternative C.

Projects: Little Jacks Creek Users – Alternative D
Modified Owens Pipeline,

North Pasture 10/15 Fence Removal and Construction, and

East extension of pasture 10/15 fence.

The purpose of these projects taken together is to reduce duration of use in pasture 10, where OX Prong Creek is located, which was not meeting the Standards for water quality and riparian areas, and to create a more effective boundary between pastures 10 and 15. OX Prong creek would improve in condition, increasing shrub and herbaceous vegetation, thus increasing cover and food for wildlife that use riparian areas. Reducing the season of use in OX Prong by 2 weeks from 8 weeks to 6 weeks, as well as reducing late season use, may increase the rate of recovery slightly over Alternative C.

This alternative would add 2 troughs in pasture 15 where there is currently water, and add 2 troughs where there is not now water, but they would be located along a road and near salt licks where impacts exist. Thus, these trough locations would not degrade the habitat condition for sage grouse of the surrounding uplands as much as Alternative B.

This alternative would also add 1 trough into the southern end of current pasture 10, which would then become part of pasture 15. The season of use in the area would change to late season: mid-June through Sept. 30 instead of June and July. The trough would be located at a reservoir that does not hold water late in the season. It would be within 1 ½ to 3 miles of 3 sage grouse leks (Map 26), at least 2 of which were active in 2005. There would be a positive effect on the vigor of native grasses from moving the season of use to later, after the critical growth period. This would increase cover for nesting grouse. However, there may be a negative effect on grass and forb cover from locating a trough in this area, because in aerial photographs, the reservoir does not appear to hold dependable water. Additionally, this part of the pasture was mapped as having slight grazing utilization in the 1999 AIE (Map 28). Thus the proposed tough could cause more use in that area than in the past, which may cancel out the positive effect of a later season of use. Therefore, overall, it may not make much difference in the quality of the vegetation as cover and food for nesting sage grouse.

The 3 miles of fence relocation and 3 miles of new fence would pose new collision hazards to big game and sage grouse, mostly for the first few years. Only a few individuals might be affected.

Collier Spring Exclosure and Collier Meadow Exclosure Modification.
These projects would improve the wet meadow vegetation in two small areas that provide late summer habitat for sage grouse and water and forage for other wildlife. They are small compared to the wet meadows in the adjacent private land.

Little Jacks Creek Meadow Exclosure.
This exclosure would protect a 1/4 mile section of meadow along upper Little Jacks Creek which is extremely degraded by season-long grazing – the stream is incised into soft soils, and meadows have dried up. In 2001, a temporary electric fence was constructed in the WSA in an attempt to improve this section of creek, but it failed. Grazing use is severe and almost eliminates any herbaceous vegetation as food for other animals, including sage grouse (field

observations 2007). With protection, this part of Little Jacks Creek would become prime sage grouse summer habitat, with increased wetted area providing green forbs for food. The ½-mile barbed-wire exclosure built in 2001 just above the proposed exclosure provides proof of the potential for improvement here, and of the effectiveness of barbed-wire versus electric fencing. The creek in the ½-mile exclosure is full of lush sedges and grasses. The improving condition has possibly resulted in more streamflow in Little Jacks Creek below the exclosure: this section had flowing water in late summer 2007, where in recent years it has been dry. It is not possible to say with certainty, but the cause of the increased flow could be due to better bank storage of water in the improving section of creek in the exclosure, or to delayed response to the good snowpack in 2005-2006, or to a combination of both. The naturalness and value as wildlife habitat of the lush native vegetation in the exclosure (16R), upstream from the WSA, is very high compared to the denuded, eroded, trampled section below, inside the WSA. Green forbs that sage grouse prefer grow in the transitional sagebrush flats to the sides of low-gradient meandering streams like this. These transitional areas are wider where streams are not downcut, providing more foraging area for the grouse. Although cattle have gotten into the 16R exclosure in past years and stubble heights have sometimes been down to 2 inches, the riparian area inside the exclosure is improving, and the stream below would be on similar upward trend with the proposed exclosure.

H. Fish, including Special Status Species

1. Affected Environment

Redband trout (*Oncorhynchus mykiss gairdneri*) are the most common and widely distributed fish in streams in the Battle Creek Allotment (USDI 1999). Redband trout are considered a sensitive species by both BLM and the Idaho Department of Fish and Game (Schill et al. 2004, Zoellick and Cade 2006). Mottled sculpin (*Cottus bairdii*) are present along with redband trout in the cooler, middle to upper portions of Little Jacks Creek (USDI 1999, Zoellick 2004). Four warm water-adapted species are present in the lower reaches of Little Jacks Creek: speckled dace (*Rhinichthys osculus*), bridgelip sucker (*Catostomus columbianus*), northern pikeminnow (*Ptychocheilus oregonensis*), and redside shiner (*Richardsonius balteatus*; USDI 1999). No introduced or exotic fish are present in streams in the Battle Creek Allotment.

Most streams inhabited by redband trout in the Battle Creek allotment (Little Jacks Creek, OX Prong, Shoofly Creek, West Fork Shoofly Creek, and East Fork Shoofly Creek) are located in rugged canyons that restrict or completely eliminate livestock use, and these streams are providing quality habitat for redband trout or have strong upward trends in habitat condition (19 of 24 miles of stream). Little Jacks Creek provides 12.1 miles of high quality habitat for redband trout (well shaded, stable channels with little sediment in stream substrates) in pastures 9, 10, 21, and 22. The Little Jacks Creek watershed been identified as a population stronghold for redband trout (Thurow et al. 1997), with Little Jacks Creek supporting some of the highest densities of redband trout in southwestern Idaho (Zoellick et al. 2005). Population strongholds comprise just 17% of the range of redband trout (Thurow et al. 1997). Another 3.9 miles of Little Jacks Creek in pasture 21 has a strong upward trend in habitat condition. Portions of Little Jacks Creek on BLM-managed land in pastures 10 and 21 that were identified in the Bruneau LUP (USDI 1983) for improvement in condition to provide quality habitat for redband trout (Map 23), are meeting or making progress towards LUP objectives. Improvement of stream habitat for redband trout and riparian associated wildlife are the primary LUP objectives (WL-AQ 2 and 2.1) for these streams (USDI 1983).

OX Prong Creek, which is a tributary to Little Jacks Creek in pasture 10, is functioning at risk and is providing 1.3 miles of marginally suitable habitat for the long-term maintenance of redband trout populations. In particular, the channel is widened and shallow relative to the landscape setting and as a result provides less living space for trout (USDI 1999, 2007a,b). OX Prong is not meeting the primary LUP objectives (WL-AQ 2 and 2.1) for this stream of improving stream and riparian habitats to provide quality habitat for redband trout by 1989 (USDI 1983, Map 23).

Redband trout are present in Little Jacks Creek in pasture 10 upstream of the OX Prong confluence to within 0.6 mile of Cottonwood Spring during April and May in years with low stream flows, and in years with greater stream flows are likely distributed to or above Cottonwood Spring. The upper 1.1 miles of Little Jacks Creek in pasture 10 are functioning at risk. Fine sediment from eroding banks and channels in this spring-influenced reach of Little

Jacks Creek is elevated for the landscape setting (USDI 2007a) and is being delivered downstream to redband trout spawning and rearing habitats.

The upper 2.7 miles of East Fork Shoofly Creek in pasture 22 is providing quality habitat for redband trout. Additionally, about 0.7 mile of redband trout habitat in Shoofly Creek in canyon sections of pasture 21 and the Cottonwoods Exclosure is improving (USDI 2007a). About 2 miles of East Fork Shoofly Creek in pasture 22 is functioning at risk with a downward trend in condition and providing poor to fair condition habitat for redband trout (USDI 1999, 2007a). Bank-stabilizing vegetation, particularly willows, is lacking. Extensive amounts of bank alteration are preventing riparian vegetation from colonizing and stabilizing streambanks and channels. Channels are over-widened and shallow relative to the landscape setting. Stream channel substrate composition sampled in 1994 showed a higher than expected amount of fine particles (47% vs. 27% for a reach about 1 mile upstream; USDI 1999). High amounts of fine sediment are impairing redband trout spawning and rearing habitat.

About 1.3 miles of Shoofly Creek and West Fork Shoofly Creek in pastures 21 and 22 are in functioning at risk condition with a static or downward trend, and are providing poor to fair condition habitat for redband trout (USDI 1999, 2007a). Streambanks lack bank-stabilizing vegetation and high amounts of fine sediment in stream channel substrates are impairing redband trout spawning and rearing habitat in Shoofly and West Fork Shoofly Creek. The percentage of silt-clay in the stream substrate has remained unchanged from 1994 to 2005 at about 50%, which is higher than expected for the landscape setting (USDI 2007a).

Much of Shoofly, East Fork Shoofly, and West Fork Shoofly creeks were identified in the Bruneau LUP (USDI 1983) to be improved in condition to provide quality habitat for redband trout (Map 23). Improving stream habitat for redband trout and riparian associated wildlife are the primary LUP objectives (WL-AQ 2 and 2.1) for these streams. Currently, 4.2 of 7 miles of stream identified for improvement in the Shoofly Creek drainage within the Battle Creek Allotment are not meeting LUP objectives (WL-AQ 2 and 2.1) for redband trout (improve in condition by 1989).

2. Direct and Indirect Impacts – Fish

Alternative A - Current Management – Impacts to Fish

Streams inaccessible to livestock (15.1 miles of stream) would continue to provide quality habitat for redband trout and other native fish, and 4.3 miles of stream located in rocky canyons that greatly restrict livestock access when grazed in spring and early summer would continue to improve over the mid to long term. Of 5 miles of redband trout habitat that is easily accessible to livestock, 4.6 miles would continue to not provide suitable habitat for redband trout, and 0.4 mile of stream in rocky segments of Shoofly Creek canyon would improve in condition over the mid to long term under the current grazing use. High levels of streambank alteration and grazing of streamside vegetation on segments of OX Prong, Shoofly, East Fork Shoofly, and West Fork Shoofly creeks with fragile, silt-clay streambanks in pastures 10, 21, and 22 is degrading redband trout habitats (USDI 2007b). Channels are over-widened and shallow relative to the landscape setting, and unstable banks are contributing to elevated levels of fine sediment and negatively

impacting spawning and rearing habitats (USDI 2007a,b). Many streambanks on these streams are inadequately vegetated with willows and other late-seral vegetation (USDI 2007a.b). A total of 5.5 miles of Shoofly, East Fork Shoofly, West Fork Shoofly, and OX Prong creeks would continue to not meet LUP objectives for redband trout. About 0.5 mile of Little Jacks Creek would not meet LUP objectives for riparian areas and continue to contribute sediment to downstream spawning and rearing habitats of redband trout.

Alternative B – Impacts to Fish

Similar to Alternative A, streams inaccessible to livestock (15.1 miles of stream) would continue to provide quality habitat for redband trout and other native fish, and 4.3 miles of stream located in rocky canyons that greatly restrict livestock access when grazed in spring and early summer would continue to improve over the mid to long term. About 0.4 mile of stream in rocky segments of Shoofly Creek canyon in Pasture 21 would improve in condition over the mid to long term.

Similar to Alternative A, about 3.3 miles of stream in the Shoofly Creek drainage (Shoofly, East Fork Shoofly, and West Fork Shoofly Creeks) would continue to not provide suitable habitat for redband trout. Silt-clay soils in the floodplains of these streams are highly 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). High levels of streambank alteration and grazing of streamside vegetation on stream segments in pastures 12 and 22 during June and July (see Riparian and Wetlands section) would continue to degrade redband trout habitats in these pastures. Channels are over-widened and shallow relative to the landscape setting, and unstable banks are contributing to elevated levels of fine sediments and negatively impacting spawning and rearing habitats (Beeson and Doyle 1995, Micheli and Kirchner 2002). Streambanks are inadequately vegetated with willows and other late-seral vegetation (USDI 2007a,b).

Redband trout habitat in OX Prong in Pasture 10 (1.3 miles of stream) would improve over the mid to long term as a result of new fences in the WSA, which would prevent livestock from accessing the stream. Elevated levels of sediment would continue to be delivered to redband trout habitat on the lower 1.2 miles of Little Jacks Creek in Pasture 10 (which is seasonally inhabited by redband trout) from 0.5 mile of the middle to upper portion of Little Jacks Creek in Pasture 10 which would remain in functional at risk condition with eroding banks and channels (Beeson and Doyle 1994, Micheli and Kirchener 2002; see Riparian and Wetlands section). Other than being impacted by excess sediment, redband trout habitat in the lower 1.2 miles of Little Jacks Creek in pasture 10 is improving (livestock access is restricted by a rugged, rocky canyon).

