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Four Rivers Field Office
Bennett Mountain North Grazing Permit Renewal

U.S. Department of the Interior
Bureau of Land Management
Boise District
Four Rivers Field Office
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BLM

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1.0 Introduction

The Bureau of Land Management (BLM) Four Rivers Field Office (FRFO) has prepared this Environmental Assessment (EA) consistent with BLM policy and relevant federal and state laws and regulations. This EA discloses anticipated direct, indirect, and cumulative environmental impacts (Section 3.0) that would result from the various grazing systems proposed for 12 allotments in the Bennett Mountain Management Area (MA; Map 1, Section 2.3).

1.1 Need for and Purpose of Action

This action is needed to address the rangeland health issues identified in 12 Bennett Mountain MA allotments, in accordance with Title 43 of the Code of Federal Regulations (CFR), Subpart 4100. The allotments were evaluated to determine conformance with Idaho's Standards for Rangeland Health and Conformance with the Guidelines for Livestock Grazing Management (Standards and Guidelines, Appendix 1). Under 43 CFR 4180.2(c), upon determining that existing grazing management practices on public lands are significant factors in failing to achieve standards, the authorized officer must take action prior to the next grazing year that will result in significant progress toward meeting standards.

In addition, this action is needed because BLM is required under the Federal Land Policy and Management Act (FLPMA) and the Taylor Grazing Act (TGA) to respond to applications for grazing permit renewal that have been submitted to the BLM by qualified applicants. The current permits expire between February 28, 2014 (Crescent Moon LLC) and February 28, 2017 (Iron Horse Ranch LLC, Barber-Caven Ranches, Blackwell, and Tree Top Ranches LLC).

Rangeland Health Assessments for the allotments were conducted in 2004 and 2006. Subsequent vegetation trend and other monitoring were conducted in 2010 and 2011. In the Evaluations and Final Determinations for Achieving Idaho's Standards and Guidelines, the following determinations were made:

- Four allotments are not meeting one or more standards and current livestock grazing management practices are a causal factor;
- Three allotments are not meeting one or more standards due to factors other than current livestock management; and
- Five allotments are meeting all standards (Table 1).

Table 1. Summary of applicable Rangeland Health Standards for the Bennett Mountain North allotments, Elmore County, Idaho.

Allotment		**Rangeland Health Standards**[1]							
Number	**Name**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
01033	Hammett #1	L	L	L	L	n/a	n/a	L	L
01037	East Hammett #5	L	L	L	L	n/a	n/a	M	L
01038	Hammett #6	L[2]	M	M	L[2]	n/a	n/a	M	L
01039	Hammett #7	L[3]	L[4]	M[4]	M	n/a	n/a	M	L[4]
01043	South Camas	M	M	M	M	n/a	n/a	M	M
01044	North Slope	M	M	M	M	n/a	n/a	M	M

Allotment		Rangeland Health Standards[1]							
Number	**Name**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
01091	Camas Creek Field	M	n/a	n/a	M	n/a	n/a	n/a	M
01098	North Camas	M	L[4]	n/a	M	n/a	n/a	n/a	L[3]
01101	East Bennett Mountain	U	M	n/a	U	n/a	n/a	n/a	M
01195	Hammett Livestock Company	M	M	M	M	n/a	n/a	O	M
01198	Ballantyne Section 15	M	M	M	M	n/a	n/a	M	M
01199	Joost Section 15	M	M	M	M	n/a	n/a	M	M

[1] Standard 1: Watersheds; Standard 2: Riparian Areas and Wetlands; Standard 3: Stream Channel/Floodplain; Standard 4: Native Plant Communities; Standard 5: Seedings; Standard 6: Exotic Plant Communities, other than Seedings; Standard 7: Water Quality; Standard 8: Threatened and Endangered (T&E) and BLM Special Status Plant, Wildlife, and/or Fish species.
M = meeting standard; L = not meeting standard, current livestock management practices are a causal factor; O = not meeting standard, factors other than current livestock management practices are significant factors (e.g., fire, invasive plants, historic grazing practices, off-road vehicles); U = not meeting standards, cause not determined; and n/a = standard does not apply in that allotment.
[2] In the April 4, 2012 scoping document, Standards 1 and 4 were reported as not being met due to other reasons (fire). This finding was modified based on data collection and staff discussions.
[3] In the April 4, 2012 scoping document, Standard 1 was reported as being met; however, 2014 site visits indicated it was not.
[4] In the April 4, 2012 scoping document, Standard 2 was reported as not being met in Hammett #7 because of Sackrider Spring that was subsequently determined to be in North Camas. However, North Bourbon Spring in Hammett #7 is functioning at risk and not meeting Standards 2 and 8. Standard 3 was reported as not being met for Sackrider Spring; however, based on subsequent guidance, springs are not rated for Standard 3.

Common conditions/issues in allotments where unmet standards are due to current livestock grazing management include:

Standard 1 (Watersheds) is not being met in Hammett #1 (01033), East Hammett #5 (01037), Hammett #6 (01038), and Hammett #7 (01039), most commonly due to accelerated erosion in the form of accentuated water flow patterns, pedestalling of perennial grasses, and terracettes caused by annual spring grazing.

Standard 2 (Riparian Areas and Wetlands) and **Standard 3** (Stream Channel/Floodplain) are not being met on 5.7 miles of streams in Hammett #1 (01033) and East Hammett #5 (01037). The primary issues include a lack of adequate stream cover, excessive bank trampling, and lack of deep-rooted perennial riparian species to stabilize streambanks. Standard 2 is not being met on 19 springs in Hammett #1 (01033), East Hammett #5 (01037), Hammett #7 (01039), and North Camas (01098) because of degraded vegetative communities, moderate to severe utilization, and trampling.

Standard 4 (Native Plant Communities) is not being met in Hammett #1 (01033), East Hammett #5 (01037), and Hammett #6 (01038) where annual spring and fall use have resulted in degraded native vegetative communities. In many cases, mid-stature/deeper-rooted native perennial grasses (e.g., bluebunch wheatgrass) are present primarily under the protection of shrubs, and/or display low vigor (i.e., have low above- and below-ground biomass and low seed and seedstalk production). Also, shifts from deeper-rooted native perennial grasses to smaller-stature/shallow-

rooted perennial grasses (e.g., Sandberg bluegrass), invasive exotic grasses (e.g., cheatgrass and medusahead), and/or weedy forbs (e.g., annual mustards) have occurred.

Standard 8 (Threatened and Endangered [T&E] and BLM special status plant, wildlife, and fish species) is not being met for: plants in Hammett #1 (01033); wildlife in Hammett #1 (01033), East Hammett #5 (01037), Hammett #6 (01038), Hammett #7 (01039), and North Camas (01098); and fish in Hammett #1 (01033) and East Hammett #5 (01037). For plants, declines in perennial bunchgrasses and increases in exotic annuals have degraded habitat conditions. For wildlife, structural and species diversity of riparian and upland vegetation is inadequate to provide suitable habitat for wildlife, primarily as a result of repeated heavy to severe livestock use. For special status fish, heavy to severe livestock use has removed vegetation that provides stream shading and damaged banks causing increased sedimentation.

Purpose of the Action and Objectives

Any permits authorizing livestock grazing would ensure that livestock management practices would:

- Maintain resource conditions where those conditions are meeting Standards;
- Make significant progress toward meeting Standards where resource conditions are not meeting Standards due to current livestock management practices; and
- Meet Guidelines and BLM policy.
- Meet Jarbidge Resource Management Plan objectives (Section 1.3).

Actions would meet the following objectives:

- Increase ground cover and plant species vigor and diversity in portions of four allotments (Hammett #1, East Hammett #5, Hammett #6, and East Bennett Mountain) not meeting Standard 1 to improve watershed stability and function. Maintain functioning watersheds/watershed conditions where Standard 1is being met (measured by point cover, nested plot frequency transects [NPFT], and photo plots [PP]).
- Improve functioning-at-risk and non-functioning riparian areas (streams, springs, and wetlands) to proper functioning condition by increasing desirable riparian or wetland vegetation cover and percentage of stable streambanks (measured on stream greenlines and at springs). Maintain riparian and hydrologic conditions where Standards 2 and 3 are being met.
- Improve frequency, cover, diversity, and vigor of native perennial vegetation in portions of four allotments (Hammett #1, East Hammett #5, Hammett #6, and East Bennett Mountain) not meeting Standard 4. Maintain perennial vegetation trends where ecological processes are functioning properly (measured by NPFT, PP, and point cover).
- Maintain perennial vegetation and minimize the spread of noxious weeds in annual dominated communities (measured by NPFT, PP, point cover, and rangeland health field assessments).
- Improve special status species habitat by providing adequate native plant cover for special status plants, nesting and brood-rearing habitat for greater sage-grouse, and stream shading and stable banks for redband trout.

1.2 Location and Setting

The allotments are located 8-40 miles north of Glenns Ferry, Idaho (Map 1). Elevations range from 3,500 feet in the Hammett #1 Allotment to 7,400 feet in the East Bennett Mountain Allotment. General topographic features include moderate to steep canyons, plateaus, mountains, and prairies. The allotments include 51,017 acres of BLM-administered lands, 28,020 acres of private lands, 7,986 acres of State lands, and 1,276 of U. S. Forest Service (USFS) lands (Table 2).

Table 2. Land ownership acres by allotment for twelve allotments in the Bennett Mountain MA, Elmore County, Idaho.

Allotment		BLM	Private	State	USFS	Total
Number	**Name**					
01033	Hammett #1[1]	21,873	279	1,520	0	23,672
01037	East Hammett #5	10,471	694	638	0	11,803
01038	Hammett #6[2]	6,509	179	1,739	0	8,427
01039	Hammett #7	2,265	16,220	3,305	13	21,803
01043	South Camas	962	236	39	548	1,785
01044	North Slope	896	4,464	408	0	5,768
01091	Camas Creek Field	190	280	118	0	588
01098	North Camas	558	181	218	708	1,665
01101	East Bennett Mountain	1,512	5,483	0	0	6,995
01195	Hammett Livestock Co.	4,659	4	1	7	4,671
01198	Ballantyne Section 15	723	0	0	0	723
01199	Joost Section 15	399	0	0	0	399
Total		51,017	28,020	7,986	1,276	88,299

[1] This allotment includes North, Berry Ranch, and South pastures; however, only the North and Berry Ranch pastures are addressed in this document. Includes 779 acres (772 BLM and 7 State) in King Hill Creek canyon that are not available to livestock use. These acres are omitted in subsequent analyses where livestock access is a factor.

[2] Includes 381 acres (332 acres BLM, 7 acres private, and 42 acres State) in exclosures that are not available to livestock use. These acres are omitted in subsequent analyses where livestock access is a factor.

The uplands are primarily characterized by sagebrush (e.g., Wyoming big sagebrush and mountain big sagebrush) communities with some mountain shrub and forest-type (e.g., snowberry and Douglas fir) communities at higher elevations. Perennial and annual grasslands are also present to varying degrees. Riparian areas including perennial streams, intermittent streams, and springs/seeps support, numerous woody (e.g., willows) and/or herbaceous (e.g., sedges) riparian plants.

1.3 Conformance with Applicable Land Use Plan

The allotments occur in multiple use areas (MUA) 1 and 2 described in the Jarbidge Resource Management Plan (RMP) (USDI 1987a). The Ballantyne Section 15, Hammett Livestock Company, and Joost Section 15 allotments occur in MUA 1. The remaining allotments occur in MUA 2. Lands within all 12 allotments were identified as being available for livestock grazing in the RMP. The proposed actions would be in conformance with the following RMP objectives:

MUA 1

- Maintain the current[1] condition of riparian habitat.
- Maintain existing wintering habitat to support current levels of 250 mule deer and 100 elk. The current populations are 200 mule deer and 10 elk.
- Issue 406 AUMs of forage for livestock by the year 2005.

MUA 2

- Improve lands in poor ecological condition.
- Manage big game habitat to support 3,350 winter mule deer and 350 the rest of the year and 200 elk (existing populations are 3,350 mule deer and 125 elk).
- Improve 10.6 miles of fisheries habitat and 6.7 miles of riparian habitat by the year 2005.
- Issue 4,983 AUMs of forage for livestock by the year 2005.
- Change seasons of use on allotments that have greater than 50% of use made in the spring to 50% fall use.
- To resolve forage conflicts between livestock and wildlife (mule deer and elk), livestock season-of-use would be adjusted so that approximately 50% of the livestock use occurs during the spring period and 50% occurs during the fall.

There are discrepancies between the 2005 AUM objective for MUA 2 (4,983 AUMs indicated on pages II-15 and D-2) and the actual AUMs identified by allotments comprising the MUA in Appendix D of the RMP (12,468 AUMs for 11 allotments on pages D-2, D-9-10). Allotment numbers, names, and boundaries have changed since 1987. Based on Appendix D AUM values[2] by allotment and how AUMs were allocated when allotment boundaries were adjusted, 6,524 AUMs were proposed for livestock by 2005 (Table 3). Current use (Alternative B) is 8% below the 1987 preference and 17% above the proposed 20 year use. Alternatives C and D would be 16% and 28% below the proposed 20 year use.

1.4 Relationship to Statutes, Regulations, and Other Requirements

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 RMP. In addition, the following laws, regulations, policies, and manuals provide the foundation for managing livestock use on BLM-administered lands.

Livestock Management

The Taylor Grazing Act (TGA) of 1934 as amended: Provides for the orderly use of public land. The goals of the TGA were 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.

[1] "Current" and "existing" conditions or numbers in the RMP objectives refer to conditions or numbers at the time the Record of Decision for the RMP was signed (i.e., 1987).

[2] The proposed level of livestock use in the RMP is the estimated level of use that would occur following a monitoring and adjustment period. This level is based on the estimated carrying capacity of the range, wildlife and wild horse needs and. other resource restrictions. During the monitoring period, the initial stocking level will be the permittee's 5-year average use or their active grazing preference, whichever is greater.

Table 3. Grazing preference, average use, and proposed 20-year use from the Jarbidge RMP and active AUMs by alternative for twelve allotments in the Bennett Mountain MA, Elmore County, Idaho.

Allotment[1]		MIC[2]	Monitor Priority[3]	Jarbidge RMP			Alt B	Alt C	Alt D
Number	Name			Preference	5 Yr Avg.	Prop 20 Yr			
01033	Hammett #1	I	4	3,930	3,584	2,785	3,736	2,100	1,575
01037	East Hammett #5	I	17	1,924	1,367	1,715	1,493	1,120	979
01038	Hammett #6[2]	I	3	911	657	695	912	912	769
01039	Hammett #7	C	62	340	340	426	345		
01043	South Camas	M	23	75	75	94	75		
01044	North Slope	C	2	231	231	140	233		
01091	Camas Creek Field	M		42	38	30	42		
01098	North Camas	M	23	115	115	144	115		
01101	East Bennett Mountain	C	2	146	146	89	146	10	
01195	Hammett Livestock Co.	C	9	361	361	243	361		
01198	Ballantyne Section 15	C	16	144	144	127	144		
01199	Joost Section 15	C	18	40	40	36	0	40	
Total				8,259	7,098	6,524	7,602	5,497	4,688

[1] Allotment names, numbers, and boundaries have changed since the RMP.

[2] All grazing allotments in the Jarbidge RMP were assigned to one of three management categories based on resource conditions and the potential for improvement (Appendix Table D-2). The "M" allotments generally will be managed to maintain current satisfactory resource conditions; "I" allotments generally will be managed to improve resource conditions; and ”C” allotments will receive custodial management to prevent resource deterioration.

[3] The priority for monitoring (vegetative trend, forage utilization, actual use, and cimate) for 79 allotments (and, consequently the potential need for modification of permits) is identified in the Jarbidge RMP Appendix Table D-2.

The Federal Land Policy and Management Act (FLPMA) of 1976: Authorized the following: inventory and identification of BLM-administered lands, land use planning, and 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 the Jarbidge RMP, which covers the 12 allotments addressed in this EA.

The Public Rangelands Improvement Act (PRIA) of 1978: Established policy to address and correct unsatisfactory conditions on public rangelands by an intensive maintenance, management, and improvement program involving significant increases in levels of rangeland management and improvement funding for multiple-use values.

Title 43 CFR, Subpart 4100 – Grazing Administration, Exclusive of Alaska: The regulations embody the Acts, as amended, listed above. Specifically, 43 CFR 4180.2 is the regulatory requirement that implements Idaho’s Standards for Rangeland Health and Guidelines for Livestock Grazing Management, 1997 (USDI 1997).

Fish and Wildlife

Endangered Species Act (ESA) of 1973 as amended (16 USC 1531): Section 7 of the ESA outlines the procedure for federal interagency cooperation to conserve federally listed species and their designated habitats. Section 7(a) (2) of the ESA states that each federal agency shall, in consultation with Secretary, ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of a listed species' habitat within the project area.

Special Status Species Management Manual for the Bureau of Land Management (BLM Manual 6840): National policy directs BLM State Directors to designate sensitive species in cooperation with the state fish and wildlife agency. This manual establishes policy for management of species listed or proposed for listing pursuant to the ESA and Bureau sensitive species that are found on BLM-administered lands; this policy is to conserve and to mitigate adverse impacts to sensitive species and their habitats. Where relevant to the activities associated with this action, effects to special status species are analyzed in this EA.

Migratory Bird Treaty Act, *Executive Order 13186*, and *BLM Memorandum of Understanding WO-230-2010-04* (between BLM and US Fish and Wildlife Service [USFWS]): Federal agencies are required to evaluate the effects of proposed actions on migratory birds (including eagles) pursuant to the *National Environmental Policy Act of 1969* (NEPA) "or other established environmental review process;" and restore and enhance the habitat of migratory birds, as practicable. Federal agencies are also required to identify where unintentional take reasonably attributable to agency actions is having, or is likely to have, a measurable negative effect on migratory bird populations. With respect to those actions so identified, the agency shall develop and use principles, standards, and practices that will lessen the amount of unintentional take, developing any such conservation efforts in cooperation with the Service. Effects to migratory birds are analyzed in this EA.

Bald and Golden Eagle Protection Act of 1940 as amended (16 USC 668-668d): This act provides for the protection of bald and golden eagles by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. Agencies are required to evaluate: 1) whether take is likely to occur from activities associated with the proposed activity and 2) the direct, indirect, and cumulative impacts the proposal may have on the ability to meet the preservation standard of the Act, that the USFWS has interpreted to mean "compatible with the goal of stable or increasing breeding populations." Effects to bald and golden eagles are analyzed in this EA.

Greater Sage-grouse Interim Management Policies and Procedures (BLM Instruction Memorandum IM-2012-043): This document provides conservation policies and procedures to maintain and restore habitat for sage-grouse while the agency determines how to incorporate long-term measures into Land Use Plans. These interim measures include direction for grazing management practices that will minimize adverse effects on greater sage-grouse and its habitat. Alternatives A and D include measures to meet sage-grouse habitat requirements through modifications in season of use, stocking rates, and rangeland management projects that adhere to the direction in this IM.

Cultural Resources

Idaho BLM has the responsibility to manage cultural resources on public lands pursuant to the National Historic Preservation Act of 1966 (as amended), the 2012 Programmatic Agreement Among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers and the State Protocol Agreement Between the Idaho State Director of the BLM and the Idaho State Historic Preservation Officer (1998) and other internal policies.

Wilderness Study Area

The Federal Land Policy and Management Act (FLPMA) of 1976: The BLM is directed through Section 201(a) to prepare and maintain on a continuing basis an inventory of all public lands and their resources and other values. The inventory is to be kept current so as to reflect changes in conditions and to identify new and emerging resource and other values. Wilderness preservation is part of the BLM's multiple-use mandate, and the wilderness resource is recognized as one of the array of resource values considered in the land-use planning process. Section 603 directed the BLM to identify certain lands that have wilderness characteristics as described in the Wilderness Act of 1964. These areas, identified as Wilderness Study Areas (WSA), were to be maintained and managed in a manner so as not to impair the suitability of such areas for preservation as wilderness by Congress. This is often referred to as the "non-impairment" mandate.

Omnibus Public Land Management Act of 2009 (16 U.S.C. 7202): Sec. 2002 of the Omnibus Act 2009 established, within the Bureau of Land Management, the National Landscape Conservation System (NLCS) in order to conserve, protect, and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations. One of the components of the system is WSAs which are to be managed in accordance with any applicable laws and in a manner that protects the values for which the WSA was designated.

BLM Manual 6330 – Management of BLM Wilderness Study Areas (July 2012): National policy directs BLM District and Field managers to manage and protect WSAs so as not to impair the suitability of such areas for preservation as wilderness. This manual establishes the general policies for maintaining a WSA's suitability for preservation as wilderness. The BLM's policy will protect the wilderness characteristics in the same or better condition than they were on October 21, 1976, until Congress determines whether or not the area should be wilderness. The Manual covers such items as preventing impairment of wilderness values, enforcement, restoration, and discretionary uses. It outlines the non-impairment standard and exceptions to this standard. Additionally, policies are given for specific activities including grazing management.

National Landscape Conservation System 15 Year Strategy 2010-2025 (BLM/WO/GI-11/013+6100) and Idaho National Landscape Conservation System Strategy 2012-2015: The 15 year strategy outlines the BLM's national level direction on how to manage all components of the NLCS, including WSAs. There are four primary themes of the strategy: 1) Ensuring the Conservation, Protection, and Restoration of NLCS Values, 2) Collaboratively Managing the NLCS as Part of the Larger Landscape, 3) Raising Awareness of the Value and Benefits of the BLM's NLCS, and 4) Building upon BLM's Commitment to Conservation. Within each of these

themes multiple goals are identified. The Idaho specific strategy outlines how these goals will be achieved at the State and Field Office level.

1.5 Scoping and Development of Issues

Issues may be defined as a point or matter of discussion, debate, or dispute about a proposed action based on the potential environmental effects (BLM Handbook H-1790-1). Issues are concerns directly or indirectly caused by implementing the proposed action; these are used to develop alternatives to the proposed action. Relevant public comments and issues were used in the development of this EA, including those received in response to the Scoping Document mailed April 2, 2012. Comments not considered issues to analyze in this EA are ones that are: 1) outside the scope of the proposed action and thus irrelevant to the decision being made; 2) already decided by law, regulation, RMP, or other higher level decision; 3) conjectural and not supported by scientific or factual evidence; or 4) not necessary for making an informed decision.

Based on meetings with staff, permittees, and interested publics and responses to the scoping document, the following issues were identified:

Watersheds: Shallow-rooted perennial and exotic annuals grasses provide less desirable watershed cover than tall-stature perennial grasses. Livestock utilization levels can adversely affect watershed protection by removing too much vegetative cover. How can livestock grazing be modified to improve watershed function?

Vegetation and Special Status Plants: In some areas, livestock grazing has affected vegetative conditions by changing species composition from tall-stature perennial grasses to short-stature perennial grasses or exotic annuals. These areas are susceptible to noxious weeds. Livestock trampling alters slickspot microsites, habitat for slickspot peppergrass, a species proposed for listing under the ESA. Slickspot peppergrass is insect pollinated and requires intact native plant communities to support pollinators. How can native perennial grasses and forbs be maintained or increase?

Fuels Management: Fuel buildup, especially fine fuels (i.e., grasses), can increase wildland fire potential. Livestock grazing, especially through the use of temporary non-renewable (TNR) use, has been proposed as a method to reduce fine fuels. Issuance of TNR permits requires NEPA analysis. Is the issuance of TNR an appropriate method to manage fuels in the area?

Greater Sage-grouse: The area contains important sage-grouse nesting and brood-rearing habitat. Areas dominated by low-stature grasses do not provide adequate nesting cover. Heavy livestock use reduces cover and degrades habitat quality which adversely affects sage-grouse productivity and survival. Heavily impacted spring wetlands do not meet late brood-rearing habitat requirements. Fencing reduces habitat suitability and increases collision and predation related sage-grouse mortality. What is the BLM considering sage-grouse habitat and will BLM implement protection measures for it?

Migratory Birds: Good quality upland and riparian habitat is necessary to provide nesting and brood-rearing habitat for a variety of species. How will BLM insure that habitat conditions will support migratory birds?

Wildlife: Heavy fall livestock bitterbrush use can reduce availability of this important mule deer winter forage. Improperly constructed or placed fencing can impede big game movement and cause mortality. What management actions will be taken to minimize forage competition and fencing impacts, especially in mule deer winter range?

Riparian/Wetland Areas/Fisheries: Livestock grazing is affecting riparian and wetland habitat conditions by changing the health and composition of vegetation. Poor riparian habitat conditions adversely affect redband trout and other aquatic species. What management actions, especially those that don't require fencing, can be implemented to improve habitat conditions?

Water Quality: Livestock trampling damages streambanks causing increases sediment input into streams. Heavy use of willows and other streambank vegetation reduces or eliminates important shading that helps keep water temperatures low. What management changes will be made to insure water quality standards will be met?

Cultural Resources: Projects that concentrate livestock use (e.g., fencing, water development) could damage or destroy cultural resources. What steps will be taken to avoid or minimized impacts to cultural resources?

King Hill Creek WSA: The BLM is required to manage WSAs to insure that the primary wilderness characteristics (naturalness, solitude, and primitive and unconfined recreation) are maintained. Livestock grazing is an acceptable use in a WSA; however, it should not cause unnecessary or undue degradation of the lands and their resources. How will the BLM insure that grazing management practices maintain wilderness values?

King Hill Creek Area of Critical Environmental Concern (ACEC): The canyon associated with King Hill Creek was designated as an ACEC (Map 2a), primarily for redband trout. King Hill Creek is in proper functioning condition and is expected to remain in that condition over the long term (EA Section 3.5.1). Because the canyon is inaccessible to livestock from the Hammett #1 Allotment, actions proposed in this EA would not impact the values for which the ACEC was established.

Livestock Management/Social and Economics: Livestock grazing affects local and regional socioeconomic activities generated by livestock production. Changes in grazing permits can impact operational viability at the allotment level. Proposed changes should take into account how an individual allotment fits in with a permittees overall operation. How will proposed alternatives balance the need for meeting Standards with operational and economic needs?

2.0 Description of the Alternatives

This chapter describes and compares the alternatives considered for the management of the allotments. This section presents the alternatives in comparative form, in order to define the differences between each alternative and provide a clear basis for choice among options by the decision maker and the public. Design criteria and monitoring measures incorporated into the alternatives are also described.

2.1 Alternative Development Process

Meetings were held with permittees and the BLM Interdisciplinary Team (IDT) between January 25, 2011 and March 31, 2011 to develop their applications, with a focus on ensuring their proposals would result in their allotments making significant progress toward meeting Standards and Guidelines where necessary or possible. The IDT developed BLM proposals for allotments where Standards and Guidelines were not being met. Responses to the April 2, 2012 scoping document were incorporated into alternatives where appropriate.

2.2 Alternatives Considered But Not Analyzed in Detail

2.2.1 Temporary Non-renewable Use

The use of livestock to reduce fuels, primarily through the issuance of Temporary Non-renewable (TNR) use was proposed by some interested publics. Issuance of TNR permits is primarily associated with range where substantial fluctuations in annual production occur, typically on areas dominated by annual grasses or seeded species. This alternative was not considered because:

- Small portions (≤2%) of Hammett #1, East Hammett #5, and Hammett #6 are dominated by annual grasses and seeded species are not present in any allotment. Alternatives considered below provide some degree of flexibility in livestock numbers and season of use that would allow targeted grazing of annual dominated areas.
- Hammett #1, East Hammett #5, and Hammett #6 provide nesting habitat for sage-grouse. Grass cover >7 inches provides important hiding cover for sage-grouse nests. Heavy utilization of native perennial grasses that could occur in conjunction with TNR, especially for fuels reduction, would not meet nest cover requirements.

No other alternatives were considered.

2.3 Description of Permittee Applications and Alternatives

The following alternatives have been identified through the scoping process:

Alternative A – No Grazing
Alternative B – Continue Current Use
Alternative C – Permittee Applications
Alternative D – BLM Proposals

2.3.1 Alternative A – No Grazing

The BLM would not authorize livestock to use public lands within the 12 allotments for the next 10 years. The BLM would deny the application for permit renewal (i.e., not reissue the permit) and for the next 10 years not approve any applications to graze public lands in these allotments. The BLM would not cancel the existing preference for grazing use of these allotment's public lands as part of this action and would continue to administer it under applicable laws and regulations. Rangeland management projects would remain in place, but normal maintenance would not be expected to occur. After 10 years, the BLM would reevaluate whether to again authorize grazing on the public lands in the allotments, considering such factors as rangeland

health and other resource objectives. The BLM would grant first priority for receipt of a future authorization, if any, to graze public lands within the 12 allotments to the qualified applicants who hold the associated preference.

2.3.2 Alternative B – Continue Current Use

Twelve permits would authorize 7,602 AUMs on 11 allotments (Table 4, Maps 2a and 2b). Livestock use would not be authorized in the Joost Section 15 Allotment. For the Hammett #1, East Hammett #5, East Bennett Mountain, and Hammett #6 allotments, Alternative B is presented in two parts: use at currently permitted levels (As Permitted) and voluntary management changes (Adjusted Management). The voluntary adjustments are not required, but they are within the terms and conditions of the permit. Permits for six allotments allow the permittee to vary livestock numbers providing the period of use and AUMs are not exceeded. No rangeland management projects would be constructed; however, normal maintenance of existing projects (primarily fences) would occur. General (Appendix 2) terms and conditions would apply to each permit.

Hammett #1 (01033)

The North Pasture of Hammett #1 has no internal fencing (Map 2a). Livestock water sources include accessible portions of West Fork King Hill, Deer, and Little Canyon creeks and nine springs, six of which are developed. The Berry Ranch Pasture is primarily used to temporarily hold animals being moved to and from the North Pasture.

As Permitted

Two 10-year permits would authorize spring (1,917 AUMs) and fall (1,817 AUMs) cattle use (Table 4) resulting in a 5.6 acre/AUM stocking rate. In addition to the mandatory (Table 4) and general (Appendix 2) terms and conditions, specific terms and conditions related to riparian utilization and livestock numbers (Appendix 3) would also apply. Use could occur anywhere in the allotment during the use periods.

Adjusted Management

Livestock grazing management would continue as authorized between 2007 and 2011. Based on average actual use during that period, 868 AUMs would be authorized in the spring and 673 AUMs would be authorized in the fall. This would represent a voluntary annual reduction of 2,193 AUMs. The permittee would use herding to implement a two-year deferred-rotation system. Spring use would occur in the East half in year one and the West half in year two. Fall use would occur on both sides annually and total AUMs available would be split between the two sides. The allotment would be stocked at between 8.4 acres/AUM (East side, combined spring and fall use) and 32.3 acres/AUM (West side, fall use only) annually.

Table 4. Permittee, allotment, and terms and conditions (livestock kind and number, season of use, percent public land, and permitted use) for 12 allotments, Alternative B, Bennett Mountain North, Elmore County, Idaho.

Permittee (Permit No.)	Allotment		Livestock		Season of Use		% PL	Permitted Use (AUMs) [1]			Adjusted Management	
	No.	Name	Kind	No.	Start	End		Active	Sus-pended	Total	Max. No.[2]	Active AUMs
Iron Horse Ranch, LLC (1101651) [3]	01033	Hammett #1	C	609	4/1	6/30	100	1,822	0	3,640	1,191	868
				906	10/1	11/30	100	1,817			1,226	673
	01039	Hammett #7	C	27	7/1	11/30	100	136	0	137	54	137
Casa Del Norte, LP (1102221)	01033	Hammett #1	C	32	4/10	7/9	100	96	0	95		96
Double Anchor Ranch (1101847)	01037	East Hammett #5	C	320	4/10	6/30	100	863	0	1,493	607	852
				314	10/1	11/30	100	630			450	209
	01101	East Bennett Mountain	C	49	7/1	9/30	100	148	0	146	450	146
Owen (1101849)	01038	Hammett #6	C	563	3/27	5/25	76	911	0	912	563	912
Crescent Moon, LLC (1101868)	01039	Hammett #7	C	54	7/1	7/31	100	55	0	66	117	208
				3	6/15	9/15	100	9				
Barber-Caven Ranches (1101603) [3]	01039	Hammett #7	C	117	7/1	9/30	40	142	0	142		
Samuel D. Blackwell (1101784) [2]	01043	South Camas	C	50	7/1	8/15	100	76	0	75	55	75
Tree Top Ranches, LP (1101879) [3]	01044	North Slope	C	29	4/1	11/30	100	233	0	233	131	233
J.D. Aldecoa & Sons, Inc. (1101604)	01091	Camas Creek Field	C	14	6/16	7/31	100	21	0	42	121	42
				6	8/1	11/15	100	21				
Half Moon Ranch (1101633) [3]	01098	North Camas	C	76	7/1	8/15	100	115	0	115	76	115
Faulkner Land & Livestock (1101884) [3]	01195	Hammett Livestock Company	S	800	5/24	7/7	100	237	0	361	800	237
				1,200	10/1	10/15	100	118			1,200	118
L.G. Davison & Sons, Inc. (1101643)	01198	Ballantyne Section 15	C	144	6/1	6/30	100	142	0	144	11	144
Vacant	01199	Joost Section 15	C	NONE				0		40		

[1] The value appearing in the sub-column headed **Active** equals the number of AUMs of forage that would be removed by the specified number of livestock during the permitted season of use (Start to End dates). Active AUMs = # of head X # of months X % PL (Note: 1 AUM = 30.417 days; i.e., the amount of forage required to sustain 1 cow/calf pair or 5 sheep for 1 month). Values in the Total column represent the total Adjudicated AUMs currently held by the permittee (Total AUMs = ∑Active AUMs + Suspended AUMs + Unused AUMs). Unused AUMs represent that portion of a permittee's Active AUMs that cannot be used because the calculated AUMs don't equal the Total AUMs (i.e. L.G. Davison & Sons, Inc. holds 144 Active AUMs in the Ballantyne Allotment; they are authorized to graze 144 head of cattle from 06/01-06/30 (0.986 months), and all of their use is on PL: 144 head X 0.986 months X 100% PL = 141.9AUMs, which rounds off to 142 AUMs, leaving 2 AUMs that cannot be used.)

[2] Maximum number of livestock reported on actual use reports between 1997 and 2013.

[3] Permit has a term and condition that allows flexibility in livestock numbers.

East Hammett #5 (01037) and East Bennett Mountain (01101)
East Hammett #5 has no internal fencing and East Bennett Mountain is divided into three pastures (Map 2a). Livestock water sources include accessible portions of four creeks and nine springs, three of which are developed.

As Permitted
One 10-year permit would authorize spring (863 AUMs) and fall (630 AUMs) cattle use in East Hammett #5 and summer use (148 AUMs) in East Bennett Mountain (Table 4) resulting in 7 acre/AUM and 10.4 acre/AUM stocking rates, respectively. In addition to the mandatory (Table 4) and general (Appendix 2) terms and conditions, specific terms and conditions related to riparian and upland utilization (Appendix 3) would also apply. Use could occur anywhere in the allotments during the use periods.

Adjusted Management
Livestock grazing would continue as authorized between 2007 and 2011. The voluntary nonuse during the fall term and condition (Appendix 3) would apply to East Hammett #5. Based on average actual use from that period, 852 AUMs would be authorized during the spring and 209 AUMs would be authorized during the fall in East Hammett #5 and 125 AUMs would be authorized during the spring or fall in East Bennett Mountain. The permittee would use herding to implement a two-year deferred-rotation system. In year one, the East half of East Hammett #5 would be used in the spring and the West half in the fall. In year two, the West half would be used in the spring and the East half would be used in the fall. Pasture 3 of East Bennett Mountain would be used in conjunction with the West half of East Hammett #5. The allotments would be stocked at 9.9 acres/AUM (East Hammett #5) and 12.1 acres/AUM (East Bennett Mountain).

Hammett #6 (01038)
The allotment is currently divided into six pastures (Map 2a). When the current permit was written, there were four pastures. New pastures were created when fencing was constructed to implement grazing closures related to the 2010 Hot Tea Fire. Livestock water sources include accessible portions of Dive, Thorn, and Willow creeks and two undeveloped springs.

One 10-year permit would authorize 912 AUMs of spring cattle use (Table 4) resulting in a 6.8 acre/AUM stocking rate. Pastures would be used for one to two weeks starting in Pasture 6 (southern end of allotment). Livestock would be moved from south to north as forage availability and conditions allow. Pastures 1 or 2 would be rested annually. This generally corresponds with the current permit where the Lower Pasture (roughly equivalent to current pastures 5 and 6) would be used annually prior to April 13; May use would alternate between the upper pasture of Dive Creek (current pastures 2 and 3) and the next lower pasture containing Willow Creek (current Pasture 4); and use of the pasture west of Dive Creek (current Pasture 1) would occur from May 19 to May 25 annually. In addition to the mandatory (Table 4) and general (Appendix 2) terms and conditions, specific terms and conditions related to pasture use (Appendix 3) would also apply.

Hammett #7 (01039)

Iron Horse Ranch, LLC

One 10-year permit would authorize 137 AUMs of summer-fall cattle use resulting in a 6.2 acre/AUM stocking rate on BLM-administered lands (Table 4). Three pastures (13, 14, and 16) in the southern part of the allotment (Map 2a) could be used anytime during the use period, generally in a deferred rotation system where use in a given pasture occurs after seed ripe one in three years. Between 2000 and 2011, annual actual use averaged 129 AUMs. Two developed springs provide livestock water sources in pastures 13 and 14. In addition to the mandatory (Table 4) and general (Appendix 2) terms and conditions, specific terms and conditions related to livestock numbers (Appendix 3) would also apply.

Barber-Caven Ranches/Crescent Moon, LLC

Two 10-year permits would authorize 208 AUMs of late spring-summer use resulting in a 6.3 acre/AUM stocking rate on BLM-administered lands (Table 4). Three pastures (7, 10, and 17) in the western part of the allotment (Map 2a) could be used anytime during the use period. Between 2000 and 2011, annual actual use averaged 192 AUMs. Three streams (one perennial and two intermittent) provide livestock water sources in pastures 7 and 10. In addition to the mandatory (Table 4) and general (Appendix 2) terms and conditions, specific terms and conditions related to livestock numbers and riparian and upland utilization (Appendix 3) would also apply.

South Camas (01043)

One 10-year permit would authorize 75 AUMs of summer cattle use (Table 4) resulting in a 12.8 acre/AUM stocking rate on BLM-administered lands. The allotment consists of one pasture (Map 2a). Between 2000 and 2011, annual actual use averaged 60 AUMs. Little Canyon Creek, a water gap on an un-named tributary of Sheep Creek, and three stock ponds (one of which is non-functioning) provide livestock water sources on BLM-administered lands. The permit would be used in conjunction with a USFS permit for the South Little Camas Allotment which is not separated from BLM-administered lands. In addition to the mandatory (Table 4) and general (Appendix 2) terms and conditions, a specific term and condition related to the associated USFS grazing permit and maximum livestock numbers (Appendix 3) would also apply. The current USFS permit (Casa Del Norte) terms and conditions for kind, number, and season of use are the same as the BLM permit.

North Slope (01044)

One 10-year permit would authorize 233 AUMs of spring-fall cattle use (Table 4) resulting in a 3.8 acre/AUM stocking rate. The allotment consists of three pastures (Map 2a) that could be used anytime during the use period. Between 2000 and 2011, annual actual use averaged 71 AUMs. Bennett and Dive creeks provide livestock water sources on BLM-administered lands. In addition to the mandatory (Table 4) and general (Appendix 2) terms and conditions, specific terms and conditions related to maximum livestock numbers and riparian and upland utilization (Appendix 3) would also apply.

Camas Creek Field (01091)

One 10-year permit would authorize 42 AUMs of late spring-fall cattle use (Table 4) resulting in a 4.5 acre/AUM stocking rate. The allotment consists of three pastures (including one with no

BLM-administered lands; Map 2a) that could be used anytime during the use period, generally in conformance with USFS annual operating instructions (AOI). Between 2000 and 2011, the permittee used Pasture 2 for approximately one month, and then moved to Pasture 1 for the remainder of the use period, averaging 34 AUMs annually. There are no livestock water sources on BLM-administered lands. The permit would be used in conjunction with a USFS permit for the Cat Creek Allotment which is not separated from BLM-administered lands in Pasture 1. In addition to the mandatory (Table 4) and general (Appendix 2) terms and conditions, a specific term and condition related to livestock numbers (Appendix 3) would also apply. The current USFS permit (Tree Top Ranches) terms and conditions for kind, number, and season of use is as follows: 146 (260 maximum) cattle from June 16 through July 15 and November 1 through November 10 and 63 (110 maximum) yearlings from June 16 through October 31.

North Camas (01098)
One 10-year permit would authorize 115 AUMs of summer cattle use (Table 4) resulting in a 4.9 acre/AUM stocking rate. The allotment consists of two pastures (Map 2a) that could be used anytime during the use period, generally in conformance with USFS AOI. One developed spring and one undeveloped spring provide livestock water on BLM-administered lands in Pasture 2. The permit would be used in conjunction with a USFS permit for the North Little Camas Allotment which is not separated from BLM-administered lands. In addition to the mandatory (Table 4) and general (Appendix 2) terms and conditions, a specific term and condition related to livestock numbers (Appendix 3) would also apply. The current USFS permit (Half Moon Ranch) terms and conditions for kind, number, and season of use is as follows: 55 (127 maximum) cattle from July 1 through August 15.

Hammett Livestock Company (01195)
One 10-year permit would authorize 361 AUMs of spring and fall sheep use (Table 4) resulting in a 12.9 acre/AUM stocking rate. The allotment consists of five unfenced pastures (Map 2b) that could be used anytime during the use period. Between 2000 and 2011, the permittee moved 3-5 bands through pastures 1 (5-8 days) and 2 and 5 (2-4 days) for an average of 190 AUMs during the spring. During the fall, 2-3 bands were moved through pastures 1 (3-7 days), 2 and 5 (1-2 days), and 3 and 4 (1 day) for an average of 98 AUMs. One perennial and six intermittent streams provide livestock water on BLM-administered lands. In addition to the mandatory (Table 4) and general (Appendix 2) terms and conditions, specific terms and conditions related to maximum livestock numbers, sheep camp and bedding ground management, and riparian and upland utilization (Appendix 3) would also apply.

Ballantyne Section 15 (01198)
One 10-year permit would authorize 144 AUMs of spring cattle use (Table 4) resulting in a 5 acre/AUM stocking rate. The allotment consists of one pasture (Map 2b). Three intermittent streams provide livestock water on BLM-administered lands. The permit would be used in conjunction with a USFS permit for the Lester Creek Allotment which is not separated from BLM-administered lands. In addition to the mandatory (Table 4) and general (Appendix 2) terms and conditions, specific terms and conditions related permit administration (Appendix 3) would also apply. The current USFS permit (L. G. Davison & Sons, Inc.) terms and conditions for kind, number, and season of use is as follows: 164 cattle from July 1 through October 31.

Joost Section 15 (01199)
Livestock use would not be authorized for a 10-year period.

2.3.3 Alternative C – Permittee Application

Seven permits would authorize 5,447 AUMs of active use annually on 12 allotments (Table 5, Maps 3a and 3b). Four projects (two spring developments, up to 7.9 miles of fence) would be constructed and seven projects (six developed springs, one pond) would be maintained (Table 6, Map 3a, Appendix 6). All fencing would be constructed to wildlife specifications (USDI 1989, USDI 2011). Normal maintenance of existing projects (primarily fences) would occur, during which they would be modified to meet wildlife standards.

For allotments where current grazing management was a significant factor in not meeting standards (Hammett #1, East Hammett #5, Hammett #7, and North Camas), BLM staff worked with permittees to develop applications that would address resource issues and help make progress toward meeting standards. Although permit modifications were not necessary for allotments that were not meeting standards for reasons other than current grazing management (Hammett #6 and East Bennett Mountain), BLM staff worked with permittees to develop applications that would maintain or improve resource conditions and not adversely affect recovery.

For allotments that were meeting standards (South Camas, North Slope, Camas Creek Field, Hammett Livestock Company, and Ballantyne Section 15), permittee applications reflect changes to meet operational needs or to accommodate exchange of use for USFS and/or private lands. The percent public land (based on the per-acre forage production) would be changed to reflect other ownerships; consequently, the permitted number of livestock would also change. This would be an administrative change, not a change in the actual livestock numbers in an allotment when all ownerships are considered.

Maximum numbers of livestock would be set for each allotment. The numbers would increase relative to Alternative B to: 1) conform with livestock numbers on USFS permits (South Camas, Camas Creek Field, and Ballantyne Section 15); 2) reflect the total number of animals that could be in an allotment when all ownerships are considered (South Hammett #7, West Hammett #7, East Bennett Mountain, and North Slope); or 3) provide flexibility to allow more animals for a shorter period of time as long as AUMs are not exceeded (Hammett #1, East Hammett #5, Hammett #6, and Hammett Livestock Company).