About 4.2 miles of Shoofly, East Fork Shoofly, and West Fork Shoofly creeks would continue to not meet LUP objectives for redband trout. Additionally, about 0.5 mile of Little Jacks Creek would not meet LUP objectives for riparian areas and continue to contribute sediment to downstream spawning and rearing habitats of redband trout. OX Prong would meet LUP objectives for redband trout over the mid to long-term.

Alternative C – Impacts to Fish

Similar to Alternative A, streams inaccessible to livestock (15.1 miles of stream) would continue to provide quality habitat for redband trout and other native fish, and 4.3 miles of stream located in rocky canyons that greatly restrict livestock access when grazed in spring and early summer would continue to improve over the mid to long term. Additionally 0.4 mile of Shoofly Creek in rocky floodplain areas of Pasture 21 would improve over the mid to long term.

About 3.3 miles of stream segments easily accessible to livestock in the Shoofly Creek drainage in Pasture 22 (Shoofly, East Fork Shoofly, and West Fork Shoofly Creeks) would provide suitable habitat for redband trout over the long term as late-seral vegetation colonizes streambanks and begins to narrow, deepen, and shade degraded stream channels (Li et al. 1994, Liquori and Jackson 2001, Zoellick 2004). High levels of streambank alteration and grazing of streamside vegetation on these stream segments during May, June, and July (see Riparian and Wetlands section) would be replaced with just the active trailing of livestock along these streams in the spring to Pasture 12 and the southern portion of Pasture 22, and active trailing of livestock along Shoofly Creek again in fall (in large part due to the *Shoofly Gap Fence Project;* also see trailing prescriptions). Livestock drifting back to East Fork Shoofly Creek in Pasture 22 would be removed such that a 6-inch residual stubble height on herbaceous riparian vegetation would be maintained. This would facilitate increases in riparian plant vigor, cover, and density so that stream channels and fish habitats improve (Liquori and Jackson 2001, Micheli and Kirchner 2002).

Redband trout habitat in OX Prong in Pasture 10 (1.3 miles of stream) would improve over the long-term as a result of effectively separating Pasture 10 from Pasture 15 with a continuous fence (*Southern Pasture 10/15 Division Fence Project*) that will prevent livestock from getting back to OX Prong from Pasture 15 in August and September, and by removing livestock from OX Prong at the end of the Pasture 10 use period. Limiting livestock use of riparian areas on OX Prong to that during June and July such that a 4-inch median stubble height is met at the end of the growing season, should result in riparian shrubs colonizing streambanks, and narrowing, deepening, and shading degraded stream channels (Li et al. 1994, Liquori and Jackson 2001, Johnson 2004). Shrub cover on the less accessible segments of OX Prong has increased since 1999 with the partial elimination of August and September grazing use (USDI 2007a).

Sediment delivery to redband trout habitat on the lower 1.2 miles of Little Jacks Creek in Pasture 10 (which is seasonally inhabited by redband trout) would overall be reduced by improving riparian health over the long term on most of the upper 0.9 miles of Little Jacks Creek in Pasture 10 by eliminating August and September grazing (Beeson and Doyle 1995, Micheli and Kirchner 2002). However, 0.2 mile of upper Little Jacks Creek below the proposed Little Jacks Meadow exclosure and at Cottonwood Spring would continue to not meet LUP objectives for riparian habitat and would deliver some sediment to lower reaches inhabited by redband trout. These two short segments are water gaps for cattle.

Segments of Shoofly, East Fork Shoofly, West Fork Shoofly, and OX Prong creeks that were identified for improvement in the LUP (USDI 1983, Map 23) would all meet the LUP objective (WL-AQ 2.1) for redband trout habitat over the mid to long term.

Alternative D – Impacts to Fish

Similar to Alternative A, streams inaccessible to livestock (15.1 miles of stream) would continue to provide quality habitat for redband trout and other native fish, and 4.3 miles of stream located in rocky canyons that greatly restrict livestock access when grazed in spring and early summer would continue to improve over the mid to long term. Additionally 0.4 mile of Shoofly Creek in rocky floodplain areas of Pasture 21 would improve over the mid to long term.

About 3.3 miles of stream segments easily accessible to livestock in the Shoofly Creek drainage in Pasture 21 (Shoofly and West Fork Shoofly Creeks) would provide suitable habitat for redband trout over the long term as late-seral vegetation colonizes streambanks and begins to narrow, deepen, and shade degraded stream channels (Li et al. 1994, Liquori and Jackson 2001, Zoellick 2004). High levels of streambank alteration and grazing of streamside vegetation on these stream segments during May, June, and July (see Riparian and Wetlands section) would be replaced with just the active trailing of livestock along these streams in the spring to Pasture 12 and the southern portion of Pasture 22, and active trailing of livestock along Shoofly Creek again in fall (see trailing descriptions; *Shoofly Gap Fence Project*).

Authorized livestock use of East Fork Shoofly Creek in Pasture 22 would also be limited to the active trailing of livestock along the stream to Pasture 12 and higher elevation areas of Pasture 22. This alternative includes management objectives to limit livestock use of streamside vegetation and alteration of streambanks during the May 6 to July 10 grazing period. With these management prescriptions, riparian plant vigor, cover, and density would improve on East Fork Shoofly Creek, such that stream channels and fish habitats would improve over the long term (Li et al. 1994).

Redband trout habitat in OX Prong in Pasture 10 (1.3 miles of stream) would improve over the long-term as a result of effectively separating Pasture 10 from Pasture 15 with a continuous fence (*East extension of pasture 10/15 fence Project*) that would prevent livestock from getting back to OX Prong from Pasture 15 in August and September, by shortening the authorized use period by 2 weeks to July 15, and by removing livestock from OX Prong at the end of the use period. This would result in riparian shrubs colonizing streambanks, and narrowing, deepening, and shading degraded stream channels (Li et al. 1994, Liquori and Jackson 2001, Johnson 2004). Shrub cover on the less accessible segments of OX Prong has increased since 1999 with the partial elimination of August and September grazing use (USDI 2007a).

Sediment delivery to redband trout habitat on the lower 1.2 miles of Little Jacks Creek in Pasture 10 (which is seasonally inhabited by redband trout) would be reduced by improving riparian health and channel conditions over the long term on the upper 0.9 miles of Little Jacks Creek in Pasture 10 (Beeson and Doyle 1995, Micheli and Kirchner 2002). Habitat conditions would be improved by excluding 0.2 mile of Little Jacks Creek (located at the downstream end of the meadow reach; *Little Jacks Creek Meadow Exclosure Project*) from livestock use, shortening the length of use of Little Jacks Creek in Pasture 10 by two weeks to July 15, and by removing livestock from Little Jacks Creek at the end of the authorized use period. However, 0.1 mile of

upper Little Jacks Creek at Cottonwood Spring, a watergap for cattle, would continue to not meet LUP objectives for riparian habitat and would deliver some sediment to lower reaches inhabited by redband trout.

Similar to Alternative C, segments of Shoofly, East Fork Shoofly, West Fork Shoofly, and OX Prong creeks that were identified for improvement in the LUP (USDI 1983, Map 23) would all meet the LUP habitat objective (WL-AQ 2.1) for redband trout over the mid to long term.

I. Cultural Resources

1. Affected Environment

Cultural resources in the Battle 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. Native American traditional cultural properties may or may not have tangible evidence of human activities. Currently, there are no traditional cultural properties identified in the allotment. Traditional cultural properties are identified by affected tribes of the region during consultation or as the result of an ethnographic study. Approximately six percent of the lands within the allotment have been inventoried for cultural resources and a total of 37 sites and 35 isolates have been recorded. Native American site types include lithic scatters, hunting camps, habitation sites, and rock alignments. Historic period sites consist of can scatters, dumps, roads and trails.

The 1983 Bruneau MFP identified site 10-OE-2256, and associated sites as eligible for inclusion in the National Register of Historic Places. At the time the MFP was published site 10-OE-2256 included an associated pre-historic campsite on a stock pond. In 1988 this campsite was given it's own Smithsonian number, 10-OE-3542 in order to simplify record keeping and define the location of the campsite. At 10-OE-3542 artifacts eroding out of the dam and the stock pond made them vulnerable to further impacts from cattle trampling, theft and vandalism.

One paleontological site, a fossil bed, is shown on Boise District records.

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.

Information regarding site distribution is incomplete for the Battle 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 Battle Creek Grazing Management. A Class I Overview for the Boise and Shoshone Districts (Gehr 1982) provided a comprehensive literature search of historical, archaeological, and ethnographic sources for the Battle Creek Allotment. Portions of the Battle Creek allotment were surveyed during several systematic inventories for cultural resources including the Pacific Power and Light Survey (Pavesic 1977); Bruneau River Inventory (Pavesic 1979) and a sample survey, the Class II Inventory of the Boise District (Young 1984).

Additional identification efforts will be conducted prior to implementation of project-specific range improvements for compliance with Section 106 of the National Historic Preservation Act of 1966 (as amended).

To determine potential effects of livestock use on cultural resources, locations of cultural sites were compared with current stream conditions, spring locations, and pasture boundaries (Tables

20-23). Additional information regarding impacts was gathered at Battle Creek team meetings. A 2004 contract survey in the Jacks Creek Wilderness Study Area monitored and updated site records 10-OE-2256 and 10-OE-3542.

Table 20. Distribution of cultural resources by pastures in the Battle Creek Allotment.

Pastures	**Native American Sites / isolates**	**Historic Sites**	**Historic Structures**	**TOTAL**
8	5			5
10	13	1		14
12	4			4
14	1	2		3
15	10	1		11
20	13			13
20R	2			2
21	9 & fossil bed	1		10 & fossil bed
22	11			11

Table 21. Distribution of cultural resources at wetlands - spring locations

Wetlands Condition - springs	Sites
Functioning at Risk	10-OE-8463
Not Functioning	0
Proper Functioning Condition	0
Unknown	0

Table 22. Distribution of cultural resources and current stream conditions.

Stream Condition	Sites
Functioning at Risk - Downward	0
Functioning at Risk - Static	0
Functioning at Risk - Upward	10-OE-7675, 10-OE-7674, 10-OE-2495 are protected by an exclosure
Not Functioning	0
Not Rated	10-OE-9425
Proper Functioning Condition	0

Table 23. Distribution of cultural resources and lakebeds.

Lakebeds	Sites
Pasture 22	10-OE-3542

2. Direct and Indirect Impacts – Cultural Resources

The differences in alternatives are based on the number and scope of the projects proposed in each alternative. The cultural resource management program addresses these impacts on a

project by project basis for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, 1992.

Direct and indirect impacts to cultural resources result from grazing on open range. Grazing practices which could have a potential adverse effect on cultural resources include watering livestock at reservoirs, troughs, creeks and springs, trailing along fences or established trails and congregating at salt licks, as well as fence construction and maintenance, plowing and seeding projects, pipeline construction, and spring improvements. Sites located at springs are particularly vulnerable to grazing impacts, especially if there are developments at the spring. Without protective measures such as fencing, scientific information at these locations may be lost.

Direct impacts from grazing include surface disturbance, soil compaction, and damage to and repositioning of artifacts through trampling. The degree and rate of site destruction is in relation to the duration and extent of trampling. However, the absolute degree and rate of destruction is unknown. (BLM Bruneau URA 3-4, CRM 30; Cultural Resources 1605.48 ND) In addition to artifact breakage, livestock trampling results in alteration of contextual information, resulting in loss of integrity and scientific information. The potential of a stratified site to reveal information regarding human adaptation to specific environments and ecosystems is considerable. For example, the analysis of soils, pollen and faunal materials found in a site can tell us what climatic changes have taken place over time, what types of game were available for subsistence, and what plants were used.

Indirect impacts of grazing include the removal of vegetative cover, which facilitates erosion and subsequent damage (BLM Bruneau URA 3-4, CRM 30; Cultural Resources 1605.48 ND). In the case of a highly stratified site this could mean the loss of thousands of years' accumulation of cultural material. A properly functioning stream is needed to provide optimal protection for cultural resources located on streambanks and terraces. When adequate vegetation is present to stabilize streambanks and reduce erosion, valuable scientific information regarding human occupation of the area is preserved on the ground.

In addition to adversely affecting historic and pre-historic sites, grazing could adversely affect traditional cultural properties. These areas are associated with cultural practices or beliefs of local communities that have historical significance and continue to maintain the cultural identity of the community. These areas often contain plants or wildlife which are being utilized for subsistence or ceremonial purposes and natural features which may have special meaning to the group. Traditional cultural properties are often hard to recognize since they look like an ordinary mountaintop, lake, or stretch of river. These areas do not come to light through cultural resource surveys. The existence and significance of a traditional use area can be ascertained only through consultation with affected tribes of the region, or through ethnographic research.

Alternative A : Current Management – Impacts to Cultural Resources

Battle Creek Use Area

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 certain pastures,

delaying movement of cattle from lower (pasture 8) to higher (pasture 21) ground, deferring use of higher Summer pastures (22, 9, 12) until June, alternating seasons of use in Summer pastures (14, 20) and the construction of riparian fences. No adverse effects were incurred as a result of project construction.

Direct negative impacts to the soil surface from livestock hoof action would continue to impact cultural resources where livestock tend to trail and congregate (within ¼ mile of water sources, at mineral licks, and along fence lines and gates). This represents less than 10% of the analysis area based on the 1999 AIE, field visits, and 2004 digital photo coverage. This is especially true in wet meadows and other riparian areas.

In 2004 a survey in the Jacks Creek WSA collected additional information at site 10-OE-3452 and 10-OE2256 to assess condition and impact agents. (TALONS 2004) Cattle trampling was not noted at that site during the 2004 survey. It was noted that additional cultural material had surfaced, indicating vertical movement of artifacts to the surface either through weathering or additional mechanical or other disturbance.

Little Jacks Use Area

The pasture division fence between 10 and 15 would have improved conditions for preserving the integrity of cultural resources in the vicinity of OX Prong and Little Jacks Creek by deferring season of use until August in pasture 15. Hot season grazing on the creeks would have been avoided in pasture 10 if the fence were repaired and the gates kept closed. An electric fence exclosure built on Little Jacks Creek was not kept in good repair and any benefit to cultural resources, if they are present was negated. It is not known if adverse effects are occurring as a result of the degraded fence since the project inventory only assessed the proposed route of the fence. Four other exclosures were constructed as a result of the 1999 decision. These remain in good repair. No adverse effects were incurred as a result of project construction.

Alternative B: Permittees' Proposal – Impacts to Cultural Resources

Overall impacts to the watershed and soil resource and cultural resources (being closely tied to the biotic community and soil surface stability) could be slightly negative. Anticipated degradation in the health of riparian systems may also impact cultural resources located in these areas, especially where ribbon fencing and several water gaps are proposed. This would increase effects of trampling on cultural sites located on stream terraces.

Cumulative disturbance of the multiple water developments may degrade site integrity in the pastures where they are proposed. Additional impacts of BLM actions resulting from the issuance of this grazing permit would be addressed on a project-by-project basis for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. As a result of the Section106 process, adverse effects would be avoided or mitigated to an acceptable level of impact.

Alternative C – Impacts to Cultural Resources

The alternative considers the fewest projects for management of cattle grazing. This would reduce impacts to cultural resources by not opening up new areas to intensive livestock grazing. Changes in season of use would result in preserving the integrity of cultural resources.

Additional impacts of BLM actions resulting from the issuance of this grazing permit would be addressed on a project-by-project basis for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. As a result of the Section106 process, adverse effects would be avoided or mitigated to an acceptable level of impact.

Alternative D – Impacts to Cultural Resources

The alternative considers a moderate amount of projects for management of cattle grazing. The proposed season of use for each pasture is the same as for Alternative B, except for pastures 8 and 21 where site density is predicted to be low. Change in season of use is not expected to adversely affect cultural resources in Pastures 8 and 21. A deferred rotation grazing system would be continued for pastures 14 and 20 (Table 13) as initially adopted in the 1980's and continued in the 1999 decisions has the potential to improve conditions for cultural resources.

Additional impacts of BLM actions resulting from the issuance of this grazing permit would be addressed on a project-by-project basis for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. As a result of the Section106 process, adverse effects would be avoided or mitigated to an acceptable level of impact.

J. Recreation and Visual Resources

1. Affected Environment

Recreational activities in the allotment are dispersed over a large area. Dominant activities include big and small game hunting, driving for pleasure, camping, hiking, fishing, bird watching, photography, and other pursuits. Most of the recreation is private, non-commercial use. Commercial outfitters are authorized to conduct bighorn sheep hunts, camping, and hiking tours in the area, in coordination with the Idaho Outfitters and Guides Licensing Board (RMIS 2007c). The quality of the recreational experience in each 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, and wildlife observation opportunities. An abundant healthy mix of native vegetation in riparian areas and uplands enhances scenic quality, resulting in better recreational experiences.

The allotment includes, in pastures 9 and 10, the proposed Jacks Creek Special Recreation Management Area (SRMA). The SRMA includes the canyons of Little Jacks Creek and OX Prong. The SRMA was recommended in the Bruneau Management Framework Plan and in the Jacks Creek Wilderness Environmental Impact Statement because of the recognized importance of the Little Jacks Creek area for outstanding primitive recreation. The purpose of the 5,938 acre SRMA would be to maintain opportunities for backcountry recreation in a primitive, highly scenic setting. The SRMA was to be established if Congress did not declare the area a designated wilderness. Because wilderness designation is still pending, the SRMA has not been established.

Within the allotment, portions of Little Jacks Creek (including OX Prong), East Fork Shoofly Creek and West Fork Shoofly Creek have been found eligible for further study as components of the National Wild and Scenic Rivers System. The outstandingly remarkable values documented for Little Jacks Creek include scenic, recreational, fisheries, wildlife, and ecological values. Values identified for the East and West Forks of Shoofly Creek are wildlife and ecological values.

Currently, recreational users in the Battle Creek Allotment experience extensive upland and riparian areas in good condition, with outstanding opportunities for recreation. The higher elevation pastures feature a variety of native bunchgrasses, shrubs, mountain mahogany, and aspens. Approximately 24 miles of riparian corridors, inaccessible to cattle, feature outstanding scenery and lush vegetation, including much of Little Jacks Creek, East Fork Shoofly Creek, and West Fork Shoofly Creek. In scattered locations, recreationists also encounter unpleasant aesthetic conditions related to grazing. Degraded -areas where these impacts are evident include approximately 6 miles along stream corridors that are not in proper functioning condition, and at watering, salting, and loafing spots where livestock congregate. Recreation opportunities are reduced in areas of poor condition vegetation and livestock impacts (Hensiek, 2002).
There are two 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. OHV restrictions 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.

The Owyhee Uplands Back Country Byway (Byway) is adjacent to the western boundary of the allotment. The Byway is a 101-mile improved gravel road between Grand View, Idaho and Jordan Valley, Oregon. The 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.

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 30% of the public land, is VRM Class I, and the WSA has been managed to the Class I standard since the Bruneau MFP was implemented in 1983. 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. Within VRM Class II areas, the 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. 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 and II has been degraded by heavy livestock grazing. As documented in the Battle Creek Assessment (USDI 2007a), livestock grazing impacts include bare ground, stream bank alteration, 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 in these specific locations but are not evident or, in most cases, visible to viewers from key observation point(s) along the Byway where most visitors pass through this area.

2. Direct and Indirect Impacts – Recreation and Visual Resources

Under all alternatives, the majority of the allotment would continue to offer outstanding opportunities for recreation. Negative impacts to 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 the easily accessed riparian areas in the allotment that are not in proper functioning condition. Some of the places where livestock congregate, like stream corridors that don't have steep cliffs that make access difficult, are the same places that would be desirable and accessible for recreational use. Wild and Scenic River suitability for all eligible stream segments would be unaffected. 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).

Alternative A - Current Management

The majority of the allotment, where upland and riparian areas are meeting rangeland health standards, would continue to provide excellent 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. Areas where negative impacts to recreationists' experiences would continue, both during and outside of the grazing season, include portions of upper Little Jacks Creek, Shoofly Creek, and other livestock watering, loafing, and salting locations.

Alternative B: Permittees' Proposal – Impacts to Recreation and Visual Resources

Upland and riparian areas in proper functioning condition would continue to provide the best opportunities for recreation and scenic values. Because riparian areas including Shoofly Creek and Upper Little Jacks Creek that are important for recreation would continue to be directly impacted by livestock grazing (see Riparian section), this would negatively affect recreational experiences in those riparian corridors. Dry Creek, where upward trends in soils, vegetation, riparian and wetland condition, and water quality are expected to be reversed, would become less desirable for recreation over time (see Riparian section).

Within the allotment, 24 miles of new pipeline and 21 new livestock troughs would be installed. Some of the troughs would provide more reliable water in previously disturbed locations, and some would be placed in undisturbed locations. The pipeline projects would cause new areas of degraded habitat and additional areas of disturbance (see Soils section) that would be undesirable for recreation and recreation-related activities such as wildlife viewing, photography, hunting, and camping. The new livestock facilities would be constructed in pastures 8, 10, 12, 14, 15, 20, and 21.

The proposed OX Prong gap fences, North pasture 10/15 fence, and Shale Rock Crossing gap fence would slightly impede movement within the allotment because they would be located in areas where recreationists may travel through the area. Proposed new range development projects including the Shale Rock Gap Fence in pasture 22, Shoofly gap fence in pasture 21, and new fences near OX Prong in pasture 10, would be located in VRM Class I areas, where the objective is to maintain a landscape setting that appears unaltered by humans. In this alternative, there would not be anticipated improvements in wetland or riparian vegetation to offset the negative visual aspects of the Shoofly Gap and Shale Rock Gap Fence structures (see Riparian and Wetlands section). Because of their prominent location along the OX Prong rim, the OX Prong gap fences would introduce a discordant visual element that would attract the attention of recreationists. They would create changes to the natural landscape that are undesirable by introducing contrasts in form, line, color and texture. The "alternative" location for the OX Prong Fence would also be within a VRM Class I area. It would not be as prominent as gap fences along the rim, but would create a noticeable contrast in a limited area due to a lack of topographic and vegetative screening for the fence and trailing impacts along the fence. The fence would slightly impede recreational travel along the plateau.

Alternative C – Impacts to Recreation and Visual Resources

Upland and riparian areas in proper functioning condition would continue to provide the best opportunities for recreation and scenic values. In areas with an upward trend, recreation opportunities and scenic quality would improve over time, but these changes would generally be too slow to be readily observed by recreational users. New water sources related to 5 miles of pipeline developments and 5 new troughs would be located in previously disturbed areas to minimize additional degradation of habitat associated with livestock use of the troughs, which would lessen the negative impacts associated with the new structures. There would be fewer miles of new pipeline and fewer troughs constructed than in alternatives B or D, so there would be less of a negative impact related to recreation from the new facilities than in Alternatives B or D. 1 ¼ miles of new fences would not be expected to have any impact on recreation, because of the fence locations and design techniques. The Little Jacks Meadow Exclosure fence would slightly impede recreationists' travels because of its location along upper Little Jacks Creek. There would be more total miles of fence in the allotment than in Alternative A, but fewer miles than in Alternatives B or D.

The proposed Shoofly Gap Fence would be located in a VRM Class I area, where the objective is to maintain a landscape setting that appears unaltered by humans. The negative visual aspects of the fence structure would be countered by the improvements in wetland and riparian vegetation that are anticipated for the adjacent stretch of Shoofly Creek. The new fence would be removed if the adjacent stream reach did not improve in condition. The Pasture 22H north boundary fence would be removed from a VRM Class I area, which would be beneficial in a Class I area by removing the man-made structure.

Alternative D – Impacts to Recreation and Visual Resources

Upland and riparian areas in proper functioning condition would continue to provide the best opportunities for recreation and scenic values. New water sources related to 11 miles of pipeline development and 10 new troughs would be located in previously disturbed areas in pastures 10, 12, 14 and 15 to minimize additional degradation of habitat associated with livestock use of the troughs.