Four permittees requested after-the-fact billing (Table 5). Grazing preference would be transferred from one entity to another in the South Camas, Camas Creek Field, and Hammett Livestock Company allotments.

Table 5. Permittee, allotment, and terms and conditions (livestock kind and number, season of use, percent public land, and permitted use) for 12 allotments, Alternative C, Bennett Mountain North, Elmore County, Idaho.

Permittee	Allotment				Livestock			Season of Use		% PL	Permitted Use (AUMs)		
	No.	Name			Kind	No.	Max No.[1]	Start	End		Active	Suspended	Total
Casa Del Norte[2]	01033	Hammett #1	Even Year	East	C	531	750	5/1	7/1	97	1,050	1,635	3,735
				West		531	750	9/30	11/30	97	1,050		
			Odd Year	West	C	531	750	5/1	7/1	97	1,050		
				East		531	750	9/30	11/30	97	1,050		
	01039	South Hammett #7			C	23	750	6/1	11/30	100	137	0	137
Double Anchor Ranch[2]	01037	Hammett #5	Even Year	West	C	201	600	4/15	8/1	59	425	508	1,629
				East		309	600	9/15	11/30	89	696		
			Odd Year	East	C	218	600	4/15	8/1	89	695		
				West		285	600	9/15	11/30	59	426		
	01101	East Bennett Mountain			C	10	600	8/1	8/31	100	10	0	10
Owen[2]	01038	Hammett #6			C	275	550	3/1	7/1	82	912	0	912
Half Moon Ranch[2]	TBD	West Hammett #7			C	174	455	7/1	10/15	34	208	0	208
	01098	North Camas			C	177	177	7/1	8/15	43	115	0	115
Samuel D. Blackwell[3, 4]	01043	South Camas			C	53	55	7/1	9/30	47	75	0	75
Tree Top Ranches, LP	01044	North Slope			C	29	360	Same as Alternative B.					
J.D. Aldecoa and Sons, Inc. [3, 4]	01091	Camas Creek Field			C	200	200	6/16	8/1	5	15	0	42
						156	200	7/25	10/31	5	25		
						200	200	11/1	11/5	5	2		
Goodtime Association[3]	01195	Hammett Livestock Co.			S	435	2,000	6/15	11/1	100	400	0	401
L.G. Davison & Sons, Inc.	01198	Ballantyne Section 15			C	164	164	7/1	10/31	14	94	50	144

[1] Maximum number of livestock that could use the allotment at any time as long as season of use dates and AUMs are not exceeded.
[2] Requested after-the-fact billing.
[3] Grazing Preference Transfer
[4] Mandatory terms and conditions reflect application made by the permittee listed.

Table 6. Proposed rangeland management projects, Alternatives C and D, Bennett Mountain North, Elmore County, Idaho.

Allotment	Project Name	Description	Location	Status[1]	Alt C	Alt D
Hammett # 1 (01033)	South Twin Deer Spring	Remove & replace old stock water system, install new head box, piping, & trough. Trough would be moved up to 100' from current location to provide buffer from wetland area.	03 S 10 E Sec. 21 SWNE	E	X	X
	Ground Hog Spring	Remove & replace old stock water system, install new head box, piping, & trough.	03 S 11 E Sec. 30 SENW	E	X	X
	Muddy Spring	Remove & replace old stock water system, install new head box, piping, & trough. Trough would be moved up to 100' from current location to provide buffer from wetland area..	04 S 10 E Sec. 03 NENW	E	X	X
	Spring Exclosures	Electric fencing would be put around wetlands associated with South Twin Deer (~0.3 miles), Ground Hog (~0.5 miles), Twin (~0.4 miles), and Muddy (~0.4 miles) springs during use periods. Wires would be removed during non-use periods. Posts would be perch-proof.	03 S 10 E Sec. 21 SWNE 03 S 11 E Sec. 30 SENW 04 S 10 E Sec. 03 NENW	N		X
	01033 Division Fence	Construct two drift fences (approximately 4.8 miles total) from existing allotment boundary fences to rim rock on West Fork King Hill Creek. Fences would create two pastures to facilitate deferred rotation grazing system.	03 S 10 E Sec 36 and 03 S 10 E Sec. 10 & 14	N	X	
South Hammett #7 (01039)	North Bourbon Spring	Remove & replace old stock water system, install new head box, piping, & trough.	03 S 10 E Sec 02 SWSE	E	X	
Hammett #5 (01037)	Craster Spring	Develop spring with head box, piping, and trough.	02 S 09 E Sec. 34 SENW	N	X	
	Section 5 Spring	Develop spring with head box, piping, and trough.	03 S 09 E Sec. 05 SWSE	N	X	
	Section 20 Spring	Clean and repair or replace head box and piping. Replace trough.	03 S 09 E Sec. 20 SESE	E	X	X
	Section 22 Spring	Remove & replace old stock water system, install new head box, piping, & trough.	03 S 09 E Sec. 22 NENE	E	X	X
	Pasture Division Fence	Construct up to 3.1 miles of gap fencing at all locations where livestock could traverse between pastures to ensure rotation system could be effectively implemented. Fencing would be let down 12/1-4/14.	02 S 09 E Sec. 32 03 S 09 E Sec. 05, 16, & 21	N	X	
South Camas (01043)	Section 24 Pond	Reconstruct/improve existing pond.	02 S 09 E Sec. 24 SWNE	E	X	X
North Camas (01098)	Sackrider Spring	Construct up to 0.25 miles of fence to create up to a 5-acre exclosure to reduce impacts on the spring and aspen stand.	02 S 10 E Sec. 18 NWSW	N		X

[1] E = existing project, N = new project. Appendix 6 provides more specific details for spring maintenance and development.
[2] Project would be analyzed in separate NEPA document. Changes in livestock management to accommodate the vegetation treatment objectives will be analyzed in this EA.

Hammett #1 (01033) and South Hammett #7 (01039)
Hammett #7 would be divided into the South Hammett #7 (01039) and West Hammett #7 (TBD) allotments (Map 3a). The existing permits that affect the Hammett #1 and South Hammett #7 allotments would be combined into one permit. To address rangeland health issues (including sage-grouse and riparian habitat), upland vegetation and riparian resources in Hammett #1 and the Blackhawk Pasture (4) of South Hammett #7 would be monitored to determine vegetation responses to grazing management. If objectives for upland vegetation, riparian areas, and wildlife (Appendix 7) are not being met at the end of five years, then Alternative D would be implemented. Conversely, if significant upward trends in effectiveness objectives occur, reinstatement of some suspended AUMs could be considered. In addition to the mandatory (Table 5) and general (Appendix 4) terms and conditions, specific terms and conditions related to the grazing system, annual use coordination, livestock numbers, and effectiveness objectives (Appendix 5) would also apply.

Hammett #1
The application was developed to provide periodic deferment during the spring to maintain or improve perennial grass cover and sage-grouse nesting and brood-rearing habitat. The 10-year permit would authorize spring (1,050 AUMs) and fall (1,050 AUMs) cattle use (Table 5) resulting in a 9.7 acre/AUM (East Pasture) to 10.4 acre/AUM (West Pasture) stocking rate. The remaining AUMs from the current permit (1,635 AUMs) would be suspended. Approximately 4.8 miles of fencing would be constructed in the King Hill Creek WSA to divide the current North Pasture into two pastures (Table 6; Map 3a), which would reduce operational needs (i.e., herding) to implement the grazing system and control livestock stream access. Use in a particular pasture would alternate between spring and fall on a two year rotation. Up to 750 animals could be present at any one time; however, the active AUMs would not be exceeded. Three spring developments would be maintained (replace existing materials as needed, in place; Table 6; Map 3a, Appendix 6).

South Hammett #7
The 10-year permit would authorize 137 AUMs of late spring-fall cattle use resulting in a 6.2 acre/AUM stocking rate on BLM-administered lands (Table 5). As with Alternative B, the allotment would consist of three pastures (1, 2, and 4; Map 3a); however, use in the Blackhawk Pasture (4) would occur after seed-ripe in two of three years. Pastures 1 and 2 could be used anytime during the use period. Up to 750 animals could be present at any time in the allotment; however, the active AUMs would not be exceeded. One developed spring would be maintained (replace existing materials as needed, in place; Table 6, Map 3a, Appendix 6). The percent of BLM-administered land and livestock numbers would be modified to address exchange of use.

Hammett #5 (01037) and East Bennett Mountain (01101)
East Hammett #5 (01037) and Pasture 3 of East Bennett Mountain (01101) would be combined to form Hammett #5 (01037; Map 3a). Pasture 2 of the current East Bennett Mountain Allotment would become East Bennett Mountain Allotment (01101) and Pasture 1 (all private) would not be part of the allotment. As with Alternative B, one permit would cover both allotments. To address rangeland health issues (including sage-grouse and riparian habitat), upland vegetation and riparian resources in Hammett #5 would be monitored to determine vegetation responses to grazing management. If effectiveness objectives (Appendix 7) are not

being met at the end of five years, then Alternative D would be implemented. Conversely, if significant upward trends in effectiveness objectives occur, reinstatement of some suspended AUMs could be considered. In addition to the mandatory (Table 5) and general (Appendix 4) terms and conditions, specific terms and conditions related to the grazing system (Hammett #5), annual use coordination (Hammett #5), livestock numbers, and effectiveness objectives (Hammett #5, Appendix 5) would also apply. The percent of BLM-administered land and livestock numbers would be modified to address exchange of use.

Hammett #5

The application was developed to provide periodic deferment during the spring to maintain or improve perennial grass cover and sage-grouse nesting and brood-rearing habitat. The 10-year permit would authorize 1,121 AUMs of spring and fall cattle use (Table 5) resulting in a 10.7 acre/AUM stocking rate. Up to 3.1 miles of let-down fencing would be constructed to divide the allotment into three pastures, two of which would be used concurrently (pastures 1 and 2; Table 6; Map 3a), which would limit operational needs (i.e., herding) to implement the grazing system and control livestock stream access. Because the amount of BLM-administered lands within the East and West pastures would not be equal, the permitted AUMs available for the spring and fall use periods would vary from year to year. The remaining AUMs from the current permit (508 AUMs) would be suspended. Use in a particular pasture (1 and 2 or 3) would alternate between spring and fall on a two year rotation. Two spring developments would be maintained (replace existing materials as needed, in place) and two springs would be developed to provide livestock water (Table 6; Map 3a, Appendix 6).

East Bennett Mountain

The 10-year permit would authorize 10 AUMs of summer cattle use (Table 5) resulting in a 5.5 acre/AUM stocking rate. Use could occur outside the designated period providing the authorized AUMs are not exceeded and the maximum number of livestock does not exceed 600 head at any one time.

Hammett #6 (01038)

The application was developed to provide periodic deferment to maintain or improve perennial grass cover. A 10-year permit would authorize 912 AUMs of late winter-spring use (Table 5) resulting in a 6.8 acre/AUM stocking rate. The allotment would be comprised of six pastures (Map 3a). In pastures 1-4, a deferred rotation system would be implemented. The pastures in total would be used for 30-45 days between May 1 and July 1; however, in a given pasture, no use would occur during the soft boot to seed dissemination period for grasses one in four years. Pastures 5 and 6 would be used annually between March 1 and April 30. No rangeland management projects would be constructed. To insure native perennial grasses and forbs are maintained or increase, upland vegetation would be monitored to determine vegetation responses to grazing management. If effectiveness objectives (Appendix 7) are not being met at the end of five years, then Alternative D would be implemented. In addition to the mandatory (Table 5) and general (Appendix 4) terms and conditions, specific terms and conditions related to the grazing system, annual use coordination, livestock numbers, and effectiveness objectives (Appendix 5) would also apply.

West Hammett #7 (TBD) and North Camas (01098)
Hammett #7 would be divided into the South Hammett #7 (01039) and West Hammett #7 (TBD) allotments (Map 3a). The three existing permits that affect the West Hammett #7 and North Camas allotments would be combined into one permit. No rangeland management projects would be constructed. If effectiveness objectives for upland vegetation in West Hammett #7 (Appendix 7) are not being met at the end of five years, then additional measures would be implemented to address livestock distribution issues. In addition to the mandatory (Table 5) and general (Appendix 4) terms and conditions, specific terms and conditions related to livestock numbers and effectiveness objectives (West Hammett #7), (Appendix 5) would also apply. The percent of BLM-administered land and livestock numbers would be modified to address exchange of use.

West Hammett #7
The 10-year permit would authorize 208 AUMs of summer-early fall use resulting in a 6.3 acre/AUM stocking rate on BLM-administered lands (Table 5). As with Alternative B, the allotment would consist of three pastures (1, 2, and 3; Map 3a) that could be used anytime during the use period. Locations of salt/supplement sites would be modified to reduce livestock trailing in or adjacent to active gullies.

North Camas
The 10-year permit would authorize 115 AUMs of summer cattle use resulting in a 4.9 acre/AUM stocking rate.

South Camas (01043)
A 10-year permit would authorize 75 AUMs of summer cattle use (Table 5) resulting in a 12.8 acre/AUM stocking rate on BLM-administered lands. The permit would be used in conjunction with a USFS permit for the South Little Camas Allotment which is not separated from BLM-administered lands. The percent of BLM-administered land and livestock numbers would be modified to authorize exchange of use. Relative to Alternative B the end date would extend to September 30 to conform to the USFS South Little Camas Allotment permit (63 AUMs; 8.7 acres/AUM). A non-functioning stock pond would be reconstructed within the existing footprint (Table 6). In addition to the mandatory (Table 5) and general (Appendix 4) terms and conditions, a specific term and condition related to livestock numbers (Appendix 5) would also apply.

North Slope (01044)
A 10-year permit would authorize 233 AUMs of spring-fall cattle use as described in Alternative B. A specific term and condition related to maximum livestock numbers (Appendix 5) would also apply.

Camas Creek Field (01091)
The Camas Creek Field Allotment boundary would be expanded to include the USFS Cat Creek C&H Allotment. A 10-year permit would authorize 42 AUMs of late spring-fall cattle use (Table 5) resulting in a 4.5 acre/AUM stocking rate on BLM-administered lands. The percent of BLM-administered land and livestock numbers would be modified to authorize exchange of use. Relative to Alternative B, the end date would be 10 days earlier (November 5) to conform to the

USFS permit (342 AUMs; 5.8 acres/AUM). The allotment would consist of three pastures (including one with no BLM-administered lands) that would be used generally in conformance with USFS AOI (Map 3a). No rangeland management projects would be constructed. In addition to the mandatory (Table 5) and general (Appendix 4) terms and conditions, a specific term and condition related to maximum livestock numbers (Appendix 5) would also apply.

Hammett Livestock Company (01195) and Joost Section 15
The Faulkner Land and Livestock Company application for a Section 3 lease for 40 AUMs of grazing use in Joost Section 15 (01199) would be approved, the class of livestock would be changed from cattle to sheep, and the allotment would become a pasture in the Hammett Livestock Company Allotment (01195). A 10-year permit would authorize 401 AUMs of late spring-fall sheep use (Table 5) resulting in a 12.6 acre/AUM stocking rate. Grazing preference would be transferred from Faulkner Land and Livestock Company to Good Time Grazing Association. The allotment would consist of five unfenced pastures (Map 3b). Annual use would be coordinated and would generally be similar to Alternative B. In addition to the mandatory (Table 5) and general (Appendix 4) terms and conditions, specific terms and conditions related to maximum livestock numbers and sheep camp and bedding ground management (Appendix 5) would also apply.

Ballantyne Section 15 (01198)
The allotment boundary would be modified to include the USFS Lester Creek Allotment (Map 3b). A 10-year permit would authorize 94 AUMs of summer-fall cattle use (Table 5) resulting in a 7.7 acre/AUM stocking rate on BLM-administered lands. The remaining AUMs from the current permit (50 AUMs) would be suspended. The percent of BLM-administered land and livestock numbers would be modified to authorize exchange of use. Relative to Alternative B, the use dates would be July 1 through October 31 to conform to the USFS permit (511 AUMs; 10 acres/AUM). The allotment would consist of two pastures (including one with no BLM-administered lands) would be used in conformance with USFS AOI (Map 3b). In addition to the mandatory (Table 5) and general (Appendix 4) terms and conditions, a specific term and condition related to livestock numbers (Appendix 5) would also apply.

2.3.4 Alternative D – BLM Proposal
Eight permits would authorize between 2,736 and 4,635 AUMs of active use annually on 13 allotments (Table 7, Maps 4a and 4b). Lower stocking rates (than alternatives B or C) and/or grazing systems with rest would be implemented on allotments not meeting standards 1 and 4. Four spring exclosures (three temporary and one permanent) would be constructed and six projects (five developed springs, one pond) would be maintained (Table 6, Map 4a). Normal maintenance of existing projects (primarily fences) would occur. Existing fences would be brought into compliance with wildlife design standards.

For allotments where current grazing management was a significant factor in not meeting standards and/or BLM staff had concerns about the potential for the permittee application (Alternative C) to address identified issues (Hammett #1, East Hammett #5, East Bennett Mountain, Hammett #6, Hammett #7, and North Camas), BLM developed alternatives that would address resource issues and help make progress toward meeting standards. An alternative was not developed for allotments that were meeting standards and the permittee application

would not substantively change livestock impacts (South Camas, North Slope, Camas Creek Field, Hammett Livestock Company, and Ballantyne Section 15). A separate application for Joost Section 15 was also considered, as submitted, in this alternative. After-the fact-billing and grazing preference transfers would be as described in Alternative C.

Hammett #1 (01033) and South Hammett #7 (01039)

Hammett #7 would be divided into two allotments – South Hammett #7 (01039) and West Hammett #7 (TBD). The existing permits that affect the Hammett #1 and South Hammett #7 allotments would be combined into one permit. Watershed, upland vegetation, riparian, and sage-grouse issues would be addressed by reducing stocking rates and implementing a grazing system that periodically defers use until after the perennial grass growth period and sage-grouse nesting and brood-rearing seasons. In addition to the mandatory (Table 7) and general (Appendix 4) terms and conditions, specific terms and conditions related to the grazing system, annual use coordination, and livestock numbers (Appendix 8) would also apply.

Hammett #1

The 10-year permit would authorize 1,575 AUMs of cattle use (Table 7) resulting in a 13.4 acre/AUM stocking rate. The remaining AUMs from the current permit (2,160 AUMs) would be suspended. A spring (year 1)/fall (year 2)/rest (year 3) grazing system would be implemented in the entire allotment. Three developed springs would be maintained or modified as described in Alternative C and temporary exclosures would be placed around the associated wetlands when livestock are present (Table 6; Map 4a, Appendix 6). Non-motorized methods would be used to construct and maintain the temporary exclosures in the King Hill Creek WSA. No vegetation alteration or removal would occur when placing the temporary fencing.

South Hammett #7

The 10-year permit would authorize 137 AUMs of late spring-fall cattle use resulting in a 6.2 acre/AUM stocking rate on BLM-administered lands (Table 7). As with Alternative C, the allotment would consist of three pastures (1, 2, and 4; Map 4a); however, use in the Blackhawk Pasture (4) would only occur after seed-ripe (August 15 through November 30). Pastures 1 and 2 would be used anytime during the use period, provided AUMs are not exceeded and unacceptable impacts to public land resources do not occur. Up to 500 animals could be present at any one time in the pasture; however, the active AUMs would not be exceeded. No rangeland management projects would be constructed. The percent of BLM-administered land and livestock numbers would be modified to address exchange of use.

Table 7. Permittee, allotment, and terms and conditions (livestock kind and number, season of use, percent public land, and permitted use) for 13 allotments, Alternative D, Bennett Mountain North, Elmore County, Idaho.

Permittee	Allotment				Livestock			Season of Use		% PL	Permitted Use (AUMs)		
	No.	Name			Kind	No.	Max No.[1]	Start	End		Active	Suspended	Total
Casa Del Norte[2]	01033	Hammett #1	Year 1		C	796	796	5/1	7/1	97	1,574	2,161	3,735
			Year 2			796	796	9/30	11/30	97			
			Year 3			0	0	REST			0		
	01039	South Hammett #7	Black Hawk		C	33	500	8/15	11/30	100	117	0	137
			Long Draw			4	500	7/1	11/30	100	20		
			West Fork										
Double Anchor Ranch[2]	01037	Hammett #5[5]	Odd Year	West	C	187	345	4/15	8/1	55	369	652	1,629
				East		276	345	9/15	11/30	87	608		
			Even Year	East	C	195	345	4/15	8/1	87	608		
				West		265	345	9/15	11/30	55	369		
	01101	East Bennett Mountain			Same as Alternative C.								
Owen[2]	01038	Hammett #6[6]	Year 1		C	159	255	3/1	7/1	82	527	385	912
			Year 2			162					637	275	
			Year 3			172					570	342	
			Year 4			122					405	507	
			Year 5			232					769	143	
			Year 6			134					444	468	
Half Moon Ranch[2]	TBD	West Hammett #7			Same as Alternative C.								
	01098	North Camas			Same as Alternative C.								
Samuel D. Blackwell[3, 4]	01043	South Camas			Same as Alternative C.								
Tree Top Ranches, LP	01044	North Slope			Same as Alternative B.								
J.D. Aldecoa and Sons, Inc.[3, 4]	01091	Camas Creek Field			Same as Alternative C.								
Goodtime Association[3]	01195	Hammett Livestock Co.			Same as Alternative C.								
Joost, Dennis/Debra	01199	Joost Section 15			C	20	20	6/15	8/14	100	40	0	40
L.G. Davison & Sons, Inc.	01198	Ballantyne Section 15			Same as Alternative C.								

[1] Maximum number of livestock that could use the allotment at any time as long as season of use dates and AUMs are not exceeded.
[2] Requested after-the-fact billing.
[3] Grazing Preference Transfer
[4] Mandatory terms and conditions reflect application made by the permittee listed.
[5] No fencing would be built; herding would be used to ensure animals followed rotation.
[6] Pastures 1 and 3 would be run together and rotated with Pasture 2 with one year of use followed by a year of rest. Pastures 4 and 6 would each be rested one in three years. See Appendix 8 for more details.

Hammett #5 (01037) and East Bennett Mountain (01101)
The reconfiguration of allotments would be as described in Alternative C (Map 4a) and one permit would cover both allotments. Watershed, upland vegetation, riparian, and sage-grouse issues in Hammett #5 would be addressed by reducing the stocking rate and implementing a system that periodically defers use until after the perennial grass growth period and sage-grouse nesting and brood-rearing seasons. In addition to the mandatory (Table 7) and general (Appendix 4) terms and conditions, specific terms and conditions related to the grazing system, annual use coordination, and livestock numbers (Appendix 8) would also apply.

Hammett #5
The 10-year permit would authorize 977 AUMs of spring and fall cattle use (Table 7) resulting in a 12.2 acre/AUM stocking rate. The permittee would be required to use herding to restrict animals to designated west and east use areas (pastures 1/2 and 3; Map 4a). If Alternative D is implemented in year 6 because objectives for Alternative C were not met, the fence between pastures 2 and 3 would be removed. Because the amount of BLM-administered lands within the two use areas would not be equal, the permitted AUMs available for the spring and fall use periods would vary from year to year. The remaining AUMs from the current permit (652 AUMs) would be suspended. Use in a particular use area would alternate between spring and fall on a two year rotation. Two spring developments would be maintained (replace existing materials as needed, in place; Table 6; Map 4a, Appendix 6).

East Bennett Mountain
The 10-year permit (Table 7) would be as described in Alternative C.

Hammett #6 (01038)
A 10-year permit would authorize 769AUMs of late winter-spring use (Table 7) resulting in a 6.8 acre/AUM stocking rate. The allotment would be comprised of six pastures (Map 4a). Watershed, upland vegetation, and sage-grouse issues would be addressed by implementing a system that provides periodic rest during the perennial grass growth period and sage-grouse nesting and brood-rearing seasons. A six-year rest-rotation system would be implemented (Appendix 8). Pastures 1-3 would be rested every other year, pastures 4 and 6 would be rested every third year, and pasture 5, which is primarily State land, would be used annually. Because the acreage available for use would vary annually based on the authorized pastures, annually authorizations would vary from 405 AUMs to 769 AUMs (Table 7). No rangeland management projects would be constructed. In addition to the mandatory (Table 7) and general (Appendix 4) terms and conditions, specific terms and conditions related to the grazing system, annual use coordination, and livestock numbers (Appendix 8) would also apply.

West Hammett #7 (TBD) and North Camas (01098)
A 10-year permit would authorize 323 AUMs of summer-early fall cattle use as described in Alternative C. An exclosure would be constructed around Sackrider Spring to address livestock impacts to the spring's functioning condition (Table 6, Map 4a). Salt and/or supplement sites would be placed to minimize annual trailing associated with active gullies.

South Camas (01043)
As described in Alternative C, a 10-year permit would authorize 75 AUMs of summer cattle use and a non-functioning stock pond would be reconstructed.

North Slope (01044)
A 10-year permit would authorize 233 AUMs of spring-fall cattle use as described in Alternative B.

Camas Creek Field (01091)
A 10-year permit would authorize 42 AUMs of late spring-fall cattle use as described in Alternative C.

Hammett Livestock Company (01195)
A 10-year permit would authorize 361 AUMs of late spring-fall use as described in Alternative C; however, the authorization would not cover use in the Joost Section 15 Allotment (Map 4b).

Ballantyne Section 15 (01198)
A 10-year permit would authorize 94 AUMs of summer-fall cattle use as described in Alternative C.

Joost Section 15 (01199)
One of two Joost family applications for a Section 3 lease for 40 AUMs of late spring-summer cattle use would be approved (Table 7). No rangeland management projects would be constructed (Map 4b). Mandatory (Table 7) and general (Appendix 4) terms and conditions would apply.

2.4 Comparison of Alternatives

Use periods and stocking rates are the primary terms and conditions that vary between alternatives (Table 8). They are also important determinants in how livestock grazing affects a variety of resources and will be discussed in depth in Section 3.0.

Table 8. Comparison of use periods and stocking rates by allotment for twelve allotments in the Bennett Mountain MA, Elmore County, Idaho.

Allotment		Alternative B				Alternative C				Alternative D			
No.	**Name**	**Use Period**	**BLM Acres**	**AUMs**	**Ac/ AUMs**	**Use Period**	**BLM Acres**	**AUMs**	**Ac/ AUMs**	**Use Period**	**BLM Acres**	**AUMs**	**Ac/ AUMs**
01033	Hammett #1[1]	4/1–6/30 10/1-11/30	21,048	3,736 (1,541)	5.6 (8.4-32.3)[1]	5/1-7/1 9/30-11/30	21,048	2,100	9.7 (E) 10.4 (W)	5/1-7/1 9/30-11/30	21,048	1,575	13.4
01039	Hammett #7 (S)	7/1-11/30	835	137	6.1	6/1-11/30	Same as Alternative B			8/15-11/30 7/1-11/30	Same as Alternative B		
01037	East Hammett #5[2]	4/10-6/30 10/1-11/30	10,471	1,493 (1,061)	7.0 (9.9)	4/15-8/1 9/15-11/30	11,443	1,121	10.6 (E), 10.7 (W)	4/15-8/1 9/15-11/30	11,443	977	12.2 (E), 12.2 (W)
01101	East Bennett Mountain[3]	7/1-9/30	1,512	146 (125)	10.4 (12.1)	8/1-8/31	55	10	5.5	Same as Alternative C			
01038	Hammett #6	3/27-5/25	6,177	912	6.8	3/1-7/1	6,177	912	6.8	3/1-7/1	2,732-5,172	405-769	6.8
01039	Hammett #7 (W)	6/15-9/15	1,286	208	6.2	7/1-10/15	Same as Alternative B			Same as Alternative C			
01043	South Camas	7/1-8/15	962	75	12.8	7/1-9/30	Same as Alternative B			Same as Alternative C			
01044	North Slope	4/1-11/30	896	233	3.8	Same as Alternative B							
01091	Camas Creek Field	6/16-7/31 8/15-11/15	190	42	4.5	6/16-11/5	Same as Alternative B			Same as Alternative C			
01098	North Camas	7/1-8/15	558	115	4.9	7/1-8/15	Same as Alternative B			Same as Alternative C			
01195	Hammett Livestock Co.	5/24-7/7 10/1-10/15	4,659	361	12.9	6/15-11/1	Same as Alternative B			Same as Alternative C			
01198	Ballantyne Section 15	6/1-6/30	723	144	5.0	7/1-10/31	723	94	7.7	Same as Alternative C			
01199	Joost Section 15		399	0		6/15-11/1	399	40	10.0	6/15-8/14	Same as Alternative C		

[1] For Alternative B, adjusted management values are shown in parentheses. Acreage figures apply to the North Pasture in Alternative B and the division of the North Pasture into East and West pastures in alternatives C and D. When a pasture receives both spring and fall use (approximately 1,205 AUMs, assuming fall use is evenly split), the ac/AUM rating would be 8.4 (East Pasture) or 9.0 (West Pasture). When a pasture receives only fall use (approximately 337 AUMs), the ac/AUM rating would be 30.2 (East Pasture) or 32.3 (West Pasture).

[2] For Alternative B, adjusted management values are shown in parentheses. Hammett #5 in alternatives C and D, which includes all of East Hammett #5 and portions of East Bennett Mountain.

[3] For Alternative B, adjusted management values are shown in parentheses. Alternatives C and D is the new East Bennett Mountain Allotment configuration.

3.0 Affected Environment and Environmental Consequences

The sections below describe the resources and uses affected by the alternatives described in Section 2.3. Each section is organized as follows:

- *Affected Environment:* Describes the current condition of the affected resource or use.
- *Environmental Consequences:* Describes direct and indirect impacts to the resource or use.
  - *General Description of Impacts:* Describes the general types of impacts that could result from the proposed actions.
  - *Comparison of Impacts:* Compares impacts to resource/use indicators under each alternative.
  - *Alternatives A-D:* Provides the context and intensity of the direct and indirect impacts (i.e., general description of impacts) of each alternative.
- *Cumulative Impacts:* Describes the cumulative impacts to the resource or use.
  - *Scope of Analysis:* Describes the geographic and temporal scope for each cumulative impacts analysis.
  - *Current Conditions and Effects of Foreseeable Future Actions:* Describes current conditions and past, present, and reasonably foreseeable future actions affecting the resource or use.
  - *Alternatives A-D:* Describes cumulative impacts under each alternative.

Type and magnitude of effects (impacts) are identified and quantified to the extent practicable. When measures cannot be quantified, a qualitative narrative, based on the expertise of an appropriate resource specialist and available science, is presented.

Impacts are considered modifications to the environment brought about by management actions. This section describes the direction, extent, and duration – which are defined in a broad sense below – of identified impacts. Interpretations of these terms may be more specific or vary slightly depending upon the resource or resource use, but will be spelled out in the analysis assumptions for each resource/resource use. Impacts can vary in effect from no change or only a slightly discernible change, to a full modification or elimination of the environmental condition. The terms impacts and effects are used synonymously throughout this document.

Additional information relevant to all sections within *Affected Environment and Environmental Consequences* is presented below.

Impact Descriptors

Types of impacts

There are three types of effects: direct, indirect, and cumulative.

- **Direct** effects are caused by the action and occur at the same time and place.
- **Indirect** effects are caused by the action later in time or further in distance, but are still reasonably foreseeable.
- **Cumulative** effects result from incremental impacts of actions when added to the impacts of other past, present, and foreseeable future actions (See 3.1 Cumulative Impacts).

Direction of Impacts
Impacts can result in an increase or improvement of a resource or resource use (beneficial) or can result in a decrease or degradation or a resource or resource use (adverse).

Duration of Impacts
Effects can be temporary (short-term) or long lasting/permanent (long-term). These terms may vary somewhat depending on the resource; therefore, each will be quantified by resource where applicable. Generally speaking:

- **Short-term** effects are changes to the environment during and following ground-disturbing activities that revert to pre-disturbance conditions, or nearly so, immediately to within a few years following the disturbance.
- **Long-term** effects are those that would remain beyond short-term ground disturbing activities.

Extent of Impacts
The extent of an impact is described in terms of how apparent it might be (magnitude) and how much of an area it might affect (scale).

The magnitude of potential effects is described as being major, moderate, minor, negligible, or no effect and is interpreted as follows:

- **Major** effects have the potential to cause substantial change to an environmental resource or resource use. Effects generally would be long-term and/or extend over a wide area.
- **Moderate** effects are apparent and/or would be detectable by casual observers, ranging from insubstantial to substantial. Potential changes to or effects on the resource or resource use would generally be localized and short-term.
- **Minor** effects could be slight but detectable and/or would result in small but measurable changes to an environmental resource or resource use.
- **Negligible** effects have the potential to cause an indiscernible and insignificant change to an environmental resource or use.

Considerations
The descriptions of potential impacts focus on those resources and resource uses that could be affected substantially or those identified by the public and/or agencies as issues regardless of the impact. Alternative B is presented in two parts: use at currently permitted levels (As Permitted) and voluntary management changes (Adjusted Management). Voluntary adjustments to grazing management have been made in Hammett #1, East Hammett #5, and East Bennett Mountain; however, these adjustments are not required. Therefore, environmental consequences for both scenarios are analyzed for resources (e.g., vegetation) where these adjustments may alter the magnitude or direction of impacts.

Cumulative impacts result from the incremental impact of the action when added to the impacts of other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or persons undertake such actions. Cumulative impacts can result from individually minor but collectively significant impacts taking place over a period of time.

For cumulative impacts, the area(s) where a resource may be affected, the region of influence, may differ from the BLM decision area and can vary by resource or resource use. Limits of the region of influence may be natural features (e.g., watershed), political boundaries (e.g., counties), or industry-accepted norms of the resource (e.g., regional air quality, social and economic conditions) and are described in each resource section.

General Assumptions

Stocking rates (acres per AUM) are considered as follows:

- Low (>8)
- Moderate (5-8)
- High (<5)

Utilization as it relates to ingestion or removal of biomass of herbaceous plants is as follows:

- Light utilization = 21% to 40%
- Moderate utilization = 41% to 60%
- Heavy utilization = 61% to 80%
- Severe utilization = >80%

As stocking rate is decreased and other factors (e.g., precipitation, annual forage production) remain constant, average utilization levels would be expected to decrease (Hoelchek et al. 1999).

The Boise District conducted a phenology study in 1965 (which was determined to be representative of an average moisture year) to characterize typical dates for different stages of plant development (Appendix 9). Factors such as elevation, aspect, and temperature were considered and influence how early or late herbaceous perennials will initiate and terminate growth, but these broad dates capture that spectrum and will be applied for analysis purposes. Data from 2003-2006 indicate similar stages of development were occurring two-four weeks earlier in the year (Appendix 9). Phenological assumptions for herbaceous perennial vegetation (i.e., preferred forage):

- Growing season for larger, deeper rooted perennial grasses (e.g., bluebunch wheatgrass and Idaho fescue) is generally between the beginning of March to mid-July (3/1-7/15); smaller, shallower rooted perennial grasses (e.g., Sandberg bluegrass, squirreltail) initiate growth earlier (February 1).
- Critical growing period (seedstalk emergence to seed dissemination) last one to two months depending on species and can start as early as April 15 for Sandberg bluegrass at lower elevations (<5,000 feet) and end as late as July 30 for bluebunch wheatgrass at upper elevations.
- Senescence and dormancy generally occurs between mid-July to the end of February (7/16-2/28); however, early fall "green up" of perennial grasses may occur if rainfall is adequate.

General seasons of use as they relate to plant phenology are considered as follows:

- Spring = March through June
- Summer = July through September
- Fall = October through November
- Winter = December through February

3.1 **Watershed**

3.1.1 Affected Environment – Watershed

Standard 1 (Watersheds) addresses a site's soil stability (ability to withstand wind and water erosional processes), and the site's ability to perform ecological processes such as cycle nutrients and water based on the amount and type of plants, biological soil crusts, and plant litter present. Watershed health is the degree to which the integrity of the soil, vegetation, water, and air, as well as the ecological and hydrological processes of the ecosystem, are balanced and sustained.

General Area Description

The allotments occur in the Central Rocky Mountains, Central Rocky and Blue Mountain Foothills, and Snake River Plains Major Land Resource Areas[3] (MLRAs; Table 9; Map 5). Each MLRA differs in topography, geology, hydrology, substrates, levels of precipitation, and thus vegetation. The Central Rocky Mountains is typically the highest in elevation and precipitation of the three MLRAs, and contains the steepest terrain (Table 9). The Natural Resource Conservation Service (NRCS) provides maps and full descriptions of these MLRAs (USDA NRCS 2003).

Table 9. Major Land Resource Area (MLRA) descriptions for the Bennett Mountain North allotments, Elmore County, Idaho.

MLRA	Description	Allotment(s)[1]
Central Rocky Mountains	• Steep (≥30% slope) mountains, plateaus, and valleys • 5,000 to 7,000 feet elevation • 9 to 25 inches of precipitation at the lower end and 25 to 60 inches at the higher end • Moderately deep to very deep loams with varying amounts of rock fragments • Soils have moderate to high erosion potential • Forest and woodland communities	Hammett Livestock (M) Ballantyne Section 15 (M) Joost Section 15 (M)
Central Rocky and Blue Mountain Foothills and Snake River Plains	• Toe slopes and foothills • 3,500 to 6,000 feet elevation • 8 to 16 inches precipitation • Shallow to very deep loams with varying amounts of gravel and rock • Soils have moderate erosion potential • Sagebrush-steppe and mountain shrub communities	Hammett #1 (L) East Hammett #5 (L) Hammett # 6 (L) Hammett #7 (L) South Camas (M) North Slope (M) Camas Creek Field (M) North Camas (M) East Bennett Mountain (U)

[1]M = meeting Standard 1; L = not meeting Standard 1, current livestock management practices are a causal factor; U = not meeting Standard 1 due to undetermined factors.

Soils on the allotments range from very deep to very shallow loams, with silty to gravelly or rocky textures. Erosion potential is low to high depending on soil surface texture, stoniness, and slope, but is most commonly (75% of the total BLM-administered acres) in the moderate range (K-factor[4] values = 0.2 to 0.4; Table 10, Map 5). Vegetative community structure (species

[3] Major Land Resource Areas are geographically associated land resource units delineated by the Natural Resources Conservation Service and characterized by a particular pattern that combines soils, water, climate, and vegetation.
[4] Soil erodibility factor K represents both susceptibility of soil to erosion and the rate of runoff.

composition/diversity, distribution, and stature of plants; refer to Section 3.2.1) and other ground cover including biological soil crusts, gravel/rock, and plant litter play a key role in watershed stability and function.

Table 10. Acres of low (<0.2), moderate (0.2-0.4), and high (>0.4) erosion potential (K-factor) for the Bennett Mountain North Allotments, Idaho.

Allotment		K-factor				Total
Number	**Name**	**Low**	**Moderate**	**High**	**No Data**	
01033	Hammett #1	3,361	13,846	40	4,573	21,820
01037	East Hammett #5	987	9,484	0	0	10,471
01038	Hammett #6	270	5,848	0	344	6,462
01039	Hammett #7	103	2,164	0	0	2,267
01043	South Camas	123	839	0	0	962
01044	North Slope	170	668	59	0	897
01091	Camas Creek Field	0	190	0	0	190
01098	North Camas	206	352	0	0	558
01101	East Bennett Mountain	1,280	232	0	0	1,512
01195	Hammett Livestock Co.	1,173	3,455	26	5	4,659
01198	Ballantyne Section 15	0	723	0	0	723
01199	Joost Section 15	18	379	0	0	397
Total		7,691	38,180	125	4,922	50,918

Biological Soil Crusts

Biological soil crusts are often important components of watershed health. These crusts are complex mosaics of cyanobacteria, green algae, mosses, lichens, and microfungi that are concentrated in the top 1 to 4 mm of the soil binding soil particles together. They commonly occupy areas under and between larger plants and help stabilize soils (thus, watersheds) providing protection from erosion. Biological soil crusts also enhance soil moisture retention and infiltration, play a role in site fertility by fixing atmospheric nitrogen and contributing to organic matter, and discourage growth of annual weeds (Eldridge and Greene 1994, Belnap and Gillette 1997, 1998, McKenna-Neumann et al.1996).

Biological soil crusts are more prevalent at lower elevations compared to higher elevations with greater precipitation where vascular plant growth precludes biological crust development (USDI 2001). Presence of biological soil crusts varies by site characteristics and level of disturbance. Field assessments provide ocular estimations of crust cover ranging from less than 1% to 15%, but the majority of sites are <5% (USDI 2014). Sites with little or no biological soil crusts generally have increased vegetative, gravel, and/or rock cover and are the norm at higher elevations. More crust cover is present at lower elevations in soils with finer surface textures where disturbance has not precluded their growth. However, at trend sites in the Hammett #1, East Hammett #5, and Hammett #6 allotments, biological soil crust cover ranged from 0-1% (8 sites), 0-2% (3 sites), and 0-2% (4 sites), respectively. Therefore, biological soil crusts are a minor watershed protection component in the 12 allotments.

Condition

Watershed condition varies from near reference conditions (i.e., plant community function and structure is relatively unaltered, little or no evidence of soil loss or degradation) to areas with moderate and even major alterations; though these are few and localized. Soil disturbance and

degradation are most common where livestock congregate or trail (e.g., near water sources, mineral licks, gates, and along fence lines).

Allotments Meeting Standard 1

The Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15 allotments in the Central Rocky Mountains MLRA and the South Camas, North Slope, Camas Creek Field, and North Camas allotments in the Central Rocky and Blue Mountain Foothills MLRA are meeting the watershed standard (Table 9). The allotments are typically near reference condition or may have some small areas of localized disturbance, but are stable overall and capable of properly cycling water, nutrients, and energy (USDI 2014). Rockier soils are armored by gravel and/or rock, as well as plants, litter, and biological soil crusts where enough surface soil is present. Soils containing few rock fragments are maintained by plant and litter cover, as well as some biological soil crust cover where soil chemistry and consistency allow.

Allotments Not Meeting Standard 1

The Hammett #1, East Hammett #5, Hammett #6, Hammett #7. and East Bennett Mountain allotments in the Central Rocky and Blue Mountain Foothills and Snake River Plains MLRA are not meeting Standard 1 (Table 9). Current livestock grazing is considered a factor for not meeting the Standard in the Hammett #1, East Hammett #5, Hammett #6, and Hammett #7 allotments, but not in the East Bennett Mountain (increased shrub cover). Failure to meet Standard 1 is primarily due to areas of erosion resulting in pronounced water flow paths, pedestalled bunchgrasses, and/or terracettes; and secondarily due to greater than expected bare ground (i.e., reduced ground cover including biological soil crusts) and/or shifts in vegetative components expected to affect infiltration and runoff of water (USDI 2014).

Hammett #1 – Sites at lower elevations (<4,500 feet) were dominated by shallow-rooted perennial grasses or exotic annuals, which provide reduced soil surface protection and water infiltration causing increased run-off. Water flow patterns, pedestalling, and bare ground were greater than expected. Sites at upper elevations (≥4,500 feet) generally had more deep-rooted perennial grasses, although not at expected levels, and less exotic annuals. Pedestalling was also present; however, it decreased between 2004 and 2010/2011. Perennial vegetation basal cover increased during the same period.

East Hammett #5 – Limited signs of active, accelerated erosion were evident. Changes in plant community composition and distribution relative to infiltration and runoff were adversely affecting watershed stability. Mid- to large-stature perennial grasses were absent in many communities. Low-stature perennial grass frequency declined at lower elevations, but basal cover remained static between 1987 and 2011. Tall-stature perennial grass frequency declined at mid-elevations, but basal cover remained static and bare ground increased between 1987 and 2011. Perennial vegetation basal cover decreased at upper elevations because of shrub canopy closure.

Hammett #6 – Accentuated water flow paths and pedestalled perennial bunchgrasses were present primarily in areas affected by recent wildfires which burned the majority of the allotment since 2000 (Map 5a). Perennial vegetation basal cover was static between 1990 and 2011 and

was characterized by low-, mid-, and tall-stature grasses. However, perennial bunchgrass cover was reduced at lower elevations, especially in pastures 3 through 6.

Hammett #7 - Gullies, long water-flow patterns, and pedestalled bunchgrasses were present in the Blackhawk, Sackrider, and Vina 1 pastures in 2004. In the Blackhawk Pasture, perennial vegetation basal cover increased between 1990 and 2009 and was characterized by low-, mid-, and tall-stature grasses. Gullies and bare patches were recovering in 2014 as native vegetation recruited into these areas. In the Sackrider Pasture, gullies were associated with livestock trailing and were not recovering in 2014.

East Bennett Mountain - Accelerated water flow paths, deposition of small and moderately sized litter around obstacles, pedestalling of shrubs and grasses, and lack of sufficient organic matter in soil to resist erosion due to sparse shrub understories were evident throughout the allotment. Perennial vegetation basal cover was static or increased between 1988 and 2010; however, frequencies of low-, mid-, and tall-stature grasses were static or declined.

3.1.2 Environmental Consequences – Watershed

The following assumptions apply for analysis purposes:

- Short-term effects to watersheds would be <3 years; long-term effects would be ≥3 years.
- Direct impacts from range management projects would occur within the construction area and up to 20 feet on either side of a linear feature (fence) and up to 0.25 miles for projects that concentrate use (springs).

3.1.2.1 General Discussion of Impacts

The general discussion of impacts related to livestock grazing is common to all action alternatives (B, C, and D).

Direct impacts to watershed functions from livestock trampling include physical/mechanical disturbance to the soil surface, subsurface structure, biological soil crusts, and vegetation. Soil surface disturbance compromises a site's ability to limit the redistribution and loss of soil by wind and water (erosion). Alterations to the soil surface that reduce soil aggregates, pore space, and structure may result in erosion or surface sealing. Surface sealing, in turn, reduces infiltration of water that would normally be available for plants. Livestock trampling in concentrated use areas can cause soil compaction and break down soil aggregates.

Removal or reduction of vegetation or biological soil crust cover creates areas of exposed soil (bare ground) that are vulnerable to erosion. Low plant and biological soil crust vigor, caused by trampling, can lead to reductions in soil stability and fertility, and overall functionality. Crustal species are only metabolically active when wet and are brittle when dry. Therefore, trampling in dry seasons is more destructive and organisms are less able to recover than when disturbed in wet seasons (Harper and Marble 1988; Marble and Harper 1989).

Further indirect effects to watershed function include changes in the amounts and kinds of organic material in surface soils. Accumulation of litter on the soil surface benefits watershed health by increasing infiltration capacity and reducing water evaporation from the soil surface. Grazing animals can remove or translocate vegetation that would otherwise end up as litter.

Vegetation decomposes more rapidly when trampled and broken down as animals graze (Naeth et al. 1991). Therefore, livestock grazing may result in accelerated erosion and soil loss, which can reduce site fertility and further reduce soil surface stability (Garcia-Pichel and Belnap, 1996). Livestock management practices that minimize surface disturbance, especially in areas with biological soil crusts, decrease soil erosion potential by increasing soil aggregate stability (Thurow 1991), increasing water infiltration, and helping to retain organic matter.

Magnitude of Effects

Stocking rate, utilization, season of use, amount of cover, and soil characteristics affect the magnitude of impacts. Generally, the greater the stocking rate (the number of livestock for a period of time in a given area or acres/AUM), the greater the degree watersheds could be directly affected. High stocking rates would cause increased sediment production, reduced infiltration rates, and increased susceptibility to erosion, whereas moderate or low stocking rates could allow for maintenance of conditions and recovery from drought conditions (Warren et al. 1986a, Thurow 1988). Increasing livestock numbers, even when shortening the duration of use (stocking rate remains consistent) would cause greater removal of cover (primarily through trampling damage) resulting in decreased watershed protection (Holechek et al. 1998a). While rest would promote recovery of soil conditions, soil conditions could be maintained with slight to light-moderate use (<50%) over the long term, but could degrade under moderate or greater utilization use (>50%) (Weltz and Wood 1986a, 1986b, Dormaar et al. 1989). Grazing when soils are saturated or wet could compact soils more than when soils are dry or frozen (Warren et al. 1986a, 1986b). Conversely, when conditions are dry, biological soil crusts are more prone to disturbance and less able to recover compared to when conditions are moist (Belnap et al. 2001). Areas with high vegetative, biological soil crust, plant litter, and/or gravel/rock cover are more stable and less susceptible to short-term disturbance. Soils with high K-factors (>0.4) are generally more prone to erosion than soils with low (<0.2) or moderate K-factors. How these factors are combined dictates the overall magnitude of impacts to watersheds. Grazing intensity, the cumulative effects of livestock use, can serve as a measure of potential impacts (Holechek et al. 1998a).

Project Related Impacts

Rangeland management projects (i.e., fences and water developments) also affect soils. Projects can improve livestock distribution across a landscape reducing the overall magnitude of trampling impacts. However, direct short-term and long-term impacts to soils associated with project construction and subsequent livestock use habits also occur. Machinery disturbs, damages, and/or removes soil during construction in the short-term.

Long-term impacts to soils result from repeated disturbance by livestock at projects. Livestock tend to trail along fencelines and congregate at water developments. Trampling impacts are typically greatest within 50 feet to either side of fences and 200 feet around water developments; soils in these areas become compacted and generally support little vegetative or other biotic cover. Concentrated use areas, up to 0.25 mile around water developments or supplement sites, are common. The magnitude of disturbance decreases as the distance from the congregation site increases (Brooks et al. 2006).

Comparison of Impacts

Areas meeting Standard 1 would continue to do so under all alternatives; however, improvements in areas not meeting Standard 1 would only occur in alternatives A, C, or D (Table 11). These impacts are described more fully for each alternative below.

Table 11. Comparison of overall impacts by alternative and outcome regarding Standard 1, Bennett Mountain North, Elmore County, Idaho.

Issue/Objective	Indicator	Alternative			
		A	B and B*	C	D
		Allotments Meeting Standard 1			
Meet or make significant[1] progress toward meeting Standard 1 (Maintain or increase ground cover and plant species diversity for watershed stability and function)	-Soil stability test (quantitative) -Observable erosion (qualitative) -Cover data (vegetative, biological soil crusts, plant litter, rock/gravel) (quantitative)	Would continue meeting; minor to moderate improvements	Would continue meeting; negligible to minor impacts	Would continue meeting; minor impacts	Similar to Alternative C
		Allotments Not Meeting Standard 1			
		Would meet or make significant progress toward meeting; minor to major improvements	Would not make progress toward meeting; negligible to moderate impacts *Would make limited progress toward meeting; negligible to minor improvements	Would make slow but significant progress toward meeting; minor to moderate improvements	Allotments would make significant progress toward meeting; moderate improvements

*Adjusted Management for Alternative B (Continue Current Management).

[1]Measurable and/or observable progress; may or may not be statistically significant.

3.1.2.2 Alternative A – No Grazing

Watershed improvements would be greater in magnitude and occur more rapidly than the other alternatives. If no livestock grazing occurred for a 10-year period, soils, vegetation, biological soils crusts, and plant litter would not be trampled or removed by livestock. Mechanical soil disturbance or damage, particularly when soils are wet, would not occur. Soil stability, water infiltration, and nutrient cycling would improve in the short and long terms. All allotments (up to 49,913 acres) would be meeting or making significant progress toward meeting Standard 1.

Allotments Meeting Standard 1

The South Camas, North Slope, Camas Creek Field, North Camas, Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15 allotments (8,837 acres, Table 9) would support functioning watersheds over the long term. Areas maintaining watersheds in near reference condition could exhibit minor improvements where plant vigor increased in the absence of livestock grazing. More vigorous plant communities would be better able to cycle water and nutrients. Moderate watershed improvements could occur where small areas of localized disturbance (concentrated use areas) exist by eliminating trampling impacts to soils and vegetation and improving vigor and distribution of native perennial plants and biological soil crusts, thus improving infiltration, but the effect would generally be minor.

Allotments Not Meeting Standard 1

Ten years without livestock related trampling impacts would allow the Hammett #1, East Hammett #5, Hammett #6, Hammett #7, and East Bennett Mountain allotments to meet or make significant progress toward meeting Standard 1. Minor to major long-term improvements would occur on 41,526 acres. Improvements would be most prominent at lower elevation (<5,000 feet)/lower precipitation (<12 inches) sites where watershed function has been compromised due to increased bare ground, decreased biotic ground cover, and/or shifts in plant community composition.

Long-term improvements in native perennial plant vigor and frequency would improve soil/site stability and water and nutrient cycling. Erosional features such as gullies, waterflow paths, pedestals, and terracettes would be minimized. Where there is potential (i.e., soil chemistry and texture are appropriate), biological soil crust cover would increase over the long-term (Belnap et al. 2001) also improving soil stability and site fertility. Biological soil crust recovery would be negligible in areas where exotic annual plants (e.g., cheatgrass or medusahead) are dominant, that have undergone historic concentrated use, or that don't typically support biological soil crusts. Congregation areas, where soils are compacted, would exhibit minor improvements in plant distribution and soil stability and function. Watershed conditions in areas dominated by heavy shrub cover (i.e., portions of East Hammett #5 and East Bennett Mountain) or invasive exotic annual species (i.e., south portion of Hammett #1 and portions of Pasture 6 in Hammett #6) would not change over the long term.

Hammett #1 (01033)

Where seed sources exist, mid- and large-stature perennial grasses would increase at lower elevations (<4,500 feet) except in areas dominated by exotic annuals. Soil surface protection and water infiltration would increase, improving watershed function. Deep-rooted perennial grass basal cover would increase at upper elevations (≥4,500 feet), approaching reference conditions, especially in the absence of exotic annuals. Pedestalling would be within the normal range of variability.

East Hammett #5 (01037)

Where seed sources exist, mid- and large-stature perennial grasses would establish and increase and low-stature perennial grass frequency and basal cover would increase in the remaining areas. These increases would improve infiltration and reduce runoff and erosion. Where shrub cover is greater than expected, perennial grass basal cover would remain static or decrease over the long term, adversely affecting watershed function.

Hammett #6 (01038)

As perennial grasses and shrubs become reestablished and increase basal cover in burned areas, soil surface protection and water infiltration would increase. Watershed function would be within the normal range of variability except in lower elevation areas that remain dominated by exotic annuals.

Hammett #7 (01039)

Gullies and bare areas in the Blackhawk Pasture would be stabilized by perennial vegetation over the short term. In the Sackrider and Vina 1 pastures, perennial grasses and shrubs would become

established in gullies and they would become stabilized over the long term. Water flow patterns and pedestalling would be within the normal range of variability

East Bennett Mountain (01101)
Where shrub cover is greater than expected, perennial grass basal cover would remain static or decrease over the long term, adversely affecting watershed function.

3.1.2.3 **Alternative B – Continue Current Management**

Allotments Meeting Standard 1

The South Camas, North Slope, Camas Creek Field, North Camas, Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15 allotments (8,837 acres) would continue to meet Standard 1 over the long term (Table 9). Spring grazing (Hammett #7, North Slope, Camas Creek Field, Hammett Livestock Company, and Ballantyne Section 15) and relatively high stocking levels (<5 acres/AUM; North Slope, Camas Creek Field, North Camas, and Ballantyne Section 15; Table 8) could increase sediment production, reduce infiltration rates, cause soil compaction. However, watersheds would generally exhibit only negligible to minor impacts due to the resiliency and productivity of plant communities (i.e., in higher elevation/precipitation zones; refer to Section 3.2.2.1 for more information on resiliency and productivity). Plant community structure, function, and distribution would be capable of maintaining soil stability and biotic processes over the subsequent ten years. Mechanical impacts would persist in concentrated use areas, but these areas are few and small in scale; therefore, watershed function would be maintained over the long term.

Allotments Not Meeting Standard 1

As Permitted
The Hammett #1, East Hammett #5, Hammett #6, Hammett #7 (except Blackhawk Pasture), and East Bennett Mountain allotments (portions of 40,821 acres) would not make progress toward meeting Standard 1. Spring use annually at moderate stocking levels (5-8 acres/AUM) in Hammett #1, East Hammett #5, and Hammett #6 would damage soils and biotic ground cover, particularly at lower elevations. As a result, moderate direct and indirect (trampling and erosion) impacts would take place in the short and long term. Subsequent fall use in Hammett #1 and East Hammett #5 would add to these impacts by adversely affecting biological soil crusts. Annual trampling and trailing impacts in the Sackrider and Vina 1 pastures (Hammett #7) would prevent gullies from becoming revegetated over the short and long term; however, the season of use would not affect basal cover in the remainder of the pastures. Revegetation of gullies and bare patches would continue in the Blackhawk Pasture (705 acres in Hammett #7) and Standard 1 would be met over the long term. Negligible impacts would occur in East Bennett Mountain because soils would be dry and the stocking level low (Table 8); the summer season of use could impact biological soil crusts, but the potential for crusts is low (based on elevation, soil type, and dense shrub cover). Standard 1 would not be met in areas dominated by heavy shrub cover (i.e., portions of East Hammett #5 and East Bennett Mountain) or invasive exotic annual species (i.e., south portion of Hammett #1 and portions of Pasture 6 in Hammett #6). Livestock grazing in Hammett #1 and Hammett #6 would be a factor where spring use reduces perennial grass cover over the long term.

Adjusted Management

Limited, but not significant, progress would be made toward meeting Standard 1 in the Hammett #1, East Hammett #5, and East Bennett Mountain allotments (portions of 33,084 acres). Negligible to minor improvements in watershed condition would result if grazing voluntary management adjustments (Section 2.3.2) continued. Deferment rotations over the past four to five years and more low stocking levels over the past 10+ years have facilitated minor improvements to watersheds (e.g., more basal cover, less bare ground) in Hammett #1 and portions of East Hammett #5 and East Bennett Mountain. Impacts such as soil compaction and damage or removal of ground cover would continue where livestock congregate (e.g., water developments, mineral licks) and in the associated concentrated use areas. Impacts in shrub or exotic annual dominated areas would be as described in Alternative B-As Permitted.

3.1.2.4 **Alternative C – Permittee Application**

Allotments Meeting Standard 1

North Slope (896 acres) and North Camas (558 acres) allotments would continue to meet Standard 1; impacts to soils would be identical to Alternative B because no changes in use would occur. In the Camas Creek Field Allotment (190 acres), minor changes to management (ten fewer days in fall and a defined south to north system of use) would produce nearly identical impacts to Alternative B, and Standard 1 would be met. The remaining allotments (9,008 acres) would also continue to meet Standard 1 over the long term. However, for allotments with extended use periods (South Camas, Hammett Livestock Company, and Ballantyne Section 15), impacts would be similar to Alternative B, but slightly greater in overall magnitude.

South Camas (01043)

Minor direct and indirect impacts to soils would result from extending the season of use into fall (to September 30 compared to August 15 in Alternative B). Grazing would still occur when soils are dry and after the active growing period for perennial plants, producing overall minor impacts. Biological soil crusts would incur minor to moderate impacts where they are present; though, similar to West Hammett #7, high plant density and somewhat rocky surfaces result in relatively low potential for these crusts. The stocking level would stay low (12.8 acres/AUM) and Standard 1 would be met over the long term.

Hammett Livestock Company (01195)

Though the authorized season of use would span late spring to fall to incorporate Joost Section 15 (which would become a pasture in the Hammett Livestock Company Allotment), sheep would essentially use the allotment the same as Alternative B. Stocking levels would remain the same (low) and watershed function would remain intact. Therefore, Standard 1 would be met over the long term. For the Joost Section 15 Pasture, impacts to soils would occur as management would change from non-use to sheep use in the late spring and fall. Up to 2,000 sheep could be present at one time, so moderate to major localized short-term trampling impacts could occur. However, sheep typically travel in bands of around 1,000 animals, so the magnitude of trampling would likely be less and/or more diffuse. The low stocking rate (8.4 acres/AUM) would allow watersheds to maintain stability, infiltration properties, and overall function; and Standard 1 would continue to be met over the long term.

Ballantyne Section 15 (01198)
Modification from late spring use to summer through fall use could impact biological soil crusts in the drier summer months; however, changes in magnitude of existing impacts would be negligible because soil crust cover is limited. Overall soil impacts would be similar to Alternative B and the watershed standard would continue to be met over the long term.

Maximum Livestock Numbers
Maximum numbers that conform with USFS permits (South Camas, Camas Creek Field, and Ballantyne Section 15) or with total numbers when all ownerships are considered (South Hammett #7, West Hammett #7, East Bennett Mountain, and North Slope) would have no additional trampling or vegetation reduction impacts beyond what are currently occurring because these would be administrative changes to the permits. Maximum numbers that allow flexibility (Hammett Livestock Company) would have minor (used occasionally) to moderate (used consistently every year) long-term trampling impacts, especially where animals congregate (e.g., bedding grounds). Direct and indirect impacts to soils from trampling would increase as livestock become more concentrated. Bedding could affect up to 40 acres/bedding site; however, the majority of trampling and vegetation reduction impacts would occur in smaller areas (1-5 acres) where animals actually bed. Because concentrated use areas would represent a small portion of the allotment, Standard 1 would continue to be met over the long term.

Proposed Projects and Repairs (of existing facilities)
Positive (e.g., redistribution of livestock) and negative (e.g., compaction) impacts to soil resources associated with the watering facilities (North Bourbon Spring in South Hammett #7 and Section 24 Pond in South Camas) would be negligible because the facilities are already in place and maintaining some water. The level of livestock use and associated impacts would not be expected to increase; therefore, Standard 1 would continue to be met over the long term.

Allotments Not Meeting Standard 1
Watersheds in Hammett #1 (21,101 acres), Hammett #5 (11,443 acres), and Hammett #6 (6,177 acres) would make slow (>5 years), but significant progress toward meeting Standard 1. Overall minor to moderate benefits to soil stability and infiltration of water and nutrients would occur over the 10-year term. Trampling impacts would be similar to Alternative B-Adjusted Management; however, improved grazing rotations, low stocking levels in Hammett #1 and Hammett #5 (stocking level of Hammett #6 would be moderate), and the expected lighter utilization levels would reduce impacts and produce greater benefits to watershed function beyond advances made to date. If objectives were not being met after five years, implementation of Alternative D would improve watershed conditions over the long term (Section 3.1.2.5). Standard 1 would be met in the long term in South Hammett #7 (835 acres), but not in West Hammett #7 (1,286 acres).

Hammett #1 (01033)
Minor to moderate, but significant, progress would be made toward meeting Standard 1 over the long term. Impacts would be similar to Alternative B–Adjusted Management, but with greater improvements to watersheds. Implementation of a deferred grazing system and a lower stocking rate (15% reduction from Alternative B–Adjusted Management, Table 8) would reduce trampling impacts and accelerate improvements in perennial basal cover, especially in the

northern two thirds of the allotment. Impacts from livestock trampling and vegetation removal would occur in either the spring or fall for a given area, but not both. Fencing to prevent livestock drift could further benefit soils in the deferred pasture, but would be difficult to quantify. Minor to moderate improvements in frequency and vigor of perennial vegetation would benefit watersheds. Greater fall use (a 54% increase from Alternative B–Adjusted Management) would cause only minor declines in biological soil crusts over the long term because current biological soil crust cover is minimal.

Maximum Livestock Numbers – If the permittee exercises flexibility, livestock numbers could be increased 41% increase over permitted numbers[5]. Increased numbers would cause moderate trampling and vegetation removal impacts, primarily in concentrated use areas. Standard 1 would not be met in these areas over the long term if maximum permitted numbers were consistently used (≥40% of the time, Holechek et al. 1998a).

Proposed Projects and Repairs (of existing facilities) - Construction of 4.8 miles of fencing could better facilitate long-term improvements to watersheds via improved implementation of the grazing system. By preventing livestock drift, soils in the pasture rested during the spring would not incur trampling or vegetation removal impacts when soils and plants are most vulnerable. Biological soil crusts would be exposed to greater fall use than Alternative B–Adjusted Management and could experience a minor to moderate decline over the long term; however, they are a negligible component in the allotment.

Moderate to major short- and long-term project related impacts to soils would occur on up to 22 acres. Soils adjacent to fences would be exposed to short-term disturbances from construction activities and periodic maintenance. Over the long-term, the tendency of livestock to trail along fencelines would result in compacted soils. Long-term soil disturbance could facilitate the spread of invasive exotic annuals and other weedy species, displacing deep-rooted perennials and biological soil crusts. Repairs to existing watering facilities would produce overall negligible long-term effects.

<u>Hammett #5 (01037)</u>
Impacts would be similar to Alternative B-Adjusted Management. The spring/fall deferment rotation and low stocking rate would reduce trampling and vegetation removal impacts. Fencing to prevent livestock drift could further benefit soils in the deferred pasture, but would be difficult to quantify. The expected lighter utilization would further minimize spring trampling impacts to vegetation beyond current practices and leave more vegetation cover to protect the soil surface, resulting in slow, but significant progress toward meeting Standard 1 in areas where dense shrub cover is not a factor. Fall impacts to biological soil crusts would be as described for Hammett #1 (although fall use would increase 103% over Alternative B-Adjusted Management).

Maximum Livestock Numbers – If the permittee exercises flexibility, livestock numbers could be increased 94% (East Pasture, Even Year) to 199% (West Pasture, Even Year) over permitted numbers. Increased numbers would cause moderate to major trampling and vegetation removal

[5] The percent increase between permitted numbers and maximum numbers is calculated as follows (Hammett #1 example): % Increase = (Maximum No. Permitted – Permitted No.)/Permitted No. or 41% = (750-531)//531.

impacts, primarily in concentrated use areas. Standard 1 would not be met in these areas over the long term if maximum permitted numbers were consistently used (≥40% of the time).

Proposed Projects and Repairs (of existing facilities) - Direct and indirect short- and long-term impacts to soils from construction and implementation of 3.1 miles of fencing would be nearly identical to those discussed for Hammett #1 and would occur on up to 15 acres.

Development of Craster and Section 5 springs would result in short-term construction related and long-term livestock trampling/vegetation removal related impacts. Approximately 3 acres at each site (6 acres total) would incur short-term impacts. Over the long-term as livestock use these facilities, soils comprising up to 40 acres surrounding each spring (80 acres total) would exhibit a gradient of disturbance. Net short- and long-term trampling impacts to soils from repairs to Section 22 and Ryegrass springs would be negligible because the facilities are already used by livestock.

South Hammett #7 (01039)

Livestock grazing would be permitted one month earlier (June 1 versus July 1 in Alternative B) extending the season of use by one month into a period when soils may contain more surface moisture, and during the critical growth period (i.e., between seed stalk emergence and seed dissemination) of perennial grasses (refer to Section 3.2.2 for more information on critical growth period). However, the direct effect to soils would be negligible to minor over the long term. Deferment two out of three years in the Blackhawk Pasture until after seed ripe (i.e., July 15) when soils are dry would reduce direct trampling impacts and indirect trampling and grazing impacts. Indirect impacts, such as plant community shifts that affect water and nutrient cycling, would also be negligible to minor due to the expected light utilization on perennial grasses (≤40% during critical growth). Gullies and bare patches would become revegetated and stable over the long term. Potential for biological soil crusts is low due to the high plant density and somewhat rocky soil surface. Where biological soil crusts do occur, moderate trampling impacts could be expected as grazing occurs largely when crusts are dry. Concentrating maximum livestock numbers (750 head) in one pasture >2 in 10 years could result in increased trampling impacts and loss of perennial cover in concentrated use areas. Deferment and light utilization would result in Standard 1 being met over the long term.

West Hammett #7 (TBD)

The use period would be extended 15 days to October 15, but would cause negligible impacts beyond those incurred during the current authorized period (7/1-9/30). Grazing would largely take place when soils are relatively dry, so direct impacts to soils (e.g., compaction) would be minor. If current salt and/or supplement sites are not moved and animals continue to trail along and adjacent to active gullies, then revegetation would not occur and the gullies would remain unstable over the long term. The season of use would allow revegetation of gullies if trampling and trailing impacts were reduced or eliminated by moving salt locations. Impacts to biological soil crusts would be similar to South Hammett #7. Concentrating maximum livestock numbers (455 head) in one pasture, especially small pastures (Vina 1 and Vina 2) >2 in 10 years could result in increased trampling impacts and loss of perennial cover in concentrated use areas. The stocking rate and AUMs would not change from Alternative B; therefore, impacts would be very

similar, watershed function would be maintained in the majority of the allotment, but Standard 1 would not be met over the long term if active gullies persist.

East Bennett Mountain (01101)
Vegetation cover in this portion of the East Bennett Mountain Allotment is similar to expected levels (i.e., shrub cover has not affected grass cover). Although stocked at a moderate rate, annual use primarily after the growing period in a resilient community would provide adequate residual cover. Standard 1 would continue to be met over the long term.

Hammett #6 (01038)
Impacts would be similar to Alternative B–Adjusted Management, but periodic (pastures 1-4) or annual (pastures 5 and 6) deferment during the critical growth period would produce greater overall benefit to watersheds. Minor to moderate improvements to soils would occur as biotic cover (i.e., perennial grasses and forbs, and biological soil crusts) increase in vigor and frequency. Soils and watersheds would be improved in areas affected by wildfire, maintained in good condition in pastures 1 and 2, and significant progress would be made toward meeting Standard 1 in the remaining pastures.

Maximum Livestock Numbers –moderate trampling and vegetation removal impacts, primarily in If the permittee exercises flexibility, livestock numbers could be increased 100% over permitted numbers. Increased numbers would cause concentrated use areas. Standard 1 would not be met in these areas over the long term if maximum permitted numbers were consistently used (≥40% of the time).

3.1.2.5 **Alternative D – BLM Proposal**

Allotments Meeting Standard 1
The South Camas, North Slope, Camas Creek Field, North Camas, East Bennett Mountain, Hammett Livestock Company, and Ballantyne Section 15 allotments (8,043 acres) would continue to meet Standard 1 over the long term. Cycling (infiltration, retention, and release) of water and nutrients and soil stability would be maintained. Impacts to watershed function would be identical to Alternative C in all allotments except Joost Section 15 (399 acres). Because the majority of the allotment is characterized by slopes >20%, which are less suitable to cattle use, cattle would congregate around water sources and in areas with slopes ≤20% resulting in a high to moderate stocking rate. Standard 1 would not be met in cattle use areas over the long term because of trampling and vegetation removal impacts.

Proposed Projects and Repairs (of existing facilities)
The Sackrider Spring exclosure (5 acres) would eliminate livestock trampling, soil compaction, and vegetation removal impacts within the exclosure where watershed conditions would improve over the long term. Construction and subsequent livestock use around the exclosure could produce moderate to major impacts to soils within 200 feet of the exclosure, lessening with distance. There would be a moderate decrease in watershed conditions within 200 feet of the exclosure, but Standard 1 would continue to be met in the North Slope Allotment over the long term. Effects related to Section 24 Pond maintenance (South Camas) would be as described in Alternative C.

Allotments Not Meeting Standard 1

Watersheds in the Hammett #1 (21,101 acres), Hammett #5 (11,443 acres), and Hammett #6 (6,177 acres) allotments would make significant progress toward meeting Standard 1. Impacts would be similar to C, but progress toward meeting the standard would be greater in magnitude and occur more quickly due to lower stocking levels in Hammett #1 (13.4 acres/AUM) and Hammett #5 (12.2 acres/AUM), and incorporation of rest every two or three years in Hammett #1 and Hammett #6. Overall direct and indirect benefits to watersheds (e.g., reduced breakdown of soil aggregates and improved biotic cover, respectively) would be moderate. However, these benefits could be major or minor at a site specific scale depending upon current site conditions (i.e., frequency and vigor of biotic cover, litter amount, and existing erosional features). Standard 1 would be met over the short term in South Hammett #7 (835 acres) and slow, but significant progress would be made toward meeting it in West Hammett #7 (1,286 acres).

Hammett #1 (01033)

A full year's rest every third year combined with spring/fall deferment and a lower stocking level (Table 8) would minimize mechanical impacts more than alternatives B or C. Spring- or fall-associated impacts would occur one in three years. Although livestock numbers (both permitted and maximum) would be greater than Alternative C, they would be spread over the entire allotment resulting in a lower intensity of use.

Proposed Projects and Repairs (of existing facilities) - Soil impacts associated with maintaining three spring developments would be as described in Alternative C. Three electric fence exclosures to protect spring wetlands would have negligible short- or long-term impacts to soils. Trampling damage outside the exclosures would be similar to current levels and soil structure inside the exclosure would improve over the long term in the absence of livestock trampling.

Hammett #5 (01037)

Impacts would be similar to alternatives B-Adjusted Grazing and C, but progress toward meeting Standard 1 in areas where dense shrub cover is not a factor would occur at a faster rate than Alternative C. A lower stocking rate (Table 8) combined with lower livestock numbers would reduce direct and indirect impacts to soils more than the other alternatives. Similar to Alternative B–Adjusted Management, impacts related to herding and livestock drift would occur on a limited basis.

Maximum Livestock Numbers – If the permittee exercises flexibility, livestock numbers could be increased 25% (East Pasture, Even Year) to 84% (West Pasture, Even Year) over permitted numbers. Increased numbers would cause negligible to moderate trampling and vegetation removal impacts, primarily in concentrated use areas. Standard 1 would not be met where moderate trampling impacts occur (East Pasture, Even Year) over the long term if maximum permitted numbers were consistently used (>40% of the time). Maximum numbers would be 29% lower than Alternative B.

Proposed Projects and Repairs (of existing facilities) – Impacts from maintaining two spring developments would be as described in Alternative C.

South Hammett #7
Annual use (August 15 – November 30) after the active growing period in the Blackhawk Pasture and late (July 1 – November 30) in the growing period in the Long Draw and West Fork pastures would ensure that perennial cover would be maintained or increase over the long term. Lower maximum livestock numbers (500 head) than Alternative C (740 head) would reduce trampling impacts.

West Hammett #7
Moving salt and/or supplement sites would increase animal distribution and reduce trampling and trailing impacts on currently active gullies. Perennial vegetation would become established and stabilize the gullies over the long term. The season of use would help maintain perennial cover in the remainder of the allotment.

East Bennett Mountain (01101)
Impacts would be as described in Alternative C.

Hammett #6 (01038)
Rest rotations among upper (i.e., 1-3) and lower (i.e., 4 and 6) pastures would reduce trampling impacts more than the other alternatives; in turn, direct and indirect soil benefits would be greater. Trampling and vegetation removal impacts would occur one of two years in upper pastures and two in three years in lower pastures. Periodic rest in pastures 4 and 6 would facilitate maintenance or possibly improve watershed health. More frequent rest of pastures 1-3 (than Alternative C) would accelerate improvements to watersheds affected by wildfire and maintain those in good condition.

Maximum Livestock Numbers – If the permittee exercises flexibility, livestock numbers could be increased 10% (Year 5) to 109% (Year 4) over permitted numbers. Increased numbers would cause moderate trampling and vegetation removal impacts, primarily in concentrated use areas. Standard 1 would not be met in these areas over the long term if maximum permitted numbers were consistently used (>40% of the time).

3.1.3 Cumulative Impacts – Watershed

3.1.3.1 Scope of Analysis

The 166,261-acre (116,254 BLM-administered acres) Bennett Mountain MA will serve as the cumulative impacts analysis area (CIAA; Map 5). The MA spans portions of numerous watersheds including Bennett Creek-Snake River, Roosevelt Gulch, Anderson Ranch Reservoir, and Cold Springs Creek-Snake River. The MA is generally bordered by Highway 20 to the north, King Hill Creek to the east, US I-84 to the south, and Dive and Bennett creeks to the west.

The CIAA was chosen because the remainder of the MA occurs in lower-elevation portions of the watersheds associated with the Bennett Mountain North allotments. Livestock grazing proposed in the action alternatives (B-D) would affect a maximum of 30% (49,913 acres) of the MA directly, primarily in the upper portions of the watersheds. Because of water flow patterns, actions in the Bennett Mountain North allotments could affect lower elevations in the same watersheds. Soils (soil complexes and associations), landforms, vegetative cover

types/communities, management objectives for grazing allotments, and land uses for the remainder of the MA are similar to those in the 12 allotments.

The temporal frame for cumulative impacts is defined by the continued presence of the effects of past actions and the anticipated longevity of reasonably foreseeable future actions. Direct and indirect effects would dissipate within 10 years of the end of the permit period; therefore, cumulative effects would be considered through 2033.

3.1.3.2 **Current Conditions and Effects of Past and Present Actions**

Past actions that have affected watersheds include livestock grazing, range management projects, livestock trailing, road construction and right-of-way (ROW) maintenance, wildfires and associated Emergency Stabilization and Rehabilitation (ESR) treatments, and off-highway vehicle (OHV) use. The collective effect of past actions has contributed to the existing soil conditions described in Section 3.1.1 and the remainder of the CIAA.

In particular, the levels and intensities of anthropogenic activities across all land jurisdictions, especially associated with lower elevation, more populated areas has perpetuated increases of early successional, ruderal landscapes (Leu and Hanser 2011) that are at higher risk for cumulative soil and watershed impacts. Conversely, risk of impacts to soils and watersheds is lower in more remote areas at higher elevations that support more intact and resilient perennial vegetative communities.

- The BLM administers livestock grazing permits on 115,150 acres in the CIAA, including 49,913 acres (30% of the CIAA) in the 12 allotments described in Section 3.1.1 and 65,284 acres (39% of the CIAA) in 20 allotments in the remainder of the CIAA. Of the 20 allotments in the lower portions of the watersheds, 11 allotments (50,367 acres of BLM-administered lands) are not meeting Standard 1 and livestock grazing is considered a contributing factor, six allotments (10,824 acres) are not meeting Standard 1 because of other factors (e.g., dominance of exotic annual grasses because of historic grazing and/or wildfires), and three allotments (4,093 acres) are meeting Standard 1. Similar to the 12 allotments described in Section 3.1.2, livestock grazing in the 20 allotments results in temporally and spatially variable areas of soil surface degradation and plant community alterations that cause minor to moderate effects to soils (e.g., soil compaction, increased surface runoff, damage to biological soil crusts, and reduced nutrient input). These effects are greatest where animals congregate (e.g., adjacent to gates, watering, and dietary supplement areas).

- There are approximately 376 miles of fencing, 12 ponds and reservoirs, 18 undeveloped springs, and 25 troughs in the CIAA. Livestock trailing along fences causes moderate soil compaction and trampling damage up to 15 feet from a fenceline (approximately 1,370 acres in CIAA). Livestock congregating at water sources causes major soil compaction and trampling primarily within 200 feet of the source (approximately 160 acres; Brooks et. al. 2006). The disturbed areas are characterized by bare ground or exotic annuals.

- Four livestock operators identified 29 trailing events for cattle that generally occur annually in the CIAA (USDI 2012a). Group sizes would be small (50-1,000 head) or medium (1,001-2,550 head). Of the 76 miles of trailing routes which could affect up to 0.125 miles on either side of the route, the majority (98%) occur in moderate (5,606 acres) or high (5,566) K-factor soils. Portions of two events are cross-country routes (5.3 miles), while the remainder are on maintained (36.8 miles) or two-track (34.2 miles) roads. Approximately 3.3 miles (522 acres) of cross country routes occur in high K-factor soils. Trampling and soil displacement and compaction impacts would be moderate ($\leq$2 years) to minor (>2 years) for cross-country trailing and negligible (maintained) to minor (two-track) for events on roads (USDI 2012a). Most (86%) would be one-day trailing events; consequently, trampling impacts associated with bedding would be negligible.

- Road construction and ROW maintenance causes minor to moderate soil erosion and displacement within maintenance buffers. These effects are generally spatially restricted to existing disturbed locations and occur over a continuous temporal scale. There are approximately: 60 miles of road ROW (approximately 460 acres for 60-foot ROW) that are maintained regularly (1-3 year intervals); 85 miles of power, transmission, and phone lines ROW, with associated roads or two-tracks (approximately 85 acres), that are maintained periodically (5-10 year intervals); and 19 miles of buried pipelines and associated two-tracks (approximately 70 acres) that are maintained sporadically (10-20 year intervals). Runoff from hardened surfaces associated with ROW could cause gullies in isolated areas.

- Between 2001 and 2013, wildfires burned 0-15,345 acres annually. A total of 40,873 acres was burned and 5,000 acres burned two or more times. Suppression related disturbances are generally restricted to dozer-use creating firelines that are seeded post-fire to limit long-term soil displacement. ESR projects would be expected to maintain or improve plant communities and ecological processes in burned and/or degraded areas; however, moderate (minimum till/Truax drills) to major (rangeland drill) short-term impacts could occur from drill seeding. Successful aerial seeding would help limit short-term soil erosion and stabilize watersheds over the long term; successful drill seeding would stabilize and increase watershed function over the long term, as well. Naturally recovering areas are susceptible to wind and water erosion until adequate vegetation recovery occurs (generally three years).

- Approximately 86,300 acres of BLM-administered lands are designated as open to cross-country motorized travel and 27,000 acres are limited to designated trails. The spatial and temporal extent of OHV activities is difficult to quantify. However, OHV use could affect watersheds by disrupting soil surfaces, biological soil crusts, and enlarging gaps between vegetation, particularly if users travel on un-designated trails or cross-country (no trail). Susceptibility to erosion and weed invasion/expansion would increase in these areas. Because of vegetation, terrain, and ownership issues, the majority of cross-country travel occurs at mid to lower elevations, primarily in the southern part of Hammett #1 and south of the remaining allotments discussed in Section 3.1.2.

Cumulative actions would cause minor to moderate direct and indirect watershed impacts over 166,261 acres. Activities that cumulatively impact watersheds would be nearly the same for each alternative.

3.1.3.3 **Reasonably Foreseeable Future Actions**

The effects of reasonably foreseeable future activities include: livestock grazing permit renewals, range management projects, livestock trailing, ROW construction and maintenance, wildfires and associated ESR, Paradigm Project fuel breaks, and OHV use. Although not a planned activity, the effects of future wildfires and ESR activities are considered because these natural events are predictable to a certain degree based on the number and size of wildfires that have occurred in the past decade.

- Grazing permits in 20 allotments in the CIAA are scheduled to be renewed in 2016. Management would be modified during the permit renewal process so that significant progress toward meeting Standard 1 would occur on the 11 allotments (50,367 acres; 30% of CIAA) where livestock grazing is considered to be a contributing factor. Proper grazing management would reduce soil and watershed degradation over the long term. On the six allotments (10,824 acres; 7% of CIAA) that are not meeting Standard 1 because of other factors, changes in livestock management would have minor to moderate watershed benefits, but significant progress would not be made toward meeting Standard 1 over the long term. None of the allotments directly overlap the 12 allotments discussed in Section 3.1.2.

- The following projects have been identified as part of the permit renewal process for the 20 allotments in the CIAA: construct 14.6 miles of new fencing; develop livestock water facilities at four springs; maintain five spring developments; construct two new ponds; maintain two existing ponds; establish four water haul sites; maintain 3.1 miles of pipeline; and establish one new trough on an existing pipeline. Up to 50 acres would be disturbed by construction activities resulting in partial (fence building) or complete (pond construction) vegetation removal. These areas would be susceptible to wind and water erosion until vegetation becomes reestablished. Over the long term, compaction and trampling would occur on up to 85 acres where animals congregate around new developments. The disturbed areas would be characterized by bare ground or exotic annuals. Less than 1% of the CIAA would be affected during the short or long term and none of the projects directly overlap the 12 allotments discussed in Section 3.1.2.

- Trailing activities would occur annually. Over the long term, trampling and soil displacement and compaction would occur on up to 11,417 acres (7% of the CIAA); however, moderate impacts (cross-country routes in high K-factor soils) would occur on 522 acres (<1% of the CIAA) and negligible (e.g., maintained routes in low or moderate K-factor soils) to minor (e.g., two-track routes in moderate to high K-factor soils) impacts would occur on the remainder of the routes. Two trailing events occurring on two-track roads (9.8 miles, 1,400 acres), one each in Hammett #6 and South Camas, coincide with permitted use periods. The remaining events occur outside the 12 allotments discussed in Section 3.1.2.

- A proposed 500-kV transmission line (Gateway West) would largely parallel existing transmission lines in the southern part of the CIAA. Approximately 8 miles would occur in the CIAA, primarily in high K-factor soils. Up to 110 acres (<1% of CIAA) would be disturbed by construction activities resulting in partial or complete vegetation removal. These areas would be revegetated, but would be susceptible to wind and water erosion until vegetation becomes established. Over the long term, approximately 10 acres (<1% of CIAA) (access roads and towers) would not be vegetated. Water runoff from unvegetated areas could cause erosion in adjacent areas over the long term. None of the proposed route directly overlaps the 12 allotments discussed in Section 3.1.2.

- Based on previous fire history, approximately 3,570 acres (2% of the CIAA) could burn annually. These areas would be susceptible to wind and water erosion until vegetation becomes reestablished. Watershed functions would be degraded over the long term in exotic annual dominated areas (e.g., areas that were in poor ecological condition prior to fire, areas burned multiple times). Low elevation, low precipitation sites would be most susceptible to conversion to exotic annuals. Fires could occur throughout the CIAA and portions would overlap the 12 allotments discussed in Section 3.1.2.

- The Paradigm Project (up to 2,950 acres or 2% of the CIAA), a proposed network of greenstrips and fuel breaks in the area, is slated for implementation over the next several years. It is designed to reduce fire return intervals and protect existing native shrub communities and restoration projects from wildland fire. Up to 300 foot buffers would be mowed, disked, or seeded with herbaceous species. Seeded areas would be susceptible to wind and water erosion over the short term until seedings become established. In the long-term, the fuel breaks would reduce wildfire spread into adjacent areas. Watershed stability and function would be improved where fire frequency is reduced. None of the disturbance area directly overlaps the 12 allotments discussed in Section 3.1.2.

- The FRFO is completing an RMP that would modify OHV use area designations. BLM-administered lands would likely be classified as limited to designated trails. Over the long term, implementation of the designation would help limit soil surface and vegetation disturbance to designated trails. The OHV use are designations would affect all BLM-administered lands in the CIAA.

3.1.3.4 **Cumulative Impacts - Alternative A**

Livestock grazing and trampling impacts would continue on up to 115,295 acres (69% of the CIAA including private and State lands throughout the CIAA and BLM-administered lands outside the 12 allotments closed to grazing). Where livestock grazing is eliminated, improvements to soils and watersheds would be minor to moderate on up to 41,526 acres (25% of the CIAA) where Standard 1 is not being met and livestock are considered a contributing factor. Where perennial vegetation is maintained or increases, negligible to minor long-term improvements would occur in 8,837 acres (5% of the CIAA) meeting Standard 1. Over the long term, where livestock grazing continues, significant progress would be made toward meeting Standard 1 on 11 allotments (30% of the CIAA), significant progress would not be made on six

allotments (7% of CIAA), and Standard 1 would continue to be met on three allotments (2% of CIAA).

New livestock management projects would have negligible adverse impacts in the CIAA over the long term because they would affect a small area (85 acres). Minor adverse trampling and compaction impacts from continued livestock use around existing facilities including approximately 320 miles of fencing (those not exclusively on the interior portion of the 12 allotments discussed in Section 3.1.2) and the majority of ponds, undeveloped springs, and troughs (approximately 1,100 acres or <1% of the CIAA)

The majority of trailing routes (64.5 miles), including all those in high K-factor soils, occur in allotments not meeting Standard 1 and livestock grazing is considered a contributing factor. Trailing in allotments not meeting Standard 1 would cause additional trampling and compaction impacts; however, because most routes are on maintained or two-track roads, significant progress toward meeting Standard 1 would still be made in those areas.

ROW construction and maintenance and runoff would affect <500 acres (<1% of the CIAA) annually and would occur primarily in previously disturbed areas. Therefore, there would be negligible long-term watershed impacts.

Wildfires could affect 2% of the CIAA annually, but up to 71,400 acres (43% of the CIAA) could be burned over a 20-year period. Moderate to major impacts could occur in low and mid elevation areas that burn more than once resulting in exotic annuals replacing perennial species. Watershed conditions would not meet Standard 1 in those areas. The 10,824 acres currently in this condition would likely increase over the long term. However, if the Paradigm Project is successfully implemented and wildfire size and frequency are reduced, wildfire impacts on watershed function would be reduced. Successful ESR treatments (e.g., perennial species are maintained or increased) would also help maintain watershed conditions over the long term. Wildfires in upper elevations associated with most of the 12 allotments discussed in Section 3.1.2 would have minor to moderate short term impacts on increased erosion potential and decreased watershed stability. However, perennial vegetation would recover in the short term and provide adequate watershed protection. The Paradigm Project would have moderate short-term soil disturbance and erosion impacts on up to 2% of the CIAA until vegetation is established in treated areas. ESR treatments would have moderate short-term soil disturbance and erosion impacts on 1-2% of the CIAA annually until vegetation is established in treated areas.

Eliminating cross-country OHV use would have minor (upper elevations) to moderate (mid to lower elevations) long-term watershed benefits (reduced soil and vegetation disturbance) that would occur throughout the CIAA.

Removing livestock grazing from 12 allotments would eliminate livestock trampling and compaction impacts on 49,913 acres (30% of the CIAA). Standard 1 would continue to be maintained or be met over the long term. Directly overlapping impacts from trailing (1,400 acres), wildfires, and ESR would have minor adverse impacts to watersheds, but would not affect the ability to meet Standard 1. Elimination of cross-country OHV use would have minor

watershed benefits in the 12 allotments. Removal of livestock grazing for the ten-year term would have a moderate long-term additive cumulative benefit to soils and watersheds because of the relative acreage affected.