3 ½ miles of new fences, including the Shale Rock Gap fence, North pasture 10/15 fence, Modified Pasture 10/15 Division fence, and Little Jacks Meadow exclosure would slightly impede recreationists' travels within the allotment, because of their locations in areas where recreationists would travel through the area. Anticipated improvements in vegetation from changes in grazing associated with construction of the North pasture 10/15 fence and East extension of pasture 10/15 fence would improve habitat conditions, which would be beneficial to recreation. Impacts of the Shoofly Gap Fence would be the same as Alternative C. The Shale Rock Gap Fence and the Little Jacks Meadow Exclosure would be located in VRM Class I areas, where the objective 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. Any negative visual aspects of the fence structure would be countered by the improvements in wetland and riparian vegetation that are anticipated for the Little Jacks Meadow Exclosure. No improvement in riparian, wetland, or upland vegetation is anticipated in association with construction of the Shale Rock Gap Fence (see Riparian and Upland Vegetation sections). The Pasture 22H north

boundary fence would be removed from a VRM Class I area, same as Alternative C. There would be more fences and other livestock facilities constructed than in Alternatives A or C, and fewer facilities than in Alternative B.

K. Wilderness Study Area

1. Affected Environment

43,600 acres of the 58,040 acre Little Jacks Creek Wilderness Study Area (WSA) are within the Battle Creek Allotment. 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.

Most of the upland and riparian portions of the WSA are in good condition. However, some areas desirable for wilderness users, such as easily accessed riparian corridors, are the same areas degraded by livestock use.

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. The majority of the uplands and riparian corridors in the WSA portion of the allotment are in good condition, and provide outstanding opportunities for visitors. The assessment also documents heavy livestock grazing, trampled stream banks, impaired stream functionality, and reduced vegetation in scattered areas within the WSA portion of the allotment (USDI 2007a), including portions of upper Little Jacks Creek and Shoofly Creek. This has a negative effect on naturalness, scenic quality, and special features. These livestock-related impacts are similar to those that existed at the time the wilderness study area was established, and do not affect the area's suitability for wilderness designation unless substantive additional degradation occurs.

When the Environmental Impact Statement for the 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 and 3 ½ miles of temporary fencing in the WSA, in addition to the developed springs and reservoirs.

There are two temporary electric fences, totaling 3 ½ miles, in the Battle Creek Allotment portion of the WSA. They were constructed as part of implementing the 1999 decision. One fence crosses Purjue Canyon along Shoofly Creek, and one crosses Little Jacks Creek and extends parallel to the rim on both sides of Little Jacks Creek's incised canyon. The fences are located in areas of relatively easy recreational access. Removal of these fences is planned.

The Sierra Club conducted an extensive field inventory of the Bruneau Field Office, and provided a wilderness inventory and wilderness proposal to the Bruneau Field Office in 2003, as provided for by Dept. of the Interior regulations. Their recommendation for wilderness includes

33,412 acres within the Battle Creek Allotment, in addition to the existing wilderness study area. The analysis provided by the Sierra Club describes the characteristics of these areas as remote and scenic, with no constructed roads, and with healthy vegetation due to none to minimal livestock watering facilities.

The Sierra Club wilderness proposal in the Battle Creek Allotment is located within seven 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, not 5,000 contiguous acres where imprints of man's work are substantially unnoticeable due to fence-lines, a pipeline right of way, or lack of outstanding opportunities for solitude and primitive recreation. In 2004, a BLM review determined that the areas within the Sierra Club wilderness proposal are predominantly roadless. Because designation of lands for wilderness study and consideration by Congress is a land use and allocation issue, it is largely outside the scope of this EA. Analysis of the Sierra Club proposal will be done when the Bruneau Resource Management Plan is completed.

2. Direct and Indirect Impacts – Wilderness Study Areas

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. "The preservation of wilderness values within a WSA is paramount and should be the primary consideration when evaluating any proposed action or use that may conflict with or be adverse to those wilderness values" (IMP 1995). 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". The project must not require motorized access if the area becomes designated wilderness. BLM must ensure that approval of a proposed action would not create a situation where the cumulative effect of existing and proposed uses would impair wilderness suitability.

Alternative A - Current Management

The two temporary electric fences have not been consistently maintained, so the wilderness values of primitive and unconfined recreation, scenic values, and naturalness within the upper Little Jacks Creek and Shoofly Creek portions of the WSA would continue to be impaired under this alternative, without substantive enhancement in naturalness or supplemental wilderness values (USDA 2007a). Surface disturbance from livestock trailing and loss of shrubs along a corridor adjacent to the Little Jacks fence line would continue, and cause further loss of naturalness. Cattle grazing in the WSA in Pastures 10, 21, and 22 during the hot season (see

Riparian section) would prevent the degraded segments of OX Prong, Little Jacks Creek, Shoofly Creek, and West Fork Shoofly Creek within the WSA from improving in condition. If livestock use remained within the sideboards of the authorized use period, there would be more noticeable improvements in naturalness of livestock-impacted riparian areas within WSA portions of the allotment (see Riparian section).

Areas in the Sierra Club wilderness proposal would be unaffected.

Alternative B – Impacts to Wilderness

Shale Rock Gap Fence (Pasture 22/12)
Construction of this project would not lead to enhancement of any wilderness values. The purpose of constructing the fence (approximately 200 to 300 feet in length), according to the settlement, is to prevent drift between pastures 12 and 22 and the subsequent return of livestock to the East Fork of Shoofly Creek after they are pushed from pasture 22 into pasture 12 during June and July. These two pastures are both Spring/Summer pastures and would have similar seasons of use. According to the assessment, both pastures are in generally good condition. The permittees have also stated that the fences are needed to keep cows from returning to the lower portion of Shoofly Creek that is in pasture 21 and 22. Shoofly Creek was in an upward trend in 1998 through 2002, showing that active herd management can keep livestock out of Pasture 21 when they are not authorized to be there (USDI 2007a).

The proposed fence would be located in a natural corridor for traveling between the East and West Forks of Shoofly Creek within the WSA. The fence structure would present a minor impairment to primitive and unconfined recreation. The fence would not be anticipated to lead to enhancement of any wilderness values such as naturalness, bighorn sheep, or redband trout habitat (see vegetation, wildlife, riparian, and fisheries sections). No improvements in the riparian area along the West Fork Shoofly Creek where it would be located are anticipated, and there may be additional soil disturbance and loss of vegetation there (see Riparian section), which would lead to additional loss of naturalness if cows loaf in the area where the fence restricts their movement

The "minimum tool" concept is applied to evaluate proposed projects in wilderness. In this case, upward trends in the condition of Shoofly Creek and East Fork Shoofly Creek were achieved during 1998-2002, without the fence (see Riparian section). Late season use of Shoofly Creek has also been attributed to an open gate in Pasture 14 and to problems with access to reliable water at Snow Creek Spring. The Snow Creek Spring Exclosure Modification proposed in this alternative, and a cattleguard proposed alongside the Pasture 14 boundary are minimum tool projects, located outside the WSA, that address this issue. (See Table 24 for summary of project impacts.)

Shoofly Gap Fence (Pasture 21)
Construction of this project would not lead to enhancement of any wilderness values, because the adjacent section of Shoofly Creek would continue to be grazed. The proposed fence would be constructed in the WSA, and would be between 0.3 and 0.4 miles in length. Depending on its location, the fence may connect to new fencing on a private inholding within the WSA. The

fence would not move the adjacent segment of Shoofly Creek towards meeting functioning condition objectives, (see Riparian section), so there would be no enhancement of naturalness, bighorn sheep habitat, or redband trout habitat along the creek (see Wildlife, Fisheries, and Riparian sections). The fence structure would slightly impair naturalness within the WSA. The new fence would be located within 1 ¾ miles of two existing fences along Shoofly Creek in the WSA in Pasture 22H, that are proposed to be retained under this alternative. (See Table 25 for summary of project impacts.)

OX Prong Gap Fences (Pasture 10)
Overall, construction of this project would have negative impacts on wilderness values. The proposed fences, at least 1 mile in length, would be designed to keep cattle out of OX Prong, which would improve naturalness, bighorn sheep habitat, and redband trout habitat along 0.9 miles of OX Prong. The fences would not prevent livestock from accessing Upper Little Jacks Creek while they are in Pasture 10. The exact locations and lengths of fencing have not been specified, but they would probably be visible from OX Prong and from areas along the plateau that people would use to access OX Prong. Because of the fence locations, they would slightly impair views of the spectacular scenery that is a special feature in the WSA, and is visible from the rim. The fence(s) would slightly impair naturalness, and would slightly impair visitors and bighorn sheep's movement in and out of OX Prong. The fences would likely result in new surface disturbance and loss of vegetation along the fence-lines due to cattle trailing along the fence lines trying to access traditional water sources, which would impair naturalness along the fenceline. Due to the location of the gap fences, along a rim and/or on a plateau, depending on the locations selected, the fences would be constructed in an area without vegetative or topographic screening. The fences would not be substantially unnoticeable in the WSA, as they would be visible from different locations along the plateau and from within the OX Prong canyon. The "gap fences" along the rim are not a "grandfathered" range project, as there is no record of the fences at the time of FLPMA or during the wilderness inventory, and no record of the fences being previously authorized.

Alternative "minimum tool" approaches to improving the condition of OX Prong would be to actively herd cattle out of the riparian area, restrict the season of livestock use of Pasture 10 (USDI 2007a, Table 1R and 2R), and to regularly maintain existing fences and gates. (See Table 26 for summary of project impacts.)

Three new projects and four project modifications would be located within areas identified in the Sierra Club wilderness proposal. The new projects are Owens Pipeline, Hutch Springs Exclosure and Water Development, and South Pasture 10/15 Gap Fences. In addition, one trough of the Joes Basin Pipeline would be at the edge of the proposed wilderness. Owens Pipeline would involve construction of 15 miles of pipeline and 10 troughs, with 8 of the troughs and most of the pipelines within or on the boundary of the wilderness proposal. Some of the pipeline would be constructed along existing roads, and could be located outside of the Sierra Club wilderness proposal. 8 of the troughs, and associated pipelines would be constructed in areas without existing roads or existing areas of disturbance. The new surface disturbance and new vehicle routes for project administration would negatively affect roadlessness, naturalness, and opportunities for primitive and unconfined recreation. The Hutch Springs project would improve naturalness in the wet meadow that would be excluded from grazing by the fence, with some loss

of naturalness due to the pipeline, trough, and fence. The South Pasture 10/15 Gap Fences would improve naturalness in Pasture 10 by making a more secure boundary between the pastures, while the fence structure would slightly impair naturalness and primitive and unconfined recreation. Impacts from livestock use of the new stock water trough on the Joes Basin Pipeline may occur within the proposed wilderness, and reduce naturalness from surface disturbance and vegetation loss in the area around the trough.

Projects that were in existence at the time of the Sierra Club's inventory, and would be modified, include the Dry Creek Ribbon Fence and Water Gaps, North Pasture 10/15 Division Fence Removal and Construction (same as Alt D), and Snow Creek Spring Exclosure (same as Alt C and D). Naturalness would be reduced at the water gaps associated with the Dry Creek Ribbon Fence. Other proposed modifications to existing projects would not significantly change the wilderness characteristics identified by the Sierra Club.

Under this alternative, three new fences would be constructed within the Battle Creek Allotment portion of the WSA, with a total length of approximately 2 miles. No fences would be removed. The amount of fencing since the wilderness inventory would be doubled. Due to the location and the anticipated effects of the fences, wilderness values would be impaired.

Alternative C – Impacts to Wilderness

Shoofly Gap Fence (Pasture 21)
This proposed fence would be constructed in the WSA, and would be between 0.3 and 0.4 miles in length. Depending on its location, the fence may connect to new fencing on a private in holding within the WSA. The fence would be located close to the WSA boundary, and would be crossed by a primitive way that enters Purjue Canyon. Reductions in livestock impacts to Shoofly Creek would be anticipated because the fence would block livestock access to Shoofly Creek in Pasture 21, and by limiting livestock use to trailing only when they move through. This would enhance naturalness along the riparian corridor and would enhance bighorn sheep and redband trout habitat. The fence structure would not enhance the core wilderness values of primitive and unconfined recreation, and the fence structure would decrease naturalness within the WSA. Negative impacts to naturalness would be partially mitigated by not permitting motorized access along the fence-line for maintenance. Because recent efforts to improve this riparian area by constructing a temporary fence and limiting livestock use to trailing has not accomplished that objective (USDI 2007a Table 4R), the adjacent riparian area would be monitored annually by BLM, and the proposed fence would be removed if the desired improvements to the riparian system are not being achieved. The new fence would be located in the same general area as the fence in Pasture 22H that is proposed for removal. Overall, the project would be expected to enhance wilderness values. (See Table 25 for summary of project impacts.)

Pasture 22H Fence Removal
This project would enhance wilderness values. Removal of the fence would improve naturalness and opportunities for primitive and unconfined recreation.

Three new projects and two projects modifications would be located within areas identified in the Sierra Club wilderness proposal. New projects include the Tanks Pipeline, South Pasture 10/15 Fences, and Little Jacks Meadow Exclosure. The Tanks Pipeline would be constructed along an existing road, and the trough would be located at an existing reservoir, so the project would have a slightly negative effect on the area's naturalness, and may improve naturalness in OX Prong by drawing cattle to the new water source. The South Pasture 10/15 Fences would improve naturalness in Pasture 10 by making a more secure boundary between the pastures, while the fence structure would slightly impair naturalness and primitive and unconfined recreation. The Little Jacks Meadow Exclosure fence structure would slightly impair primitive and unconfined recreation and naturalness, and would improve naturalness in approximately 3 acres that would be excluded from livestock grazing. Projects that were in existence at the time of the Sierra Club's inventory, and would be modified, include Snow Creek Spring Exclosure (same as Alt B and D) and Dry Creek Exclosure and Trough (same as Alt D). Naturalness would be reduced around the water trough associated with the Dry Creek Exclosure. The other proposed modifications to existing projects would not significantly change the wilderness characteristics identified by the Sierra Club.

One permanent fence would be constructed within Little Jacks Creek WSA under this alternative, and one fence would be removed. There would be an increase in fence length of approximately 0.2 miles. Due to the location of the new fence, the project design, and the removal of another fence along Shoofly Creek, the new fence would be anticipated to enhance wilderness values overall.

Alternative D – Impacts to Wilderness

Shale Rock Gap Fence (Pasture 22/12)
Same as Alternative B if constructed. Delayed implementation until monitoring of the effectiveness of the Snow Creek Spring Exclosure modifications may negate the need for this fence.

Little Jacks Creek Meadow Exclosure (pasture 10)
This project would construct an exclosure fence that would exclude livestock grazing on 4.7 acres within the WSA and 3.1 acres outside of the WSA. The area proposed for the exclosure is degraded by grazing, a condition that likely existed at the time the WSA was established, when there was season-long grazing. Excluding the area from grazing to allow for recovery of the wet meadows and riparian area would enhance naturalness due to the improvements in diversity and density of vegetation. It would enhance bighorn sheep habitat and would improve downstream redband trout habitat. The fence structure would reduce naturalness. It would be a minor barrier to primitive and unconfined recreation because it would be located in an area desirable for recreational access in to the Little Jacks Creek drainage portion of the WSA. Depending on where they parked, recreationists might have to pass through or around the exclosure fence in order to walk from the road south of the WSA in to Little Jacks Creek within the WSA. The exclosure could easily be avoided by hikers by simply walking around it. Access to Little Jacks Creek would not be impeded. The fence would be noticeably man-made, and would be visible in the immediate area because there is minimal topographic or vegetative screening to obscure the fence. However, as there are a number of other fences in the immediate area, including an

exclosure on the other side of the road, the fence would not be out of character with the existing elements of the visual environment. A possibility exists of the creation of a fence line contrast between the ungrazed area within the exclosure and the grazed area immediately downstream from it, and a livestock trail may develop along the fence line. These will be mitigated by locating the fence a sufficient distance away from the riparian area to avoid creating an upland-riparian vegetation line and by locating the exclosure so the primary livestock trailing route along the existing pasture fenceline is not interrupted which might cause the creation of new livestock trails.

Minimum tool alternatives to constructing the exclosure in the WSA include actively herding livestock while they are in pasture 10, reducing the duration of grazing in pasture 10, building a smaller exclosure for the 3 acre area outside of the WSA, and more consistent maintenance of nearby fences and gates. The solid boundary between pastures 10 and 15 and season of use for pasture 10 would also reduce grazing in this area. However, none of these actions would lead to the degraded section of the riparian area moving towards PFC and meeting standards (see Riparian/wetlands). Comparison of the photos of the exclosure outside the WSA and the degraded area inside the WSA clearly show the potential for recovery and enhancement for this area. (See Table 27 for summary of project impacts.)

Shoofly Gap Fence (Pasture 21)
Same as Alternative C.

Pasture 22H Fence Removal
Same as Alternative C.

Two new projects and three project modifications are proposed within areas identified in the Sierra Club wilderness proposal. New projects include East Extension-Pasture 10/15 Fence and Modified Owens Pipeline. The East Extension Fence would improve naturalness in Pasture 10 by making a more secure boundary between the two pastures, while the fence structure would slightly impair naturalness and primitive and unconfined recreation. The portion of the pipeline to the west of the private land would be constructed along an existing road. If constructed on the southwest side of the road it would be located outside of the Sierra Club wilderness proposal. The portion of the pipeline to the east of the private land would be constructed in an area without an existing road, resulting in associated surface disturbance and a new vehicle route for project administration, which would negatively affect roadlessness, naturalness, and opportunities for primitive and unconfined recreation. The troughs associated with the pipeline would be constructed at previously disturbed sites, and would slightly impair naturalness by increasing the amount of livestock use and associated disturbance around the water sources. The three projects that were in existence at the time of the Sierra Club's inventory, and would be modified, are Snow Creek Spring Exclosure (same as Alt B and C), Dry Creek Exclosure and Trough (same as Alt C), and North Pasture 10/15 Division Fence Removal and Construction (same as Alt B). Naturalness would be reduced around the water trough associated with the Dry Creek Exclosure. Other proposed modifications to existing projects would not significantly change the wilderness characteristics identified by the Sierra Club.

Under this alternative, three new fences would be constructed within the Battle Creek Allotment portion of the WSA, and one fence would be removed. There would be an increase in permanent fence length of approximately 0.5 miles.

L. Summary of Impacts and Enhancements of Projects Proposed in the WSA

Wilderness Study Areas are managed under the Interim Management Policy (IMP) for Lands Under Wilderness Study. As such a proposed action in a WSA must be reviewed both for impacts to wilderness characteristics and to assess whether or not any enhancements to wilderness values balance or outweigh the impacts. This review is unique to WSAs. Wilderness values include outstanding opportunities for primitive and unconfined recreation, naturalness and solitude. Additionally, special features that contribute to wilderness value may have been noted in the wilderness inventory.

For the purposes of analysis, these proposed fencing projects will be evaluated under the guidance in the IMP for new permanent livestock developments. The guidance in the IMP states "New, permanent livestock developments may be approved if….they truly enhance wilderness values, and are substantially unnoticeable. New, permanent developments must not require motorized access if the area were designated as wilderness."

In order to more easily review the project specific analysis presented in this EA, the following summary of the pertinent discussions has been prepared. Individual resource sections must still be reviewed for overall discussions not specific to the project(s) proposed within the WSA.

Shale Rock Crossing Gap Fence – Alternatives B & D (delayed implementation under Alternative D)

Soils: (no specific analysis)

Upland Vegetation and Livestock Grazing Management:
"The proposed Shale Rock Gap Fence would stop livestock drift from pasture 12 to pasture 22. There would be reduced impacts of livestock trailing from pasture 12 through the Shale Rock Gap and down the trail located on Between the Creeks. There would be a slight decrease in livestock grazing use in trailing area. There would be a slight increase in livestock grazing use in pasture 12 and a slight decline in livestock grazing use in pasture 22. There would not be any positive or negative impact in long term trend in pasture 12 and 22 resulting from the proposed Shale Rock Gap Fence."

Modifying livestock management to prevent drift from pasture 12 to pasture 22 would not provide enhancement to wilderness values.

Riparian Areas and Wetlands:
"The Shale Rock Gap fence (*Shale Rock Gap Fence Project*) would not improve the degraded condition (>50% bare banks, 4-foot deep channel erosion) of 0.2 mile of West Fork Shoofly Creek at Shale Rock crossing, as the purpose of the fence is to prevent livestock movement from pasture 12 to pasture 22 (constructed on the pasture 22 side of the stream), rather than to limit the duration or intensity of use of the stream by livestock in pasture 12. The fence would likely increase bank alteration and trampling of riparian areas on the upper end of this segment, as grazing use in pasture 12 would slightly increase with the fence (see the Upland Vegetation and Livestock Grazing Management section). West Fork Shoofly Creek at Shale Rock crossing (0.2

mile of stream) would continue to receive high levels of bank alteration from livestock watering at the Shale Rock crossing from May 6 to July 20, and would remain in functional at risk condition with a downward trend. The Shale Rock Gap Fence is not needed to improve the condition of East Fork Shoofly and Shoofly creeks in pastures 21 and 22, as shown by upward trends in condition of these streams during 1998-2002 (USDI 2007a,b), and absence of livestock grazing on these streams in 2007."

Increased livestock use in West Fork Shoofly Creek due to blockage of the route out of the creek into pasture 22 has the potential to reduce naturalness through increased bank alteration and vegetative trampling in the riparian area.

Water Quality:
"Similar to Alternative A, the accessible section of West Fork Shoofly Creek at Shale Rock crossing (0.2 mile of stream) in Pasture 12 would continue to receive high levels of bank alteration from livestock watering at the Shale Rock crossing from May 26 to July 20. Water quality of this reach would be impaired by excessive sediment delivery from eroding banks and channels."

Increased livestock use in West Fork Shoofly Creek due to blockage of the route out of the creek into pasture 22 has the potential to reduce naturalness through increased bank alteration and sediment delivery.

Special Status Plants: (no specific analysis)

Wildlife:
"Shale Rock Gap Fence – The effects on wildlife movements would be minimal from only 200-300 feet of fence. The 1988-1991 data does not show bighorn sheep use in this area, at least during April-June." The primary impact/benefit to bighorn sheep could be the elimination of livestock drift through pasture 22 back to the main and East Fork Shoofly Creek and the resultant undesirable heavy June-July use of these drainages. However, drift back through Shale Rock Gap is only one of the factors contributing to over-use in these drainages. Other factors are being addressed in this EA, such as modifying Snow Spring exclosure, and "it is difficult to predict now whether and how much the Shale Rock Gap Fence might further help improve the East Fork of Shoofly Creek by reducing June and July use. During 2000-2002, Shoofly and East Fork of Shoofly creeks were on a strong upward trend without this fence in place."

Thus, it is uncertain at this point whether the fencing of Shale Rock Gap would contribute to some degree in improving bighorn sheep habitat in these drainages (see following discussion Shoofly Gap fence) which would benefit bighorn sheep, an identified special feature in the WSA.

Fish, including special Status species:

Related portions of West Fork of Shoofly Creek would continue to not provide suitable habitat for redband trout due to streambank alteration and unstable banks and would not meet LUP objectives.

Habitat for Redband trout, an identified special feature in the WSA, would not be improved.

Cultural: (no specific analysis)

Recreation and Visual Resources:
"…new fences, including the Shale Rock Gap fence… would slightly impede recreationists' travels within the allotment, because of their locations in areas where recreationists would travel through the area."

The Shale Rock Gap Fence … would be located in VRM Class I areas, where the objective is to maintain a landscape setting that preserves the existing character of the landscape, and the level of change to the characteristic landscape should be very low and must not attract attention.

The fence location would be crossed by cross-country hikers from Between the Creeks into West Fork Shoofly Creek providing a minor impact to unconfined recreation. This is a relatively small number of individuals annually. The provision of a gate or pass-through would minimize this impact. Users traveling up or down West Fork Shoofly Creek would not contact the fence. The location of the fence in a scree slope below the ridgeline would make it substantially unnoticeable within the WSA except when in its immediate vicinity.

Wilderness Study Areas:
"Shale Rock Gap Fence (Pasture 22/12)
Construction of this project would not lead to enhancement of any wilderness values. The purpose of constructing the fence (approximately 200-300 feet in length), according to the settlement, is to prevent drift between pastures 12 and 22.

The proposed fence would be located in a natural corridor for traveling between the East and West Forks of Shoofly Creek within the WSA. The fence structure would present a minor impairment to primitive and unconfined recreation.