3.1.3.5 **Cumulative Impacts - Alternative B**

Maintaining Standard 1 (seven allotments discussed in Section 3.1.2.3, 8,837 acres or 5% of the CIAA) would have a minor additive cumulative benefit by maintaining soil and watershed conditions over the long term. Not meeting Standard 1 (five allotments discussed in Section 3.1.2.3 Alternative B-As Permitted, portions of 41,526 acres or 25% of the CIAA) would add minor trampling and erosion impacts over the long term. Limited, but not significant, progress toward meeting Standard 1 (three allotments discussed in Section 3.1.2.3 Alternative B-Adjusted Management, portions of 33,084 acres or 20% of the CIAA) would have a negligible to minor additive benefit (e.g., more basal cover, less bare ground) over the long term. Cumulative impacts to soils and watersheds from other activities in the CIAA would be as described in Section 3.1.3.4. Changes in the 12 allotments discussed in Section 3.1.2.3 would have limited direct overlap (i.e., trailing, wildfires, and ESR) with other activities in the CIAA. Overall, the proposed actions would result in Standard 1 not being met over the long term in up to 24% of the CIAA, but Standard 1 could be met in areas not dominated by exotic annuals (up to 69% of the CIAA).

3.1.3.6 **Cumulative Impacts - Alternative C**

Continuing to maintain or making significant progress toward meeting Standard 1 on the 12 allotments discussed in Section 3.1.2.4 would have minor to moderate additive cumulative benefits (e.g., increased soil stability, improved water and nutrient infiltration) to soils and watersheds. The magnitude of benefits would be less than alternatives A and D, but greater than Alternative B-As Permitted or Alternative B-Adjusted Management. Changes in the 12 allotments discussed in Section 3.1.2.4 would have limited direct overlap (i.e., trailing, wildfires, and ESR) with other activities in the CIAA. Cumulative impacts to soils and watersheds from other activities in the CIAA would be as described in Section 3.1.3.4. Overall, the proposed actions, in combination with other actions, would result in Standard 1 being met in areas not dominated by exotic annuals (up to 93% of the CIAA) over the long term.

3.1.3.7 **Cumulative Impacts – Alternative D**

Cumulative impacts would be similar to Alternative C, but watershed conditions would improve at a faster rate in 12 allotments discussed in Section 3.1.2.5 (Standard 1 would not be met in livestock use portions of Joost Section 15) and would be more noticeable; therefore, moderate additive benefits would occur over the long term. Cumulative impacts to soils and watersheds from other activities in the CIAA would be as described in Section 3.1.3.4. Overall, the proposed actions, in combination with other actions, would result in Standard 1 being met in areas not dominated by exotic annuals (up to 93% of the CIAA) over the long term.

3.2 Upland Vegetation

3.2.1 Affected Environment – Upland Vegetation

Standard 4 (Native Plant Communities) addresses the maintenance and promotion of productive, diverse native plant populations which, in turn, provide habitat better suited for sensitive plant and wildlife species (Standard 8).

General Area Description

Soil type (texture, chemistry, etc.), precipitation amount, elevation, past disturbance, and other site characteristics, both biotic and abiotic, dictate the type of vegetation that occurs in an MLRA. In the Bennett Mountain MA, Wyoming big sagebrush communities generally occur below 4,000 feet with some overlap into higher elevations dictated by site characteristics. Mountain big sagebrush communities typically occur above 4,000 feet and commonly include other mountain shrubs above 5,000 feet. Inclusions of low sagebrush communities are also found between 4,000 and 5,500 feet where soils are shallow and rocky. Forested areas characterized by Douglas-fir or aspen are present at higher elevations – typically above 6,500 feet in the more southern allotments and 5,500 feet in the northern three allotments, as well as mountain shrub and bitterbrush communities.

Eleven general vegetative cover types based on 2001 Pacific Northwest National Laboratory (PNNL) data could be affected by livestock grazing (Table 12, Map 5). Mountain Big Sagebrush (27%) is the most common cover type in the twelve allotments combined. Big Sagebrush/Big Sagebrush Mix (21%) is proportionally the second most common cover type due to its abundance in the three largest allotments, specifically Hammett #1. Mountain Shrub (10%), Aspen/Conifer (10%), Low Sagebrush (6%), Rabbitbrush (3%), Bunchgrass (3%), and Bitterbrush (2%) make up the remaining perennial cover types; Exotic Annuals make up 1% of upland cover (Table 12). A more in depth discussion of plant communities and species composition common to each cover type is provided after Table 12; cover types are addressed in order of abundance. The cover types are characterized by dominant overstory and understory plants. Understory plant composition descriptions are supplemented by field data and appropriate ecological site descriptions developed by the NRCS.

It is important to note that since the PNNL data were developed, wildfires have affected at least 8,103 acres (21%) of the BLM-administered lands in the Hammett #1, East Hammett #5, and Hammett #6 allotments; the majority occurred in Big Sagebrush/Big Sagebrush Mix (48%) and Mountain Big Sagebrush (18%) cover types. These are now represented as Recent Burn and are dominated by perennial grasses and/or exotic annuals.

Table 12. Total acres and proportion of all vegetative cover types for the Bennett Mountain North allotments and cumulative impacts analysis area, Elmore County, Idaho.

MLRA	**Central Rocky and Blue Mountain Foothills and Snake River Plains**									**Central Rocky Mountains**			**Total Acres (BLM lands)**	**Cumulative Impact Area**	
Allotment[1]	**Hammett #1** (L)	**East Hammett #5** (L)	**Hammett #6** (L)	**Hammett #7** (M)	**South Camas** (M)	**North Slope** (M)	**Camas Creek Field** (M)	**North Camas** (M)	**East Bennett Mountain** (U)	**Hammett Livestock Company** (M)	**Ballantyne Section 15** (M)	**Joost Section 15** (M)		**BLM lands**	**All Owner-ships**
Phenology[2]	ESpr/ LSpr	ESpr/ LSpr/ LSum	ESpr/ LSpr	LSpr	LSum	LSpr/ LSum	LSpr	LSpr	LSum	LSpr	LSpr	LSpr			
Cover Type															
Bunchgrass	168 (1%)	66 (1%)	1,013 (16%)	47 (2%)	4 (<1%)	7 (1%)	2 (1%)	3 (1%)	6 (<1%)	12 (<1%)	0	1 (<1%)	1,329 (3%)	4,408 (4%)	5,719 (3%)
Exotic Annuals	84 (<1%)	50 (<1%)	16 (<1%)	0	0	1 (<1%)	0	0	0	5 (<1%)	3 (<1%)	1 (<1%)	160 (<1%)	7,006 (6%)	8,106 (5%)
Recent Burn[3]	4,040 (18%)	728 (7%)	3,335 (51%)	0	0	0	0	0	0	0	0	0	8,103 (16%)	32,307 (28%)	38,019 (23%)
Big Sagebrush/Big Sagebrush Mix	7,757 (35%)	2,599 (25%)	346 (5%)	3 (<1%)	2 (<1%)	52 (6%)	0	0	1 (<1%)	18 (<1%)	1	0	10,759 (21%)	33,791 (29%)	37,927 (23%)
Bitterbrush	9 (<1%)	31 (<1%)	3 (<1%)	1 (<1%)	0	20 (2%)	0	0	0	589 (13%)	74 (10%)	128 (32%)	855 (2%)	926 (1%)	1,138 (1%)
Low Sagebrush	1,573 (7%)	1,445 (14%)	0	1 (<1%)	0	0	0	0	0	0	0	0	3,019 (6%)	3,664 (3%)	4,022 (2%)
Mountain Big Sagebrush	6,843 (31%)	3,069 (29%)	764 (12%)	1,554 (67%)	389 (40%)	279 (31%)	117 (61%)	262 (47%)	309 (20%)	296 (6%)	37 (5%)	29 (7%)	13,948 (27%)	19,010 (16%)	38,807 (24%)
Mountain Shrub	348 (2%)	651 (6%)	58 (1%)	406 (18%)	515 (53%)	146 (16%)	64 (34%)	251 (45%)	504 (33%)	1,621 (35%)	332 (46%)	114 (29%)	5,010 (10%)	5,178 (4%)	13,099 (8%)
Rabbitbrush	29 (<1%)	160 (2%)	669 (10%)	51 (2%)	0	105 (12%)	1 (1%)	0	9 (1%)	386 (8%)	50 (7%)	37 (9%)	1,497 (3%)	1,986 (2%)	3,477 (2%)
Aspen/Conifer	499 (2%)	1,205 (11%)	230 (4%)	160 (7%)	36 (4%)	249 (28%)	6 (3%)	35 (6%)	665 (44%)	1,611 (35%)	221 (31%)	74 (19%)	4,991 (10%)	5,267 (4%)	8,113 (5%)
Other[4]	591 (3%)	499 (5%)	98 (2%)	94 (4%)	18 (2%)	39 (4%)	1 (1%)	11 (2%)	23 (2%)	130 (3%)	3 (<1%)	13 (3%)	1,520 (3%)	3,560 (3%)	6,058 (4%)
TOTAL ACRES[5]	21,941	10,503	6,532	2,317	964	898	191	562	1,517	4,668	721	397	51,211	117,103	164,485

[1] L = not meeting Standard 4 due significantly to current livestock management; O = not meeting Standard 4 due to other reasons; M = meeting Standard.
[2] Time frames (ESpr, LSpr, LSum) follow plant phenology periods associated with precipitation and elevation characteristics described in Appendix 9.

[3] Burned between 2000 and 2012. Shrub overstory was largely eliminated and area currently dominated by perennial grasses and/or exotic annuals. Does not include 2013 fires (Map 5a).
[4] Other includes Agriculture, Urban, Rocky/Unvegetated, Wet Meadow, and Unclassified cover types that are not relevant to upland vegetation and will not be discussed further.
[5] Acre figures don't match Table 2 because of GIS analysis differences.

Mountain Big Sagebrush

This cover type comprises 27% of upland vegetation and includes communities of mountain big sagebrush with antelope bitterbrush and/or bunchgrass, and mountain shrub complexes. Bluebunch wheatgrass and Idaho fescue are common grasses. Species that occur within the Mountain Shrub cover type may also occur here. This is the most abundant cover type due to its presence in significant amounts (12% to 67%) in all but the three allotments in the Central Rocky Mountains MLRA – Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15 – where it comprises 5-7% of the uplands.

Big Sagebrush/Big Sagebrush Mix

This cover type comprises 21% of upland vegetation and includes Wyoming big sagebrush communities with Sandberg bluegrass, and/or bluebunch wheatgrass, and/or squirreltail understories. Cheatgrass is often present in these communities where disturbance has facilitated its spread. Crested wheatgrass may be present as a result of seedings. Grass composition and relative abundance varies depending on site-specific characteristics. Inclusions of basin big sagebrush and, to a lesser degree, mountain big sagebrush communities may also be present, as well as other bunchgrasses present in the Bunchgrass cover type depending upon the community's site characteristics. This is the second most common cover type due largely to its presence in the three largest allotments – Hammett #1, East Hammett #5, and Hammett #6 – where it makes up 5-35% of the uplands.

Mountain Shrub

Curl-leaf mountain mahogany and snowbrush ceanothus communities make up this type, along with common snowberry, mountain snowberry, and wax currant. The cover type comprises 10% of upland vegetation of the combined acreage; however, it comprises significant portions (16% to 53%) of all but the three biggest allotments (Hammett #1, East Hammett #5, and Hammett #6) where it makes up 1% to 6%.

Aspen/Conifer

These cover types comprise 10% of upland vegetation. Quaking aspen communities occur in all but one allotment (Joost Section 15), and in trace to minor proportions (1% to 10%). Aspen stands (clones) frequently occur under heavy competition from conifers and some may have inadvertently been included in the Conifer cover type. Consequently, this group may be under-represented in terms of its distribution. Coniferous species include Douglas-fir, subalpine fir, and ponderosa pine. Communities are mixtures of these species in ratios dictated by site-specific characteristics (e.g., elevation, aspect, and wildland fire history). This cover type makes up 19% to 28% of the three allotments in the Central Rocky Mountains MLRA and 20% and 34% of North Slope and East Bennett Mountain allotments, respectively.

The vast majority of forest communities are in a mid-seral stage. Due to wildland fire suppression over the last 100+ years, some scattered late seral, multi-story stands exist. Little old, single-story forest is present due to a lack of natural under burning and/or effective prescribed under burning, and proximity to populated areas. Most communities have limited herbaceous understory.

Low Sagebrush
The cover type comprises 6% of upland vegetation and includes bunchgrasses such as Idaho fescue, bluebunch wheatgrass, and Sandberg bluegrass. Shrubs, such as green rabbitbrush and Wyoming big sagebrush, can also be present. Low sagebrush communities are present primarily in the two biggest allotments (Hammett #1 and East Hammett #5), but in minor proportions (7% to 14%).

Rabbitbrush
Green rabbitbrush, bunchgrasses, and cheatgrass are the predominant community elements. Big sagebrush is another typical component. Rubber rabbitbrush may also occur here. The cover type comprises 3% of upland vegetation and is present in trace to minor proportions (>1% to 12%) in 10 allotments.

Bunchgrass
Bunchgrass and cheatgrass within big sagebrush communities, bunchgrass with cheatgrass within various shrub communities, and bunchgrass complexes exemplify this type. Bunchgrasses may include, but are not limited to, bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, squirreltail, basin wildrye, needlegrass spp., and Indian ricegrass. Shrubs are a minor component and may include any of those mentioned in this section, and will depend upon site characteristics. The bunchgrass cover type comprises 3% of upland vegetation and is a significant portion (16%) of Hammett #6, but makes up <1% to 2% of the uplands in each of the remaining 11 allotments.

Bitterbrush
Antelope bitterbrush, bunchgrasses with cheatgrass, and bitterbrush/bunchgrass complexes comprise this type. Primary bunchgrasses include bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, and squirreltail. This cover type comprises 2% of upland vegetation and is most common in the three northernmost allotments (Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15) comprising 10% to 32% of the uplands. The remaining allotments have trace to small proportions (<1% to 2%) of the Bitterbrush cover type or none.

Exotic Annual
Exotic annual grasses (e.g., cheatgrass, medusahead, or both) and forbs, primarily bur buttercup and mustards (e.g., tumble and tansy mustards, and clasping pepperweed), comprise this cover type. These species, particularly cheatgrass, are common invaders of burned and disturbed areas (Pellant 2000); and may be present among the other cover types, particularly Big Sagebrush/Big Sagebrush Mix, Rabbitbrush, and Salt Desert Shrub, where disturbance has facilitated their spread. This cover type comprises <1% of upland vegetation; however, exotic annuals could dominate lower elevations (<5,000 feet) of recently burned areas.

Condition
Plant community condition varies from reference or near reference conditions (almost no alteration in community component diversity or abundance) to areas with moderate and even major (e.g., exotic annual dominated) alterations, though these are limited. Areas within MLRAs that experience ≥12 inches annual precipitation are generally higher in elevation (>5,000 feet) and typically support vegetation more resilient to disturbance than vegetative communities

occurring in lower precipitation (<12 inches) and elevation (≤5,000 feet) zones. Factors influencing condition include natural events (e.g., wildland fire, drought) and anthropogenic actions (e.g., livestock grazing, OHV use, vegetation treatments, and road construction and maintenance). Historic livestock grazing practices in combination with episodes of drought and wildland fire have altered native plant species compositions to varying degrees, particularly at lower elevations.

Standard 4 applies to all allotments because, overall, their vegetative communities are maintaining 25 to 30% composition of sagebrush or other woody species (i.e., mountain shrubs) regardless of the understory. That range approximates the Ecological Site Descriptions for shrubs respective to each ecological site.

Allotments Meeting Standard 4

The allotments have experienced only minor shifts in vegetative community attributes, or issues are localized and small in scale. All are entirely above 5,000 feet except the three northernmost allotments (Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15), which are generally well armored with gravel/rock and receive greater precipitation (16 to 24 inches/year) than the more southern allotments at similar elevations. Overall, native plant diversity (number and type of species) is being maintained and native herbaceous perennial plants (bunchgrasses and forbs) and shrubs are vigorous and productive (capable of reproduction and recruitment). Mountain big sagebrush and mountain shrub communities are the primary plant communities. The Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15 allotments (5,781 acres) in the Central Rocky Mountains MLRA and the Hammett #7, South Camas, North Slope, Camas Creek Field, and North Camas allotments (4,871 acres) in the Central Rocky and Blue Mountain Foothills MLRA are meeting the native plant community standard (Map 6a, Table 12, USDI 2014).

Allotments Not Meeting Standard 4

Where specialists identified rangeland health issues in one or more pastures (or portions of one or more pastures) of an allotment, the allotment did not meet the standard(s) associated with the issues. Failure to achieve Standard 4 is largely due to reductions in the amount and poor vigor of larger, more palatable bunchgrasses, primarily in Wyoming big sagebrush and mountain big sagebrush communities. Perennial forbs are often lacking, either in terms of diversity, abundance, or both. Exotic annual grasses are often present in communities that are not meeting the standard. In general, the portions of allotments that are not meeting Standard 4 are below 5,000 feet elevation where plant communities tend to be less resilient. The Hammett #1, East Hammett #5, Hammett #6, and East Bennett Mountain allotments (39,261 acres) in the Central Rocky and Blue Mountain Foothills and Snake River Plains MLRA are not meeting Standard 4 (Map 6a, Table 12, USDI 2014).

Mountain big sagebrush and/or Wyoming big sagebrush communities in these allotments exhibit two common scenarios: 1) dominant understory grasses have shifted from larger, native perennial bunchgrasses (e.g., bluebunch wheatgrass) to smaller native perennial bunchgrasses (e.g., Sandberg bluegrass); or 2) exotic annuals are abundant or dominant in shrub understories and/or interspaces. Larger bunchgrasses along with perennial forbs may be present to varying degrees – from trace amounts to common – depending upon past disturbance. In a few areas

(above 5,000 feet), mountain big sagebrush has become so dense that herbaceous understory species have largely been excluded from the community.

Inclusions of low sagebrush communities have undergone shifts similar to Wyoming and mountain big sagebrush communities. However, the gravelly/rocky nature of many of these areas generally minimizes disturbance.

Livestock were considered to be a contributing factor to not meeting the standard in Hammett #1, East Hammett #5, and Hammett #6 primarily because of annual use during the growing period (USDI 2014). Factors other than livestock use were responsible for not meeting the standard in East Bennett Mountain (increased sagebrush cover that limited perennial grasses).

Trend

Since the Assessments, Evaluations, and draft Determinations were completed (February 2010), plant community trend data were updated across the Bennett Mountain MA. Frequency data were collected at permanent study locations in 2010 and 2011; Evaluations and Determinations have been updated accordingly (USDI 2014). Plant community trends have remained stable between 2004 and 2010 and 2011 in the allotments meeting Standard 4, and vegetative communities are being maintained. Below is a brief discussion for those allotments that are not meeting the standard. East Hammett #5 and East Bennett Mountain are presented together because they are currently used jointly in a rotational system.

Hammett #1 (01033)

Overall plant community trend was static to downward between 1988/1990 and 2010/2011. Trend was slightly upward at one study site, static at four, and downward at three. The upward trend showed an increase in native oatgrass and maintenance of other grasses and shrubs. At sites with static trends, frequencies of perennial grasses and shrubs were maintained; however, tall- (bluebunch wheatgrass) and mid- (Idaho fescue) stature bunchgrass frequencies were substantially below expected levels at some sites. A sites with downward trends, bluebunch wheatgrass frequencies decreased, mid-stature grass frequencies were static (some at reduced levels), and shrub frequencies were static. Cheatgrass was static (three sites) or increasing (four sites).

East Hammett #5 (01037) and East Bennett Mountain (01101)

Overall plant community trend was downward between 1987/1988 and 2011 (East Hammett #5) or 1988 and 2010 (East Bennett Mountain). Sagebrush frequencies were static to increasing, tall-stature bunchgrass frequencies decreased to substantially below expected levels, mid-stature bunchgrass (i.e., needlegrass, Idaho fescue, squirreltail) frequencies were static or decreasing, low-stature bunchgrasses (i.e., Sandberg bluegrass) frequencies decreased or they were a minor component in the community. Cheatgrass frequencies were static in East Hammett #5 and cheatgrass was not present in East Bennett Mountain. At upper elevations in both allotments, increasing shrub cover was likely a factor in bunchgrass declines.

Hammett #6 (01038)

Overall plant community trend was static to downward between 1987/1990 and 2011. Trend was static at the study site affected by a 2000 wildfire, but downward in sites not affected by

wildfire. Tall-, mid-, and low-stature grasses were recovering to pre-burn frequencies. In the big sagebrush site not affected by wildfire, frequencies of bluebunch wheatgrass, squirreltail, and Sandberg bluegrass decreased. At the remaining sites, low sagebrush and Sandberg bluegrass decreased and bluebunch wheatgrass and squirreltail frequencies were static to slightly down. Cheatgrass increased at all sites.

Trend sites were largely unaffected by recent fires (2010 Hot Tea and 2012 Stout); therefore, they do not represent the lower portion of the allotment which burned in 2010 and 2012. Shrub cover was substantially reduced or eliminated in burned areas. The area was aerially seeded with shrubs and perennial grasses and forbs following each fire. Seeding effectiveness monitoring for the Hot Tea Fire treatments showed vegetation rehabilitation objectives (cover, density, and diversity) were being met, except where the Stout fire overlapped the Hot Tea burn area (which was seeded again in fall 2012).

3.2.2 Environmental Consequences – Upland Vegetation

The following assumptions apply for analysis purposes:

- Only environmental consequences to upland vegetation on public lands are considered in this analysis; therefore, all acres and percentages reported refer solely to BLM-administered lands.
- Short-term effects to upland vegetation would be <3 years; long-term effects would be ≥3 years.

3.2.2.1 General Discussion of Impacts

The general discussion of livestock grazing-related effects is common to all action alternatives (B, C, and D). Direct impacts to vegetation include reductions in biomass via ingestion (grazing) and breakage (injury, deformity) via trampling. Indirect effects include potential degradation of vegetative communities associated with livestock grazing activities, and the potential spread of weedy species passively and/or by livestock transport (vectors).

The Magnitude of Effects discussion describes the primary livestock factors that could influence vegetation responses. These sources are addressed where appropriate for broad vegetative types (perennial herbaceous vegetation, annual vegetation, and woody vegetation) potentially affected. Perennial herbaceous vegetation includes native and introduced perennial grasses and forbs. Annual vegetation includes native and introduced grasses and forbs. Woody vegetation includes shrubs and trees. Effects to vegetation are grouped by source (grazing, trampling, and vectors).

Magnitude of Effects

The type and magnitude of effects to upland vegetation by livestock depend on stocking rate (the number of livestock for a period of time in a given area or acres/AUM), utilization, timing (during active growth or dormancy), grazing system, duration, and ability of vegetative communities to withstand disturbance (resiliency). How each of these factors operate is discussed below followed by a discussion of how they could interact to affect vegetation. Finally, context and intensity for these factors is provided by alternative.

Stocking Rate

Stocking rate is perhaps the most important component in determining plant responses to grazing (Holechek et al. 1999, Briske et al. 2011). Impacts would increase as stocking rate increases for a given area (Ralphs et al. 1990, Holechek et al. 1999, Holechek et al. 2000). Higher stocking rates would increase potential to trample or ingest vegetation compared to lower stocking rates. Stocking rate typically assumes that all portions of a pasture or allotment are equally available and utilized by livestock. However, lack of capability to support grazing (as measured by distance from water, slope, vegetation community, or amount of surface rock) could limit areas available for livestock use and effectively increase the actual stocking rate in accessible areas. Upper elevation sites with greater precipitation and productivity could sustain higher stocking rates than lower elevations.

Utilization

Responses to utilization (percent of current year's production consumed or destroyed) vary by plant type and timing (see below). Utilization is a function of stocking rate, annual vegetation productivity, palatability, availability, and animal distribution. As stocking rate increases, utilization would likely increase. At identical stocking rates, utilization during average or greater annual productivity (generally correlated to above average precipitation) could be light to moderate, but moderate to severe during below average annual productivity. Utilization would be greater on palatable species than less palatable species, regardless of their abundance or productivity. Exotic annuals with protective mechanisms could be avoided during some periods (e.g., cured cheatgrass is avoided between seed ripe and seed drop because of sharp awns, dormant medusahead is avoided because of high silica content). Utilization could increase on palatable shrubs (e.g., bitterbrush) as herbaceous plants go dormant in mid-summer. Utilization would be greater on available plants (e.g., those not protected by shrubs, rocks) than unavailable plants. Utilization, especially for cattle would decrease as percent slope, distance from water or supplement sources, or amount of surface rock increase.

Timing

Grazing when plants are initiating growth or actively growing (typically in spring) would impact them more than when they are dormant (perennials) or have completed their life cycle (annuals). Adverse impacts could be greatest when grazing occurs during the critical growth period (i.e., between seed stalk emergence and seed dissemination), especially for perennial grasses. Utilization during periods when plants are withdrawing reserves from roots for growth, during re-growth, or during seed formation will impact herbaceous species to a greater degree than the same level of utilization when the plant is dormant. Use during both the spring and fall can reduce perennial grass vigor (McLean and Wikeem 1985). Rest or utilization during the dormant period would allow perennial grasses to maintain or improve their vigor and reproductive capabilities.

Grazing System

Grazing use can be characterized as season-long (grazing during the entire growing season and all or a portion of the dormant season) or a system that provides deferment (a period of nonuse during part or all of the growing season) or rest (nonuse occurs for 12 or more consecutive months), generally by a rotation through pastures (Howery et al. 2000). Plant production under a rotational system could be similar (Briske et al. 2008) or increased (Van Poollen and Lacey

1979) relative to continuous grazing. Systems that provide periods of undisturbed cover benefit other resources (e.g., nesting cover; Krausman et al. 2009). Season-long grazing could maintain conditions where utilization is uniformly distributed and stocking rates are low, but would lead to long-term declines in concentrated use areas or at high stocking rates.

Conditions could be maintained or improved with deferment or rest systems (Kothman 2009); however, improvements would not occur where >50% utilization occurs (Holechek et al. 1998a). A rest-rotation system more closely approximates native animal grazing, and consequently native plant adaptations to grazing pressure, are more closely approximated by a rest-rotation system than a short-duration, high intensity system (Platou and Tueller 1985); therefore, perennial bunchgrasses would be expected to maintain or increase in a rest-rotation system. Success of systems could be influenced by operator and livestock behavior (Brunson and Burritt 2009).

Duration

Short-duration grazing could limit the amount of overlap with the growing period, potentially allowing use outside the critical growth period or regrowth that could reduce growing season impacts. With appropriate utilization levels (light or less) and some critical growth season rest, the physiological needs of plants could be met over the long term. However, physical damage to plants (trampling) could affect survival. Where livestock numbers are increased and AUMs remain constant, the grazing duration would be decreased, which effectively mimics a short duration/high intensity system.

Increases in maximum number of livestock could increase (or exacerbate) impacts above current or expected levels and duration of those impacts would depend on the frequency of use at that level (van Poollen and Lacey 1979, Holechek et al. 1998a, Holechek et al. 2000). At low frequency (1-3 times over 10 years), impacts would be negligible to minor and short-term. At higher frequency (≥4 times over 10 years), long-term minor to moderate trampling impacts would result; more plants would be damaged and vigor and/or frequency would be negatively affected.

Resiliency

Areas within MLRAs that experience higher precipitation (≥12 inches/year) and are usually higher in elevation (e.g., above 5,000 feet in the Central Rocky Mountains and Central Rocky & Blue Mountain Foothills) typically support vegetation more resilient to disturbance than vegetative communities at lower precipitation (<12 inches/year) and elevation. Communities that most closely represent reference conditions (i.e., composition and cover of vegetation species, including biological soil crusts, are at site potential) are more resilient than those that have diverged substantially. Communities that have crossed a threshold (e.g., exotic annual grasses and forbs have replaced native species) are also resilient to change and generally could not be expected to recover native components without vegetation treatments (e.g., herbicide application, seeding).

Effects of Grazing

Perennial Herbaceous Vegetation

Livestock graze preferentially on herbaceous components of the plant community to the extent that they are actively growing, non-toxic, and non-piercing. Grasses could maintain vigor and

density with repeated light levels of use or low stocking levels during the growing period; however, some species (e.g., bluebunch wheatgrass) could decline over the long term (Anderson 1991). Native perennial grasses would decrease or be eliminated over the long term with consistent moderate or greater utilization or moderate stocking levels during the spring because bunchgrasses cannot achieve adequate re-growth to set seed or replace carbohydrate root reserves (Anderson 1991). Heavy utilization or high stocking levels during the dormant period would have a similar effect (Holechek et al. 1998b). Remaining grasses would be smaller and less vigorous (than lightly utilized plants), or would be found mainly under shrub canopies where they are difficult to reach. Grasses would be maintained with light to moderate use during the dormant period. Species that are preferentially used would decline over the long term, especially where competition from exotic annuals or shrubs occurs.

Annual Vegetation

Grazing removes biomass and could kill plants, but these impacts would be short-term due to the high fecundity and short life cycles of annuals. Palatability and rapid growth is typically earlier than the rapid growth phase for most perennial native grasses (cold-season perennials such as Sandberg bluegrass and bottlebrush squirreltail are exceptions).

Grazing in these communities during the winter or early spring could result in some minor short-term indirect benefit for perennial native species by relieving some of the grazing pressure and competition on native perennial grasses. However, the timeframe to realize this benefit can be narrow and unpredictable. Some simulated grazing studies suggest that grazing cheatgrass in the spring stimulates tillers and greater seed production (Clements et al. 2008). Little change to annual vegetation would be anticipated regardless of use level.

Woody Vegetation

Livestock prefer herbaceous vegetation, but will increasingly utilize woody species (e.g., bitterbrush and mountain mahogany) for browse as herbaceous vegetation goes dormant (Stuth and Winward 1977, Ganskopp et al. 1999, Ganskopp et al. 2004). Reductions in biomass of browse species would be greater when herbaceous vegetation is dormant. Consistent heavy to severe use could reduce vigor and reproduction of palatable shrubs over the long term. Shrubs would be maintained over the long term where combined livestock and wildlife use levels are consistently <50-65% (Austin 2000). In aspen stands, livestock use can lead to decreased aspen regeneration that can be exacerbated where deer numbers are high (Kay and Bartos 2000); however, other factors such as climatic variation can influence establishment and expansion of aspen and Douglas-fir (Sankey et al. 2006).

Effects of Trampling

Perennial Herbaceous Vegetation

Trampling perennial herbaceous plants could reduce productivity but would be unlikely to result in mortality of established plants. Trampling could uproot perennial plant seedlings and young plants, resulting in mortality to those plants. This group is generally more resilient to trampling than shrubs or annual plants due to its more flexible tissues and more extensive root systems.

Trampling would generally produce less of an impact during dormancy than during growth because perennial plants are less susceptible to above-ground injury when dormant. Soil

compaction (Section 3.1.2.1) from trampling also affects vegetation by reducing water and oxygen infiltration and restricting root growth. Biological soil crusts are most susceptible to trampling damage when soils are dry and would decline under consistent summer or early fall use (July-October). Maximum livestock numbers would cause greater levels of trampling damage, especially where concentrated use occurs (e.g., concentrated use areas, bedding areas), allowing exotic annuals to increase and native perennial species to decrease over the long term (Brooks et al. 2006).

Annual Vegetation

Trampling could result in injury or mortality, and/or seed bank reductions if trampled during their growing season (before seed set/dissemination). Seedbank reductions would be short-term and negligible to minor due to abbreviated life cycles and generally high fecundity, particularly for introduced and/or invasive species (e.g., cheatgrass).

Woody Vegetation

Trampling of shrubs would deform mature individuals and could kill immature shrubs (Owens and Norton 1990). Similarly, trees would be deformed by livestock breaking limbs of mature plants or killed by trampling seedlings or immature plants. Brittle shrubs, such as bitterbrush and shadscale, are more sensitive to trampling than more flexible shrubs, such as rabbitbrush. Shrub seedlings are more sensitive to trampling and dislodgement than older plants. Woody species within livestock grazing areas would generally display more deformities and fewer young plants than adjacent stands.

Effects of Vectors

Livestock may transport weed seeds that adhere to their bodies or drop undigested weed seeds in their feces. Cheatgrass can spread in this manner (Young and Longland 1996). Livestock grazing could indirectly elevate competition for limited resources between existing native and imported exotic species if they import and deposit exotic plant materials (Laycock and Conrad 1981). Livestock grazing could also have indirect minor short-term benefits for upland vegetation by dispersing native seeds and creating microhabitats for native species through localized soil disturbance (Burkhardt 1996); however, species richness and density of exotic grasses in cattle feces is an order of magnitude greater per animal in cattle feces than native ungulates (Bartuszevige and Endress 2008). Increases in exotic species would be greatest where livestock concentrate and soil disturbance occurs (Brooks et al. 2006)

Indirect Effects

Long-term ecological trends would be affected by livestock grazing. Ecological condition would decline over the long-term where grazing practices cause tall-stature perennial grasses to decrease. Direct impacts that weaken or reduce perennial vegetation create areas that are vulnerable to invasion by exotic annuals. Weedy species that become established could spread into adjacent plant communities resulting in increased competition for resources over the short- and long-term. Annual dominated areas would produce less reliable forage (because of annual fluctuations in precipitation) and be more susceptible to wildfires.

Upper elevation plant communities (e.g., above 5,000 feet) would be more resistant to invasion by exotic annuals than those at lower elevations in lower precipitation zones because native

species are more competitive and cover is greater, limiting the amount of disturbed areas susceptible to invasives. Where shallow-rooted perennial grasses dominate in shrub interspaces and deep-rooted species persist in shrub understories, long-term improvement in condition could occur where grazing is modified to reduce or eliminate impacts to deep-rooted species. Grazing practices that maintain or increase tall-stature perennial grasses and other native species would maintain or improve ecological conditions over the long-term

Project Related Impacts

Rangeland management projects (i.e., fences and water developments) also affect upland vegetation. Projects can improve livestock distribution across a landscape. Proper distribution of livestock can reduce the magnitude of grazing and trampling impacts to vegetation (Bailey et al. 1996). Net positive long-term impacts to upland vegetation would be expected via improved dispersion of cattle and "full" implementation of grazing rotation systems; as fences prevent drift more successfully than herding alone. Water developments can be used to draw livestock away from over-utilized areas, thus decreasing livestock use in one area by increasing it in another in order to benefit upland vegetation or riparian areas.

Negative impacts include direct short-term breakage and removal of vegetation during project construction. Long-term impacts to vegetation result from repeated disturbance at these sites because livestock tend to trail along fencelines and congregate at water developments resulting in trampling damage and soil surface disturbance that could contribute to increased invasive species colonization. Vegetation in these areas tends to be sparser and/or consist of weedy or early seral species. These impacts are typically greatest within 50 feet to either side of fences and 200 feet around a water development; though a disturbance area up to 0.25 mile around water developments is common (Brooks et al. 2006). Long-term severity of impacts decreases with distance from these features.

3.2.2.2 Comparison of Alternatives

A summary of impacts to upland vegetation and outcome resulting from each alternative is displayed in Table 13. These impacts are described more fully in the sections for each alternative below.

Table 13. Comparison of overall impacts by alternative and outcome regarding Standard 4 for the Bennett Mountain North allotments, Elmore County, Idaho.

Issue/Objective	Indicator[1]	Alternative			
		A	B and B*[2]	C	D
Meet or make significant[3] progress toward meeting Standard 4 Maintain or improve native perennial plant diversity, abundance, vigor, productivity	-Trend data (quantitative) -Cover data (quantitative) -Rangeland health assessments (qualitative) -Utilization data (quantitative)	Allotments Meeting			
		Would continue meeting; minor improvements	Would continue meeting; negligible to minor impacts	Would continue meeting; minor impacts	Same as C
		Allotments Not Meeting			
		Would meet[4] or make significant progress toward meeting; moderate to major improvements	Would not make progress toward meeting; moderate impacts *Would make limited progress toward meeting; negligible to minor improvements	Would make slow but significant progress toward meeting; minor to moderate improvements	Would make significant progress toward meeting; moderate improvements

[1] Trend data include NPFT = nested plot frequency transect; PP = photo plot; Cover data include point intercept.
[2] B = As Permitted; B* = Adjusted Management.
[3] Measurable and/or observable progress; may or may not be statistically significant.
[4] Some plant communities (i.e., dense mountain big sagebrush stands and areas dominated by invasive exotic annual grasses) would exhibit little change without vegetation treatment regardless of the alternative selected. Overall, however, plant communities would improve and Standard 4 would be met.

3.2.2.3 **Alternative A - No Grazing**

Eight allotments would continue to meet Standard 4 (10,652 acres) over the long term; most plant communities in four allotments that are not meeting (39,261 acres) would meet or make significant progress toward meeting the native plant community standard. Livestock effects associated with grazing, trampling, and vectors would not occur. Some plant communities (i.e., dense mountain big sagebrush stands and areas dominated by invasive exotic annual grasses) would exhibit little change over the 10-year term without vegetation treatment (e.g., mowing, prescribed fire). Overall, however, plant communities would exhibit minor to major improvements over ten years. The degree of upland vegetation benefits would depend on the present ecological condition and components of the plant community.

Allotments Meeting Standard 4

The Hammett #7, South Camas, North Slope, Camas Creek Field, North Camas, Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15 allotments would meet Standard 4 over the long term, supporting resilient, functioning native plant communities over 10,652 acres. Areas that were repeatedly grazed but are currently near reference condition in terms of native species diversity and frequency would exhibit minor improvements in plant vigor. In turn, native species would have the opportunity to expand into nearby disturbed areas over the long term. Moderate improvements could occur where trampling and grazing impacts are removed from concentrated use areas, but allotment-wide impacts would be minor overall.

Condition and functioning of vegetative communities in the Joost Section 15 Allotment would remain the same, as no grazing is effectively no change from current management.

Allotments Not Meeting Standard 4

Ten years without livestock grazing or trampling impacts would allow the Hammett #1, East Hammett #5, Hammett #6, and East Bennett Mountain allotments to meet or make significant progress toward meeting Standard 4. Minor to major improvements over 39,261 acres in plant community composition and vigor would result. In general, native perennial plants would increase in number and distribution over the 10-year period. Perennial grasses and forbs would complete growth and set seed annually, improving root reserves and reproductive potential resulting in increased vigor and frequency.

In general, improvements would be most notable in Mountain Big Sagebrush, Big Sagebrush/Big Sagebrush Mix, Low Sagebrush, and Bunchgrass cover types, where perennial grasses and forbs together typically comprise over half of the plant community in terms of abundance. These communities are most often frequented by livestock due to accessibility and the general abundance of perennial herbaceous forage. Extended rest would result in moderate benefits on up to 10,985 acres of mountain big sagebrush, 10,703 acres of Wyoming big sagebrush, 3,018 acres of low sagebrush, and 1,253 acres of native perennial bunchgrass communities (Table 14). Plant communities comprising the remaining cover types (14,534 acres) would display overall minor improvements because these areas were less affected or utilized by livestock or were recently burned.

Table 14. Comparison of impact magnitude to plant communities in the four allotments not meeting Standard 4, Bennett Mountain North, Elmore County, Idaho.

Allotment (Number)	**Cover Type**				
	Mountain Big Sagebrush	**Big Sagebrush/Big Sagebrush Mix**	**Low Sagebrush**	**Bunchgrass**	**Various[1]**
Hammett #1 (01033)	Up to 6,843 acres (31%)	Up to 7,757 acres (35%)	Up to 1,573 acres (7%)	Up to 168 acres (1%)	Up to 5,600 acres (26%)
Hammett #6 (01038)	Up to 764 acres (12%)	Up to 346 acres (5%)	0	Up to 1,013 acres (16%)	Up to 4,409 acres (67%)
East Hammett #5 (01037)	Up to 3,069 acres (29%)	Up to 2,599 acres (25%)	Up to 1,445 acres (14%)	Up to 66 acres (1%)	Up to 3,324 acres (32%)
East Bennett Mountain (01101)	Up to 309 acres (20%)	0	0	0	Up to 1,201 acres (80%)
Totals[2]	Up to 10,985 acres (27%)	Up to 10,703 acres (26%)	Up to 3,018 acres (7%)	Up to 1,253 acres (3%)	Up to 14,534 acres (36%)
Impact Magnitude	Moderate to Major	Moderate to Major	Moderate	Moderate to Major	Minor
Overall Magnitude of Impacts in the four Allotments – Moderate					

[1]Various includes the remaining cover types (Table 12).

[2]The percentage reflects the proportion of the acreage of all cover types comprising the twelve allotments.

Extended rest would create opportunities for re-vegetation by and/or an increase of perennial grasses and forbs in disturbed areas where there is an adequate seed source or seed bank of perennial herbaceous species. Frequencies of tall- and mid-stature perennial grasses would increase over the short and long term. Exceptions include plant communities where heavy shrub cover (i.e., upper elevation portions of East Hammett #5 and East Bennett Mountain) or

dominance by invasive exotic annual species (i.e., south portion of Hammett #1 and portions of Hammett #6 Pasture 6). These areas would require vegetation treatments (e.g., seedings, exotic annual control) for herbaceous perennial plants to increase.

Perennial grasses in exotic annual communities (150 acres) would experience negligible to minor benefits, overall. Over the course of ten years, annual fluctuations in precipitation would be largely responsible for abundance of annual vegetation (particularly cheatgrass and medusahead). Perennial herbaceous vegetation could have increased opportunity to germinate among such communities without pressure from livestock grazing, but the overall effect would be negligible due to the germination capabilities and high fecundity of exotic annuals.

Woody vegetation (i.e., Wyoming big sagebrush, mountain big sagebrush, low sagebrush, aspen, or other shrubs) where livestock congregated would display fewer deformities. In the absence of wildland fire, there could be minor increases in shrub frequency.

3.2.2.4 **Alternative B - Continue Current Management**

Allotments Meeting Standard 4

The allotments (10,652 acres) would continue to meet Standard 4 over the short and long term. The shrub and grass dominated plant communities are resilient and highly productive; therefore, grazing and trampling would have negligible to minor impacts over the 10-year permit, even with spring grazing and/or high stocking rates (Table 15). The four allotments with high stocking rates (Camas Creek Field, North Camas, North Slope, and Ballantyne Section 15) contain mostly private, USFS, and/or State lands. The BLM-administered lands in these allotments do not appear to receive much use and current livestock management is maintaining functioning native plant communities (USDI 2014). Recent (2011) trend data collected in the North Slope Allotments indicated perennial herbaceous species diversity and frequency were being maintained. All eight allotments receive adequate annual precipitation to support current stocking rates over the long term. Conditions in the Joost Section 15 Allotment would be as described in Alternative A.

Table 15. Magnitude of impacts for the eight allotments meeting Standard 4, Alternative B, Bennett Mountain North, Elmore County, Idaho.

Season of Use	Allotment (Number)	Elevation (ft)	Stocking Rate acres/AUM	Impact Magnitude
Spring (late)	Ballantyne Section 15 (01198)	≥4,500	5.0	Negligible to minor
Season-long	North Slope (01044)	≥5,500	3.8	Negligible to minor
	Camas Creek Field (01091)	≥5,500	4.5	Negligible to minor
Spring/Fall[1]	Hammett Livestock Company (01195)	≥4,500	12.9	Negligible
Summer	Hammett #7 (01039)	≥6,000	6.2	Negligible to minor
	South Camas (01043)	≥6,000	12.8	Negligible
	North Camas (01098)	≥5,500	4.9	Negligible to minor
None	Joost Section 15 (01199)	≥4,500	---	None

[1]1195 Hammett Livestock Company is used in both spring and fall; however, fall use duration is short and generally associated with active movement of sheep (trailing).

Minor impacts to perennial herbaceous vegetation would occur where use overlaps a majority of the growing period in the North Slope, Camas Creek Field, Hammett Livestock Company, and

Ballantyne Section 15 allotments (Table 15). Minor grazing impacts to woody vegetation would occur in allotments with fall use (North Slope, Camas Creek Field, and Hammett Livestock Company).

Grazing and trampling impacts would continue to occur in concentrated use areas (e.g., water developments, supplement sites). Early seral plant species would be prevalent where livestock use these areas. Such areas of localized disturbance would persist, but would be small in scale (generally <2% of an allotmernt); therefore, overall maintenance of shrub, grass, and forb diversity and productivity would continue over the long term. Minor to moderate short-term trampling and grazing impacts (or long term if the same areas are used annually) would occur in sheep bedding grounds in the Hammett Livestock Company Allotment. Minor impacts from livestock as vectors would occur in areas of concentrated use, but would be negligible in remaining areas because native vegetation cover would limit seedling establishment.