Table 24. Summary of impacts and/or enhancements associated with Shale Rock Gap Fence (project proposed in Alternatives B & D only).

Resource/Value (if analyzed)	Effect of Proposed Project
Upland vegetation/livestock grazing	Elimination of livestock drift from pasture 12 to 22; no impact on long-term trend
Riparian areas/wetlands	No improvement in degraded stream condition; likely increase bank alteration and trampling of riparian areas
Water quality	Excessive sediment delivery from eroding banks and channels
Wildlife	Potential for minor impediment to bighorn sheep; slight potential for improving bighorn sheep habitat on East Fork Shoofly.
Fish, SSS	Continued degradation of redband trout habitat due to streambank alteration
Recreation and visual resources	Slight impediment to hikers; minor change to visual aspect on-site; hidden by ridgeline
Wilderness Study Area	See below
Core Wilderness Values	
Primitive and Unconfined Recreation	Minor impairment as fence located in gap in canyon where hikers enter or cross West Fork Shoofly Creek; gate or pass-through minimizes impediment.
Solitude	No effect beyond one day for construction
Naturalness	Minor impairment due to new human-made structure 200 to 300 feet in length; not visible to 99% of WSA. Potential impairment due to increased bank alteration and trampling of riparian area along West Fork Shoofly Creek.
Special features	
Exceptional scenic values	No effect
California bighorn sheep	No effect
Redband trout habitat	Potential impairment due to increased bank alteration and trampling of riparian area along West Fork Shoofly Creek
Valuable archeological sites	No effect
Near-pristine sagebrush steppe grasslands	No effect
Other requirements	
Would project be substantially unnoticeable	Noticeable only to WSA visitors in the immediate area of the fence.
Would project require motorized access if the area is designated wilderness	No

Shoofly Gap Fence – Alternatives B, C & D

Soils: (no specific analysis)

Upland Vegetation and Livestock Grazing Management:
Alternative B – Long-term trend south of the fence would improve. Heavier use may occur north of the fence. Alternatives C & D – Greater improvement in long-term trend of upland vegetation would be realized south of the proposed fence.

While Alternative B may provide some improvement, Alternatives C & D would provide significant improvements to naturalness through vegetative recovery. Photo point monitoring has clearly shown the improvements that can occur with livestock use restricted to trailing only.

Riparian Areas and Wetlands:
Alternative B – Most of Shoofly Creek in the fenced off area between the gap fence and the pasture 22 H fence would remain in FAR condition with a static trend due to continued grazing in May.

Alternatives C & D – 1.1 miles of Shoofly Creek and 0.2 miles of the West Fork Shoofly Creek that are functional at risk with static or downward trend would improve to proper functioning condition by eliminating the bank alteration and riparian plant use that was preventing recovery.

While Alternative B would provide little improvement, Alternatives C & D would provide significant improvements to naturalness through an upward trend that would lead to proper functioning condition for the riparian area. Photo point monitoring has clearly shown the improvements that can occur with livestock use restricted to trailing only. The visible impacts to naturalness recorded during the initial wilderness inventory (trampled streambanks and reduced vegetation) would be reduced.

Water Quality:
Alternative B – Water quality would continue to be impaired due to elevated sedimentation and erosion and solar heating of wide shallow channels lacking shade from plant cover.

Alternatives C & D - "Authorized use of East Fork Shoofly Creek would be limited to the active trailing of livestock along the creek to upper elevation areas of the allotment, and annual indicator criteria are included to deal with livestock drifting back to East Fork Shoofly Creek from other portions of Pasture 22 during the May 6 to July 10 grazing period. With these management prescriptions, water quality of the lower 2 miles of East Fork Shoofly Creek would also improve over the mid to long term by reducing high levels of sediment from unstable, eroding streambanks and solar heating by increasing riparian canopy cover.

While Alternative B would provide little improvement, Alternatives C & D would provide significant improvements to naturalness by reducing high levels of sediment from unstable, eroding streambanks and reducing solar heating by increasing riparian canopy cover. Photo point monitoring has clearly shown the improvements that can occur with livestock use restricted to trailing only.

Special Status Plants: (no specific analysis)

Wildlife:
Alternative B – limited improvement of herbaceous/woody veg.

Alternatives C & D - Rapid upward trend in herbaceous and woody veg.; improved cover and food for bighorn sheep, migratory birds, quail.

Habitat quality (cover and food sources) for a variety of wildlife including bighorn sheep, a special feature in this WSA, would be improved.

Fish, including special Status species:
Alternative B - Related portions of West Fork of Shoofly Creek would continue to not provide suitable habitat for redband trout due to streambank alteration and unstable banks and would not meet LUP objectives.

Alternatives C & D – This would facilitate increases in riparian plant vigor, cover, and density so that stream channels and fish habitats improve.

Cultural: (no specific analysis)

Recreation and Visual Resources:
The proposed fence would replace a temporary electric fence in essentially the same location. As this is located at an entry point for Shoofly Creek, it would be crossed by anyone entering from this point. A gate or pass-through would be provided.

The impact on recreational use would be little changed from the current situation when the temporary electric fence is being used and maintained.

In Alternative B, there would not be anticipated improvements in wetland or riparian vegetation to offset the negative visual aspects of the Shoofly Gap fence. However, in Alternatives C & D, the negative visual aspects of the fence structure would be countered by the improvements in wetland and riparian vegetation that are anticipated for the adjacent stretch of Shoofly Creek.

Wilderness Study Areas:
The proposed fence would replace a temporary electric fence in essentially the same location. As this is located at an entry point for Shoofly Creek and the WSA, it would be crossed by anyone entering from this point. A gate or pass-through would be provided.

The proposed fence would be located in a natural corridor for traveling into Shoofly Creek within the WSA. The fence structure would present a minor impairment to primitive and unconfined recreation. The impact on primitive and unconfined recreation would be little changed from the current situation when the temporary electric fence is being used and maintained.

In Alternative B, there would not be anticipated improvements in wetland or riparian vegetation to offset the negative visual aspects of the Shoofly Gap fence. However, in Alternatives C & D, the negative visual aspects of the fence structure would be countered by the improvements in wetland and riparian vegetation that are anticipated for the adjacent stretch of Shoofly Creek.

Table 25. Summary of impacts and/or enhancements associated with Shoofly Gap Fence.

Resource/Value (if analyzed)	**Effect of Proposed Project**
Upland vegetation/livestock grazing	Improvement in long-term trend
Riparian areas/wetlands	Alt. B - FAR with static trend with less vegetative recovery and streambank stabilization due to May grazing use; Alts. C & D - Riparian vegetative recovery, streambank stabilization, and improvement to PFC for 1.3 miles of stream.
Water quality	Alt. B – Impaired due to sedimentation and solar heating; Alts. C & D - Reduced sedimentation and solar heating
Wildlife	Alt. B – limited improvement of herbaceous/woody veg. Alts. C & D - Rapid upward trend in herbaceous and woody veg.; improved cover and food for bighorn sheep, migratory birds, quail.
Fish, SSS	Alt B. Little improvement Alts. C &D. improvement of redband trout habitat for 1.3 mi of stream.
Recreation and visual resources	Alt. B – little change due to May grazing Alts. C & D – Improved vegetative diversity and scenery; reduced perception of negative impacts due to livestock use.
Wilderness Study Area	See below
Core Wilderness Values	
Primitive and Unconfined Recreation	Transitory impairment as visitors enter WSA; change in (existing) fence type.
Solitude	No effect beyond day(s) for construction
Naturalness	Alts. C & D - Enhancement due to improved riparian vegetation along 1.75 miles of Shoofly Creek and reduced visual impacts associated with livestock use. Minor impairment due to replacement of electric fence with barbed wire fence for 0.3 to 0.4 miles in length.
Special features	
Exceptional scenic values	No effect
California bighorn sheep	Alts. C & D - Enhancement due to

	improved riparian vegetation
Redband trout habitat	Alts. C & D - Enhancement due to improved riparian vegetation and reduced streambank alteration.
Valuable archeological sites	No effect
Near-pristine sagebrush steppe grasslands	No effect
Other requirements	
Would project be substantially unnoticeable	Noticeable only to WSA visitors in the immediate area of the fence.
Would project require motorized access if the area is designated wilderness	No

OX Prong Gap Fences – proposed in Alternative B only

Soils: (no specific analysis)

Upland Vegetation and Livestock Grazing Management: The new gap fence and reconstruction of the gap fences along the rim of OX Prong or an alternative gap fence would stop livestock from trailing down to OX Prong to use water. The canyon areas of OX Prong would be excluded from livestock grazing use. Upland ecological condition would improve in this area. Because the proposed area is small relative to the overall size of pasture 10, there would not be an overall decline or improvement in long term trend.

There would be a minor improvement to the naturalness due to improved ecological conditions.

Riparian Areas and Wetlands: The proposed gap fences in the WSA (*OX Prong Gap Fence Project*) would eliminate livestock access to OX Prong from Pasture 10 and 0.9 mile of riparian habitat would improve in condition.

There would be a moderate improvement to naturalness due to the improved condition of the riparian area.

Water Quality: Water quality of OX Prong in Pasture 10 would improve over the mid to long-term as a result of eliminating livestock use of OX Prong by constructing gap fences in the WSA.

There would be a minor improvement to naturalness due to the improved water quality.

Special Status Plants: (no specific analysis)

Wildlife: The gap fences if correctly located and maintained would create an exclosure of OX Prong. The effects on the streamside habitat would be beneficial to riparian wildlife, and to bighorn sheep, by improving vegetation condition and reducing cattle use in an area used by bighorn sheep. However, the gap fences at the rim would be negative for movements of bighorn sheep and deer. A fence across a steep slope, or at the break of a steep slope is difficult for these animals to jump. The routes that the fences would close off to cattle would be the same routes

used by deer and bighorn sheep. In this proposal, there are two options for fencing out OX Prong. For wildlife, the southern option of a single fence perpendicular to the rim (Map 18) would be preferable to the northern option of a perpendicular fence plus gap fences at the rim.

The impact on the special wilderness value of bighorn sheep habitat would be neutral in the case of gap fences on the rim, because the enhancement of streamside habitat would be countered by the impairment of movements by the fences. in the case of the southern option, the fence would be an enhancement by improving streamside habitat used by bighorn sheep.

Fish, including special Status species: Redband trout habitat in OX Prong in Pasture 10 (1.3 miles of stream) would improve over the mid to long term as a result of new fences in the WSA, which would prevent livestock from accessing the stream.
The special feature of redband trout habitat would be enhanced by this fence.

Cultural: (no specific analysis)

Recreation and Visual Resources:
The proposed OX Prong gap fences would slightly impede movement within the allotment because they would be located in areas where recreationists may travel through the area. They would be located in a VRM Class I area, where the objective is to maintain a landscape setting that appears unaltered by humans. Because of their prominent location along the OX Prong rim, the OX Prong gap fences would introduce a discordant visual element that would attract the attention of recreationists.

The proposed gap fences could create a minor impediment to unconfined recreation as there are no defined route locations to provide gates or pass-throughs at so hikers traveling cross-country would encounter a solid fence. Visually, if the fences are built at the edge of the rim without using natural features as "cover" they would reduce naturalness.

Wilderness Study Areas:
The proposed fences, at least 1 mile in length, would be designed to keep cattle out of OX Prong, which would improve naturalness, bighorn sheep habitat, and redband trout habitat along 0.9 miles of OX Prong. The exact locations and lengths of fencing have not been specified, but they would probably be visible from OX Prong and from areas along the plateau that people would use to access OX Prong. Because of the fence locations, they would slightly impair views of the spectacular scenery that is a special feature in the WSA, and is visible from the rim. The fence(s) would slightly impair naturalness, and would slightly impair visitors and bighorn sheep's movement in and out of OX Prong. The fences would likely result in new surface disturbance and loss of vegetation along the fence-lines due to cattle trailing along the fence lines trying to access traditional water sources, which would impair naturalness along the fenceline. Due to the location of the gap fences, along a rim and/or on a plateau, depending on the locations selected, the fences would be constructed in an area without vegetative or topographic screening.

The fences would not be substantially unnoticeable in the WSA, as they would be visible from different locations along the plateau and from within the OX Prong canyon. The "gap fences" along the rim are not a "grandfathered" range project, as there is no record of the fences at the

time of FLPMA or during the wilderness inventory, and no record of the fences being previously authorized.