Allotments Not Meeting Standard 4

As Permitted

The Hammett #1, East Hammett #5, Hammett #6, and East Bennett Mountain allotments (portions of 39,261 acres) would not make significant progress toward meeting Standard 4 (Table 4).

Table 16. Magnitude of impacts for the allotments not meeting Standard 4, Alternative B, Bennett Mountain North, Elmore County, Idaho.

Season of Use[1]	Allotment	Elevation (ft)	As Permitted		Adjusted Management	
			Stocking Rate Acres/AUM	Impact Magnitude	Stocking Rate Acres/AUM	Impact Magnitude
Spring/ Fall	Hammett #1 (01033)	4,000-6,000	5.6	Moderate -	Spring/Fall – 8.4-9.0 Fall – 30.2-32.3	Minor +
Spring	Hammett #6 (01038)	4,000-6,500	6.8	Moderate -		
Spring and Fall	East Hammett #5 (01037)	4,000-6,500	7.0	Moderate -	9.9	Minor to Moderate+
Summer	East Bennett Mountain (01101)	6,000-7,000	10.4	Negligible +/-	10.4	Negligible to Minor +

[1] Hammett #1 and East Hammett #5 generally have been utilized in east/west deferred rotations for the past 3 to 4 years. Hammett #6 pastures 1 and 2 are rested every other year.

Hammett #1 (01033) - Repeated annual spring use and moderate stocking levels would cause moderate grazing and trampling impacts to vegetation (Table 8). Impacts associated with moderate utilization during the growing and critical growth periods would occur annually and would cause continued downward trends for tall- and mid-stature grasses over the long term. Subsequent fall use, similar to season-long use, would have additional trampling and grazing impacts. Although portions of the allotment occur in higher precipitation zones, community resiliency would not be sufficient to offset grazing impacts, especially in areas with ≥40% spring utilization. Spring grazing impacts would be greatest in lower elevation areas when inadequate precipitation occurs to allow post-grazing regrowth, which would adversely affect perennial grass vigor and frequencies. Grazing as a potential annual grass control would not occur because perennial grasses would be preferentially used during the spring.

East Hammett #5 (01037) and East Bennett Mountain (01101) - Repeated annual spring use in East Hammett #5 and moderate stocking levels would cause moderate grazing and trampling impacts to vegetation (Table 8). Subsequent fall use, similar to season-long use, would have additional trampling and grazing impacts. Although most of the allotment occurs in higher precipitation zones, community resiliency would not be sufficient to offset annual spring grazing impacts, especially in areas with ≥40% spring utilization. Downward trends in tall- and mid-stature grasses would continue. Negligible changes to plant communities would occur in the East Bennett Mountain Allotment; the season of use would be mainly outside the perennial grass critical growth period, the permitted stocking rate would be low (although if conifer forest is considered largely unsuitable for livestock, then the stocking rate would be moderate), and plant communities would have stable/static trends. However, perennial grasses would continue to decline where shrub cover increases.

Hammett #6 (01038) - Repeated annual spring use and moderate stocking levels (Table 8) would cause moderate grazing and trampling impacts to vegetation. Although portions of the allotment occur in higher precipitation zones (pastures 1, 3, portions of 2, and eastern portions of pastures 4-6), community resiliency would not be sufficient to offset annual spring grazing impacts. Spring grazing impacts would be greatest in lower elevation areas when inadequate precipitation occurs to allow post-grazing regrowth. Tall- and mid-stature grasses would decline in lower elevations and areas that consistently receive ≥40% utilization, but would be maintained in upper elevations that receive <40% utilization. Grazing as a potential annual grass control would not occur because perennial grasses would be preferentially used during the spring. However, perennial grasses with growth periods occurring primarily after April 13 could benefit in pastures 4-6.

Overall plant community condition would remain static to downward (6,177 acres). Standard 4 would be met in upper elevation areas (pastures 1-3) and lower elevation areas that receive slight to light livestock use. Standard 4 would not be met in lower elevation areas that consistently receive moderate to heavy use or are dominated by exotic annuals. In 3,335 acres of recently burned areas, moderate progress would be made toward meeting Standard 4 where perennial grasses are maintained or increase over the long term; but it would not be met where exotic annuals dominate.

Adjusted Management

Negligible to minor improvements to vegetative communities would continue, and limited progress would be made toward meeting Standard 4. Voluntary changes in livestock management within existing terms and conditions to incorporate some deferment have benefited portions of these allotments (refer to Condition discussion in Section 3.2.1). All allotments would incur some level of grazing and trampling impacts, but deferment and lower stocking levels would reduce the magnitude of those impacts. Improvement to plant communities would be possible where perennial grasses are not consistently grazed in the spring and are utilized at light levels. Grazing and trampling impacts would continue where livestock congregate (e.g., water developments, mineral licks) and would be vegetated chiefly by weedy species, particularly at lower elevations.

Hammett #1 (01033) - Wyoming big sagebrush, mountain big sagebrush, low sagebrush, and bunchgrass communities would exhibit negligible to minor improvements over 16,341 acres. Implementation of a spring/fall rotation system at a low stocking rate (Table 8) would have a minor to moderate benefit to perennial grasses over the long term by reducing grazing and trampling impacts (relative to Alternative B-As Permitted). Tall-stature perennial grasses and perennial forbs would persist and remain vigorous in areas with lighter use or that receive consistent growing season rest in alternate years. However, use of herding (and topographic/geographic features) to implement grazing rotations creating an imaginary pasture boundary would not prevent some cattle from drifting across the imaginary boundary. Therefore, a portion of vegetation would be re-grazed, reducing recovery potential of those plants. Annual fall use would impact perennial grasses that are re-grazed (by allowing fall grazing in the same part of the allotment that was grazed in spring). Annual fall use of palatable shrubs could have minor to moderate grazing impacts where moderate to severe use consistently occurs.

In the northern two-thirds of the allotment (areas >4,500 feet), significant progress would be made toward meeting Standard 4 in areas receiving <40% spring utilization and negligible to minor progress would be made toward meeting the standard in areas receiving ≥40% spring utilization. Frequencies of perennial grasses would remain static (in areas receiving ≥40% use) or increase (in areas receiving <40% spring use). Standard 4 would not be met in annual grass-dominated sites below 4,500 feet where alternate growing season use and annual fall use in non-resilient communities would reduce perennial grass frequency. In 4,040 acres of recently burned areas, moderate, but not significant progress would be made toward meeting Standard 4 where perennial grasses are maintained or increase over the long term. No progress would be made toward meeting Standard 4 where exotic annuals dominate.

East Hammett #5 (01037) and East Bennett Mountain (01101) - Mountain big sagebrush, Wyoming big sagebrush, low sagebrush, and bunchgrass communities in East Hammett #5 (7,179 acres) would exhibit minor to moderate improvements where tall- and mid-stature perennial grasses would be maintained or increase. In East Bennett Mountain, mountain big sagebrush (where the shrub canopy is closed) and conifer communities would exhibit negligible changes, whereas minor to moderate increases in perennial grass frequencies would occur in shrub communities with grass understories. Lower stocking rates (a 41% reduction over Alternative B-As Permitted, Table 8) would reduce grazing and trampling impacts to perennial grasses by lowering the expected utilization levels. Implementation of a deferred-rotation system would reduce growing season impacts. However, the majority of use (80%) would be made in the growing season; therefore, perennial grass cover and vigor would remain static or possibly decline over the long term in concentrated use areas, where moderate to heavy use and inadequate recovery (only one year of deferred use) could adversely affect grasses. Slight to light fall use would have negligible grazing impacts on palatable shrubs. Herding would be employed to implement a deferred-rotation system involving both allotments. Vegetation responses to pastures implemented by herding would be similar to Hammett #1; however, terrain in these allotments is more restrictive. Fewer livestock would drift to the deferred imaginary pasture so fewer plants would be affected.

Overall plant community condition would remain static or improve over the long term (11,983 acres in both allotments). The majority of the allotments (northern two-thirds of East Hammett #5 and all of East Bennett Mountain) are in the 14-22" precipitation zone and would be somewhat resilient to grazing impacts. Standard 4 would be met over the long term in areas receiving <40% spring utilization, but vegetation conditions would remain static in areas consistently receiving ≥40% spring utilization. Standard 4 would not be met in areas with high densities of sagebrush or conifers (portions of both allotments), but livestock grazing would not be a factor. In 728 acres of recently burned areas, significant progress would be made toward meeting Standard 4 where perennial grasses are maintained or increase over the long term; but it would not be met where exotic annuals dominate.

3.2.2.5 **Alternative C - Permittee Application**

Allotments Meeting Standard 4

Standard 4 would continue to be met over the long term in the eight allotments (10,652 acres). Grazing and trampling impacts would be similar to Alternative B, but slightly greater in overall magnitude for allotments with proposed earlier turn-outs and/or extended use periods (South Hammett #7, West Hammett #7, South Camas, Camas Creek Field, Hammett Livestock Company, and Ballatyne Section 15). Effects would be essentially the same as Alternative B for the North Slope and North Camas allotments. Long-term effects from livestock dispersing seed (vectors) or influencing ecological trends would be negligible to minor because vegetation communities are generally healthy and resilient.

South Hammett #7 (01039)

Permitting June 1 turnout (versus July 1 in Alternative B) could cause minor short-term grazing impacts associated with increased use during the critical growth period for perennial grasses. However, deferment until after seed ripe two out of three years in the Blackhawk Pasture would minimize spring grazing-related impacts. Grazing and trampling impacts would be negligible in the remaining BLM-administered lands (Long Draw and West Fork pastures) because they generally occur further than 0.25 miles from concentrated use areas. The expected lighter utilization for perennial grasses (≤40% during critical growth) would also facilitate maintenance of Standard 4 over the long term.

The maximum number of livestock would match the total number of animals that could be in the allotment considering all ownerships. Because public lands make up 10% of the allotment, not all animals would be expected to be on public lands at the same time. Maintenance of the North Bourbon Spring development would not alter animal distribution because it is already available as a water source. Concentrated use grazing and trampling impacts would occur around the spring, but they would not be different than what is currently occurring in an isolated area. Therefore, concentrations of animals on public lands would not be different from current use patterns and using the maximum numbers would not affect plant communities.

West Hammett #7 (TBD)

A 30-day use extension to October 15 would cause greater livestock browse impacts on palatable shrubs than those described in Alternative B. Grazing would still largely take place outside the critical growth period for perennial grasses and the stocking rate would not change. Deferring use until July 1 (versus June 15 in Alternative B) would reduce growing season impacts on

perennial grasses and forbs. The maximum number of livestock would match the total number of animals that could be in the allotment considering all ownerships; therefore, because water sources are distributed throughout the pastures, concentrations of animals on public lands would not be different from current use patterns and using the maximum numbers would not affect plant communities. Therefore, native plant community health would be maintained, and Standard 4 would continue to be met over the long term.

South Camas (01043)

Negligible impacts to native plant communities would result from extending the season 1.5 months to September 30. Livestock turn-out would remain July 1, so the extended use would occur when perennial grasses are dormant. Negligible to minor impacts could occur if livestock utilization of woody vegetation increases. The maximum number of livestock would match the associated USFS permit, representing a 10% increase in numbers. Because of the low stocking rate (12.8 acres/AUM), concentrations of animals on public lands would not be different from current use patterns and using the maximum numbers would not affect plant communities. Maintenance of an existing water source (Section 24 Pond) would disturb vegetation immediately adjacent to the pond during the short term, but would not change current livestock distribution and concentrated use areas. Maintenance of Standard 4 would continue over the long term.

North Slope (01044)

Grazing and trampling impacts would be identical to Alternative B because no season of use or AUM changes are proposed. The current permit allows flexibility in livestock numbers; therefore, the proposed maximum livestock numbers represents use that typically occurs when all ownerships are considered. Concentrations of animals on public lands would not be different from current use patterns. Standard 4 would continue to be met over the long term.

Camas Creek Field (01091)

Combining the BLM and USFS allotments and implementing the USFS grazing system would have negligible effect on vegetative communities. Grazing and trampling impacts would be similar to those described in Alternative B because the timing and use levels would be essentially unchanged. The health of perennial grasses and shrubs would generally be maintained due to their high resiliency and productivity associated with the 16 to 24 inches/year precipitation zone. Minor impacts could occur in concentrated use areas; however, most BLM-administered lands are >0.15 miles from water sources. The maximum number of livestock would match the associated USFS permit. Concentrations of animals on public lands would not be different from current use patterns and the permitted AUMs would remain the same; therefore, using the maximum numbers would not affect plant communities. Standard 4 would continue to be met over the long term.

North Camas (01098)

Grazing and trampling impacts would be identical to Alternative B because no season of use or AUM changes are proposed. The change in livestock numbers represents a modification of percent public land; therefore, actual numbers would not change. Creating an exclosure around Sackrider Spring would cause minor trampling and disturbance impacts to vegetation along the fence and improved vegetation conditions in the exclosure. The spring outside the exclosure

would remain a water source; therefore, concentrations of animals on public lands would not be different from current use patterns. Standard 4 would continue to be met over the long term.

Hammett Livestock Company (01195)
The authorized season of use would extend from late spring to fall (compared to spring and fall use in Alternative B); however, because the permittee uses this allotment to transition to and from allotments to the north and south, sheep use periods would essentially be the same as described for Alternative B. Spring use would coincide with the growing season of perennial grasses and forbs; however, the duration would be relatively short (a few days) in any use area. Maximum numbers that allow flexibility would have minor (used occasionally) to moderate (used consistently every year) long-term trampling impacts, especially where animals congregate (e.g., bedding grounds). The maximum numbers reflect current practices of moving bands of sheep through the allotment resulting in a short use period. Impacts would occur during both the active growth and dormant periods for grasses and forbs. Stocking levels would remain the same (low) and native plant community condition would remain stable. Therefore, Standard 4 would continue to be met over the long term.

For the Joost Section 15 pasture, perennial herbaceous species would exhibit minor grazing impacts over the long-term. Grazing management would change to sheep use (from non-use) and operate in conjunction with the Hammett Livestock Company Allotment. Minor to moderate grazing impacts could occur because approximately half the use would coincide with the growing season for perennial herbaceous species. Up to 2,000 sheep could be present at one time, so moderate to major localized short-term trampling impacts could occur, especially at bedding grounds. However, sheep typically travel in bands of one thousand animals, so the magnitude of trampling would likely be less and/or more diffuse. The low stocking rate (Table 8), short duration, and community resiliency would allow plant communities to maintain condition, diversity, and vigor, overall; and Standard 4 would be met over the long term.

Ballantyne Section 15 (01198)
The modification from spring use to summer through fall use would shift some of the grazing pressure from perennial grasses to bitterbrush and other mountain shrubs (e.g., mountain mahogany), which total 406 acres (56% of the allotment). Therefore, bitterbrush and mountain shrub biomass could be reduced and display minor hedging, but overall plant community health would be maintained because use would occur primarily outside the growth period of grasses and forbs. The maximum number of livestock would match the associated USFS permit, representing a 14% increase in numbers. Concentrations of animals on public lands would not be different from current use patterns and using the maximum numbers would not affect plant communities. Standard 4 would continue to be met over the long term.

Allotments Not Meeting Standard 4
Native upland perennial plant communities in Hammett #1 (up to 21,014 acres), Hammett #5 (up to 11,869 acres), and Hammett #6 (up to 6,161 acres) would make slow (>5 years), but significant progress toward meeting Standard 4. Overall, minor to moderate improvements to plant communities (e.g., increased frequencies of tall- and mid-stature perennial grasses) would occur over the 10-year term. Grazing and trampling impacts would be similar to Alternative B-Adjusted Management; however, improved grazing rotations, low stocking levels (Hammett #1

and Hammett #5), and the expected lighter utilization (<40%) in spring use areas would reduce impacts and produce greater benefits to plant communities. Where adequate progress is not being made after five years, implementation of Alternative D would make progress toward Standard 4 (Appendix 7, Section 3.2.2.6).

Impacts from livestock dispersing seed (vectors) would be minor where vegetation conditions improve over the long term. Areas where concentrated use occurs and native plant vigor and density is reduced would continue to be at risk. Minor improvements in ecological conditions would be expected over the long term, especially in areas with ≤40% utilization.

Hammett #1 (01033)
Impacts would be similar to Alternative B-Adjusted Management, but with greater improvements to plant communities. Turning livestock out May 1 (instead of April 1 in Alternative B) would allow more growth to occur before the onset of grazing and trampling impacts. Plants would be better able to withstand damage, especially where soils are not saturated from early spring moisture. The spring/fall deferment rotation involving the entire allotment and slightly lower stocking rate than Alternative B (Table 8) would reduce grazing and trampling impacts and accelerate improvement in the northern two-thirds of the allotment (areas ≥4,500 feet). Impacts from growing season use would only occur in alternate years allowing plants to meet there physiological needs better than in Alternative B. Frequencies of tall- and mid-stature bunchgrasses would increase over the long term. Increased fall use (relative to Alternative B-Adjusted Management from 673 to 1,050 AUMs) could have minor impacts to palatable shrubs over the long term; however, increased utilization would only occur in alternate years. Palatable shrubs would be maintained over the long term.

Running maximum permitted numbers (a 41% increase over permitted numbers) would cause minor (where maximum numbers are used <4 times during the 10-year period) to moderate (where maximum numbers are used ≥4 times during the 10-year period) trampling impacts, primarily in concentrated use areas. If maximum numbers are used ≥4 times during the 10-year period, frequencies of tall- and mid-stature grasses would decline in concentrated use areas.

Standard 4 would be met or make significant progress toward being met where current livestock use is a significant factor. Wyoming big and mountain big sagebrush communities that are not meeting Standard 4 would show minor to moderate improvements in frequency and vigor of perennial grasses and forbs. Perennial plants remaining in the southern part where medusahead is abundant would be maintained.

Proposed Projects and Repairs (of existing facilities) - Construction of 4.8 miles of fencing could facilitate minor long-term improvements to perennial grasses – compared to herding alone – through more effective implementation of the spring/fall deferment system. Once the fence is constructed, livestock drift would be minimized and plant communities would be subjected to grazing or trampling impacts only during the authorized use period.

Moderate to major short- and long-term project related impacts to vegetation would occur. Approximately 22 acres of vegetation could be disturbed by fence construction and maintenance. Trampling during construction would reduce vigor of, and possibly eliminate, native perennial

vegetation. Over the long-term, most native perennial vegetation could recover. However, the tendency of livestock to trail along fencelines would result in sparser vegetative cover and/or early seral or weedy species in these localized areas. Invasive exotic annual species, such as medusahead and cheatgrass, common at lower elevations, could spread to the upper elevations where native vegetation has been disturbed or eliminated.

Repairs to existing watering facilities would produce overall negligible effects because livestock distribution would not change.

Hammett #5 (01037)

Impacts would be similar to Alternative B-Adjusted Management; however, slightly more rapid progress toward meeting Standard 4 would occur. The spring/fall deferred-rotation system and low stocking rate would benefit upland plant communities. The expected lighter utilization (<40%), based on a lower stocking rate (Table 8), would help reduce grazing and trampling impacts to vegetation beyond current practices. Although slightly more AUMs (59 AUMs, 6% increase) would be permitted than Alternative B-Adjusted Management, impacts from growing season use would be reduced because 18% less use (156 AUMs) would occur during the spring. Grazing impacts from spring use would only occur in alternate years in a given area. Frequencies of tall- and mid-stature bunchgrasses would increase over the long term outside concentrated use areas. Increased fall use could have minor impacts on palatable shrubs, but would occur in alternate years. Palatable shrubs would be maintained over the long term.

Running maximum permitted numbers (a 94% - 199% increase over permitted numbers – depending on pasture and season of use) would cause moderate trampling impacts, primarily in concentrated use areas. If maximum numbers are used ≥4 times during the 10-year period, frequencies of tall- and mid-stature grasses would decline in concentrated use areas. If maximum numbers are used <4 times during the 10-year period, frequencies of tall- and mid-stature grasses would be static in concentrated use areas.

Mountain big sagebrush (where the shrub canopy is not closed), Wyoming big sagebrush, and bunchgrass communities in the former East Hammett #5 that are not meeting Standard 4 would show minor to moderate increases in tall- and mid-stature bunchgrass frequencies; and condition of plant communities that are properly functioning in both allotments would be maintained. Low sagebrush communities would also exhibit minor to moderate improvements to perennial herbaceous plant frequencies. Conditions in mountain big sagebrush communities that are not meeting the Standard (in the former East Bennett Mountain Allotment and northern part of former East Hammett #5) would remain static, because increased shrub-canopy cover would limit bunchgrasses.

Proposed Projects and Repairs (of existing facilities) - Direct and indirect short- and long-term trampling, trailing, and weed vector impacts from construction and implementation of 3.1 miles of fencing would be similar to those discussed for Hammett #1. Approximately 15 acres of upland vegetation adjacent to the proposed fencelines could be impacted. Development of Craster and Section 5 springs would result in short-term construction related and long-term livestock utilization/congregation related impacts to vegetation. Up to 3 acres at each site (6 acres total) would incur short-term impacts. Over the long-term as livestock use these facilities,

up to 40 acres surrounding each spring (80 acres total) would exhibit a gradient of disturbance. Net short- and long-term impacts to upland vegetation from repairs to Section 22 and Ryegrass springs would be negligible because the facilities are already used by livestock.

East Bennett Mountain (01101)
Vegetation cover in this portion of the East Bennett Mountain Allotment is similar to Ecological Site Descriptions (i.e., shrub cover has not affected grass cover). Use would continue to occur primarily after the growing season which would help maintain tall- and mid-stature grasses. Although stocked at a moderate rate, annual use after the growing period in a resilient community would maintain perennial grasses and forbs. The maximum number of livestock would match the total number of animals that could be in the allotment considering all ownerships. Because public lands make up 3% of the allotment, not all animals would be expected to be on public lands at the same time. Standard 4 would continue to be met over the long term.

Hammett #6 (1038)
Periodic avoidance of critical growing season use in pastures 1-4 would produce greater overall benefits than Alternative B. Although pastures 1 and 2 would not be rested; resiliency and some deferment would help maintain bunchgrass and mountain big sagebrush communities over the long term. Mountain big sagebrush and Wyoming big sagebrush communities in pastures 3 and 4 would exhibit moderate increases in perennial grass and forb vigor and minor increases in frequency. Pastures 5 and 6 would be used annually prior to perennial grass critical growing period. Perennial grasses would incur trampling and grazing impacts each year, but would have an opportunity to re-grow and set seed with adequate precipitation. Running maximum permitted numbers (a 100% increase over permitted numbers, but similar to current numbers in Alternative B) would cause moderate (depending on frequency) trampling impacts, primarily in concentrated use areas.

Standard 4 would be met in pastures 1-4 and areas in pastures 5 and 6 that receive slight to light livestock use. Standard 4 would not be met in lower elevation areas that consistently receive moderate to heavy use or are dominated by exotic annuals.

3.2.2.6 **Alternative D - BLM Proposal**

Allotments Meeting Standard 4
With the exception of South Hammett #7 and Joost Section 15, impacts for individual allotments, maximum livestock numbers, and proposed projects would be as described in Alternative C (9,274 acres in the West Hammett #7, South Camas, North Slope, Camas Creek Field, North Camas, Hammett Livestock Company, and Ballantyne Section 15 allotments).

South Hammett #7 (01039)
Deferring turnout until after the growth period of perennial grasses would eliminate spring grazing-related impacts in the Blackhawk Pasture (705 acres). Minor impacts to palatable shrubs would occur annually. Impacts in the West Fork and Long Draw pastures (130 acres) would be as described in Alternative C. Standard 4 would continue to be met over the long term.

Joost Section 15 (01199)

Cattle grazing would cause moderate grazing and trampling impacts over the long term (399 acres). Slopes in the majority (85%) of the allotment are >20%, so the effective stocking rate would be in the moderate to high range where use would actually occur (slopes ≤20% or adjacent to water sources). Consistent moderate to heavy use that occurred during the growth period would cause deep-rooted perennial species to decrease and invasive species to increase. Standard 4 would not be met where concentrated livestock use occurs, but would be met on slopes >20%.

Allotments Not Meeting Standard 4

Native upland perennial plant communities in Hammett #1 (up to 21,014 acres), Hammett #5 (up to 11,869 acres), and Hammett #6 (up to 6,161 acres) would make significant progress toward meeting Standard 4. Impacts would be similar to C, but progress toward meeting the standard would be slightly greater in magnitude and occur more quickly (5 years versus >5 years) due to lower stocking levels in Hammett #1 (13.4 acres/AUM) and Hammett #5 (12.2 acres/AUM), and incorporation of rest rotations in Hammett #1 and Hammett #6. Overall benefits to perennial herbaceous vegetation would be moderate, but could be major or minor at a site specific scale depending on current condition and components of plant communities.

Impacts from livestock dispersing seed (vectors) would be as described in Alternative C. Lower stocking rates (Hammett #1 and Hammett #5) and increased growing season rest (Hammett #1 and Hammett #6) would result in minor to moderate improvement in ecological conditions over the long term, especially in areas with ≤40% utilization.

Hammett #1 (01033)

A lower stocking level (29% less than Alternative C, Table 8), a spring/fall/rest grazing system, and expected reduced spring utilization levels (≤30%) would reduce grazing and trampling impacts more than the other alternatives. Minor growing season impacts to perennial grasses would occur one in three years. Perennial herbaceous vegetation would exhibit moderate improvements in vigor and frequency. Reduced fall use (one year in three at a lower stocking level than alternatives B or C) would have negligible long-term grazing impacts on palatable shrubs ensuring improvements in vigor. Livestock numbers would be greater than Alternative C, but would be spread over the entire allotment; therefore, trampling impacts would be less than alternatives B or C. Standard 4 would be met in all areas over the long-term (where livestock grazing is a significant factor). Progress would occur at a faster rate and be more widespread than Alternative C. Perennial plants remaining in the southern part where medusahead is abundant would be maintained.

Proposed Projects and Repairs (of existing facilities) - Effects associated with water facility repairs would be as described in Alternative C. Three electric fence exclosures to protect spring wetlands would have negligible short- or long-term trampling impacts to upland vegetation.

Hammett #5 (01037)

Impacts would be similar to alternatives B-Adjusted Grazing and C, but progress toward meeting Standard 4 would take place at a slightly faster rate than Alternative C. Grazing and trampling impacts would be reduced and benefits to vegetation slightly greater with a lower stocking rate (a 14% reduction from Alternative C) in combination with the deferment rotation. Herding-related

impacts would occur on a limited basis as described in Alternative B-Adjusted Management. Running maximum permitted numbers (a 25% - 84% increase over permitted numbers – depending on pasture and season of use) would cause minor (where maximum numbers are used <4 times during the 10-year period) to moderate (where maximum numbers are used ≥4 times during the 10-year period) trampling impacts, primarily in concentrated use areas. If maximum numbers are used ≥3 times during the 10-year period, frequencies of tall- and mid-stature grasses would remain static or decline in concentrated use areas. If maximum numbers are used <4 times during the 10-year period, frequencies of tall- and mid-stature grasses would remain static or slightly increase in concentrated use areas. Maximum numbers would be 8% greater than Alternative B-As Permitted levels and 43% lower than Alternative C maximum numbers.

Proposed Projects and Repairs (of existing facilities) - No new projects would be implemented; spring repair impacts would be as described in Alternative C.

East Bennett Mountain (01101)
Impacts would be as described in Alternative C.

Hammett #6 (01038)
Rest rotations among pastures 1-3 and pastures 4 and 6 would reduce grazing and trampling impacts more than the other alternatives; in turn, benefits to plant communities would be greater. Periodic rest (every third year) in pastures 4 and 6 would facilitate maintenance or possibly increase frequency and vigor of perennial plants; though Pasture 6 has a high percentage of medusahead. More frequent rest of pastures 1-3 (every other year) would accelerate improvements to plant communities where trends are slightly downward, and maintain plant communities in good condition. Running maximum permitted numbers (a 10% - 109% increase over permitted numbers – depending on year) would cause minor trampling impacts, primarily in concentrated use areas. If maximum numbers are used ≥4 times during the 10-year period, frequencies of tall- and mid-stature grasses would remain static in concentrated use areas. If maximum numbers are used <4 times during the 10-year period, frequencies of tall- and mid-stature grasses could increase slightly in concentrated use areas. Maximum numbers would be 55% lower than Alternative B-As Permitted levels and 58% lower than Alternative C maximum numbers.

3.2.3 Cumulative Impacts – Upland Vegetation

3.2.3.1 Scope of Analysis

The 164,485-acre Bennett Mountain MA will serve as the cumulative analysis area (CIAA; Map 6b). The MA is generally bordered by Highway 20 to the north, King Hill Creek to the east, US I-84 to the south, and Dive and Bennett creeks to the west. The MA includes portions of numerous watersheds including Bennett Creek-Snake River, Roosevelt Gulch, Anderson Ranch Reservoir, and Cold Springs Creek-Snake River. This area was chosen because livestock grazing proposed in alternatives B, C, and D will be used in conjunction with livestock grazing systems throughout the MA. Changes in vegetation communities at lower elevations in the MA can affect vegetation communities in upper elevations (e.g., lower elevation exotic annual communities can expand because of seed transport or wildfires such as the 2011 Blair Fire). Grazing in the Bennett Mountain North allotments would directly affect a maximum of 30% of

the MA (43% of BLM-administered lands). Vegetative cover types, management objectives for grazing allotments, and land uses are similar to those occurring in the twelve allotments.

The temporal frame for cumulative impacts is defined by the continued presence of the effects of past actions and the anticipated longevity of reasonably foreseeable future actions. Direct and indirect effects would dissipate within 10 years of the end of the permit period; therefore, cumulative effects would be considered through 2033.

3.2.3.2 **Current Conditions and Present Effects of Past and Present Actions**

Past actions that have affected upland vegetation include livestock grazing, range management projects, livestock trailing, road construction and right-of-way (ROW) maintenance, wildfires and associated Emergency Stabilization and Rehabilitation (ESR) treatments, and off-highway vehicle (OHV) use. Shrub-dominated communities (Big Sagebrush/Big Sagebrush Mix, Mountain Big Sagebrush, Mountain Shrub, Rabbitbrush, Low Sagebrush, and Bitterbrush) comprise 63,412 acres of lands outside the 12 allotments described in Section 3.2.1, whereas Recent Burns (29,926 acres), Exotic Annuals (7,946 acres), and Bunchgrass (4,390 acres) communities characterize the remainder of the CIAA (Table 12). The collective effect of past actions has contributed to the existing upland vegetation conditions described in Section 3.2.1 and the remainder of the CIAA.

In particular, the levels and intensities of anthropogenic activities across all land jurisdictions, especially associated with lower elevation, more populated areas has perpetuated increases of early successional, ruderal landscapes (Leu and Hanser 2011) that are at higher risk for cumulative upland vegetation impacts. Conversely, risk of impacts to upland vegetation is lower in more remote areas at higher elevations that support more intact and resilient perennial vegetative communities.

- The BLM administers livestock grazing permits on 115,150 acres in the CIAA, including 49,913 acres (30% of the CIAA) in the 12 allotments described in Section 3.2.1 and 65,284 acres (39% of the CIAA) in 20 allotments in the remainder of the CIAA. Of the 20 allotments in the lower elevations of the CIAA, 12 allotments (up to 50,592 acres of BLM-administered lands) are not meeting Standard 4 and livestock grazing is considered a contributing factor. Seven allotments (up to 12,825 acres) are not meeting Standard 4 because of other factors (e.g., dominance of exotic annual grasses because of historic grazing and/or wildfires). Additionally, portions of four allotments are meeting Standard 6 (Exotic Plant Communities Other than Seedings), portions of three allotments are not meeting Standard 5 (Seedings) and livestock grazing is considered a contributing factor, and portions of five allotments are not meeting standards 5 or 6 because of other factors. Similar to the 12 allotments described in Section 3.2.1, livestock grazing in the 20 allotments results in temporally and spatially variable areas of plant community alterations that cause minor to moderate effects to proper nutrient cycling, hydrologic cycling, and energy flow. These effects are greatest where animals congregate (e.g., adjacent to gates, watering, and dietary supplement areas) and where wildfires have occurred.

- There are approximately 376 miles of fencing, 12 ponds and reservoirs, 18 undeveloped springs, and 25 troughs in the CIAA. Livestock trailing along fences causes moderate trampling damage up to 15 feet from a fenceline (approximately 1,370 acres in CIAA). The disturbed areas are characterized by bare ground or exotic annuals.

- Four livestock operators identified 29 trailing events for cattle that generally occur annually in the CIAA (USDI 2012a). Group sizes would be small (50-1,000 head) or medium (1,001-2,550 head). Of the 76 miles of trailing routes which could affect up to 0.125 miles on either side of the route, approximately 5,586 acres occur in shrub-dominated cover types, 3,876 acres occur in recently burned areas, 1,026 acres occur in perennial grasslands, and 912 acres occur in exotic annual communities. Portions of two events are cross-country routes (5.3 miles), while the remainder are on maintained (36.8 miles) or two-track (34.2 miles) roads. Approximately 2.8 miles (430 acres) of cross country routes occur in shrub communities and 2.5 miles (386 acres) occur in recently burned areas. Impacts from trampling and spreading invasive species would be moderate ($\leq$2 years) to minor (>2 years) for cross-country trailing and negligible (maintained) to minor (two-track) for events on roads (USDI 2012a). Most (86%) would be one-day trailing events; consequently, trampling impacts associated with bedding would be negligible.

- Road construction and ROW maintenance alters vegetation communities within maintenance buffers. These effects are generally spatially restricted to existing disturbed locations and occur over a continuous temporal scale. There are approximately: 60 miles of road ROW (approximately 460 acres for 60-foot ROW) that are maintained regularly (1-3 year intervals); 85 miles of power, transmission, and phone lines ROW, with associated roads or two-tracks (approximately 85 acres), that are maintained periodically (5-10 year intervals); and 19 miles of buried pipelines and associated two-tracks (approximately 70 acres) that are maintained sporadically (10-20 year intervals). Disturbed areas are characterized by bare ground and exotic and noxious weeds.

- Between 2001 and 2013, wildfires burned 0-15,345 acres annually. A total of 40,873 acres was burned and 5,000 acres burned two or more times. Approximately 3,960 acres were drill seeded with a mix of grasses and forbs. Approximately 20,900 acres were aerially seeded with a mix of forbs and shrubs. ESR seedings would be expected to maintain or improve plant communities and ecological processes in burned and/or degraded areas. Successful drill seedings help establish or supplement existing perennial grasses and limit exotic annuals. Successful aerial seedings provide structural and compositional diversity. At lower elevations, naturally recovering areas are susceptible to exotic annuals where pre-burn perennial communities were depleted or fire-caused mortality was high. At upper elevations, resilient communities recovered without additional ESR treatments.

- Approximately 86,300 acres of BLM-administered lands are designated as open to cross-country motorized travel and 27,000 acres are limited to designated trails. The spatial and temporal extent of OHV activities is difficult to quantify. However, OHV use could damage or kill vegetation, particularly if users travel cross-country (no trail). OHVs are

effective at spreading invasive and noxious weeds that degrade adjacent vegetation communities. Because of vegetation, terrain, and ownership issues, the majority of cross-country travel occurs at mid to lower elevations, primarily in the southern part of Hammett #1 and south of the remaining allotments discussed in Section 3.2.1.

Cumulative actions would cause minor to moderate direct and indirect upland vegetation impacts over 166,261 acres. Activities that cumulatively impact upland vegetation would be nearly the same for each alternative.

3.2.3.3 **Reasonably Foreseeable Future Actions**

The effects of reasonably foreseeable future activities include: livestock grazing permit renewals, range management projects, livestock trailing, ROW construction and maintenance, wildfires and associated ESR, Paradigm Project fuel breaks, and OHV use (Map 6c). Although not a planned activity, the effects of future wildfires and ESR activities are considered because these natural events are predictable to a certain degree based on the number and size of wildfires that have occurred in the past decade.

- Grazing permits in 20 allotments in the CIAA are scheduled to be renewed in 2016. Management would be modified during the permit renewal process so that significant progress toward meeting Standard 4 would occur on the 12 allotments (50,592 acres; 30% of CIAA) where livestock grazing is considered to be a contributing factor. Proper grazing management would improve upland vegetation conditions, specifically increased perennial grass and forb frequencies, over the long term. On the seven allotments (12,825 acres; 8% of CIAA) that are not meeting Standard 4 because of other factors, changes in livestock management would have minor to moderate upland vegetation benefits by improving the vigor of remnant perennial vegetation, but significant progress would not be made toward meeting Standard 4 over the long term. Perennial vegetation conditions would remain static or decline in portions of five allotments that are not meeting standards 5 and 6 for other reasons. Upland vegetation conditions would be maintained on portions of four allotments meeting Standard 6 and maintained or improved on portions of three allotments not meeting Standard 5 because livestock are considered a contributing factor. None of the allotments directly overlap the 12 allotments discussed in Section 3.2.1.

- The following projects have been identified as part of the permit renewal process for the 20 allotments in the CIAA: construct 14.6 miles of new fencing; develop livestock water facilities at four springs; maintain five spring developments; construct two new ponds; maintain two existing ponds; establish four water haul sites; maintain 3.1 miles of pipeline; and establish one new trough on an existing pipeline. Up to 50 acres would be disturbed by construction activities resulting in partial (fence building) or complete (pond construction) vegetation removal. These areas would be susceptible to invasive and noxious weeds until seeded species become reestablished. Over the long term, moderate trampling impacts would occur on up to 85 acres where animals congregate around new developments and to a lesser degree radiating from new water sources. The disturbed areas would be characterized by bare ground or exotic annuals. Less than 1% of the

CIAA would be affected during the short or long term and none of the projects directly overlap the 12 allotments discussed in Section 3.2.1.

- Trailing activities would occur annually. Over the long term, trampling and spread of invasive species would occur on up to 11,400 acres (7% of the CIAA); however, moderate impacts (cross-country routes in shrub communities) would occur on 430 acres (<1% of the CIAA) and negligible (e.g., maintained routes in exotic annuals) to minor (e.g., two-track routes in recently burned areas) impacts would occur on the remainder of the routes. Two trailing events occurring on two-track roads (9.8 miles, 1,400 acres), one each in Hammett #6 and South Camas, coincide with permitted use periods. The remaining events occur outside the 12 allotments discussed in Section 3.1.2.

- A proposed 500-kV transmission line (Gateway West) would largely parallel existing transmission lines in the southern part of the CIAA. Approximately 8 miles would occur in the CIAA, primarily in high K-factor soils. Up to 110 acres (<1% of CIAA) would be disturbed by construction activities resulting in partial or complete vegetation removal. These areas would be revegetated, but would be susceptible to invasive and noxious weeds until vegetation becomes established. Over the long term, approximately 10 acres (<1% of CIAA) (access roads and towers) would not be vegetated and susceptible to noxious and invasive weeds over the long term. None of the proposed route directly overlaps the 12 allotments discussed in Section 3.2.1.

- Based on previous fire history, approximately 3,570 acres (2% of the CIAA) could burn annually. At lower elevations without ESR treatments, shrub cover would be lost over the short and possibly long term, perennial grasses could be reduced, and exotic annuals would increase. At lower elevations with ESR treatments, shrub cover would be absent over the short term, but could recover over the long term, perennial grasses would be maintained or possibly increase, and exotic annuals would be present either as co-dominants or a minor component. At upper elevations, shrubs would become reestablished in 5-15 years and native grasses and forbs would recover in 2-5 years. Fires could occur throughout the CIAA and portions would overlap the 12 allotments discussed in Section 3.2.1.

- The Paradigm Project (up to 2,950 acres or 2% of the CIAA), a proposed network of greenstrips and fuel breaks in the area, is slated for implementation over the next several years. It is designed to reduce fire return intervals and protect existing native shrub communities and restoration projects from wildland fire. Up to 300 foot buffers would be mowed, disked, or seeded with herbaceous species. Initially, vegetation would be removed or reduced in treated areas, but seeded perennial species would become established in 2-5 years in successfully treated areas. Unsuccessfully treated areas would be dominated by exotic annuals. In the long-term, the fuel breaks would reduce wildfire spread into adjacent areas. Upland vegetation conditions would be maintained or improved where fire frequency is reduced. None of the disturbance area directly overlaps the 12 allotments discussed in Section 3.1.2.

- The FRFO is completing an RMP that would modify OHV use area designations. BLM-administered lands would likely be classified as limited to designated trails. Over the long term, implementation of the designation would help limit vegetation disturbance and weed spread to designated trails. The OHV use are designations would affect all BLM-administered lands in the CIAA.

3.2.3.4 **Cumulative Impacts - Alternative A**

Elevation (and consequently annual precipitation) would have the greatest influence on upland vegetation responses to other activities. Cumulative effects to plant communities in upper elevations above 5,000 feet and/or areas with higher effective precipitation would be negligible to minor. These communities are generally resilient and in good condition, and composed primarily of native mid-to-late seral sagebrush and mountain shrub communities. Plant community condition in these communities would remain relatively static.

The majority of the CIAA is below 5,000 feet. Lower elevations would be more likely to incur minor to major impacts from activities such as livestock grazing, wildland fire, and OHV use. Many lower elevation plant communities are in a partially invasive species-dominated or altered (i.e., vegetative components have changed from deeper to shallower rooted species) state. These plant communities would exhibit overall moderate cumulative impacts over the long-term, but impact magnitude could be slightly less depending on the success of future treatments.

Livestock grazing and trampling impacts would continue on up to 115,295 acres (69% of the CIAA including private and State lands throughout the CIAA and BLM-administered lands outside the 12 allotments closed to grazing). Where livestock grazing is eliminated, minor to major improvements to plant communities would occur on up to 39,261 acres (24% of the CIAA) where Standard 4 is not being met and livestock are considered a contributing factor. Where perennial vegetation is maintained or increases, negligible to minor long-term improvements would occur in 10,652 acres (6% of the CIAA) not meeting Standard 4 because of other factors. Over the long term, where livestock grazing continues, significant progress would be made toward meeting Standard 4 on 12 allotments (30% of the CIAA) and significant progress would not be made on seven allotments (7% of CIAA).

New livestock management projects would have negligible adverse impacts in the CIAA over the long term because they would affect a small area (85 acres). Moderate trampling and grazing impacts from continued livestock use around existing facilities including approximately 320 miles of fencing (those not exclusively on the interior portion of the 12 allotments discussed in Section 3.2.1) and the majority of ponds, undeveloped springs, and troughs (approximately 1,100 acres or <1% of the CIAA)

The majority of trailing routes (71.6 miles), occur in allotments not meeting Standard 4 and livestock grazing is considered a contributing factor. Trailing in allotments not meeting Standard 4 would cause additional trampling and compaction impacts; however, because most routes are on maintained or two-track roads, trailing would not affect the ability to make significant progress toward meeting Standard 4.

ROW construction and maintenance would affect <500 acres (<1% of the CIAA) annually and would occur primarily in previously disturbed areas. Therefore, there would be negligible long-term vegetation impacts.

Wildfires could affect 2% of the CIAA annually, but up to 71,400 acres (43% of the CIAA) could be burned over a 20-year period. Moderate to major impacts could occur in low and mid elevation areas that burn more than once resulting in exotic annuals replacing perennial species. Upland vegetation conditions would not meet Standard 4 in those areas. The 10,824 acres currently in this condition would likely increase over the long term. However, if the Paradigm Project is successfully implemented and wildfire size and frequency are reduced, wildfire impacts on upland vegetation communities would be reduced. Successful ESR treatments (e.g., perennial species are maintained or increased) would also help maintain or improve upland vegetation conditions over the long term and these areas would meet Standards 4 or 5. Wildfires in upper elevations associated with most of the 12 allotments discussed in Section 3.2.1 would have minor to moderate short term impacts where frequencies of perennial species decreased. However, perennial vegetation would recover and frequencies would return to pre-burn levels over the long term. The Paradigm Project would have moderate short-term vegetation impacts on up to 2% of the CIAA until seeded species are established in treated areas. ESR treatments would have minor short-term vegetation impacts on 1-2% of the CIAA annually, where drilling activities could affect surviving plants; however, establishment of seeded species would occur in the majority of areas. In unsuccessful ESR treatments, remnant perennial grasses and forbs and exotic annuals would dominate over the long term.

Eliminating cross-country OHV use would have minor (upper elevations) to moderate (mid to lower elevations) long-term upland vegetation benefits (reduced soil and vegetation disturbance) that would occur throughout the CIAA.

Removing livestock grazing from 12 allotments would eliminate livestock trampling and grazing impacts on 49,913 acres (30% of the CIAA). Standard 4 would continue to be maintained or be met over the long term. Directly overlapping impacts from trailing (1,400 acres), wildfires, and ESR would have minor to moderate trampling and short-term reduction impacts to vegetation, but would not affect the ability to meet Standard 4. Elimination of cross-country OHV use would have minor upland vegetation benefits in the 12 allotments. Removal of livestock grazing for the ten-year term would have a moderate long-term additive cumulative benefit to upland vegetation communities because of the relative acreage affected.