Table 26. Summary of impacts and/or enhancements associated with OX Prong Gap Fences (project proposed in Alternative B only).

Resource/Value (if analyzed)	Effect of Proposed Project
Upland vegetation/livestock grazing	Enhance area within exclosure
Riparian areas/wetlands	Enhance 0.9 miles of stream to PFC
Water quality	Enhance 0.9 miles of stream would reduce sediment delivery.
Wildlife	Enhance habitat within exclosure for bighorn sheep. Northern locations negative for bighorn sheep movement. Southern location no impact on sheep movement.
Fish, SSS	Enhance 0.9 miles of stream
Recreation and visual resources	Slight impairment from fences
Wilderness Study Area	See below
Core Wilderness Values	
Primitive and Unconfined Recreation	Minor impairment because fences would be located along breaks in canyon rim where OX Prong can be accessed from.
Solitude	No effect beyond day(s) for construction
Naturalness	Enhancement due to improvements in veg. condition along 0.9 miles of OX Prong Impairment from surface disturbance of upland vegetative condition along fence from livestock trailing; Impairment due to up to 1 mile of new man-made structures
Special features	
Exceptional scenic values	Impairment as fences along rim would negatively effect views of portion of WSA identified for its scenic values
California bighorn sheep	Enhancement due to improved streamside habitat in OX Prong Creek. Impairment if fences located in sheep travel corridors
Redband trout habitat	Enhancement due to improved riparian area along 0.9 miles of OX Prong
Valuable archeological sites	No effect
Near-pristine sagebrush steppe grasslands	Impairment due to livestock impacts near fence in portion of WSA identified for the condition of the grasslands
Other requirements	
Would project be substantially unnoticeable	Not substantially unnoticeable. Visible to WSA visitors from OX Prong canyon.

	Visible along the rim and adjacent plateau where visitors walk to access OX Prong. Lack of topographic screening due to fences' position high on the slope, lack of tall vegetation for screening
Would project require motorized access if the area is designated wilderness	No

Little Jacks Creek Meadow Exclosure Fence – Alternative D only

Soils: (no specific analysis)

Upland Vegetation and Livestock Grazing Management: This exclosure would improve the long term trend of the small amount of upland vegetation that would be in the exclosure.

Naturalness of the upland vegetation within the small area of the exclosure in WSA would be enhanced.

Riparian Areas and Wetlands: The upper 0.2 mile of Little Jacks Creek in pasture 10 would improve from FAR to PFC over the mid-to long term .

Naturalness of the 0.1 mile of stream in WSA within the exclosure would be enhanced.

Water Quality: Sediment delivery would be reduced on 0.2 mile of Little Jacks Creek in Pasture 10.

Water quality within and downstream of the exclosure would be enhanced.

Special Status Plants: (no specific analysis)

Wildlife: With protection, this part of Little Jacks Creek would become prime sage grouse summer habitat, with increased wetted area providing green forbs for food.

Naturalness within the exclosure would be enhanced, and contribute to the rangewide efforts to enhance sage grouse habitat.

Fish, including special Status species: Sediment delivery to redband trout habitat on the lower 1.2 miles of Little Jacks Creek in Pasture 10 (which is seasonally inhabited by redband trout) would be reduced by improving riparian health and channel conditions over the long term on the upper 0.9 miles of Little Jacks Creek in Pasture 10 (Beeson and Doyle 1995, Micheli and Kirchner 2002). Habitat conditions would be improved by excluding 0.2 mile of Little Jacks Creek (located at the downstream end of the meadow reach; *Little Jacks Creek Meadow Exclosure Project*) from livestock use.

The special feature of this WSA of redband trout habitat would be enhanced by reduced sediment within and below the exclosure.

Cultural: (no specific analysis)

Recreation and Visual Resources:
New fences, including the Little Jacks Meadow exclosure, would slightly impede recreationists' travels within the allotment, because of their locations in areas where recreationists likely would travel. The Little Jacks Meadow Exclosure fence would be located in VRM Class I areas, where the objective 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.

Any negative visual aspects of the fence structure would be countered by the improvements in wetland and riparian vegetation that are anticipated for the Little Jacks Meadow Exclosure. Due to the location and small size of the exclosure it could easily be walked around by hikers and pass-throughs would be provided both for future monitoring and for access. Access into Little Jacks Creek would not be affected.

Wilderness Study Areas:
The area proposed for the exclosure is degraded by cattle grazing, a condition that existed at the time the WSA was established. Excluding the area from grazing to allow for recovery of the wet meadows and riparian area would enhance naturalness. It would enhance bighorn sheep habitat and would improve downstream redband trout habitat. The fence structure would reduce naturalness. It would be a minor barrier to primitive and unconfined recreation. Depending on where they parked, recreationists might have to pass through or around the exclosure fence in order to walk from the road south of the WSA in to Little Jacks Creek within the WSA. The exclosure could easily be avoided by hikers by simply walking around it. The fence would be noticeably man-made, and would be visible in the immediate area because there is minimal topographic and vegetative screening to obscure the fence. However, as there are a number of other fences in the immediate area, including an exclosure on the other side of the road, the fence would not be out of character with the existing elements of the visual environment. A possibility exists of the creation of a fence line contrast between the ungrazed area within the exclosure and the grazed area immediately downstream from it, and a livestock trail may develop along the fence line. These will be partly mitigated by locating the fence a sufficient distance away from the riparian area to avoid creating an upland-riparian vegetation line and by locating the exclosure so the primary livestock trailing route along the existing pasture fenceline is not interrupted which might cause the creation of new livestock trails.
As shown by a comparison of the photos of the exclosure south of the road (outside the WSA) and the degraded area north of the road (in the WSA), the proposed exclosure would improve naturalness within the exclosure.

Table 27. Summary of impacts and/or enhancements associated with Little Jacks Creek Meadow Exclosure (proposed in Alternative D only)

Resource/Value (if analyzed)	Effect of Proposed Project
Upland vegetation/livestock grazing	Enhancement of upland veg within small exclosure
Riparian areas/wetlands	Enhancement of 0.2 mi of creek by improving to PFC
Water quality	Enhancement by reducing sediment delivery
Wildlife	Enhancement of prime summer habitat for sage grouse.
Fish, SSS	Enhancement of redband trout habitat by reducing sediment delivery from 0.2 mi stretch of soft soils on creek.
Recreation and visual resources	Negative visual aspects would be countered by improvements in wetland and riparian vegetation; minimal impediment to hikers.
Wilderness Study Area	See below
Core Wilderness Values	
Primitive and Unconfined Recreation	Impairment because fence would be located along natural entry point into WSA and to Little Jacks Creek; limited impact as can be avoided;
Solitude	No effect beyond day(s) for construction
Naturalness	Enhancement due to improvements in vegetative condition on 0.1 mile of stream within WSA. Impairment due to new man-made structure 0.3 miles long within WSA.
Special features	
Exceptional scenic values	No effect
California bighorn sheep	No effect
Redband trout habitat	Enhancement due to reduction in sediment delivery to downstream trout habitat
Valuable archeological sites	No effect
Near-pristine sagebrush steppe grasslands	No effect
Other requirements	
Would project be substantially unnoticeable	Noticeable only to WSA visitors in the immediate area of the fence.
Would project require motorized access if the area is designated wilderness	No

M. Cumulative Impacts

Spatial and temporal scale used for cumulative impact analysis
The area used to assess cumulative impacts includes all public, State and private land in Owyhee County, unless otherwise stated under a particular resource. Public land in Owyhee County is managed by the Bruneau Field Office (BFO) and the Owyhee Field Office (OFO). The applicable Land Use Plan for the BFO is the Bruneau Management Framework Plan (MFP)(1983). The applicable Land Use Plan for the OFO is the Owyhee Resource Management Plan (RMP)(1999).

The temporal scale begins with the 1934 (Taylor Grazing Act) and ends in 2018 which is the expiration date for the Battle Creek Allotment grazing permits, unless otherwise stated under a particular resource.

Land Use Plan tiering
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 (see Appendix D). 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. Therefore, the cumulative impact analysis for this EA is tiered to the Bruneau-Kuna Grazing EIS (1982).

On a broader spatial scale, yet on the same temporal scale, the cumulative impact analysis for this EA is also tiered to the Final EIS (1999) for the Owyhee RMP (1999).

Cumulative effects of past, present and reasonably foreseeable future actions

Soils – All Alternatives
Historic livestock grazing has degraded the lower elevation pastures (basically pasture 8 and areas of 21) to the point where the understory has transitioned into one dominated by invasive annuals. Decades of this state has resulted in loss of site productivity and hydrologic function. Transition from this state can go different ways, that is, to a more degraded state (where the shrub component is lost) or to a slightly improved state (where there is an increase in frequency and diversity of native bunchgrass and biological soil crusts).

The low elevation ecological sites represented in this allotment are part of a larger ecological system (the entire front range of sedimentary influence soils) with few remaining areas where intact biotic components still exist. As sites are impacted and transition to less desirable states through out the range there will be a gradual elimination of any remnant areas where these sites exist.

OHV use in this allotment is slowly increasing. This use has resulted in localized direct negative impacts to the soils in terms of damage to surface soils and accelerated erosion. This is most prominent in the lower elevation sedimentary derived soils where erosive rilling from this use is evident on the sloping terrain.

As new livestock facilities (watering sources and fences) are developed in this allotment and adjoining allotments the impacts (both positive and negative) associated with these types of facilities would be more prominent and affect more of the watershed.

Upland Vegetation and Livestock Grazing Management - All Alternatives
The alternatives identify livestock grazing management actions and range improvements that meet or allow for attainment of Bruneau MFP objectives and Idaho's Standards for Rangeland Health and Guidelines for Livestock Grazing Management. The alternatives addressed in this grazing permit renewal, grazing permit renewals in adjacent allotments managed by the BFO and attainment of the allotment specific objectives specified in the Owyhee RMP in future grazing permit renewals would have an overall net beneficial impact on upland vegetation. This would lead to an overall goal of improved water quality, wildlife habitat, watershed function and upland ecological condition from present and continue for a relatively long time period.

The livestock grazing management and range improvement projects in the alternatives would be the most recent adjustment to livestock grazing in the Battle Creek Allotment. Additional livestock grazing management actions and range improvement projects may occur in the future if desired changes to upland ecological conditions, watershed function, wildlife habitat and water quality don't occur. Since the alternatives do not alter the total amount or season of permitted use, and regulation of private land is minimal, it would not alter existing land uses on associated private and leased State lands, and would not contribute to cumulative social and economic impacts.

Riparian, Wetlands, Water Quality, and Fish
For analysis of cumulative impacts to riparian and fish habitats and water quality, the impact analysis area considered encompasses the Little Jacks and Shoofly creeks watersheds.

Alternative A. The cumulative effects of this project combined with BLM management of streams on adjacent allotments (Northwest and East Castle Creek allotments) that are partially in the Little Jacks and Shoofly creeks watersheds would be to maintain existing conditions of riparian and fish habitats. Similarly, existing water quality conditions would be maintained. No actions are known to be taking place, or planned for the future, for State and Private lands in these watersheds that would cumulatively impact existing water quality, and fish and riparian habitat conditions.

Alternative B. The cumulative effects of this project combined with BLM management of streams on adjacent allotments (Northwest and East Castle Creek allotments) that are partially in the Little Jacks and Shoofly creeks watersheds would be to slightly impair existing conditions of riparian and fish habitats. Similarly, existing water quality conditions would be slightly impaired over the mid to long-term. No actions are known to be taking place, or planned for the future, for State and Private land in these watersheds that would cumulatively add to or change existing water quality, and fish and riparian habitat conditions.

Alternative C. The cumulative effects of this project combined with BLM management of streams on adjacent allotments (Northwest and East Castle Creek allotments) that are partially in

the Little Jacks and Shoofly creeks watersheds would be to slightly 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 slowly improve existing water quality, and fish and riparian habitat conditions.

Alternative D. Same as Alternative C.

Wildlife

The cumulative effects to wildlife for all alternatives are not significant. The cumulative effect of past grazing management in the Bruneau and Owyhee Field Offices has been to improve wildlife habitat, as discussed in the vegetation section above. Additionally, past management has left this allotment in generally good condition. Other current and future grazing permit renewals in the BFO would follow the same course of correcting rangeland health issues.