3.2.3.5 **Cumulative Impacts - Alternative B**

Maintaining Standard 4 (eight allotments discussed in Section 3.2.2.4, 10,652 acres or 6% of the CIAA) would have a minor additive cumulative benefit by maintaining upland vegetation conditions over the long term. Not meeting Standard 4 (four allotments discussed in Section 3.2.2.4 Alternative B-As Permitted, portions of 39,261 acres or 24% of the CIAA) would add moderate trampling and grazing impacts over the long term, characterized by declining frequencies of tall- and mid-stature grasses. Limited, but only significant in some areas, progress toward meeting Standard 4 (three allotments discussed in Section 3.2.2.4 Alternative B-Adjusted Management, portions of 33,084 acres or 28% of the CIAA) would have a negligible to minor additive benefit (e.g., static or increasing frequencies of tall- and mid-stature

bunchgrasses) over the long term. Cumulative impacts to upland vegetation from other activities in the CIAA would be as described in Section 3.2.3.4. Changes in the 12 allotments discussed in Section 3.2.2.4 would have limited direct overlap (i.e., trailing, wildfires, and ESR) with other activities in the CIAA. Overall, the proposed actions would result in Standard 4 not being met over the long term in up to 24% of the CIAA, but Standard 4 could be met in areas not dominated by exotic annuals (up to 69% of the CIAA).

3.2.3.6 **Cumulative Impacts - Alternative C**

Continuing to maintain or making significant progress toward meeting Standard 4 on the 12 allotments discussed in Section 3.2.2.5 would have minor to moderate additive cumulative benefits (e.g., static or increasing frequencies of tall- and mid-stature bunchgrasses) to upland vegetation communities. The magnitude of benefits would be less than alternatives A and D, but greater than Alternative B-As Permitted or Alternative B-Adjusted Management. Changes in the 12 allotments discussed in Section 3.2.2.5 would have limited direct overlap (i.e., trailing, wildfires, and ESR) with other activities in the CIAA. Cumulative impacts to upland vegetation from other activities in the CIAA would be as described in Section 3.2.3.4. Overall, the proposed actions, in combination with other actions, would result in Standard 4 being met, or making significant progress toward being met, in areas not dominated by exotic annuals (up to 93% of the CIAA) over the long term.

3.2.3.7 **Cumulative Impacts – Alternative D**

Cumulative impacts would be similar to Alternative C, but upland vegetation conditions would improve at a faster rate in 12 allotments discussed in Section 3.2.2.6 (Standard 4 would not be met in livestock use portions of Joost Section 15) and would be more noticeable; therefore, moderate additive benefits would occur over the long term. Cumulative impacts to upland vegetation communities from other activities in the CIAA would be as described in Section 3.2.3.4. Overall, the proposed actions, in combination with other actions, would result in Standard 4 being met, or making significant progress toward being met, in areas not dominated by exotic annuals (up to 93% of the CIAA) over the long term.

3.3 **Special Status Plants**

3.3.1 Affected Environment – Special Status Plants

BLM special status plants are given a numeric ranking (from 1 to 4) based on criteria including risk of extinction, population size, distribution, and trend. Species with the greatest threat are assigned a ranking of Type 1 and those with the least threat are assigned a ranking of Type 4. The FRFO received updated lists of ESA Listed, Proposed, and Candidate species and critical habitat on June 1, 2009 (Semi-annual Species List Update from the Idaho Fish and Wildlife Office, USFWS, #1002.0000 14420-2009-SL-0365).

Special status plant species are only known to occur in the Hammett #1 Allotment (Table 17, Map 7). Standard 8 is not being met in the allotment because current livestock grazing practices, along with fire, have led to declines in perennial bunchgrasses and the encroachment of invasive annuals (USDI 2014).

Table 17. Special status plant species in the Hammett #1 Allotment, Bennett Mountain North, Elmore County, Idaho.

Common Name	Species Name	Occurrence	Acres	Status
Slickspot Peppergrass	*Lepidium papilliferum*	Slickspot peppergrass habitat	422	Type 1
Mourning Milkvetch	*Astragalus atratus* var. *inseptus*	Element Occurrence 17, 41	90	Type 3

Slickspot peppergrass

Slickspot peppergrass, an annual or biennual forb, is endemic to the Snake River Plain and extends from Parma, Idaho east to Glenns Ferry, Idaho in the north and to near Twin Falls, Idaho in the south. It is currently proposed for listing under the ESA. In 2006, BLM and the USFWS entered in a conservation agreement that provided for implementation of a number of conservation measures including measures designed to help offset adverse impacts to the species from livestock grazing. The primary intent of these measures, with respect to livestock grazing, was to manage livestock grazing and trailing to conserve suitable habitat conditions for slickspot peppergrass while implementing rangeland health standards and guidelines.

Areas that have been surveyed at least once for the presence of the species and are known to contain slickspots are designated slickspot peppergrass habitat. Approximately 422 acres of slickspot peppergrass habitat occurs in the southwest corner of the North Pasture (1) and the Berry Ranch Pasture in the Hammett # 1 Allotment. No slickspots were detected in the pastures during 2010 field assessments and given the rocky nature of most of the area it is unlikely that any slickspots actually exist there. However, current USFWS protocols require that a buffer be placed around known slickspots to provide habitat for pollinators. Slickspots occur approximately 0.25 mi to the south of these pastures. Consequently, this area is identified as slickspot peppergrass habitat. The 2010 assessments determined that shrub cover in slickspot peppergrass habitat, within the pastures, was approximately 30% with a cheatgrass/medusahead dominated understory and that approximately 27% of the documented plant species were introduced. The 2011 Blair Fire eliminated shrub cover in approximately 15% of the area.

Mourning milkvetch

Mourning milkvetch, a perennial forb, occurs predominantly north of the Snake River between Mountain Home and Carey, Idaho. There are 74 known element occurrences (EOs) in Idaho. It occupies approximately 852 acres of public lands within the Emigrant Crossing, Hammett #1, Hammett #4, Hot Springs, King Hill Canyon, Plateau, and South Cold Springs allotments in the Bennett Mountain MA. Many of the EOs in the MA have been examined over the last couple of years and most of them appear to be in fair condition. However, the Blair Fire burned through at least four EOs (17, 18, 42, and 63) and no additional assessment has been conducted to determine the amount of loss that has occurred to these EOs. The fire burned hot enough in many areas to destroy the soil crust. Loss of soil crust will most likely result in an increase in the distribution and abundance of annual grasses, particularly cheatgrass and medusahead. The overall effect will be a decline in the habitat quality for this species in the Hammett #1 Allotment and adjacent areas. Some direct trampling of plants by livestock probably occurs, but the extent of such damage is currently unknown and is probably minimal due to the growth form of this plant that resembles that of a perennial bunchgrass. This species grows on upland sites where soils are typically dry and don't retain water that would attract livestock and increase the probability of trampling. Additionally, livestock are not attracted to the plant as it is unpalatable and is probably poisonous as are most milkvetch species. The most substantial effect of

livestock trampling has been the loss of biological soil crust cover and the subsequent invasion of exotic annual grasses. Exotic annuals, at high densities, are known to out-compete both native annual and perennial forbs. There is currently some uncertainty as to how well this plant is doing in the North Pasture.

3.3.2 Environmental Consequences – Special Status Plants

3.3.2.1 General Discussion of Impacts

Threats to both mourning milkvetch and slickspot peppergrass habitat from livestock are essentially the same and both species. Neither species is very palatable to livestock; therefore, direct effects of livestock grazing are minimal. The primary impacts of livestock use are due to trampling plants and adjacent pollinator habitat (0.25 mile buffer). Plants are most susceptible in the spring when they are flowering and soils tend to be saturated.

In 2003, wildfire and invasion by invasive annuals and noxious weeds were identified as the two primary reasons for slickspot peppergrass decline and loss of habitat (USFWS 2003). Livestock grazing was also identified as a secondary factor and specific impacts associated with livestock grazing include: 1) reduction in a diversity of pollen sources (diversity of perennial forbs) resulting in a reduced diversity of pollinators, from both physical trampling and persistent grazing of perennial forbs during the critical growth period; 2) damage to biological soil crusts and 3) spread and continued persistence of invasive annuals and noxious weeds through both physical transport and continuous soil disturbance) were identified in 2006 (USFWS 2006).

Pollen Source Reduction

A reduction in the number and diversity of pollen sources (native forbs) reduces the diversity of pollinators available to slickspot peppergrass (USFWS 2006). Slickspot peppergrass is primarily an outcrossing species, requiring pollen from separate plants for successful fruit production. Pollen is transported solely through insects; therefore, pollinator conservation is essential to the conservation of slickspot peppergrass. Livestock trampling is known to reduce habitat (natural cavities - dead plant stalks, holes in stems, etc. and ground nests) for insect pollinators as well as reducing the number and diversity of native plants (pollen sources).

Forbs, an important element of pollinator habitat, tend to be most susceptible to grazing and trampling impacts in the spring (March 1- June 30). Excessive spring grazing that does not allow for seed set inhibits maintenance and expansion of existing native forb communities. Forb communities are the least susceptible to trampling and grazing impacts in the late fall and early winter when most native forbs are dormant (perennials) or overwintering as seeds (annuals).

Biological Soil Crust Damage

Soil crusts inhibit the establishment of invasive annuals and noxious weeds, fix atmospheric nitrogen and carbon, and enhance on site water retention. By increasing overall site fertility and reducing competition from invasive annuals and noxious weeds, soil crusts maintain site viability for native forbs that serve as pollen sources for native pollinators of sensitive plant species in general and slickspot peppergrass and mourning milkvetch in particular.

Livestock trampling can damage soil crusts (Belnap et al. 2001). Soil crusts are most susceptible to trampling impacts in the summer and early fall (July 1- October 31) when soil moisture is minimal and dormant crusts are unable to repair any damaged incurred from livestock trampling. Crusts need approximately one month, in the absence of additional disturbance, to repair trampling damage before the dry season begins and as a consequence are also vulnerable to late spring (June) grazing as well. They are least susceptible to trampling impacts in the late fall and winter (November 1- January 31) when soils are moist but not excessively so. Excessive moisture (saturated soils) may also prove detrimental to crusts as trampling may push crusts below the soil surface where they are unable to photosynthesize do to a lack of available light.

Spread and Persistence of Invasive Annuals and Noxious Weeds
Increased invasive species inhibit the growth of native species and the recovery of native ecosystems. Livestock trampling leads to a continuous and prolonged level of soil disturbance that is conducive to the growth of invasive annuals and noxious weeds. Livestock also transport invasive annual and noxious weed seeds.

3.3.2.2 **Alternative A – No Grazing**

Cessation of grazing for a ten-year period in the Hammett #1 Allotment would minimize soil disturbance and most likely lead to an increase in soil crust cover. Full recovery would probably not occur for at least 20-50 years. However, noticeable effects would probably be apparent within five years. Existing native perennial forbs would be given the opportunity to grow and set seed for multiple years. An increase in native perennial forb abundance and diversity would provide additional habitat for pollinators and increase the likelihood that insect-pollinated special status plant species would be pollinated in a given year. Invasive annual (cheatgrass) cover is high in many areas of the allotment and given the short time frame (10 years) would likely remain high and limit the amount of native perennial forb recovery that would take place. Significant progress would be made toward meeting Standard 8 over the long term in areas where perennial species were maintained or increased.

3.3.2.3 **Alternative B – Continue Current Management**

<u>As Permitted</u>
Standard 8 would not be met over the long-term in the Hammett #1 Allotment. Annual spring use would maintain currently low levels of soil crusts and native perennial forbs or cause further degradation of 512 acres of sensitive plant habitat over the long term. Utilization of native forbs would occur every year during the critical growth period. Further declines would also occur in soil crusts as late spring (June) grazing would occur when soil crusts need time to repair damage from livestock trampling before going dormant (July). Impacts from early fall grazing (October) would occur because soil crusts would be dormant. Declines in soil crust cover would be accompanied by an increase in invasive annuals and noxious weeds.

<u>Adjusted Management</u>
Slow, but not significant progress would be made toward meeting Standard 8 over the long term in areas where native species are dominant, but not in annual-dominated areas. Growing season impacts on native forbs would only occur in alternate years allowing minor long-term recovery and increase. Fall impacts to biological soil crusts would occur annually allowing exotic annuals to persist over the long term.

3.3.2.4 **Alternative C – Permittee Application**

Implementing a deferred-rotation system in Hammett #1 would allow for biennial spring rest of sensitive plant habitat and native forbs that provide habitat for native pollinators. Spring or fall grazing and trampling impacts would occur every other year. Low levels of crust cover would be conducive to the maintenance of the currently high levels of invasive annuals. Consequently, any potential recovery of 512 acres of sensitive plant habitat would likely be negligible to minor and slow to occur (20+ years). Slow, but significant progress would be made toward meeting Standard 8 in areas where perennial species were maintained or increased.

3.3.2.5 **Alternative D – BLM Proposal**

Minor improvements in the habitat quality of 512 acres of sensitive plant habitat in the Hammett #1 Allotment would occur over the long term. Spring or fall grazing and trampling impacts would occur one-in-three years. Resting the pasture for one full year and one additional spring, every three years, would reduce trampling damage to soil crusts. Damage to native perennial forbs would be reduced as they would be allowed to grow, set seed, and enter dormancy in the absence of livestock grazing for two years out of three. An increase in native perennial forb abundance and diversity would provide additional pollinator habitat and increase the likelihood that slickspot peppergrass plants south of this allotment would be pollinated in a given year. The potential increases, within 422 acres of slickspot peppergrass habitat, especially in the short term (5 years or less), would be minor due to the cheatgrass/medusahead dominated understory. Long term (20+ years) increases/recovery would be moderate although full recovery to a native plant dominated ecosystem would be unlikely.

3.3.3 Cumulative Impacts – Special Status Plants

3.3.3.1 **Scope of Analysis**

Slickspot peppergrass is restricted to the Snake River Plain and occurs within the confines of both the Boise and Twin Falls districts. The cumulative impacts analysis area (CIAA) is 2,600 acres of sensitive plant habitat (Map 7) that includes a 0.25 mile buffer around each of the two components of that habitat: 1) 422 acres of slickspot peppergrass habitat and 2) 90 acres of mourning milkvetch EOs (17 and 41).

No slickspot peppergrass plants are currently known to occur within Hammett #1. The nearest known slickspot peppergrass EO (106) is 4.4 miles to the south, well outside the foraging range of any currently known native pollinators of slickspot peppergrass (0.5 mi). If any plants were to occur within Hammett #1, they would most likely be genetically isolated from the nearest currently known EO. The closest mourning milkvetch EO (18) is over two miles to the south. Consequently, mourning milkvetch EOs (17 and 41) are also somewhat genetically isolated.

The temporal scope of this permit would be the duration of the permit (10 years) because that is the time that any newly applied grazing management practices would be in effect.

3.3.3.2 **Current Conditions and Present Effects of Past, Present, and Foreseeable Future Actions**

A total of 2,600 acres of sensitive plant habitat occurs within the scope of analysis and is distributed between the Hammett #1 (North and South pastures), Emigrant Crossing (North

Pasture), and the King Hill Canyon allotments. Approximately 90% of the CIAA has not burned in the last 40 years and is characterized by sagebrush with a cheatgrass understory. Forb diversity/richness is moderate to high, with up to 12 species documented. Between 13% and 30% of documented plant species are non-native.

Influential actions that have occurred in the past and will continue into the foreseeable future include livestock grazing (including implementation and maintenance of range management projects) and road and utility corridor ROW construction and maintenance (Map 6c). The effects of future wildfires are also considered because these natural events are predictable to a certain degree based on the number and size of wildfires that have occurred in the past decade.

- Continued late spring/early fall livestock grazing in the three allotments would inhibit or prevent the recovery/reestablishment of soil crusts and native perennial forbs within sensitive plant habitat. Standard 8 is not being met in the allotments and livestock grazing is considered a contributing factor. Adjustments in grazing practices through the permit renewal process would result in minor long-term improvements in pollinator habitat and biological soil crust cover. The standard would not be met adjacent to concentrated use areas because of persistent trampling impacts.

- A large powerline bisects approximately 30% of the slickspot peppergrass habitat and segments of both mourning milkvetch EOs (17, 41). Impacts from powerline fire starts are a possibility. On a number of occasions, damage to powerlines in the FRFO has resulted in wildfire that has led to the loss and/or degradation of large segments of sensitive plant habitat. If a fire were to occur along this powerline, the small amount of slickspot peppergrass habitat not impacted by the Blair Fire would most likely be destroyed, resulting in further loss and degradation of sensitive plant habitat. Like most of the powerlines within the FRFO this one has an access road associated with it. Access roads and associated ROWs often serve as growth and transmission points for noxious and invasive plant species. No additional powerlines or gas pipelines are planned in the future, within the CIAA.

- Extensive and frequent wildfire, within native plant habitat, usually results in a type conversion to a landscape dominated by invasive annuals (cheatgrass) and habitat no longer suited for native plant species in general and special status species in particular. The 2011 Blair Fire burned through approximately 10% of the CIAA and virtually eliminated existing shrub cover as well as causing major damage to existing soil crusts. In addition, approximately 70 to 100% of the shrub cover and soil crusts within slickspot peppergrass habitat in adjacent pastures was also destroyed. Forbs and sagebrush were aerially seeded in fall 2011. At this time it is unknown to what extent this will offset the loss of native vegetation; however, success could be low because of exotic annual competition.

3.3.3.3 **Cumulative Impacts - Alternative A**

Removing livestock grazing in the Hammett #1 Allotment would have a minor to moderate additive cumulative benefit over the long term. Grazing and trampling impacts would continue to occur on 47% of the area; however, modifications of permits would benefit pollinator habitat

and biological soil crusts. Wildland fire could have minor (small portion of area burns once during the 10-year period) to major (large portion of the area burns one or more times) long-term adverse impacts which could offset improvements from changes in livestock management.

3.3.3.4 **Cumulative Impacts - Alternative B**

Cumulative impacts would be similar to Alternative A. However, As Permitted grazing would result in moderate additive adverse impacts over the long term. Adjusted Management grazing would result in negligible additive benefits over the long term.

3.3.3.5 **Cumulative Impacts - Alternative C**

Cumulative impacts would be similar to Alternative A. Implementation of a deferred-grazing system would result in negligible to minor additive benefits over the long term.

3.3.3.6 **Cumulative Impacts – Alternative D**

Cumulative impacts would be similar to Alternative A. Implementation of a spring/fall/rest grazing system would result in minor additive benefits over the long term.

3.4 **Noxious Weeds**

3.4.1 Affected Environment – Noxious Weeds

'Noxious' is a legal designation given by the Director of the Idaho State Department of Agriculture (ISDA) to any plant having the potential to cause injury to public health, crops, livestock, land or other property (Idaho Statute 22-2402). The ISDA is responsible for administering the State Noxious Weed Law in Idaho and maintains a list of noxious species.

The Boise District BLM weed control program tracks the locations of noxious weeds and treats known weed infestations utilizing chemical, mechanical, and biological control techniques. Treatments are contingent on BLM's annual weed budget, noxious weed priority, resource concerns, and employee availability. The BLM is a partner in Cooperative Weed Management Areas (CWMAs) that are made up of federal, state, county, and private organizations to collaboratively combat noxious weeds across ownership boundaries. The Bennett Mountain Management Area is within the South Fork CWMA, which encompasses all of Elmore County.

Five noxious weed occurrences have been mapped/recorded in the allotments and two have been treated (Table 18, Map 8). However, comprehensive weed surveys have not been conducted in the allotments to date, but rush skeletonweed is more extensive than what is mapped.

Table 18. Noxious weeds mapped in twelve allotments for the Bennett Mountain North allotments, Elmore County, Idaho.

Species (no. occurrences)	Treated	Allotment
Rush Skeletonweed (2)	No	Hammett #6 (01038)
Diffuse Knapweed (2)	Chemical	North Slope (01044)
Rush Skeletonweed (1)	No	Ballantyne Section 15 (01198)

Rush skeletonweed is perennial weed capable of invading and dominating disturbed areas (e.g., roadsides, areas burned by wildfire, overgrazed pastures, areas infested by cheatgrass or

medusahead) over a wide range of precipitation regimes and habitats (Sheley and Petroff 1999). Its primary method of seed dispersal is wind, but it can also reproduce vegetatively from roots or root fragments.

Diffuse knapweed is a biennial or short-lived perennial weed that invades disturbed/degraded sites (e.g., roadsides, gravel piles, and rights-of-way) from where it may spread into and dominate disturbed rangelands. Vehicles and wind are its primary methods of dispersal (the mature plant detaches then tumbles in the wind dispersing seeds widely); though, livestock, wildlife, and other mechanisms may also facilitate its spread. Seeds germinate in spring or fall – or anytime during the growing season – following a disturbance providing there is adequate soil moisture; flowering occurs from June through September followed by seed dissemination in fall.

3.4.2 Environmental Consequences – Noxious Weeds

3.4.2.1 General Discussion of Impacts

Weeds spread by dispersal of seeds or plant parts in a variety of ways. Wind, water, animals (e.g., livestock, wildlife, pets), machinery, and people transport seed and/or plant parts from one location to another. Weeds produce abundant seeds. Many have attaching devices (e.g. hooks, barbs, sticky resins) that can adhere to equipment, animals, or people that facilitate their transport and dispersal. Highways, roads, trails, and river corridors serve as routes of initial establishment and weeds may advance from these corridors into new areas (ISDA 2005).

A combination of impacts (i.e., disturbance, preferential grazing of herbaceous perennials, and weed seed transport; refer to Section 3.2.2.1) could increase noxious species. Damage to soils and native plants can reduce overall plant productivity and competitiveness, which opens niches that invasive species exploit. Moist conditions and openings in ground cover created by trampling provide opportunities for germination and spread of weeds; these species are typically pioneering species adapted to occupy new niches more rapidly than native species. Livestock grazing could indirectly increase competition for limited resources between existing native and exotic species if livestock import and deposit exotic plant materials (Laycock and Conrad 1981).

Upland plant communities above 5,000 feet elevation are generally less prone to weed spread than those at lower elevations. Greater effective precipitation at higher elevations (or in more northern or north-facing sites) often results in greater perennial plant cover that is better at resisting weed invasion. At lower elevations, livestock grazing occurs in areas that have higher frequencies of invasive species; therefore, an increase in weeds in these areas may be difficult to discern from background conditions. Maintaining or increasing current levels of native perennials combined with noxious weed treatments would minimize the potential for noxious species to expand.

3.4.2.2 Alternative A – No Grazing

The potential for invasive and noxious weeds to expand beyond current distributions would be reduced over the long-term where improvements to perennial plant vigor and frequency take place (up to 49,913 acres); most notably in allotments that are currently not meeting Standard 4 (up to 39,261 acres). No livestock-associated soil disturbance or weed seed transport would occur for 10 years. There would be a moderate reduction in the rate of spread for noxious weeds

that depend on livestock to disperse seeds or plant materials. Other methods such as wind, wildlife, vehicles and/or recreational use (e.g., OHVs) would continue to facilitate establishment and spread of weeds.

Diffuse knapweed would be dispersed by wind and other means, but opportunities for invasion could be reduced in areas where native plant community condition improves. Similarly, rush skeletonweed would continue spreading, but improvements to plant communities could enhance their resiliency and indirectly slow its spread. The overall effect would be negligible to minor since other mechanisms of disturbance and dispersal would still be at play; and increased plant community resilience would occur slowly.

3.4.2.3 **Alternative B - Continue Current Management**

Areas that receive consistent concentrated use (e.g., around mineral licks and water sources) would remain susceptible to noxious weed expansion over the long-term in all allotments. Livestock could transport and deposit noxious weed seeds throughout use areas; although, wind dispersal would remain the primary vector for spread of rush skeletonweed and diffuse knapweed.

Allotments Meeting Standard 4

The distribution of noxious weeds would remain static or exhibit negligible increases over the long-term in allotments meeting Standard 4. Plant community trends are being maintained under these systems and overall weed resistance would likely be maintained, as well.

Allotments Not Meeting Standard 4

As Permitted

Minor to moderate long-term increases in noxious weed distribution could occur in lower elevation/precipitation zones (i.e., less resilient plant communities). Consistent spring use and moderate stocking rates in less resilient communities would further degrade plant communities. This would increase the risk of invasion/expansion of noxious weeds, directly by facilitating seed transport and indirectly by increased grazing and trampling effects.

Adjusted Management

Impacts would be similar to Alternative B-As Permitted, but less in overall magnitude. Lower stocking rates would reduce relative concentrations of livestock. Deferred-grazing systems would reduce vegetation impacts associated with growing season use. These factors combined would produce minor improvements in resiliency. Ground disturbance (mechanical soil and plant damage) would be reduced and maintenance or minor improvements to perennial herbaceous plant trends would result in fewer open niches for noxious weeds to invade.

3.4.2.4 **Alternative C - Permittee Application**

Allotments Meeting Standard 4

Proposed modifications (i.e., earlier turn-outs and/or extended use periods and/or higher maximum livestock numbers) could produce negligible to minor increases in potential for noxious weed invasion compared to Alternative B. Distribution of noxious weeds could also exhibit negligible to minor increases. Areas of localized disturbance would persist, but condition

and high resiliency of plant communities would generally be maintained; therefore, resistance to weed invasion would also be maintained.

Allotments Not Meeting Standard 4
With the exception of Hammett #1, impacts would be as described in Alternative B-Adjusted Management. Implementation of a deferred-rotation system in Hammett #1 would benefit perennial herbaceous vegetation resulting in a negligible to minor increase in resiliency to noxious weeds.

3.4.2.5 Alternative D - BLM Proposal

Allotments Meeting Standard 4
Impacts would be as described in Alternative C.

Allotments Not Meeting Standard 4
Impacts would be similar to Alternative C, but greater improvements in resiliency would occur over the long term. Deferment rotations in Hammett #5 and Hammett #6, spring/fall/rest in Hammett #1, and lower stocking rates would reduce grazing and trampling impacts more than alternatives B-Adjusted Management and C. In turn, potential to spread noxious species would be reduced over the short- and long-term.

3.4.3 Cumulative Impacts – Noxious Weeds

3.4.3.1 Scope of Analysis

The spatial and temporal scope of analysis is as described in Section 3.2.3.1.

3.4.3.2 Current Conditions and Present Effects of Past, Present, and Foreseeable Future Actions

Weeds are widely scattered in varying degrees and densities (Map 7). There have been 291 occurrences of noxious weeds mapped in the MA between 2001 and the present, and 190 of those have been treated. Squarrose knapweed (133 occurrences) and rush skeletonweed (111) are the most prevalent noxious weeds in the cumulative impacts analysis area (CIAA), followed by diffuse knapweed (18), whitetop (15), and five other species (1-5 occurrences each). Most infestations are <0.1 acres in size (214 occurrences, 74%), the remainder are 0.1-1 acres (67 occurrences) or >1 acre (10 occurrences).

Extensive noxious weed surveys have not been completed in the CIAA, but it is known that weeds, namely rush skeletonweed, are more widely distributed. Weed treatments are ongoing and will continue as new infestations of these species are discovered. BLM specialists and the South Fork CWMA have identified the following noxious weeds as priority/focus species targeted for control: Scotch thistle, diffuse knapweed, and rush skeletonweed (where densities are low or it is newly present).

The effects of past, current, and reasonably foreseeable future actions are as described in Section 3.2.3.2.

3.4.3.3 **Cumulative Impacts - Alternative A**

Removal of grazing from 49,913 acres would have minor to moderate additive cumulative benefits. Livestock would not directly deposit weed seeds or indirectly reduce plant community condition and resistance to weed spread via grazing and trampling of vegetation and soils for a 10-year period. However, wind, OHVs, and wildlife would serve as vectors transporting noxious species, and ongoing disturbance to soils and vegetation by OHVs and other activities would also continue to varying degrees in the 12 allotments. Livestock grazing and trampling impacts would continue in 69% of the CIAA. Events such as wildland fire that disturb vegetative cover and tend to encourage weed colonization could affect larger areas than the allotments closed to grazing.

Cumulative effects to noxious weed distribution in upper elevations above 5,000 feet and/or areas with higher effective precipitation would be negligible to minor. These areas are less susceptible to weed spread because of the condition of the plant communities, which are composed primarily of native mid-to-late seral sagebrush and mountain shrub communities. Weed distribution would remain relatively static.

The majority of the CIAA is below 5,000 feet. Lower elevations would be more likely to incur cumulative impacts from activities such as previous and current livestock grazing and wildland fire. Many lower elevation plant communities are in a partially invasive species-dominated (Table 12) or altered state (i.e., vegetative components have changed from deeper to shallower rooted species). These communities would exhibit an overall moderate increase in weed distribution over the long-term.

3.4.3.4 **Cumulative Impacts - Alternative B**

Adverse additive cumulative impacts for grazing activities in the 12 allotments would be minor for Alternative B-As Permitted. Implementation of deferred-rotation systems and lower stocking rates in four allotments (25% of the CIAA) would have a minor reduction in adverse effects for Alternative B-Adjusted Grazing. The majority of impacts and changes associated with other activities would occur in lower elevation areas as described in Alternative A.

3.4.3.5 **Cumulative Impacts - Alternative C**

Minor to moderate improvements in resiliency in four allotments and maintenance of resiliency in eight allotments would have minor to moderate additive beneficial cumulative impacts. Impacts from other activities would be as described in Alternative A.

3.4.3.6 **Cumulative Impacts – Alternative D**

Moderate improvements in resiliency in four allotments and maintenance of resiliency in eight allotments would have minor to moderate additive beneficial cumulative impacts. Impacts from other activities would be as described in Alternative A.

3.5 Riparian Areas, Spring Wetlands, Water Quality, and Fish

3.5.1 Affected Environment – Riparian Areas, Spring Wetlands, Water Quality, and Fish

Riparian Areas

A total of 54.6 miles of perennial and intermittent streams in nine allotments were assessed between 2006 and 2013 for functioning condition following BLM protocol for lotic (i.e., flowing water) systems (USDI 1998). The majority (57%) of streams are perennial. A total of 48.9-miles (90%) are in proper functioning condition (PFC) and 5.7 miles (10%) are in functioning-at-risk (FAR) condition (Table 19, Maps 9a and 9b, USDI 2014). With one minor trend exception, there was no variance in stream functioning condition ratings between Standards 2 and 3 on any discretely stratified stream segment (USDI 2014). Streams that are in FAR condition are not meeting Standards 2 and 3. On FAR condition streams, consistent spring and fall livestock use has reduced vigor and density of native perennial species and caused excessive bank damage. General characteristics for PFC and FAR condition streams and specific characteristics for the 5.7 miles of FAR condition streams are presented below.

Table 19. Stream functioning condition ratings for Standards 2 and 3, water quality, and redband trout occupation, by allotment, Bennett Mountain North, Idaho.

Allotment Name & Number	Stream Name	Flow Regime[1]	PFC Rating (miles)		Total	Water Quality			Redband trout Present?[5]
			PFC	FAR		TMDL Targets Met? (yes/no)[2]	Bacterial Standards Met? (yes/no)[3]	Temp. Standards Met? (yes/no)[4]	
Snake River Watershed									
Hammett #1 (01033)	King Hill	P	8.2		8.2				P
	W.F. King Hill	P	5.7	3.5	9.2	no	yes	no	P
	E.F. King Hill	I	0.6		0.6	no			S
	N.F. King Hill	I	2.6		2.6	no			S
	Little Canyon	P	3.3	0.5	3.8	yes	yes		P/S
	Deer	I	0.7	0.4	1.1				
East Hammett #5 (01037)	Cold Springs	P	0.5		0.5	yes	yes		P
	E.F. Cold Springs	P	1.4		1.4				
	W.F. Cold Springs	P	4.3	1.3	5.6		yes		P
	Ryegrass	I	3.0		3.0				
Hammett #6 (01043)	Bennett	P	5.0		5.0				S
	Dive	I	1.9		1.9				S
	Willow	I	1.0		1.0				
Hammett #7 (01039)	Sheep	P	1.2		1.2	yes			S
	Sheep tributary	I	0.2		0.2	yes			
	Camas tributary	I	0.4		0.4	yes			
South Camas (01043)	Little Canyon	I	0.1		0.1	yes	yes	yes	P
	Sheep tributary	P	<0.1		<0.1	yes			

Allotment Name & Number	Stream Name	Flow Regime [1]	PFC Rating (miles)		Total	Water Quality			Redband trout Present?[5]
			PFC	FAR		TMDL Targets Met? (yes/no)[2]	Bacterial Standards Met? (yes/no)[3]	Temp. Standards Met? (yes/no)[4]	
North Slope (01044)	Bennett	P	0.4		0.4				S
	Dive	I	0.2		0.2				S
South Fork Boise River Watershed									
Hammett Livestock Company (01195)	Caldwell Gulch	I	0.5		0.5				
	Dare Gulch	I	2.1		2.1				
	Honey	I	0.6		0.6				S
	Lime	P	0.9		0.9	yes		no	P
	North Deer	I	0.1		0.1				
	Nichols Gulch	I	1.3		1.3				
	Tollgate	I	0.3		0.3				
Ballantyne Section 15 (01198)	Badger	I	0.6		0.6				
	Goat	I	0.6		0.6				
	Silverton	I	0.9		0.9				
Joost Section 15 (01199)	Curlew	I	0.2		0.2				
TOTAL			**48.9**	**5.7**	**54.6**				

[1] P = Perennial; I = Intermittent Idaho defines an intermittent stream as one that has a period of zero flow for at least one week during most years, or has a 7Q2 hydrologically-based flow of <0.10 cubic feet per second (cfs) (Idaho Administrative Procedures Act [IDAPA] 58.01.02.003.51). The 7Q2 is defined as the seven day average flow over a two-week period. If a stream contains natural perennial pools containing significant aquatic life, it is not considered intermittent.
[2] Reports only water bodies with approved TMDL targets for water temperature, sediment levels, or both.
[3] Reports only streams where water samples were tested for bacterial levels. Streams either met (yes) or did not meet (no) fecal coliform levels for primary and secondary contact.
[4] Reports only streams where water temperatures were monitored. Streams either met (yes) or did not meet (no) temperature requirements to support cold water aquatic species.
[5] Indicates streams where redband trout are present (P) or seasonally present (S).

PFC rated streams are characterized by:

- Dominance or co-dominance of vegetation representing the potential natural vegetation (PNV) expected for the location. PNV riparian plant species include the following: Pacific, Geyer's, and coyote willow overstories, and Nebraska sedge understories in lower elevation streams (e.g., Ryegrass, Alkali, and lower Little Canyon creeks). Various willow species, quaking aspen, black cottonwood, mountain alder, redosier dogwood, river birch, mountain maple, and conifer overstories, with shade tolerant sedge understories in higher elevation streams (e.g., King Hill, West Fork King Hill, and West Fork Cold Springs, and Sheep, Lime, and upper Little Canyon creeks).

- Physically inaccessible to livestock or rock-armoring occurs where livestock have access to the stream.
- Greater than, or equal to 80% vegetated and stable streambanks.
- Width/depth ratios, pool/riffle ratios, sinuosity, and entrenchment ratios are appropriate to hydrology, landform, and substrate type.
- Sediment levels are appropriate for stream type and parent substrate composition.

FAR rated streams are commonly characterized by:

- PNV species are present in lower than potential densities, with poor age class distribution, poor regeneration. Higher frequency of disturbance induced increaser species (e.g., Baltic and spike rush, and exotic Kentucky bluegrass), and low frequency of desirable woody species and sedge and rush species.
- Increased streambank erosion caused by bank shearing, trampling, and trailing with the percentage of vegetated and stable banks ≤80 %.
- Upland species such as rabbitbrush and sagebrush are encroaching into riparian areas.
- Occur in more livestock accessible valley types, have gentler slopes, and finer, more sensitive soils.
- Lateral and/or vertical stream channel instability.
- Higher width/depth ratio (streams are wide and shallow).
- Higher percentage of fine sediments (≥30 %).

<u>West Fork King Hill Creek</u>

West Fork King Hill Creek was identified for improvement in the Jarbidge RMP (USDI 1987a). A minimum stubble height term and condition (4-inch median) was placed on the permit in 1999; however, stubble heights did not meet the 4-inch minimum in the all the years it was measured. Current livestock grazing was maintaining the FAR segments (3.5 miles) in a static to downward trend. Riparian vegetation was so depleted in the upper FAR segment that only 50% of streambanks were considered stable (2010 MIMS data). The FAR condition segments were characterized by low, to extremely low willow regeneration, dead and decadent willows, and encroachment of upland, and/or disturbance species in to the plant communities, and low frequency of obligate hydric vegetation (Standard 2). Segments not meeting Standard 3 exhibited areas of excessive streambank erosion via bank shearing, trampling and trailing by livestock. A high percentage of vertical streambanks banks were present. Vegetation, particularly disturbance-related or upland species, in these areas was providing only minimal protection to streambanks and floodplains.

<u>Little Canyon Creek</u>

Kentucky bluegrass dominated the herbaceous understory of the FAR condition segment (0.5 miles), providing only minimal protection for streambanks composed of finer substrates. Woody vegetation was represented mostly by old and decadent Geyer's willows; however, coyote willows, Baltic rush, Nebraska sedge, bulrush, and spike rush were actively regenerating along portions without actively eroding streambanks. In the upper and lowermost portions of this segment, vertical streambanks were present on the west streambank. Vegetation along these banks consisted of xeric upland plant species including cheatgrass, bulbous bluegrass, and Wyoming big sagebrush perched above the wetted zone. These upland plants provided little stability or protection to the streambanks. The stream channel had excessive width/depth ratios

and reduced sinuosity over much of its length. Active streambank erosion was common throughout the segment, particularly in the upper and lower reaches where poorly vegetated vertical streambanks were are scoured annually by spring flooding-flows, making it difficult for vegetation to reestablish. Numerous small headcuts were present in the active channel.

Deer Creek

The FAR condition segment (0.4 miles) was impacted more heavily than the PFC segments because surface water flows are present during the spring use period, so livestock water and forage along the segment. Riparian vegetation was limited to infrequent arroyo willows and Baltic rush, which were both heavily utilized by livestock. Kentucky bluegrass and invasive exotic annual grasses were also present. Some areas near the midpoint of this reach displayed excessive bare ground and considerable livestock trailing. Most of the FAR segment stream channel was rock-armored; however, portions with finer and deeper soils had excessive streambank erosion as a result of weakened riparian vegetation, bank shearing, trampling, and trailing by livestock.

West Fork Cold Springs Creek

The FAR condition segments (1.3-miles) were characterized by low frequencies, densities, and diversity of hydric vegetation (sedges and rushes) in livestock accessible areas. However, the woody overstory was healthy and dense. Segments not meeting Standard 3 had high width/depth ratios, low sinuosity, and high sediment levels. The segments were laterally unstable as the stream channels continue to adjust to high sediment levels. Bank trampling and hoof shearing were common along accessible portions with finer substrates, and deep-rooted hydric vegetation was insufficient to protect stream banks from mechanical damage (hoof shearing and pugging). In the upper segment, sediments were originating primarily from private lands upstream.

Spring Wetlands

Springs and associated wetlands in seven allotments were assessed for functioning condition following BLM protocol for lentic for lentic (i.e. standing water) systems (USDI 1999). There are approximately 18 acres of wetlands associated with the 27 springs. Eight springs/wetlands were in PFC, 15 were in FAR, and four were in non-functioning (NF) condition (Table 20, Table 20, Maps 9a and 9b, USDI 2014). The 13 developed springs generally have spring boxes (cisterns), transfer pipes, and watering troughs. Many springs are often dry or nearly dry by fall. Springs that are in FAR or NF condition are not meeting Standards 2 and 3. Concentrated use and heavy to severe utilization has reduced vigor and density of native perennial species and caused excessive trampling damage.

PFC rated springs/wetlands are commonly characterized by:

- Dominance of native plant species representing the potential natural vegetation expected for the site.
- Wetland vegetation is controlling erosion, delaying overland flows, and increasing ground water recharge.
- Light to moderate utilization of wetland vegetation.
- Absence of excessive pugging, trampling, and soil disturbance.
- Low soil bulk density (compaction) levels
- Absence of frost heaving and hummocking.

- Absence of channeling and slumping.
- Mesic or xeric upland vegetation is not replacing hydrophytic plant species.

Table 20. Spring functioning condition ratings by allotment, Bennett Mountain North, Idaho.

Allotment Name (Number)	Spring	Location	Functioning Condition Rating			Developed (Y/N)
			PFC	FAR	NF	
Hammett #1 (01033)	Blackhawk	T03S R10E Sec. 10 NENE			X	Y
	Bourbon	T03S R10E Sec 11 NWNE		X		Y
	Whiskey	T03S R11E Sec 18 NWSW	Not rated (on USGS map, but only snowmelt)			
	Twin Deer North	T03S R10 E Sec 21 NWNE		X		N
	Twin Deer South	T03S R10 E Sec 21 SWNE		X		Y
	Ground Hog	T03S R11E Sec 30 SENW	X			Y
	Twin	T04S R10E Sec 01 NWSW			X	N
	Muddy	T04S R10E Sec 03 NENW			X	Y
	Bullet	T04S R10E Sec 12 SWNE		X		Y
	Section 7	T04S R11E Sec 07 SWNW		X		N
East Hammett #5 (01037)	Craster	T02S R09E Sec 34 SENW		X-↓		N
	Section 5	T03S R09E Sec 05 SWSE		X		N
	Section 14	T03S R09 E Sec 14 SESW		X		N
	Section 15	T03S R09E Sec 15 SWSE		X		N
	Section 20	T03S R09E Sec 20 SESE	X			Y
	Section 22	T03S R09E Sec 22 NENE		X		Y
	Upper Ryegrass	T03S R09E Sec 21 SESW	X			Y
	Section 23	T03S R09E Sec 23 NESE		X		N
	Section 26	T03S R09E Sec 26 NENW		X		N
Hammett #6 (01038)	Willow Complex	T02S R08E Sec 25 SESW, SENE; Sec 31 NWSW	X			N
	Section 26	T02S R08E Sec 22 NESW	X			N
Hammett #7 (01039)	North Bourbon	03 S 10 E Sec 02 SWSE		X		Y
	Section 10	T03S R10E Sec 10 NWNW		X		Y
North Camas (01098)	Sackrider	T02S R10E Sec 18 NWSW			X	Y
	N. Camas (meadow)	T02S R09E Sec 13 N½		X-↑		N
East Bennett Mountain (01101)	Section 18	T02S R09E Sec.1 8 SWNE	X			Y
Joost Section 15 (01199)	Section 5N	T01N R10 E Sec 5 NWNE	X			N
	Section 5S	T01N R10 E Sec 5 NESE	X			N
Total			8	15	4	

PFC (proper functioning condition), **FAR** (functional-at-risk), **NF** (nonfunctioning condition) Ratings were determined from examination of both riparian and channel/floodplain indicators (TR-1737-15 1998).
↑ = upward trend ↓= downward trend

FAR rated springs and wetlands are commonly characterized by:

- Dominance of less palatable Baltic rush and spikerush, and exotic, grazing resistant Kentucky bluegrass, with decreasing numbers of more desirable obligate wetland species.
- Wetland vegetation is delaying overland flows and increasing ground water recharge and is controlling erosion, but is deteriorating due to soil surface disturbance.
- Moderate to heavy utilization of wetland vegetation.
- Wetland area is diminishing in size.

- Soil surfaces are moderately disturbed by pugging, trampling, and soil liquefaction.
- High degree of soil compaction.
- Heavy frost heaving and hummocking.
- Mesic or xeric upland vegetation is replacing hydrophytic plant species (encroachment).

NF rated springs and wetlands are characterized by:

- Dominance of less palatable Baltic rush and spikerush, and exotic short rooted, grazing tolerant Kentucky bluegrass, presence of annual weeds, with near absence of obligate wetland sedge species.
- Wetland area is shrinking, with edges occupied by encroaching xeric upland plant species in areas historically occupied by obligate wetland plant species.
- Wetland vegetation is not controlling erosion, delaying overland flows, and increasing ground water recharge. Channelization of overland flows and headcuts are apparent.
- Heavy to severe annual utilization of wetland vegetation.
- Soil surfaces are extremely modified by pugging, trampling, and areas of soil liquefaction are present.
- Very high soil compaction levels.
- Heavy to extreme levels of unnatural frost heaving and hummocking.

Water Quality

Wherever attainable, cold water aquatic life and primary and secondary contact recreation are the designated beneficial uses for perennial streams that are to be protected (Idaho Administrative Procedures Act [IDAPA] 58.01.02.100 and 58.01.02.100.02). The optimum flow rates are >1.0 cfs for cold water aquatic life and >5.0 cfs for primary and secondary contact recreation. The cold water aquatic life beneficial use 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 <18° C (64° F). Primary and secondary contact recreation standards are numeric, and relate to the allowed concentrations of bacteria (*E. coli*) present in a waterbody. Although Idaho considers spring flows to be waters of the state, IDEQ has no water quality standards that are specific to springs or wetlands.

Water quality standards only apply to intermittent waters during optimum flow periods sufficient enough to support the beneficial uses for which the water body has been designated (IDAPA 58.01.02.070.07). Because the optimum flow rate for cold water aquatic life primarily occurs during snowmelt or very large rainfall events, IDEQ assumes that the standards for seasonal aquatic biota would be met under most circumstances.

West Fork King Hill, Little Canyon, Sheep, and Lime creeks are named on the Idaho Department of Environmental Qualities (IDEQ) 303(d) 2010 list of water quality impaired streams (Table 19). Each of these streams have had Total Maximum Daily Loads (TMDLs) prepared by IDEQ. In this process IDEQ sets targets to reduce the level of pollutants for which the stream has been list (e. g. shade targets for stream temperature, or % bank erosion targets for suspended sediment, etc.).

Elements of Standards 2 (e.g., vegetation that provides stream shading) and 3 (e.g., streambank stability, channel form) directly affect water quality (e.g., water temperature, sedimentation). Both IDEQ and BLM data show that West Fork King Hill Creek was not meeting water temperature standards for cold water aquatic life. FAR segments were not meeting TMDL shade targets; however, PFC segments were meeting shade targets. Little Canyon Creek was meeting TMDL targets for sediments and erosion rates on the PFC segment; however the lower FAR segment may exceed the 30% active streambank erosion rate target, but did meet the fine sediment target. Cold Springs and Sheep creeks were in PFC, and at full potential to meet TMDL targets for temperature and sediment due to their PFC condition. The segment of Lime Creek on BLM lands is in PFC, and at full potential to support TMDL targets. Water temperatures were shown to exceed temperature standards upstream of this segment on USFS lands (IDEQ 2012 Integrated Report), so it is unlikely temperature standards would be met in the BLM segment; however, livestock grazing would not be a factor as the steep rocky terrain precludes use by livestock. West Fork King Hill Creek, Little Canyon, and Cold Springs were meeting fecal coliform standards for primary and secondary contact recreation (one-time samples only).

Perennial streams that meet applicable IDEQ water quality standards are characterized by:

- Have PFC conditions for Standards 2 and 3.
- Streambank stability ≥80%.
- Vegetative canopy cover ≥60%, or equivalent/combined geologic shading.
- Stream temperatures do not exceed natural background levels (at full potential).
- Pollutants are at low levels (e.g., bacteria <136 colonies/ml, and fine sediments <30%).
- Accessibility to livestock is limited due to dense vegetation, dense large rocks, or other restrictive terrain characteristics.

Perennial streams that do not meet IDEQ water quality standards as a direct result of livestock grazing are commonly characterized by:

- Have FAR or NF conditions for Standards 2 and 3.
- Streambank stability <75%.
- Canopy cover is ≤30% vegetative shade, or equivalent geologic shading.
- Stream temperatures are elevated beyond natural background levels.
- Pollutant levels (bacteria) are elevated beyond IDEQ standards for primary or secondary recreation (whichever is applicable) and/or fine sediments ≥30% where achievable.
- Are easily accessible to livestock.

Fish

Redband Trout

Six perennial streams (Table 19, Maps 9a and 9b) support viable populations of redband trout, a Type 2 (Range-wide/Globally Imperiled) special status species. Two perennial and six intermittent streams provide seasonal habitat for redband trout. Salmonid bearing stream segments rated in PFC (35.5 miles), had good aquatic habitat conditions, dense shading, appropriate width/depth ratios, allow fine sediment levels, and complex aquatic habitat. Of redband trout bearing streams in FAR condition, 2.0 miles had poor aquatic habitat conditions (West fork King Hill Creek) and 3.3 miles had fair to good aquatic habitat conditions. Poor condition segments were not meeting Standard 8 and were typified by limited hiding and escape

cover, substantially reduced or absent stream shading, and degraded spawning habitat resulting from high sediment levels. Fair to good condition streams were meeting Standard 8 and are typified by appropriate pool to riffle ratios, adequate stream shading, and natural sediment levels.

Bull Trout

In 1999, bull trout were listed as Threatened under the ESA throughout their range in Washington, Oregon, Idaho, Montana, and Nevada. Critical habitat was designated on December 18, 2010 (75 CFR 63898). Bull trout are a cold-water fish inhabiting relatively pristine streams and lakes. They have more specific habitat requirements than redband trout, including: colder water temperatures; clean stream substrates for spawning and rearing; and complex habitats, including streams with riffles and deep pools and undercut banks. In addition, connections from river and lake habitats to headwater streams for annual spawning and feeding migrations are critical for adfluvial (migrating between lakes and streams) populations.

No populations of bull trout, or USFWS designated critical habitat, occurs in stream segments within the analysis area. However, bull trout are present above, in, and below Anderson Ranch Reservoir on the South Fork Boise River, to which Lime Creek (in the Hammett Livestock Company Allotment) is a tributary. Idaho Department of Fish and Game (IDFG) and IDEQ conducted extensive fish surveys and water quality assessments in Lime Creek in 1993, 1994, 1999, 2000, 2001, and 2007. Bull trout were not detected in Lime Creek, or its perennial tributaries. Radio-telemetry studies completed in 1998-1999 did not detect adfluvial bull trout entering Lime Creek from Anderson Ranch Reservoir. In addition, IDEQ temperature data show water temperatures were too warm to support bull trout occupation

The majority of Lime Creek (0.9 miles) on BLM-administered lands is not accessible to livestock due to extremely steep and rocky terrain features. Therefore, any livestock grazing action analyzed for the Hammett Livestock Company Allotment would have "no effect" on bull trout. The remaining 10 streams in the Boise River watershed on BLM-administered lands have intermittent flows, and cannot support salmonid occupation. Bull trout will not be discussed further in this document.

3.5.2 Environmental Consequences – Riparian Areas, Wetlands, Water Quality, and Fish

Discussion of impacts under specific alternatives are grouped where Standards 2, 3, or 7 are being met (or were not being met and current livestock use was not a factor) and discussed by specific allotment where Standards 2, 3, or 7 are not being met and current livestock use is a factor (Table 1). The duration of impacts described below is as follows:

- Short-term = <5 years from implementation
- Mid-term = 5 to 10 years from implementation
- Long-term = >10 years after implementation

3.5.2.1 General Discussion of Impacts

Riparian Areas and Spring Wetlands

Under any alternative, 48.9 miles of streams (Table 19) would remain in PFC and would continue to meet Standards 2 and 3 over the long term. These stream segments are inaccessible

to livestock due to dense vegetation, geologic barriers, steep terrain, or are rock-armored in areas where the stream could be accessed for crossing or watering. These physical conditions that have limited livestock access for over one-hundred fifty years would not change over the long term. Therefore, the effects analysis for individual PFC stream segments will not be analyzed in further detail.

Grazing and Trampling Impacts

Livestock grazing impacts to riparian areas can be characterized by: (a) compaction of soil, which increases runoff, decreasing water availability to plants, and reducing streambank water storage capacity; (b) direct physical damage to streambanks, (c) vegetation removal, which allows soil and water temperatures to rise, and increases evaporation from the soil surface, and (d) physical damage to vegetation by rubbing, trampling, and browsing (Severson and Boldt 1978). A change in plant species composition occurs in riparian and wetland areas that are consistently over utilized. Plant composition shifts from more palatable wetland species (e.g., Nebraska and beaked sedges), to less palatable disturbance generated species (e.g., Baltic rush, and spikerush) and exotic grazing tolerant Kentucky bluegrass. Often upland species (sagebrush, rabbitbrush, annual weeds) begin to encroach into areas formerly occupied by facultative or obligate wetland plant species as soils become compacted, reducing the water retention capacity and creating a situation where water sensitive upland plants can thrive. In extreme examples of persistent overgrazing, sagebrush can represent the dominant woody plant species present along the greenline of a stream (e.g., upper West Fork King Hill Creek).

Season of Use

Season of use is an important factor affecting the functioning condition of riparian areas and wetlands. Grazing during the spring can reduce grazing use in riparian areas when upland vegetation remains green and palatable. Grazing during the spring also allows post-grazing regrowth which would help plants to maintain or improve vigor and reproduce. Herbaceous riparian vegetation could recover after grazing is removed and stream conditions would improve. Grazing during the summer season increase damage in riparian areas as livestock are attracted to green succulent vegetation and shade along streams after upland vegetation becomes cured and ambient air temperatures rise. Plant vigor and density decreases with greater utilization levels. General stream conditions would be degraded over the long term (Platts and Nelson 1985).

Grazing during the fall would allow root reserves to develop during the spring and summer months, which would increase plant health and reproduction. Fall grazing can maintain PFC if riparian utilization levels are managed to leave enough protective vegetation on streambanks sufficient to protect the banks from erosion during spring flooding flows (Clary and Leininger 2000). However, grazing in the fall can shift forage use from herbaceous species to willows. Moderate to severe utilization would cause declines in willow density and vigor (Chaney et al. 1990, Buckhouse and Elmore 1993, Krueger 1996) as is the case for FAR segmentrs of West Fork King Hill Creek. In many cases, the reduction of shrubs in riparian zones results primarily from browsing of new, young plants rather than mechanical damage to older plants (Clary and Webster 1989). Kovalchik and Elmore (1991) observed first year seedlings are "very sensitive to grazing" and may easily be destroyed by browsing, trampling, or from being uprooted. If woody species regeneration is an objective, several years of non-use may be necessary to allow new plants to become established (Munther 1982, Skovlin 1984). Where woody species are a

major plant community component, as is the case in functioning-at-risk segments of West Fork King Hill Creek and Little Canyon Creek, perhaps the most detrimental aspect of late season grazing is its adverse impact on shrubs and trees resulting from high browsing levels (Chaney et al. 1990, Buckhouse and Elmore 1991, Krueger 1996).

Careful control of livestock grazing results in maintenance of streambank vegetation, and limits trampling and hoof shearing effects. Residual (post-grazing) streamside vegetation encourages trapping and deposition of sediments as a basis for maintaining or rebuilding streambanks. Concentrated livestock use, which often occurs in season-long (spring through fall) and certain rotational grazing systems, including annual spring and fall use, may cause unacceptable damage to herbaceous and woody plants.

For wetlands associated with spring flows, use when soils are saturated (primarily during the spring and early summer) can cause increased trampling damage. When livestock grazing is removed prior to the end of the growing season, some recovery from grazing and trampling impacts could occur. For springs that are dry or nearly dry by mid-summer through fall, trampling damage would be reduced or eliminated.

Condition and Trend

In this analysis, improving riparian and wetland areas is defined as significant progress toward PFC. It includes an increase in diversity, density, vigor, and distribution of native riparian plant species. Increased riparian vegetation has the following benefits: it filters sediment; stabilizes and builds streambanks through sediment sequestration; reduces width/depth ratios; dissipates near-bank hydraulic energy; decreases vulnerability to soil compaction; and increases ground water recharge and storage, thereby increasing stream flow duration and volume. Woody riparian vegetation protects the waterbody from solar radiation. In turn, streams maintain lower water temperatures, which allows for higher dissolved oxygen levels favorable to aquatic life forms, including redband trout. Riparian vegetation is a keystone feature that has a strong influence on stream and wetland health, including the protection of water quality and aquatic habitat. Riparian zones are the most productive and biologically diverse wildlife habitats in the Columbia Basin (Kauffman et al. 2001). In this sense, riparian vegetation recovery, maintaining good water quality, fisheries enhancement, and wildlife habitat enhancement, are one and the same.

Lower gradient streams (≤2% slope), such as FAR segments of West Fork Cold Springs and West Fork King Hill creeks, commonly follow a sequence of events when progressing from FAR to PFC. First, as deep-rooted riparian vegetation regains vigor, and densities of willows, sedges and rushes increase, streambank stability is improved. This eventually results in channel narrowing, as increased roughness along the greenline (provided by improved vegetative densities) captures and sequesters sediments, facilitating progressive streambank and floodplain building which slowly narrows the active channel each year. As width/depth ratios decrease, stream velocity increases, sediment transport capacity improves, and sediment bedload is more effectively moved downstream. When excess fine sediment is removed from the active channel, channel bed roughness increases as larger rocks and woody debris previously covered in fine sediment in some streams (e.g., upper West Fork Cold Springs Creek) is moved out of the channel and downstream where sediment transport capacity in PFC segments can easily handle

the short-term sediment increases. Lowering sediment levels is beneficial to all aquatic organisms. For example, stream bottoms free of sediment provide more niches for desirable insect life, as the interstices between stones, woody debris, and gravels are exposed to higher dissolved oxygen levels, which in-turn provides increase food resources for aquatic predators, including redband trout. Clean, well oxygenate sediment-free substrates are essential for successful salmonid spawning.

When un-grazed, or when grazed properly with full consideration given to the needs of both woody and herbaceous riparian vegetation, perennial streams and spring wetlands can progress from FAR to PFC for riparian vegetation (Standard 2) in as little as three to five years providing sufficient levels of desirable native riparian or wetland obligate vegetation are initially present. Springs rated in NF condition could take ≥10 years to reach PFC, because of the lack of wetland obligate species and levels of mechanical damage and soil compaction.

Streams with a high percentage of vertically unstable banks (>30%) could take ≥10 years to reach PFC for streambanks and floodplains (Standard 3). The rate of recovery would depend primarily on the time necessary for the natural angle of repose (bank slope) to develop along the streambanks, above the bank-full level. Development of stable streambanks is a complex interplay between fluvial processes, vegetation, stream hydrological characteristics, annual sediment supply, on-going levels of disturbance, together with a host of other complex factors.

Clary and Webster (1989) observed that the length of rest needed to initiate the recovery process in degraded (FAR conditions) riparian areas will depend on the initial plant composition and streambank conditions. It may be as short as five years, or may be as long as 15 years. Recovery of degraded streambanks usually requires more time than plant community composition recovery, particularly if the channel has become incised and confined (Swanson 1989).

Water Quality

In this analysis, improving water quality is defined as meeting, or maintaining IDEQ, and Department of Environmental Protection Agencies (EPA) water quality standards. For example, increasing canopy cover provided by overhead vegetation (willows, cottonwood, quaking aspen, and others) reduces solar energy input and maintains lower water temperatures, which in-turn, increases dissolved oxygen levels. Management changes that move streams toward PFC increase streambank stability, which reduces sediment yielded from unstable streambanks. Levels of *Escherichia coli* (*E. coli*) and fecal staphylococcus commonly increase when livestock are allowed free access to a stream. However, one study (Tiedemann, D.A. Higgins et al 1987) found that healthy and dense vegetation along riparian areas filtered more bacteria-laden sediment from overland run-off than did poor condition riparian areas. Research has also shown that streams with excessive fine sediment loads host more fecal coliform, and for a longer period of time. Benthic (stream bottom) sediments have been found to harbor significantly higher concentrations of enteric bacteria than the overlying water. In this study, the survival of fecal coliform and fecal streptococci organisms was demonstrated to be significantly longer in sediment laden waters than in those without fine sediment (G. R. Stephenson and R. C. Rychert 1987).

Fish
Fish habitat is improved when the width/depth ratio is decreased (narrower and deeper channel), the pool/riffle ratio is appropriate to the stream type (often pools are a limiting factor in many degraded streams). Increasing canopy cover over streams reduces exposure to solar radiation; thus, maintains lower water temperatures. As stream physical fluvial characteristics regain equilibrium, fine sediment levels commonly decrease in most stream types. Stream bottoms free of fine sediment provide habitat complexity and niches and for aquatic invertebrates as the interstices between stones, woody debris, and gravels are exposed to higher dissolved oxygen levels, which in-turn provides increased food resources for aquatic predators, including redband trout. In addition clean, well oxygenated substrates are essential for successful salmonid spawning.

Impacts Associated with Fence (Exclosures) Construction in Riparian/Wetland Areas
Direct impacts to riparian areas, wet meadows, and springs resulting from fence construction could include short-term localized disturbance of hydrophytic soils and vegetation removal, trampling, and breakage. There is an increased potential for the spread of invasive species as soils are disturbed. Indirect, localized long-term impacts depend on the purpose of the fence and management of the area within the fence. Where livestock are excluded, riparian areas and springs would improve in functioning condition almost immediately, with increased cover, vigor, frequency, stature and diversity of riparian vegetation; improved soil moisture maintenance; increased soil replenishment for the riparian vegetation; reduced soil compaction levels (bulk density), allowing for increased water storage and duration of flow, improved watershed health and wildlife habitat.

Soil bulk density decreases and pore spaces increase in wetlands excluded from grazing (Clary and Medin 1990). One study (Kauffman et al. 1998) found that soils occurring in wetlands excluded from grazing in the headwaters of the John Day River in eastern Oregon had 32% lower bulk density and held 12,785 more gallons of water per-acre in the top 4-inches of soil, than did soils on comparable grazed sites outside the study exclosure. The same study showed total below ground biomass of obligate wetland vegetation was 62% greater inside an exclosure than outside. Similarly the study showed more available nutrients inside the exclosure than outside.

Impacts Associated with Spring Development or Maintenance
Direct impacts to wetlands resulting from construction or maintenance activities and subsequent livestock use include vegetation removal, trampling, soil disturbance, and possible spread of invasive and noxious weed species. Vegetation would re-establish in areas disturbed by construction or maintenance activities in the short term. There is potential for loss of above ground spring flows resulting from poor project design, particularly if springs have inadequate flow volumes to supply water to the development while maintaining sufficient water to maintain wetland characteristics. This can result in complete desiccation of the wetland, and loss of obligate wetland vegetation (e.g., Bullet Spring).

Properly designed water developments can provide some relief to associated wet meadows, as livestock generally prefer to drink in the more readily accessible stock tank. This reduces the need to access open flows in the wetland or associated spring brook, and as a result, may reduce

trampling and pugging levels. Fencing an associated wetland following spring development would provide immediate relief from livestock grazing and trampling impacts. With consistent livestock exclusion, FAR wet meadows and /or spring brooks would be expected to be at PFC in the mid-term and NF springs and wetlands could be in PFC in the long term.

3.5.2.2 **Alternative A – No Grazing**

Riparian Areas

Hammett #1 (01033)

West Fork King Hill Creek - Ten years of rest from livestock grazing would result in major improvements in the functioning condition of riparian areas. The two FAR segments (3.5 miles) could improve to PFC for riparian vegetation (Standard 2) in the long term. However, the upper segment could only be in FAR condition with an upward trend because the very low frequency of native deep-rooted riparian species (e.g., willows, Nebraska and beaked sedges, and willows), together with high frequency of Kentucky bluegrass and xeric upland species (sagebrush), and weeds along the greenline, could result in a very slow recovery.

The high percentage of un-vegetated, unstable streambanks (>50%) in the uppermost segment would eventually improve, but stream channels and floodplain (Standard 3) would be unlikely to improve to PFC in 10 years. The vertical streambanks would present little opportunity for deep-rooted sedges to colonize along the vulnerable bank-full elevation due to near-bank scouring from annual flooding flows. However, the segment would, at that point, likely be in a strong upward trend. The lower FAR segment would likely be in PFC for Standard 3 within 5-10 years, because greater levels of deep-rooted native riparian vegetation and willows exist for recruitment into the plant community. Stream channels would slowly improve as vegetation increases, but FAR segments would remain extremely vulnerable to catastrophic erosion should a flashflood occur in the watershed.

Little Canyon Creek - In the absence of livestock grazing, the 0.5-mile FAR segments of Little Canyon Creek would improve to PFC and meet Standard 2 in the mid-term as the density of deep-rooted riparian vegetation increases along the greenline. However, establishment of vegetation on the greenline on the stream's west bank would be delayed until a functional floodplain is established. Concurrently, as deep-rooted riparian vegetation increases, bank stability and channel characteristics would improve. Over the long term, this segment would likely be in PFC for Standard 3 as stream channel dimension, pattern, and profile move towards what is expected in the natural state for the valley form, substrate type, and hydrologic characteristics. However, the recovery rate would be slow due to a high percentage of vertical streambanks on the west side of the stream, which are now occupied primarily with upland plant species.

Deer Creek – The segment of Deer Creek (0.4-stream-miles) would be in PFC and meeting Standards 2 and 3 in the long term; however, progression to PFC would be slow, due mostly to the intermittent stream flow regime.

East Hammett #5 (01037)

In the absence of livestock grazing, the two FAR segments of West Fork Cold Springs Creek (1.3 miles) would improve to PFC and meet Standard 2 and 3 in the mid-term, as the density of

deep-rooted riparian vegetation in the understory increases. Sediment levels in the upper segment may remain high due to the poor condition of stream channels on private lands upstream. However, as vegetation increases along the greenline, channel characteristics would improve, and sediment transport capacity would increase. Over the long term, as pool/riffle ratios increase, the stream channel dimension, pattern, and profile would move towards what is expected in the natural state for the valley form, substrate type, and hydrologic characteristics.

Spring Wetlands

PFC Springs

Minor long-term changes would occur at eight springs in PFC after the removal of livestock trampling and grazing impacts. Late-seral species could increase and wetland soil compaction would be reduced over the long term. Standard 2 would continue to be met over the long term.

FAR and NF Condition Springs

With the removal of livestock trampling and other damaging grazing impacts, 15 FAR condition springs would improve to PFC over the mid-term. Three NF condition springs would develop an upward trend, improving to FAR condition over the short term, and would likely be in PFC within 10 years. These 18 springs have remnant obligate wetland species that would recover in the absence of grazing. Sackrider Spring would make significant progress toward PFC over the long term. However, because obligate wetland vegetation is completely extirpated at this spring, it is likely that riparian areas would require supplemental planting of desirable native riparian species. Standard 2 would be met over the long term.

Water Quality

All streams on BLM-administered lands would provide conditions that meet applicable IDEQ water quality standards. There would be a moderate improvement to water quality in the FAR condition segments of West Fork King Hill and Little Canyon creeks over the mid-term. Willows would gain stature and begin to shade the water column to maintain lower water temperatures. Increased streambank stability would eventually reduce sediment levels. Levels of periodic bacterial contamination would be eliminated as livestock would not be present in, or near, any perennial waterbody. Standard 7 would be met over the long term for West Fork King Hill and Little Canyon creeks. Conditions on BLM-administered portions of Lime and Sheep creeks would continue to meet water quality standards; however, water quality would be adversely affected by static conditions upstream (Lime Creek) and downstream (Sheep Creek) of the BLM-administered segments.

Fish

Improvement to PFC on West Fork King Hill (3.5 miles), Little Canyon (0.5 miles), and West Fork Cold Springs (1.3 miles) creeks would enhance aquatic habitat and benefit redband trout over the long term as fine sediment levels decrease, improving the quality and quantity of exposed spawning gravels. The increasing aquatic habitat and water quality would enhance populations of redband trout within 10 years. Standard 8 (Fish) would be met over the long term for all redband trout bearing streams.

3.5.2.3 **Alternative B - Continue Current Use**

Riparian Areas

Hammett #1 (01033)

As Permitted - Progress would not be made toward meeting Standards 2 or 3 on 4.4 miles of FAR condition stream segments over the short through long term. Grazing and trampling impacts would occur during both the spring and fall use periods. The FAR condition segments would continue to deteriorate and some, particularly the upper segment of West Fork King Hill Creek (2.0 miles), could be in NF condition in the mid to long term for Standard 2. In addition, the very high level of bank disturbance (hoof shearing, trampling) along the vertical streambanks, and extremely limited deep-rooted riparian vegetation to stabilize them, would keep these segments in a FAR condition with downward trend for Standard 3, the upper segment of West Fork King Hill Creek could reach NF condition over the short term. The FAR segment of Deer Creek (0.4-miles) would continue in FAR condition due to grazing related impacts and intermittent stream flows.

Adjusted Management – Significant progress would not be made toward meeting Standards 2 or 3 over the short through long term. Livestock would have access to FAR segments of West Fork King Hill (3.5 miles), Little Canyon (0.5 miles), and Deer (0.4 miles) creeks. If herding were successful in keeping livestock out of the streams during the spring grazing rotation, trampling impacts would be reduced and minor improvements in herbaceous vegetation would occur over the long term. However, consistent fall use would suppress willows. All segments would remain in FAR condition over the long term. If herding is not effectively implemented, the upper segment of West Fork King Hill Creek could have a downward trend over the long term.

East Hammett #5 (01037)

As Permitted - Progress would not be made toward meeting Standards 2 or 3 over the short through long term. Grazing and trampling impacts would occur during both the spring and fall use periods. Two segments of West Fork Cold Springs Creek (1.3 miles) would remain in FAR condition over the long term.

Adjusted Management - The two FAR condition segments of West Fork Cold Springs Creek could improve to PFC over the long term. If herding were successful in keeping livestock out of the streams during non-use periods, livestock grazing and trampling impacts would only occur in the spring or fall in alternate years, allowing recovery of vegetation density, cover, and vigor. Limited fall use (209 AUMs) would reduce grazing impacts on willows. Significant progress would be made toward meeting Standards 2 and 3.

Spring Wetlands

PFC Springs

Eight springs would remain in PFC condition and continue to meet Standard 2 over the short through long term. Minor short-term grazing and trampling impacts would occur; however, not at levels that would affect conditions.

FAR and NF Condition Springs

Hammett #1 (01033) and East Hammett #5 (01037) – For As Permitted livestock use, all springs would remain in FAR (12 springs) and NF (3 springs) condition over the long term. Moderate to

major grazing and trampling impacts would occur annually during the spring and fall. Standard 2 would not be met over the long term. For Adjusted Management livestock use, there could be minor improvements over 5-10 years provided that livestock are herded as proposed. Moderate grazing and trampling impacts would occur annually because livestock would concentrate in these areas. However, with implementation of a deferred-rotation system, grazing and trampling impacts would occur in alternate years during the spring, allowing some vegetation recovery. Fall grazing and trampling impacts would occur every year (Hammett #1) or in alternate years (East Hammett #5), which would offset some gains made during the spring rest period. If herding is successful, slow progress could be made toward meeting Standard 2 over the long term, but it would not be significant.

Hammett #7 (01039) and North Camas (01098) – Conditions would remain static and Standard 2 would not be met over the long term at four springs. Moderate to major grazing and trampling impacts would occur annually. The North Camas wet meadow could improve to PFC over the long term if hydric vegetation continues to replace bare ground.

Water Quality

For As Permitted or Adjusted Management livestock use, water quality would not be met on West Fork King Hill and Little Canyon creeks over the short through long terms. Stream shading would be inadequate and sediment levels would be elevated, especially if the upper segment of West Fork King Hill Creek (2.0 miles) degrades to NF condition. Standard 7 would not be met over the short through long term in the Hammett #1 Allotment. Impacts for Lime and Sheep creeks would be as described in Alternative A.

Fisheries

Streams that host redband trout populations that are currently in PFC would continue to meet Standard 8 over the short through long term. Good habitat conditions would be maintained despite minor livestock grazing and trampling impacts.

Hammett #1 (01033)

For As Permitted or Adjusted Management, Standard 8 would not be met over the long term on West Fork King Hill (3.5 miles) and Little Canyon (0.5 miles) creeks. Annual livestock grazing and trampling impacts would maintain poor or fair aquatic habitat conditions. Minor, but not significant progress could be made if herding (Adjusted Management) were successful in keeping livestock out of the streams during the spring grazing rotation.

East Hammett #5 (01037)

For As Permitted or Adjusted Management, Standard 8 would continue to be met over the long term on 1.3 stream mile of FAR segments in West Fork Cold Springs Creek. Although minor to moderate livestock grazing and trampling impacts would occur, fair or good aquatic habitat conditions would be maintained over the long term.

3.5.2.4 **Alternative C – Permittee Application**

Riparian Areas

Hammett #1 (01033)

West Fork King Hill Creek - Constructing the proposed pasture division fence (Map 3a) would prevent livestock from accessing the stream during non-use periods. Fall grazing impacts would occur every other year, potentially allowing slow recovery of woody vegetation, depending on utilization levels. Limiting grazing impacts to spring or fall would allow recovery of herbaceous vegetation. Over the long term, there would minor to moderate improvement in sedge and rush densities. Standards 2 and 3 would be met over the long term on 3.5 stream miles of West Fork King Hill Creek, if the rotation system is effectively implemented (the non-use pasture is completely cleared of livestock by the designated off date). If the system is not effectively implemented, the accessible stream segments would remain in FAR condition with static to downward trend over the long term.

Little Canyon Creek – The FAR segment could reach PFC condition in the mid (Standard 2) or long (Standard 3) term. Spring or fall grazing would help increase herbaceous vegetation; however, recovery of the stream channel would not occur until a natural angle of repose, a floodplain, and bank stabilizing vegetation is established on the west side of the stream.

Deer Creek – The FAR segment could reach PFC condition over the long term. Spring or fall grazing would help increase herbaceous vegetation; however, intermittent stream flows would impede the recovery rate. Standards 2 and 3 could be met, or significant progress would be made toward meeting them, over the long term.

Hammett #5 (01037)

Impacts would be similar to Alternative B-Adjusted Management. Fall grazing impacts could be greater (twice the number of AUMs would be authorized) depending on woody vegetation utilization levels, but impacts would only occur every other year. Standards 2 and 3 would be met over the long term.

Hammett Livestock Company (01195), Joost Section 15 Pasture

Minor grazing impacts would occur on 0.2 miles of Curlew Creek, primarily during spring use. Moderate to major impacts could occur if maximum permitted numbers were consistently run. Sheep would not be expected to use the intermittent stream except for watering; however, adjacent reservoirs on private lands would be the primary watering points. Fall use would cause minor impacts because the stream is intermittent. Standards 2 and 3 would be met over the long term.

Spring Wetlands

PFC Springs

Impacts for six springs would be as described in Alternative B. Short-term maintenance-related impacts would occur at Ground Hog (Hammett #1) and Section 20 (Hammett #5) springs, but would not jeopardize the spring's long-term functioning condition. Standard 2 would be met at these springs over the mid and long term.

Hammett Livestock Company (01195), Joost Section 15 Pasture – Minor to moderate grazing and trampling impacts would occur at two springs. Although the springs would primarily be used for water sources, concentrated use during the spring and fall could cause conditions to change from PFC to FAR over the long term. PFC could be maintained if there is an adequate recovery period after spring use and the springs are dry or firm during fall use. Standard 2 could be maintained over the long term.

FAR and NF Condition Springs

Hammett #1 (01033) – Impacts from grazing and trampling at springs not proposed for maintenance would be similar to Alternative B-Adjusted Management. Stocking rates would be lower and the deferred-rotation systems would be more effectively implemented; therefore, grazing and trampling impacts would be slightly reduced, occurring in either the spring or fall in alternate years. Moderate short-term maintenance impacts would occur at Ground Hog, Muddy, and South Twin Deer springs (Table 6, Map 3a, Appendix 6); however, the water troughs would still be adjacent to the wetlands and grazing and trampling impacts similar to other springs would continue. Progress toward meeting Standard 2 would be slightly greater than Alternative B-Adjusted Management and the standard could be met over the long term for FAR condition springs, but not for NF condition springs.

Hammett #5 (01037) – Impacts at four springs not proposed for maintenance or development would be as described for Hammett #1. Moderate short-term construction or maintenance impacts would occur at four springs proposed for development or maintenance (Table 6, Map 3a, Appendix 6). Grazing and trampling impacts would not be expected to increase over current levels because livestock already use these water sources. At all springs, impacts could be slightly less than Alternative B-Adjusted Management because of a lower stocking rate and grazing and trampling impacts would occur in either the spring or fall, but not both, because of effective implementation of a deferred-rotation system. There would be a minor improvement in functioning condition and Standard 2 could be met over the long term.

South Hammett #7 (01039) – Moderate short-term maintenance impacts would occur at North Bourbon Spring (Table 6, Map 3a, Appendix 6). Moderate to major grazing and trampling impacts could occur annually during the late spring through fall; however, providing a reliable water source away from the wetland area would eliminate the need for livestock to water at the spring and could reduce use levels. Conditions at Section 10 Spring would remain static over the long term because animals would continue to congregate in the area. The spring would have a slow upward trend in condition and Standard 2 may be met over the long term.

North Camas (01098) – Impacts would be as described in Alternative B.

Water Quality

Where grazing systems are effectively implemented, increases in stream shading (woody and herbaceous vegetation) and streambank stabilization would help make significant progress toward meeting Standard 7 for West Fork King Hill and Little Canyon creeks. However, if they are not effectively implemented, impacts would be as described in Alternative B-Adjusted Management. Impacts for Lime and Sheep creeks would be as described in Alternative A.

Fisheries

Hammett #1 (01033)

Standard 8 would be met if the two segments (3.5 miles) of West Fork King Hill Creek reach PFC over the long term; however, it would not be met if they remain in FAR condition.

East Hammett #5 (01037)

Impacts to fisheries habitat would be the same as Alternative B.

Maximum Livestock Numbers

Increasing livestock to maximum permitted numbers in four allotments (i.e., those increases associated with flexibility: Hammett #1, Hammett #5, Hammett #6, and Hammett Livestock Company allotments) would cause moderate short and to long term grazing and trampling impacts on riparian and wetland vegetation and soils. However, livestock use is already concentrated in these areas and vegetation is heavily utilized, so additional impacts would primarily be associated with increased bank shearing and trampling along FAR condition streams and springs. Consistent use of maximum livestock numbers would result in Standards 2 (springs) or 3 (up to 5.7 miles of streams) not being met over the long term, but progress toward meeting Standard 3 would occur if maximum permitted numbers were only occasionally used (one in five years) or animals were herded away from water sources (Hammett Livestock Company Allotment).

3.5.2.5 Alternative D – BLM Proposal

Riparian Areas

Hammett #1 (01033)

West Fork King Hill Creek – Spring or fall livestock grazing and trampling impacts would occur one-in-three years. Two years of recovery would occur between each disturbance type, and no livestock grazing or trampling effects would occur every third year. A lower stocking rate would result in a minor reduction in grazing and trampling impacts during use periods. There would be a moderate upward trend in condition over the mid-term, but recovery would be at a slower rate than described for Alternative A. Rest every third year would result in a faster rate of stream condition improvement than Alternative C. Standards 2 and 3 would be met on 3.5 miles over the long term. As with Alternative C, failure to remove livestock at the end of a designated use period would impede recovery.

Deer Creek – Impacts would be similar to Alternative C, but progress toward PFC would occur at a faster rate.

Hammett #5 (01037)

Impacts would be similar to those described in Alternative C, but progress would depend more on the success of herding efforts and a lower stocking rate. If herding efforts are successful, a minor to moderate upward condition trend would develop on West Fork Cold Springs Creek (1.3 miles) and Standards 2 and 3 would be met over the long term.

Joost Section 15 (01199)
Moderate to major grazing and trampling impacts would occur on 0.2 miles of Curlew Creek. Summer use impacts would occur annually. Condition would degrade to FAR over the short term and Standards 2 and 3 would not be met.

Spring Wetlands
PFC Springs
Impacts for eight springs would be as described in Alternative C.

Joost Section 15 (01199) – Moderate to major grazing and trampling impacts would occur at two springs. Heavy to severe use would occur annually during the summer. Conditions would degrade to FAR over the short term and Standard 2 would not be met.

FAR and NF Condition Springs
Hammett #1 (01033) – At six springs not proposed for maintenance, moderate spring or fall livestock grazing and trampling impacts would occur two out of three years. A lower stocking rate than Alternative C would have a minor benefit. Moderate improvements in condition would occur and Standard 2 would be met over the long term. Maintenance impacts at Ground Hog, Muddy, and South Twin Deer springs would be as described in Alternative C, but Standard 2 would be met over the mid-term because excluding livestock use from associated wetlands would allow recovery to PFC.

Hammett #5 (01037) – Impacts at seven springs not proposed for maintenance or development would be similar to Alternative B-Adjusted Management. However, because of differences in how AUMs would be allocated, impacts during the spring would be less and impacts during the fall could be greater (if soils are still saturated). A lower stocking rate would have minor reductions in grazing and trampling impacts which could allow slightly faster recovery. Maintenance and subsequent livestock grazing and trampling impacts at Section 20 and Section 22 springs proposed for maintenance would be as described in Alternative C. Standard 2 could be met over the long term where springs progress to PFC.

South Hammett #7 (01039) – Impacts for North Bourbon and Section 10 springs would be similar to Alternative C. Later season use (mid-August on) could result in slightly greater improvements in condition because herbaceous vegetation could complete growth and reproduction annually.

North Camas (01098) – Construction of an exclosure would eliminate livestock grazing and trampling impacts at Sackrider Spring. Fence construction activities and long-term livestock trailing impacts along the fenceline would not affect the spring. Impacts to condition would be as described in Alternative A. Impacts to North Camas meadow condition would be as described in Alternative B.

Water Quality
Impacts to water quality would be similar to Alternative C; however, significant progress would be made toward meeting Standard 7 on West Fork King Hill and Little Canyon creeks and would occur at a faster rate than Alternative C.

Fisheries

Hammett #1 (01033)

Impacts would be similar to Alternative C: however, recovery would occur at a more rapid rate.

Hammett #5 (01037)

Impacts to fisheries habitat would be the same as Alternative B.

Maximum Livestock Numbers

Impacts would be similar to Alternative C; however, Alternative D maximum permitted numbers would be well below Alternative C permitted numbers in Hammett #5 and Hammett #6. Therefore, additional bank shearing and trampling impacts on stream and spring functioning condition would be minor. Maximum and permitted numbers would be the same for Hammett #1 and Joost Section 15; therefore, impacts would not change. Progress toward meeting Standard 3 would occur even if maximum permitted numbers were consistently used.

3.5.3 Cumulative Impacts – Riparian Areas, Wetlands, Water Quality, and Fisheries

3.5.3.1 Scope of Analysis

Rated perennial and intermittent streams and springs in the Bennett Mountain MA will serve as the cumulative impacts analysis area (CIAA; Map 9c). These streams were chosen because livestock grazing proposed in alternatives B, C, and D will be used in conjunction with livestock grazing systems throughout the MA. Streams in the allotments discussed in Section 3.5.1 flow into lower elevation allotments in the CIAA; therefore, actions in the upper portion of the watershed affect downstream conditions.

The temporal frame for cumulative impacts is defined by the continued presence of the effects of past actions and the anticipated longevity of reasonably foreseeable future actions. Direct and indirect effects would dissipate during the permit period; therefore, cumulative effects would be considered through 2023.

3.5.3.2 Current Conditions and Present Effects of Past, Present, and Foreseeable Future Actions

The collective effect of past actions has contributed to the existing condition of riparian areas, wetlands, and fisheries described in the Affected Environment above (Section 3.5.1). Because Standard 7 would generally be met under any alternative, cumulative impacts will not be addressed for water quality. Six perennial and intermittent streams (Alkali, Bennett, King Hill, Little Canyon, Prince Albert, and Ryegrass) totaling 24.9 miles were rated for functioning condition on BLM-administered lands in nine allotments. Approximately 19.4 miles were rated PFC and 5.5 miles were rated FAR condition. Of 14 springs in six allotments, eight were rated PFC and six were rated FAR condition. All portions of Bennett (1.3 miles), King Hill (2.1 miles), and Little Canyon (6.7 miles) creeks that support redband trout were rated PFC.

Influential actions that have occurred in the past and will continue into the foreseeable future include livestock grazing, trailing, vegetation treatments, and agricultural development. The

effects of future wildfires are also considered because these natural events are predictable to a certain degree based on the number and size of wildfires that have occurred in the past decade.

- Improper grazing results in damage to riparian areas, wetlands, water quality, and fisheries habitat. Livestock grazing and trampling impacts from permitted livestock use are affecting riparian areas and wetlands in 10 allotments. Proper grazing management to promote meeting Standards would limit impacts.

  The remaining streams (24.9 miles) and springs (14) in the CIAA are scheduled for permit renewal in 2014. Standards 2 and 3 are being met in six allotments for Bennett (2 miles), King Hill (3.3 miles), and Ryegrass (0.6 miles) creeks and portions of Alkali (0.8 miles) and Little Canyon (12.7 miles) creeks. Standards 2 and 3 are not being met in three allotments for Prince Albert spring brook (0.8 miles) and portions of Alkali (3.3 miles) and Little Canyon (1.4 miles) creeks and livestock grazing is considered a contributing factor. Standard 2 is being met for springs in three allotments, but is not being met in three allotments and livestock grazing is considered a contributing factor. Standard 7 is being met in seven allotments, but is not being met in one (a portion of Little Canyon Creek). Standard 8 is being met in three allotments and not being met in one. Management would be modified during the permit renewal process so that significant progress toward meeting standards 2, 3, 7, and 8 would occur.

- One livestock operator identified three routes and six trailing events for cattle that could affect Alkali, Bennett, and Little Canyon creeks (USDI 2012a). Routes would cross streams at previously disturbed sites and would not run parallel to streams. Group sizes would be small (50-1,000 head) or medium (1,001-2,550 head). Negligible to moderate trampling impacts to vegetation and streambanks would be confined to the crossing points (USDI 2012a). Damage would have negligible to minor impacts on water quality. Additionally, one route with three trailing events would parallel Little Canyon Creek on a maintained road (Bennett Mountain Road) and would not affect the stream.

- Vegetation treatments including ESR and the Paradigm Project would not occur in riparian or wetland areas. Indirect benefits from these treatments include maintaining long-term upland vegetation community components that would help stabilize watersheds and reduce sediment input into streams.

- Riparian resources are subjected to a variety of agricultural uses on private lands that can have minor to major long term impacts. Irrigation uses often partially or completely dewater streams during a portion of the spring and summer. Obligate riparian/wetland vegetation has been depleted or eliminated by annual dewatering on some stream segments. Dewatering adversely affects several segments on BLM-administered lands. Consistent heavy or severe livestock grazing can reduce or eliminate herbaceous vegetation. However, some areas are in good condition because they are lightly used or not accessible to livestock.

- Between 2010 and 2012, three wildfires burned portions of Bennett (3.3 miles), King Hill (5 miles), and Little Canyon (4.5 miles) creeks. The burned areas were closed to

livestock grazing until vegetation recovery objectives are met. All the affected segments were rated PFC prior to the fires. Herbaceous vegetation should recover to pre-burn conditions over the short term. Most woody species are root sprouting and would be expected to recover in the mid (willows) to long (cottonwood) term. Functioning condition and water quality could be adversely affected until herbaceous vegetation recovers. Water temperature and fisheries habitat could be adversely affected until woody vegetation recovers.

3.5.3.3 **Cumulative Impacts - Alternative A**

Riparian Areas

Improving three streams (5.7 miles, 7% of total stream miles in the CIAA) to PFC would have a moderate additive benefit to stream conditions. On BLM-administered lands, an additional 5.5 miles would be in a slow upward trend after grazing systems are modified, 12.8 miles would recover from wildland fire impacts, and the remaining 55.5 miles would be in PFC. Trailing and vegetation treatments would have negligible short-term adverse impacts. Future wildfires could have moderate (for PFC streams) to major (for FAR condition streams) short term adverse impacts, but streams would be expected to recover over the long term in the absence of flood events. Agricultural uses could have minor to major long-term adverse effects, especially where dewatering is occurring.

Wetlands

Improving 19 springs to PFC would have a major additive benefit to wetlands. On other BLM-administered lands, an additional six springs would be in a slow upward trend after grazing systems are modified and the remaining 16 would continue to be in PFC. Trailing would have no impact on wetlands because they occur outside trailing routes. Successful vegetation treatments could have minor to moderate long-term benefits where watersheds are stabilized and water infiltration and retention is improved. However, wildfires could have moderate to major adverse impacts, at least over the short term, where deep-rooted perennial species and shrubs are replaced by shallow-rooted grasses. Water infiltration and retention would be reduced, limiting available water. Agricultural uses would have negligible impacts. Most diversions occur at elevations below the springs and would not affect spring hydrology.

Fish

Improving West Fork King Hill, Little Canyon, and West Fork Cold Springs creeks (5.3 miles) to PFC would have a moderate additive benefit to redband trout. The remaining 45.6 miles (10.1 miles in the CIAA and 35.5 miles in the Bennett Mountain North allotments) of redband trout habitat are in PFC. Because the 10.1 miles of stream are in PFC, changes in BLM-administered grazing permits should not affect fisheries. No trailing activities would be associated with fisheries. Vegetation treatments (e.g., ESR treatments associated with the Blair and Stout fires) would have minor long-term benefits where upland vegetation is stabilized adjacent to King Hill and Bennett creeks. Minor to moderate grazing and trampling impacts occur annually on a 1.9 mile segment of Little Canyon Creek on private land; however, no other agricultural uses would affect fisheries habitat. Moderate to major impacts to 8.3 miles of streams affected by two wildfires will reduce fisheries habitat quality over the short to long term.