The main grazing management action with the potential to cause significant cumulative impacts would be large pipeline proposals (such as several in Alternative B) that would bring more grazing into slightly grazed range. On the landscape, there naturally are places where cattle grazing is slight because of distance from water. These areas are often in the best habitat condition, for example, for sage grouse nesting. These are the areas ecologists seek out to understand the potential vegetation and production for an ecological range site. If there were a management direction to build such pipelines in the Bruneau Field Office, cumulative impacts to sage brush obligate species such as sage grouse could be significant. However, the current management direction at the district level for grazing permit renewals is to fix rangeland health problems with the least cost and the least impact on the land. Additionally, no other such large pipeline proposals have been received or are being contemplated for grazing permit renewals in the BFO. Therefore there are no such large pipelines that are reasonably foreseeable.

For sage grouse, currently in-process permit renewals in adjacent allotments (East 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 hope 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.

Other factors may act to counter these general habitat improvements, such as increased OHV use and spread of weeds. However, many of the special wildlife habitats in the Battle Creek allotment – bighorn sheep habitat, deer winter range, sage grouse winter range - are mostly with the WSA, which helps protect against OHV use. In general, other than the Snake River Plain, the Bruneau Field Office has intact sagebrush ecosystems dominated by native shrubs, grasses and forbs. None of the negative impacts noted above (fences impeding wildlife travel, troughs causing bare zones), cumulatively with other similar actions in other allotments, would alter that picture, because they are slight and local.

Recreation, Visual Resources, and Wilderness Study Areas – All Alternatives
This analysis examines the effects of the four 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 (2002 through 2012). 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 Battle Creek: the East Castle Creek Allotment, and the Northwest Allotment. Both of these allotments contain portions of the Little Jacks Creek WSA. The Northwest Allotment also contains portions of the Big Jacks and Duncan Creek WSAs. The permit authorization process is currently in progress for East Castle Creek, and it will commence for The Northwest Allotment in 2010. Collectively, the three WSAs of the Jacks Creek Complex comprise approximately 120,000 acres.

If additional range developments similar to those proposed in this analysis are authorized for East Castle Creek and the Northwest Allotments, some enhancement of wilderness values can be expected to occur in specific places, such as riparian areas protected from livestock impacts, but further impairment of the wilderness values of solitude, naturalness, opportunities for primitive and unconfined recreation experience as well as other specified supplemental values will also occur. Whatever the merits of a specific project may be with respect to enhancing some wilderness values, each additional permanent project is also additive in its potentially negative effects on wilderness values; each project constructed and maintained can progressively reduce the wilderness values of naturalness, solitude, and primitive and unconfined recreation experience by cumulatively augmenting the obvious imprint of man.

If they are carefully designed to minimize their impacts to wilderness, the number and extent of range projects constructed in the three WSAs within the analysis area are not likely, by themselves, to cross the threshold that would constrain Congress from designating the areas as wilderness, but by eroding wilderness values while steadily increasing investment in range improvements as a primary solution to grazing-related resource degradation, the balance of consideration could move Congress further towards not designating these areas.

New range developments are not the only ongoing activities that are currently affecting WSAs and wilderness values such as naturalness and opportunities for primitive and unconfined recreation, and the opportunities for semi-primitive non-motorized recreation experiences that are available outside of WSAs. The other major factor in the analysis area is the expanding use of off-highway vehicles (OHVs) there, by rapidly increasing urban populations. Since 1980, the Treasure Valley has almost doubled to its current population of about 500,000, and some of the people from Treasure Valley communities 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 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 increased motorized recreation impact 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 would continue as OHV use continues to increase, although public information efforts to educate users may ultimately lead to a somewhat broader public acceptance and compliance with restrictions on OHV travel. Some efforts to close and rehabilitate unauthorized routes have been undertaken, but these efforts have been difficult to fund, and have been sporadic and limited in their effectiveness to date.

In the adjacent Owyhee Field Office, comprehensive transportation planning efforts are underway and are 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.

N. Alternatives Considered But Not Analyzed In Detail

The following are alternatives to proposed solutions to identified problems that were discussed but not brought forward within any alternative. The reasons for not pursuing these ideas are briefly described:

Exclosure for biological soil crust area in pasture 8: not needed because cattle use is naturally limited and closure of the northern water source along with some of the proposed trough locations should further reduce use there.

Herding alone, without fences, to improve Shoofly and upper Little Jacks Creeks: Both areas are small, very attractive riparian and watering sites within large pastures with few riparian areas (both pastures) or water sources (pasture 10), thus herding was not judged to be likely to work.

Electric fence or let-down fence – for Shoofly Gap Fence: Both have been maintenance problems in the past and not as reliable as barb-wire.

Pasture 12/22 division fence 1 mile long outside of WSA: The benefits did not outweigh the impacts. The permittees thought that instead of aiding cattle management, it would make operations more difficult and restrict natural movements of cattle from pasture 22 into pasture 12. Also it was a long piece of fence in important antelope and sage grouse habitat, with unclear resource benefits.

Buried gabions in Dry Creek at pass-throughs in exclosure fence, to protect creek from downcutting: Preliminary cost/benefit analysis did not support construction.

Ram pump at OX Prong Spring as water source for trough in pasture 10: Logistics were difficult and would need landowner concurrence for part of line.

Water hauling from Little Jacks Creek at Collier meadow, Poison Cr Picnic Area, Battle Cr well, or other source for pasture 15, and improving access road(s): Logistics difficult and improving roads would be expensive and/or impractical.

IV. CONSULTATION AND COORDINATION

Bruneau Cattle Company (Eric Davis) – permittee in the Battle Creek Use Area
Idaho Bird Hunters (Russ Heughins)
Idaho Department of Lands (Dean Johnson and Becky Beavers)
Idaho Fish and Game - CJ Strike Wildlife Management Area (Dick Orcutt)
Idaho Wildlife Federation (J. Kent Marlor and Jack Trueblood)
Dave Lahtinen – permittee in the Little Jacks Creek Use Area
Sierra Club (Marty Marzinelli)
Chester Sellman – permittee in the Little Jacks Creek Use Area
Shoshone Paiute Tribes
Shoshone Bannock Tribes
Simplot Livestock Company (Chuck Jones) – permittee in the Battle Creek Use Area
John Urquidi – permittee in the Little Jacks Creek Use Area
Western Watershed Project (Katie Fite and Jon Marvel)

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VI. APPENDICES

A. Appendix A. Range Improvement Projects from the 1999 EA

Range Improvement #	Project Name	Fiscal Year Completed
9573	Shoofly Temporary Electric Fence	2000
9535	Dry Creek Riparian Pasture	2002
9525	Pasture 8A Fence Reconstruction	Not built – not feasible
(plantings)	Dry Creek Riparian Enhancement	2001
9523	Shoofly Cottonwood Exclosure	2001
1599	Snow Creek Spring Reconstruction	2003
6662	Hutch Spring Exclosure	Not built – conflict w/ access across private land.
1039	Dry Creek Reservoir #2 Reconstruction	2000
9526	Little Jacks Creek Temporary Electric Fence	2001
9524	Pasture 16 Fenceline Adjustments	2001
9528	Little Jacks Water Gap	2001
9527	Pasture 15 Division Fence	2000
	Hutch Pipeline Extension	Not built – conflict with water right
(plantings)	Little Jacks Creek Riparian Enhancement	2001
9594	Little Spring Exclosure	2003
9626	Collier Spring Exclosure	2003
9627 & 9711	Collier Meadow Exclosure	2006
9641	Collier Reservoir	Not built – bedrock and water right conflict, etc.
6230 & 9642	Basin #1 Reservoir	2003
9639	Tanks Reservoir	2003
9640	Owens Field Reservoir	2003
9624	Section 10 Spring a.k.a. as Hat Spring	Not built – not sufficient water
9529	OX Prong Water Gap	2001

B. Appendix B. Fish habitat condition parameters

Habitat parameters monitored to determined the condition of riparian and aquatic habitats for fish of streams in the allotments, based on objectives in the Bruneau MFP[1] (USDI, 1983).

Parameter	Fair Condition	Good Condition
Stream Shading (from riparian trees/shrubs)	> 40 - 60%	≥ 60 - 80%
Stubble Height of Herbaceous Vegetation; Amount of bare soil, trampled or sheared stream banks	≤ 3 inches, < 20%	> 4 inches, < 10%
Bank Stability (% bank actively eroding)	≤ 20%	≦ 10%
Stream Channel Stability (scouring, bank erosion, and channel movement)	< 10% scouring or movement	< 5% scouring or movement
Fine Sediment (sand and smaller sized particles)	< 25%	< 15%
Adult Fish Cover (pools, undercut banks, overhanging vegetation, etc.)	> 10% of stream channel	> 25% of stream channel

[1] "Where grazing is excluded, livestock use could be reintroduced after the time period required to bring habitat conditions to an upward trend and fair to good condition. Livestock use could then continue as long as these conditions were maintained." Bruneau MFP 1983.

C. Appendix C. Special Status Animals

Idaho BLM Special Status Animal Species known or potential in the Battle 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
Piute Ground Squirrel *(Spermophilus mollis artemisae)*	Deep soils in rangeland	3
California Bighorn Sheep *(Ovis canadensis californiana)*	Rocky canyons; Bruneau, Big and Little Jacks Cr, Deep Creek, Battle Creek, Dickshooter Creek	3
Wyoming Ground Squirrel *(Spermophilus elegans nevadensis)*	Meadows, pastures, and productive bottomlands	4
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
Lewis' Woodpecker *(Melanerpes lewis)*	Riverine and riparian habitat with cottonwood	3
Willow Flycatcher *(Empidonax trailii)*	Dense willow riparian	3

Sensitive Species	Habitat and Notes	Type
Hammond's Flycatcher *(Empidonax hammondii)*	On migration, nests in deep evergreen forest	3
Loggerhead Shrike *(Lanius ludovicianus)*	Nests in tall sagebrush	3
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

D. Appendix D. Tiering of Cumulative Impacts to the Bruneau–Kuna EIS

The following excerpt is from the "Permit Renewal Review - Plan Conformance and NEPA Compliance Record" for a grazing permit renewal, analyzed by the NEPA coordinator of the Bruneau Field Office, July 21, 2000. This analysis is still relevant today for the validity of tiering to the EIS for the Bruneau MFP.

"Cumulative impacts of the proposed action are essentially the same as those identified in the existing document.

Rationale: The Council of Environmental Quality (CEQ) regulations for implementing NEPA define cumulative impacts as:

"The impact on the environment which results from the incremental impact 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)."

CEQ's *Considering Cumulative Effects Under the National Environmental Policy Act,* published in January 1997, provides examples of cumulative effects for various federal agencies. For the BLM this document sites the "degradation of rangeland from multiple grazing allotments and the invasion of exotic weeds" as an example. It further defines the steps in the cumulative effects analysis: (1) scoping to identify significant issues, establish the geographic scope and time frame, and identify other actions other actions affecting the resource; (2) describing the existing environment or characterize the resources and the stresses affecting these resources and to define baseline conditions; and (3) determining the environmental consequences. The grazing EIS *(Bruneau – Kuna Grazing EIS)* included these steps and addressed livestock grazing on public land in a comprehensive context, as opposed to the random patchwork of allotments that are subject to permit renewal in a given year.

BLM adequately addressed cumulative impacts associated with the proposed livestock grazing permit renewals as part of preparing the Bruneau –Kuna Final Grazing EIS (1982). 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 PUs, including analysis of issues on adjacent private and State land that affect federal public land management. 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, and the analysis of cumulative impacts in still relevant and appropriate.

There has been no significant change in circumstances or significant new information germane to the proposed action.

Rationale: Circumstances relating to livestock grazing on the public lands in the Bruneau and Kuna Planning Units (PUs) have changed very little since 1982. 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.

New information concerning the natural resources of the Bruneau Planning Unit has been produced since 1982. However, in most cases such information merely verifies or refines the previously available information. Furthermore, the grazing EIS and MFP provide considerable flexibility to accommodate certain kinds of new information. For example, analysis and guidance provides for protection of BLM sensitive species, allowing for changes in the individually listed species over time. In some cases amendments to the MFPs and EAs have been completed to address new information, e.g., designation of ACECs. The basic information analyzed in the Grazing EIS and used to select the proposed action remains valid."