3.5.3.4 **Cumulative Impacts - Alternative B**

Riparian Areas

As Permitted - West Fork King Hill, Little Canyon, Deer, and West Fork Cold Springs creeks (5.7 miles, 7% of total stream miles in the CIAA) remaining in FAR condition would have a moderate additive adverse effects on stream conditions. Impacts from other activities would be as described in Alternative A.

Adjusted Management – Minor improvements on 4.4 stream miles (West Fork King Hill, Little Canyon, and Deer creeks) and moderate improvement on 1.3 stream miles (West Fork Cold Springs Creek) would have a negligible to minor additive benefit on stream conditions. Impacts from other activities would be as described in Alternative A.

Wetlands

As Permitted - Static FAR or NF conditions at 19 springs (44% of springs in the CIAA) would have a major additive adverse impact to wetlands. Impacts from other activities would be as described in Alternative A.

Adjusted Management – Minor improvements at 15 springs (Hammett #1 and East Hammett #5) and static trends at four springs (Hammett #7 and North Camas) could have minor to moderate additive benefits for wetlands. Impacts from other activities would be as described in Alternative A.

Fisheries

Static conditions on 5.3 stream miles (9% of streams that support redband trout in the CIAA) would have minor additive adverse impacts to fisheries. Impacts from other activities would be as described in Alternative A.

3.5.3.5 **Cumulative Impacts - Alternative C**

Riparian Areas

Meeting Standards 2 and 3 on 5.7 miles of stream over the long term would have a moderate additive benefit on stream conditions. Impacts from other activities would be as described in Alternative A.

Wetlands

Cumulative impacts would be as described in Alternative B-Adjusted Management; however, the rate of recovery for FAR and NF condition springs in four allotments (Hammett #1, Hammett #5, Hammett #7, and North Camas) would be somewhat quicker.

Fisheries

Meeting Standard 8 on 5.3 stream miles (9% of streams that support redband trout in the CIAA) would have minor additive benefits to fisheries. Impacts from other activities would be as described in Alternative A.

3.5.3.6 **Cumulative Impacts – Alternative D**

Cumulative impacts would be similar to those described for Alternative C. Somewhat quicker improvements in riparian area, wetlands, and fisheries conditions would have a slightly greater additive benefit.

3.6 **Wildlife/Special Status Animals**

This section discusses wildlife habitat and the species that use them. The amount, distribution, general condition, and typical species are described for three primary habitat components. Representative species or assemblages are used to characterize important habitat components and how they would be affected by livestock management actions.

3.6.1 Affected Environment – Wildlife and Special Status Species

The allotments provide habitat for a variety of birds, reptiles, amphibians, and mammals. Standards 2, 3, 4, and 8 provide measures of wildlife habitat quality. Standards 2 and 3 apply to riparian and wetland dependent species. Standard 4 applies to non-special status wildlife species that depend on grassland, shrubsteppe, or forested habitats (e.g., red-tailed hawk, horned lark, and mule deer). Standard 8 applies to special status wildlife species (Appendix 10) regardless of what habitat they use (e.g., sage-grouse use both uplands and wet meadows). This section will discuss key characteristics of general habitat types (i.e., upland, riparian, and forested), representative species that use those habitats (e.g., greater sage-grouse, migratory/riparian birds, raptors, and big game), and the key habitat components those species utilize that could be affected by livestock grazing.

Habitats

Shrubland

Description and Distribution – Shrub-dominated communities account for 69% of cover types, with 54% dominated by sagebrush species (Table 12, Map 6a). Herbaceous understories in shrub communities are composed of native perennial bunchgrasses including bluebunch wheatgrass, Sandberg bluegrass, and bottlebrush squirreltail, as well as a diversity of native perennial forbs such as arrowleaf balsamroot, lupine, and tapertip hawksbeard. Antelope bitterbrush, rabbitbrush, snowbrush ceanothus, and snowberry are dominant shrubs in other types. These plant communities are vital components of wildlife habitat as they provide essential food sources and cover needed by animals for survival, growth, and reproduction.

The lower elevations still retain native shrubs but are often dominated by a cheatgrass understory and lack diversity of native grasses and forbs. Bitterbrush occurs in mid to upper elevations and provides important winter browse for ungulates, though only comprises about 2% of upland vegetation.

Typical Wildlife Species - Sagebrush communities vary in composition and structure, but to one degree or another they are a crucial component of the lifecycles for a variety of wildlife species. Typical sagebrush-associated species include greater sage-grouse, pronghorn antelope, mule deer, coyote, white-tailed and black-tailed jackrabbit, mountain cottontail, badger, Piute ground squirrel, and meadowlark. All of these species are year-round residents. Most of the songbirds are neotropical migrants, which means that they are only present during the spring, summer, and fall.

Sage-grouse, a sagebrush obligate species, depend on sagebrush and bunchgrasses for food and/or cover during each stage of their lifecycle. Sage-grouse have been recognized as an umbrella species for other sagebrush dependent species and sagebrush ecosystems. The conservation of sage-grouse habitat confers protection to a large number of wildlife species associated with sagebrush ecosystems (Hanser and Knick 2011). Other sagebrush obligate species include sage sparrow, Brewer's sparrow, and sage thrasher. Species that commonly use shrublands for foraging and cover include prairie falcon, golden eagle, ground squirrels, and reptiles. Mule deer and pronghorn antelope are closely associated with shrublands. Although sage-grouse avoid riparian areas, many shrubland and grassland species use riparian areas during some portions of the year. Habitat discussions for those portions of their life cycle are discussed in Riparian section.

Current Conditions – Shrub-dominated areas (7,931 acres in the Hammett #7, South Camas, North Slope, Camas Creek Field, North Camas, Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15 allotments) that are meeting Standard 4 generally provide suitable habitat for shrub-dependent species. Shrub-dominated areas (27,127 acres in the Hammett #1, East Hammett #5, Hammett #6, and East Bennett Mountain allotments) that are not meeting Standard 4 provide reduced quality habitat for shrub-dependent species (e.g., nesting cover for ground nesting species is reduced or absent where tall- and mid-stature grasses are reduced; food sources are affected where inadequate forbs and associated insects are reduced). Habitat conditions affect their suitability for wildlife and the species that utilize them. Habitat conditions are typically affected by elevation, precipitation, wildfire, and historic and current livestock grazing. Lower elevations are drier, generally have increased exotic annuals, are more susceptible to wildfire, and have reduced native grass and forb diversity because of historic spring livestock use. Upper elevations are characterized by greater precipitation, little or no exotic annuals, a long fire return interval, good diversity of native grasses and forbs because historic livestock use occurred at the end of growing seasons or during dormancy. Representative habitat components and their conditions are discussed under each representative species.

Grassland

Description and Distribution – Exotic annual and perennial grasslands, including recently burned areas (primarily Hammett #1 and Hammett #6), account for 20% of cover types (Table 12, Map 6a). Native perennial bunchgrasses including bluebunch wheatgrass, Sandberg bluegrass, and bottlebrush squirreltail and a diversity of forbs are present in perennial grasslands and recently burned areas generally >4,500 feet. Exotic annual types and some recently burned areas ≤4,500 feet are characterized by cheatgrass and medusahead, exotic forbs, and relatively few native perennial grasses and forbs.

Typical Species – Typical species include western meadowlark, horned lark, grasshopper sparrow, and elk.

Current Conditions – Grassland-dominated areas (86 acres in the Hammett #7, South Camas, North Slope, Camas Creek Field, North Camas, Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15 allotments) that are meeting Standard 4 generally provide

suitable habitat for grassland-dependent species. Grassland-dominated areas (9,506 acres in the Hammett ##1, East Hammett #5, and Hammett #6 allotments) that are not meeting Standard 4 provide reduced quality habitat for upland dependent species. Representative habitat components and their conditions are discussed under each representative species.

Forest

Description and Distribution – Forested habitats occur above 5,400 feet and are predominately Douglas-fir with some lodgepole pine, aspen, and a small scattering of ponderosa pine. Conifer-dominated habitats occur in 10 allotments (8% of vegetation cover) and relatively small aspen stands occur in 11 allotments (3% of vegetation cover, Table 12, Map 6a).

Typical Species - Flammulated owl, northern goshawk, northern flicker, red-breasted nuthatch, black-capped chickadee, dark-eyed junco, elk, and moose are associated with Douglas-fir habitat interspersed with aspen stands and mountain shrub communities. White-headed woodpecker and fisher are associated with lodgepole pine and ponderosa pine.

Current Conditions – Forested areas are generally providing suitable habitat: however, understory vegetation is limited in areas where livestock congregate for shade or water (e.g., Sackrider Spring in the North Camas Allotment). Specific habitat components and their conditions are discussed under each representative species.

Riparian

Description and Distribution – There are 54.6 miles of perennial (Hammett #1, East Hammett #5, Hammett #6, Hammett #7, South Camas, North Slope, and Hammett Livestock Company allotments) and intermittent streams (Hammett #1, East Hammett #5, Hammett #6, Hammett #7, South Camas, North Slope, Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15 allotments, Table 19, Maps 9a and 9b) and 29 springs (Hammett #1, East Hammett #5, Hammett #6, Hammett #7, North Camas, East Bennett Mountain, and Joost Section 15 allotments, Table 20, Maps 9a and 9b) that provide habitat for riparian dependent bird and amphibian species. Most perennial streams are characterized by a woody overstory (e.g., willows, black cottonwood, water birch) and herbaceous understory (e.g., sedges). Intermittent streams are characterized by herbaceous species and limited amounts of willows.

Typical Species - Approximately 80% of wildlife species typically found in the Bennett Mountain North area depend on riparian or wetland habitats during some or all of their life cycles (Thomas et al. 1979). Mountain quail, willow flycatcher, Hammond's flycatcher, calliope hummingbird, yellow warbler, and Northern leopard frog are some of the species associated with riparian habitat.

Current Conditions - Generally, streams and springs that are in PFC provide foraging, nesting, and hiding cover for non-disturbance associated species (e.g., calliope hummingbird, yellow-rumped warbler, dark-eyed junco), whereas streams and springs that are in FAR condition provide habitat for disturbance associated species (e.g., house wren, American robin) (Bock et al. 1993).

Fencing

There are approximately 173 miles of livestock management fencing associated with the allotments (Map 10). There are approximately 50.2 miles of fences on or bordering BLM-administered lands including 28.4 miles within 4 miles of sage-grouse leks and 13.5 in mule deer winter range. The Boise District has standards that provide fence specifications to minimize impacts to wildlife including appropriate height, spacing, and materials to reduce impacts to big game (USDI 1989) and criteria for fencing in sage-grouse habitat (USDI 2012b); however, most fencing was constructed prior to 1989. Currently, only 9 miles of fencing meet standards for big game. Often the wire spacing is too close; the lower wire is not smooth and too close to the ground for deer fawns and antelope to safely pass under. No fences have been marked to improve visibility for sage-grouse.

Representative Wildlife Species

The following species and groups of species are most likely to be affected by grazing and will be discussed relative to the impact vectors:

- Greater sage-grouse (includes upland neotropical migratory birds, small mammals reptiles)
- Riparian birds (includes riparian neotropical migratory birds)
- Raptors (includes ferruginous hawk, golden eagle, western burrowing owl)
- Big game (mule deer, pronghorn antelope, elk)

Fifty- three wildlife species classified as BLM Sensitive Species potentially occur in the area. In-depth analyses for greater sage-grouse, riparian birds, and raptors will provide potential livestock grazing-related impacts to special status species. Habitats and management considerations are summarized for the remaining sensitive wildlife species in Appendix 10.

Greater Sage-grouse

Greater sage-grouse (sage-grouse) have undergone long-term population declines and are currently absent from the majority of their estimated distribution prior to Euro-American settlement of the Western United States (Schroeder et al. 2004). While populations of sage-grouse are still in decline in some regions, the overall population trend has become more stable in recent years (Connelly et al. 2004). On March 23, 2010, the USFWS designated sage-grouse as a candidate species under the ESA. The USFWS determined sage-grouse warranted protection under the ESA, but were precluded from listing due to other species with higher listing priority. The BLM has developed interim policy on conservation policies and procedures to facilitate maintaining and restoring habitat for sage-grouse while the BLM determines how to incorporate long-term conservation measures into land use plans (USDI 2012b).

Sage-grouse in this area occupy the Mountain Home Sage-grouse Planning Area (SGPA). The SGPA contains sagebrush habitat in Elmore County north and east of Mountain Home. The SGPA includes low elevation Wyoming big sagebrush habitat, which generally lacks the desired composition of native grasses and forbs for food and cover, and upper elevation mountain big and low sagebrush habitats, which have somewhat reduced to suitable levels of grasses and forbs. The IDFG has been collecting radio-telemetry data in the SGPA between 2008 and present. Marked birds have been recorded in the Hammett #1, Hammett #6, Hammett #7, and North Slope allotments. Sage-grouse numbers appear to be in decline (2002 - 2014 IDFG lek

counts). The exact cause of the decline is not known; however, poor quality habitat (e.g. sagebrush with exotic annual dominated understories), habitat loss (e.g. 8,077 acres of sagebrush habitat burned between 2002 and 2012), habitat fragmentation (e.g. roads, powerlines, loss of sagebrush, wind energy development), and West Nile virus are possible factors.

General Habitat - Currently, the BLM characterizes sage-grouse habitat based on population levels and movements (Preliminary Priority and General Habitat [PPH/PGH] areas) or primary vegetation components (Key – intact sagebrush, Restoration Type I [RI] - perennial grassland, and Restoration Type II [RII] - annual grassland). These habitats overlap (Map 11a) and the BLM emphasizes the maintenance and enhancement of PPH and Key habitat types. Current conditions and the effects of livestock grazing will be presented for a variety of habitat components (e.g. winter, nesting, and brood-rearing) in eight allotments (Table 21). Deep rooted perennial grasses 15% or greater in the understory, forb abundance and diversity, 20% cover of sagebrush with a spreading form are all indicators of a suitable sage-grouse habitat in grazing allotments.

Hammett #1, East Hammett #5, Hammett #6, Hammett #7 (south portion), and North Camas allotments are not meeting standards for either upland (Standards 4 and 8) or wetland (standards 2, 3, and 8) areas that contain one or more of the aforementioned habitat components for sage-grouse. Allotments may be meeting standards for some components (e.g., winter habitat), but not others (e.g., nesting habitat), consequently not meeting overall. North Slope and Hammett #7 (West portion) allotments are meeting Standards 4 and 8, providing suitable upland and wet meadow habitat for late brood-rearing.

East Bennett Mountain, South Camas, Camas Creek Field, Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15 allotments contain sagebrush habitat intermixed with forested habitat and fall outside of priority and key habitats. Due to the isolated nature of habitat (lack of connection to larger expanses of sagebrush habitat), steep topography, and lack of sage-grouse sign from field observations and helicopter flights, these allotments are not considered sage-grouse habitat except possible incidental use and will not be discussed further. Incidental use would be young birds exploring new areas as has been recorded through telemetry data with the West Central Working Group in similar habitats.

Winter Habitat – Sage-grouse require $\geq$20% sagebrush cover for winter habitat, with portions of sagebrush above snow most of the winter to provide forage for sage-grouse (Connelly et al. 2000). Unburned habitat below approximately 5,400 feet in the Hammett #1, East Hammett #5, Hammett #6, and North Slope allotments provide wintering habitat. There is some indication northern portions of Hammett #1 may also provide wintering habitat on windswept ridges. Standard 8 is being met for winter habitat in unburned areas.

Table 21. Acres of sage-grouse habitat on BLM-administered lands in the Bennett Mountain North allotments (alternatives C and D) and cumulative impacts analysis area, Elmore County, Idaho.

Habitat Type	Description	Hammett #1[1]	Hammett #5[1]	Hammett #6[2]	South Hammett #7[1]	West Hammett #7	North Camas[1]	North Slope	Total	Cumulative Impact Area	
										BLM lands	All Ownerships
Preliminary Priority Habitat	Sagebrush[3]	17,437	6,922	1,800	829	862	66	532	28,448	133,244	263,790
	Perennial Grassland	0	197	799	0	0	0	0	996	27,293	31,871
Preliminary General Habitat	Sagebrush	0	0	0	0	0	0	0	0	9,954	17,171
	Persistence ≥25%[4]	355	0	0	0	0	0	0	355	1,958	15,773
	Perennial Grassland	0	389	2,839	0	303	29	0	3,560	25,111	31,209
Key	Sagebrush	17,437	6,922	1,800	829	862	66	532	28,448	143,063	280,843
RI	Perennial Grassland	0	585	3,638	0	303	29	0	4,555	52,689	63,348
RII	Annual Grassland	4,028	33	531	0	0	0	0	4,592	80,650	100,248

[1] Not meeting Standard 8 for sage-grouse and current livestock use is a causal factor. In South Hammett #7 and North Camas, uplands are meeting sage-grouse habitat needs, but wetlands are not.
[2] Not meeting Standard 8 for sage-grouse due to other factors.
[3] Acreage figures in this table are somewhat different than Table 12, in part because of the broad method sage-grouse habitat was. In the text, more accurate acreage figures from Table 12 are used unless the figures in this table are less delineated (e.g., inclusions of forested habitat in broad sage-grouse habitat delineations would be omitted).
[4] Low (25-65%) and high (>65%) sage-grouse population persistence over the long term.

Breeding Habitat – Sage-grouse breed in early spring (primarily between April 1 and May 15) when males display at communal strutting grounds (leks). Leks are typically found in open areas adjacent to sagebrush communities that provide escape, thermal, and feeding cover. Areas of bare soil, short grasses, windswept ridges, exposed knolls, and other open areas serve as leks (Patterson 1952, Connelly et al. 2004). The availability of lekking habitat is generally not limited and leks can often be located in areas that are heavily used by livestock; therefore, Standard 8 is being met at two recently active (2006) sage-grouse leks in Hammett #1. An additional lek occurs between Hammett #1 and East Hammett #5.

Nesting Habitat – Sage-grouse typically locate nests under big sagebrush plants and those nests are more successful than nests under other species (Connelly et al. 1991). Nests are more successful if there is 10-30% big sagebrush cover with deep-rooted perennial bunchgrass (i.e. Idaho fescue and bluebunch wheatgrass verses Sandberg bluegrass) cover with abundant and diverse forbs that provide horizontal and vertical structural diversity. Radio-marked females in the Mountain Home SGPA moved an average of 3-4 miles from their breeding leks to nesting habitat (Holderman, field notes 2006 and 2007); therefore, nesting habitat will be discussed for Hammett #1, East Hammett #5, Hammett #6, Hammett #7, and North Slope allotments which are within 4 miles of historic leks. Egg laying (3-14 days after copulation, 12-15 days to lay clutch), incubation (20-30 days), and hatching generally occurs between April 7 and June 30.

Allotments not meeting Standard 8 where current livestock grazing is a suspected causal factor provide marginal to poor nesting habitat characterized by a lack of native forbs and grasses in the understory (e.g., Hammett #1 – up to 14,550 acres, East Hammett #5 – up to 5,668 acres). Allotments not meeting Standard 8 because of factors other than current livestock use have understories dominated by annual grasses and forbs (e.g. lower elevations of Hammett #1 and Hammett #6) or sagebrush cover is absent because of recent wildfires (e.g., southern portion of Hammett #1 – 4,040 acres, Hammett #6 – 3,335 acres). North Slope (331 acres) and Hammett #7 (1,558 acres) allotments are meeting Standard 8 for nesting habitat.

Brood-rearing Habitat – Brood-rearing habitat is characterized by increased forb canopy cover and reduced sagebrush canopy cover relative to nesting habitat (Hagen et al. 2007). As sagebrush communities desiccate through the summer, birds tend to move to more mesic areas (e.g. wet meadows associated with springs) (Klebenow 1969, Connelly et al. 2000). Brood rearing (10-12 weeks, primarily May 15 through September 15) takes place until early fall when sage-grouse group into flocks for the winter.

Sagebrush and perennial grasslands in seven allotments provide brood-rearing habitat (Table 21). Upland habitat is not meeting Standard 8 for brood rearing habitat in Hammett #1 (up to 16,648 acres) and East Hammett #5 (up to 7,861 acres) where perennial grasses and forbs are depleted. Standard 8 is likely being met in Hammett #6 and Hammett #1 in recently burned areas where perennial grasses are dominant, but not where exotic annuals are dominant. Limited areas are not meeting Standard 8 for other reasons including dense mountain sagebrush communities with limited herbaceous understory and forested communities interspersed with sagebrush communities. Upland habitats in Hammett #7 (2,012 acres), North Slope (532 acres), and North Camas (66 acres) are meeting Standard 8. Mesic habitats are not meeting Standard 8 where springs and associated wet meadows are in FAR or NF condition (Hammett #1, East Hammett

#5, South Hammett #7, North Camas) and meeting Standard 8 where they are in PFC (Hammett #6, Table 20, Maps 9a and 9b).

Riparian Birds

The density and width of riparian areas and the lushness of the undergrowth influence bird numbers; the wider and denser the area the better the cover for nesting birds (Earnst et al 2005). Riparian birds nest and forage at a variety of levels (e.g., ground, mid-canopy, upper-canopy); therefore, increased vertical diversity supports greater avian diversity. Streams that are in PFC (48.9 miles) generally provide these characteristics (e.g., tree and/or shrub overstory, ≥80% vegetated streambanks) and are meeting Standard 8 (Table 19, Maps 9a and 9b). Streams that are FAR (5.7 miles in Hammett #1 and East Hammett #5) do not provide a high density of shrubs and lush undergrowth; consequently, they support lower densities and species diversity and are not meeting Standard 8. Species that depend on wet meadows are addressed in sage-grouse late-brood rearing habitat discussions.

Mountain quail were re-introduced in Canyon, King Hill, and Cold Spring creeks on the east side of Bennett Mountain over a four-year period. Mountain quail surveys were conducted in the Bennett Mountain area is 2004 and 2005. There were limited positive responses, but remnant populations were located in East Fork Cold Springs Creek (East Hammett #5, rated PFC) and Canyon Creek (between Hammett #1 and East Hammett #5, rated PFC). Mountain quail need fruiting shrubs such as chokecherry and elderberry to provide food, particularly in the winter, and thick riparian shrubs provide cover.

Raptors

Raptors occur in a variety of habitats, depending on their roosting, foraging, and nesting substrate preferences. Substrate preferences include ground (e.g., burrowing owl), cliff (e.g., prairie falcon, golden eagle), and forests (e.g., Northern goshawk). Each of these substrates is associated with one or more habitats that occur in the allotments (such as conifer/aspen forests, shrubsteppe habitats, and riparian habitats). Supporting prey base species could be reduced in portions of Hammett #1 and East Hammett #5 where Standard 4 is not being met. These two allotments are also low enough in elevation and warm enough to host a variety of wintering raptor species (e.g., golden and bald eagles, long-eared owl, Northern rough-legged hawk). Golden eagles are known to utilize the lower portion of Hammett #1.

In general, fences within the Bennett Mountain North area are not marked to help raptors avoid collisions. District policy for fenceline marking mainly focused on reducing fence collisions for sage-grouse, but can be adapted for other bird species. Raptors are susceptible to fence line collisions as prey learn to utilize fencelines as escape cover.

Big Game

Rocky Mountain elk, mule deer, and pronghorn antelope are present throughout much of the area. Elk forage in forest and forest-edge habitat, feeding primarily on grasses and forbs, and to a lesser degree on woody vegetation. Elk usually occur more in the mid to higher elevations (>5,200 feet); however, during severe winters, elk have utilized lower elevations (Map 0). Mule deer are present throughout the year. Forbs and grasses can make up a high percentage of their spring-summer diet, but palatable shrubs (especially bitterbrush) are important in the fall and

winter (Kufeld 1973). Winter range occurs in the lower elevations (≤5,200 feet), while the higher elevations provide summer range (Map 10). Pronghorn use low elevation (<5,000 feet) areas in the winter and mid-elevation areas in the summer and are known to use the lower portions of Hammett #1. During winter months, antelope browse on a wide variety of woody plants, including sagebrush, shadscale, winterfat, and Nuttall's saltbush. In the summer, pronghorn consume more forbs and grasses. It is unlikely that elk and antelope utilize areas in the Bennett Mountain area for concentrated calving/fawning activities. Mule deer winter range occurs in portions of the Hammett #1, Hammett #6, and North Slope allotments. Elk winter range occurs in portions of the Hammett #1, East Hammett #5, Hammett #6, and Hammett Livestock Company allotments.

For big game species, areas that are meeting Standard 4, especially those that have not burned recently, provide suitable big game habitat. Areas not meeting Standard 4 provide less suitable big game habitat. Browse transects conducted in Hammett #1 (where bitterbrush occurs primarily in the northern two-thirds of the allotment) indicated heavy livestock utilization of bitterbrush during the fall use period. Ninety percent of plants were severely hedged.

Recent wildfires have had a major impact on elk and deer winter range (Maps 6a and 10). Since 2002, 20% (6,780 acres) of elk winter range has burned. As elk feed primarily on grasses and forbs depending on rehabilitation efforts and rest from livestock grazing, the loss of elk winter range would be expected to recover within 1-2 years. Since 2002, 42% (5,996 acres) of mule deer winter range has burned reducing habitat quality through loss of native shrubs. If seedings are successful, recovery would take at least 5-10 years.

3.6.2 Environmental Consequences – Wildlife/Special Status Animals

Because sage-grouse are used to represent a wide range of species, shrubsteppe, grassland, and forest acres and impacts are grouped where appropriate and specifics for sage-grouse are provided where necessary.

The following assumptions apply for analysis purposes:

- Short-term effects to wildlife would be <1 year; long-term effects would be ≥1 year.
- Sage-grouse analyses will address impacts to riparian birds that may use uplands during some portion of their life cycles;

3.6.2.1 General Discussion of Impacts

The general discussion of livestock grazing-related effects is common to all action alternatives (B, C, and D). Direct impacts to wildlife include behavioral disturbance, trampling, and mortality. Indirect effects include changes in habitat quality and structure

Changes in Habitat Quality

Livestock utilization and trampling of vegetation could have short- and long-term impacts on upland vegetation by reducing plant vigor, density, frequency, and reproductive capability; thereby limiting resources available to wildlife and the capacity of residual perennial plant communities to reestablish (Anderson and Holte 1981). Grazing systems that favor annuals or low stature perennial grasses (e.g. consistent growing season use at >40% utilization) would reduce or eliminate tall- and mid-stature native species important for cover and forage over the

long term. Consistent spring use at <40% would provide marginal nesting and early brood-rearing habitat. Cover requirements could be met (if tall-stature perennial grasses are present), but grass and forb diversity could be adversely affected. Systems that favor native forbs and tall-stature perennial grasses (e.g. provide periodic rest during the growing season) would provide suitable nesting cover and forage. Complete rest, or non-use during the nesting and early brood-rearing periods, would allow the greatest improvements in nesting cover and forage. Small mammal response to habitat quality and livestock use varies with species (Reynolds and Trost 1980, Johnson 1982); however, species diversity and abundance would generally be greater in intact shrubsteppe habitats than in degraded or exotic annual dominated habitats.

Grazing in riparian areas to the degree that rangeland standards are not being met could result in habitat alteration through the removal of vegetation, trampling, and ground disturbance. Avian response to livestock grazing in riparian areas is variable, but species richness and abundance would generally decrease in grazed sites (Tewksbury et al. 2002). Susceptibility to nest predation would be greater where shrub and ground cover is reduced (typically associated with heavy to severe use and FAR conditions) than in areas that are lightly grazed or inaccessible to livestock (Ammon and Stacey 1997). Extensive livestock browsing or browsing late in the season can reduce shrub vigor for mountain quail. Improvements in riparian conditions would increase small mammal, songbird, and raptor diversity and abundance over the long term (Kauffman and Kreuger 1984).

Changes in Habitat Structure

Livestock grazing could influence habitat structure by reducing the amount available or by physically alteration. If livestock grazing exceeds 50% utilization during the nesting and brood-rearing season, there is not enough residual plant material to conceal nests from predators (France et al. 2008). For sage-grouse, moderate to severe livestock utilization levels (>40%) during the late-spring nesting period would reduce cover of perennial grasses (new growth and residual cover) crucial to concealing nests from avian and mammalian predators, subsequently reducing annual nesting success and fecundity (Gregg et al 1994, DeLong et al. 1995). Grazing activity that reduces forb cover could also adversely impact sage-grouse nesting success and chick survival, as forbs provide cover and an insect prey base for sage-grouse (Johnson and Boyce 1990). Over the long term, animals could avoid areas consistently receiving moderate to severe use. Livestock grazing at ≤40% utilization is correlated with high sage-grouse nesting success (Gregg et al. 1994, Sveum et al. 1998).

Livestock grazing would have a potential for forage competition among livestock and big game, and can influence habitat selection by mule deer avoiding habitat preferred by cattle (Loft et. al. 1991). Competition for forage may exist under the following conditions: 1) domestic and big-game animals are utilizing the same area, 2) forage plants are in limited supply, or both domestic and big-game animals are consuming the same forage plants (Smith and Julander 1953). However, food preferences could reduce seasonal dietary overlap between big game and cattle (Ngugi et al. 1992, Stewart et al. 2003).

In concentrated livestock use areas, shrub structure could become columnar (e.g. few branches), reducing horizontal and vertical structure and cover. Excessive mechanical damage could kill non root-sprouting shrubs.

Disturbance/Trampling
Disturbance from anthropogenic sources have the potential to impact wildlife during critical periods. Species that are tied to specific breeding areas (e.g. sage-grouse leks, territories of monogamous birds) are more susceptible to disturbance that could reduce reproductive capability, whereas species with non-resource-based defense mating systems (e.g. many mammals) could more easily avoid disturbance impacts. Flushing birds from nests could increase egg predation or nest abandonment where persistent disturbance occurs. Grazing systems that defer use until after the grass growing period would provide disturbance free areas during nesting and early brood-rearing seasons. Disturbance that increases wildlife movement during critical periods (e.g., during spring when newborn are vulnerable, during winter when energy reserves are low) could reduce productivity and increase mortality.

Livestock grazing could potentially damage the nests and burrows of wildlife species. Birds that nest on the ground (e.g. greater sage-grouse) or in burrows (e.g. burrowing owls) would be more susceptible to trampling impacts than shrub nesting birds (e.g. sage sparrow) as ground nests tend to be larger and more conspicuous. Some species may avoid building nests or burrows near areas regularly impacted by grazing (e.g., water and supplement locations).

Disease (West Nile Virus)
Livestock grazing facilities have the potential to facilitate disease transmission to wildlife populations. Some birds, like sage-grouse, are susceptible to West Nile Virus (WNV) so outbreaks of the disease can have deleterious impacts (Naugle et al. 2004). In 2006, WNV became epidemic in southwest Idaho and some sage-grouse in Owyhee County died, most of which were along Big Springs Creek and in the Duck Valley Reservation. During a follow up study conducted during 2007 and 2008, no infected birds were detected via blood sampling (IDFG 2008). Drops in lek attendance within the Bennett Mountain North and leks nearby to the west were detected at the same time of the confirmed WNV cases in the Owyhees. No dead sage-grouse were reported or blood samples taken to determine if WNV was the cause, but WNV was suspected.

Culex spp. comprise the primary mosquito genus responsible for WNV transmission (Zou et al. 2006), with *C. tarsalis* representing the primary carrier in Idaho and the western United States (Ada County 2009). A variety of avian, and to a lesser degree mammalian, species serve as *C. tarsalis* hosts and many avian species, especially corvids, thrushes, and some songbirds, are susceptible to die-offs (Kilpatrick et al. 2007). Although this species has been known to successfully utilize artificial containers (e.g., water troughs) as larval habitat, it is a colonizing species exhibiting its highest productivity in newly created aquatic habitats with vegetative decay (SDSU 2009). Vegetation along the edges of small bodies of water typify ideal larval habitat for this species (Zou et al. 2006). Consequently, grazing activities that increase trampling in riparian areas and add to the amount of stagnant water where vegetation can persist could increase habitat for *C. tarsalis* and the likelihood of WNV outbreaks.

Fencing
Fences could cause direct or indirect mortality and impede wildlife movement (Connelly et al. 2000, Stevens 2011). Where existing fences blend into the background (because of topography,

vegetation, or fence type) and are not visible, avian collisions could cause mortality. Improperly placed or constructed fences could cause big game mortality when animals get caught between wires. Fences could increase indirect mortality where avian predators use them as hunting perches or to trap prey or flush prey into them. Mortality rates could decline slightly for resident animals as they become aware of fencing, but annual mortality would not change over the long term for migratory species and young animals. Fencing would impede movement where snow or improper construction (improper wire placement or spacing) prevents big game passage. Building or modifying fences to meet wildlife standards could help reduce collision mortality and improve passage over the long term.

3.6.2.2 **Comparison of Alternatives**

For analysis purposes, allotments were considered to be meeting or not meeting Standards 4 and 8 as follows.

Allotments meeting Standards 4 and 8 include:

- *Uplands* - Hammett #7, South Camas, North Slope, Camas Creek Field, North Camas, Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15. Vegetation is characterized by a diversity of tall-, mid-, and low-stature native grasses, forbs, and shrubs that occur within the normal range of variability for sites (Section 3.2.1).
- *Streams* - Hammett #6, Hammett #7, South Camas, North Slope, Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15. Riparian areas are characterized by PFC streams dominated by native plants, intact understories, and diverse species and age classes of woody vegetation (Section 3.5.1).
- *Springs* – Hammett #6, East Bennett Mountain, and Joost Section 15. Diverse wetland obligate species dominate and limited mechanical damage occurs.

Allotments not meeting Standards 4 and 8 include:

- *Uplands* - Hammett #1, East Hammett #5, Hammett #6, and East Bennett Mountain. Vegetation understories are characterized by primarily low-stature perennial grasses and exotic annuals at lower elevations and reduced tall- and mid-stature perennial grasses and forbs at upper elevations. Shrub cover is reduced or absent because of wildfires (portions of Hammett #1 and Hammett #6) or greater than expected (portions of East Hammett #5 and East Bennett Mountain) (Section 3.2.1).
- *Streams* - Hammett #1 and East Hammett #5. Riparian areas are characterized by FAR condition streams dominated by increaser or upland species, limited understories, and low frequencies and hedged woody vegetation (Section 3.5.1).
- *Springs* - Hammett #1, East Hammett #5, (South) Hammett #7, and North Camas. Early seral and grazing resistant species dominate and moderate to substantial mechanical damage occurs (Section 3.5.1).

Where Standards 4 and 8 are currently being met, conditions would be maintained over the long term, regardless of alternative (Table 22). Where Standards 4 and 8 are not being met, the degree and rate of improvement would increase as accommodations for vegetation and animal requirements increase. These impacts are described more fully in the sections for each alternative below.

Table 22. Comparison of overall impacts by alternative and outcome regarding wildlife resources, Bennett Mountain North allotments, Elmore County, Idaho.

<table>
<tr><th rowspan="2">Issue/Objective</th><th rowspan="2">Indicator</th><th colspan="4">Alternative</th></tr>
<tr><th>A</th><th>B and B*[1]</th><th>C</th><th>D</th></tr>
<tr><td rowspan="4">Meet or make significant[2] progress toward meeting Standards 4 and 8

Maintain or improve native perennial plant diversity, abundance, vigor, productivity</td><td rowspan="4">-Trend data[3] (quantitative)

-Rangeland health assessments (qualitative)

-Utilization data (quantitative)</td><td colspan="4">Allotments Meeting Standards 4 and 8</td></tr>
<tr><td>Would continue meeting; minor improvements</td><td>Would continue meeting; negligible to moderate impacts</td><td>Would continue meeting; minor to moderate impacts</td><td>Similar to C</td></tr>
<tr><td colspan="4">Allotments Not Meeting Standards 4 and 8</td></tr>
<tr><td rowspan="2">Would meet[4] or make significant progress toward meeting; moderate improvements</td><td>Would not make progress toward meeting; negligible to major impacts

*Would make progress toward meeting; negligible to moderate improvements</td><td rowspan="2">Would make slow but significant progress toward meeting; minor to moderate improvements</td><td rowspan="2">Would make significant progress toward meeting; moderate improvements</td></tr>
</table>

[1] **B =** As Permitted; **B*** = Adjusted Management.
[2] Measurable and/or observable progress; may or may not be statistically significant.
[3] Trend data include NPFT = nested plot frequency transect; PP = photo plot.
[4] Some plant communities (i.e., dense mountain big sagebrush stands and areas dominated by invasive exotic annual grasses) would exhibit little change without vegetation treatment regardless of the alternative selected. Overall, however, plant communities would improve and Standards 4 and 8 would be met.

3.6.2.3 **Alternative A - No Grazing**

Removing livestock for 10 years would result in minor (up to 10,652 acres in allotments meeting Standards 4 and 8) to moderate (up to 39,261 acres in allotments not meeting Standards 4 and 8) short and long term improvements in upland and riparian habitat conditions and structure. Recently burned areas (up to 8,103 acres) would slowly recover over the long term. Livestock impacts associated with disturbance and trampling would not occur.

Allotments Meeting Standards 4 and 8

Greater Sage-grouse

Winter Habitat – Removing livestock would have minor long-term benefits. Habitat structure would improve, especially in concentrated use areas, where no trampling impacts would occur. Standards 4 (for shrub-dependent species in the Hammett #7, South Camas, North Slope, Camas Creek Field, North Camas, Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15 allotments) and 8 (for sage-grouse in North Slope) would continue to be met over the short and long term.

Breeding Habitat – Minor short-term benefits would occur annually because disturbance impacts would not occur.

Nesting Habitat – Improvements in herbaceous cover and diversity would cause minor to moderate long-term improvements in habitat quality and structure. Livestock-related vegetation

removal, disturbance, and trampling impacts would not occur (10,253 acres excluding Joost Section 15 which is already closed to livestock). Standard 8 would continue to be met for sage-grouse in the Hammett #7 and North Slope allotments (1,889 acres). Standards 4 and 8 would continue to be met for upland species (8,017 acres of shrub and grassland habitats).

Brood-rearing Habitat - Improvements in upland herbaceous cover and diversity would cause minor to moderate long-term improvements in habitat quality. Disturbance and trampling impacts would not occur. Standard 8 would continue to be met for sage-grouse in the Hammett #7, North Slope, and North Camas allotments (up to 2,151 acres). Standards 4 and 8 would continue to be met for upland species (8,017 acres of shrub and grassland habitats).

Disease

Elimination of livestock trampling impacts on livestock accessible streams (up to 18.6 miles) and at five springs would result in a minor long-term reduction in *C. tarsalis* habitat.

Riparian Birds

Removing livestock would have minor long-term benefits for non-disturbance associated species. Habitat conditions and structure would improve on accessible portions and be maintained on inaccessible portions. Disturbance and trampling impacts would not occur on accessible portions. Suitable habitat would be maintained on 18.6 miles of PFC streams in seven allotments (Table 19) and at five spring wetlands in three allotments (Table 20). Standard 8 would continue to be met over the long term.

Raptors

Minor to moderate improvements in upland and riparian habitat conditions would benefit prey species and improve nesting cover over the long term. Elimination of disturbance and trampling impacts would have negligible to minor benefits, primarily for ground nesting species.

Big Game

Minor improvements (e.g., increased forb and grass cover) in seasonal range would occur in seven allotments where livestock grazing would not occur. Late season browse use would not occur in Hammett #7, North Slope, Camas Creek Field, and Hammett Livestock Company; therefore, minor improvements in shrub structure would occur. Standard 4 would continue to be maintained on 10,652 acres.

Allotments Not Meeting Standards 4 and 8

Greater Sage-grouse

Winter Habitat – Impacts in unburned areas (up to 28,568 acres in the Hammett #1, East Hammett #5, Hammett #6, and East Bennett Mountain allotments) would be as described above (Allotments Meeting Standards 4 and 8). Shrubs would recover slowly in burned areas (up to 8,103 acres) and significant progress would be made toward meeting Standards 4 and 8.

Breeding Habitat – Removing annual livestock disturbance during April and May would negligible to minor benefits at two leks in Hammett #1. Benefits to other species would be as described above.

Nesting Habitat – Moderate improvements in grass and forb cover in big sagebrush communities (21,638 acres; Section 3.2.2.3) would have long-term benefits for sage-grouse habitat conditions and structure. Livestock-related vegetation removal, disturbance, and trampling impacts would not occur (34,953 acres of shrub and grasslands) resulting in minor (shrub nesting species away from concentrated use areas) to moderate (ground nesting species in concentrated use areas) benefits. Standards 4 and 8 would be met in unburned areas (28,560 acres of shrub and grasslands in Hammett #1, East Hammett #5, Hammett #6, and East Bennett Mountain allotments) over the long term and significant progress would be made toward meeting the standards for shrub-dependent species where shrubs re-establish in burned areas (up to 8,103 acres).

Brood-rearing Habitat – Moderate improvements in herbaceous cover and diversity (Section 3.2.2.3) would cause minor to moderate long-term improvements in habitat quality. Disturbance and trampling impacts would not occur, allowing habitat structure to recover, especially in concentrated use areas. Sage-grouse late brood rearing habitat would improve where conditions would be maintained at (three springs currently in PFC) or improved to (15 FAR and three NF condition springs in the Hammett #1, East Hammett #5, Hammett #7, and North Camas allotments) PFC over the long term. Standards 4 and 8 would be met for sage-grouse and other upland species (up to 34,953 acres of shrub and grasslands), except where exotic annuals dominate.

Disease

Elimination of livestock trampling impacts on livestock accessible streams (5.7 miles of FAR condition) and at 24 springs (four PFC, 15 FAR condition, and four NF condition) would result in a moderate long-term reduction in *C. tarsalis* habitat. However, improperly functioning troughs where overflow areas develop into stagnant wet areas would not be fixed and could provide mosquito breeding habitat.

Riparian Birds

Removing livestock would have moderate benefits for non-disturbance associated species on 5.7 miles of FAR condition streams in Hammett #1 and East Hammett #5 (Table 19). Habitat conditions and structure would improve as streams improve to PFC over the long term. Suitable habitat would be maintained on 30.3 miles of PFC streams. Moderate improvements would occur on 1.3 miles of mountain quail habitat (West Fork Cold Springs Creek in East Hammett #5). Disturbance and trampling impacts would not occur on accessible portions of streams (Hammett #1 and East Hammett #5 allotments; Table 19) or at 22 springs (PFC, FAR, and NF condition springs in the Hammett #1, East Hammett #5, Hammett #7, and North Camas allotments; Table 20). Standard 8 would be met over the long term.

Raptors

Moderate improvements in upland and riparian habitat conditions would benefit prey species and improve nesting cover over the long term. Elimination of disturbance and trampling impacts would have negligible to minor benefits, primarily for ground nesting species. Standards 4 and 8 would be met on up to 39,261 acres (all cover types in the Hammett #1, East Hammett #5, Hammett #6, and East Bennett Mountain allotments) over the long term.

Big Game

Minor to moderate improvements (e.g., increased forb and grass cover) in seasonal range would occur in four allotments (up to 39,261 acres) where livestock grazing would not occur. Late season browse use would not occur; therefore, minor (North Slope) to moderate (Hammett #1) improvements in shrub structure would occur. For mule deer, Standard 4 would be met on unburned portions (31,158 acres of unburned cover types in the Hammett #1, East Hammett #5, Hammett #6, and East Bennett Mountain allotments) and progress would be made where shrubs become re-established on up to 8,103 acres of recently burned areas. Standard 4 would be met for elk and antelope over the long term.

Fencing

Minor to moderate impacts from fencing that doesn't meet wildlife specifications would occur annually, especially within 4 miles of sage-grouse leks (where juveniles would be most susceptible to predation and collision mortality) and in mule deer winter range and fawning areas and pronghorn range.

3.6.2.4 **Alternative B – Continue Current Use**

Upland habitat conditions and structure would meet Standards 4 and 8 in eight allotments (up to 10,652 acres) over the short and long terms. Riparian habitat conditions and structure would meet Standards 4 and 8 in seven allotments (18 miles of streams, five springs) over the short and long terms. Where grazing occurs at currently permitted levels, Standards 4 and 8 would not be met for upland or riparian habitat conditions and structure (up to 39,261 acres in four allotments). Where grazing management is adjusted, implementation of deferred grazing and reduced stocking rates would result in primarily minor improvements in upland and riparian conditions and progress toward meeting Standards 4 and 8 would occur over the long term (up to 39,261 upland acres , 5.7 miles of streams, and 16 springs).

Allotments Meeting Standards 4 and 8

Greater Sage-grouse

Winter Habitat – Livestock grazing would cause minor (allotments with low stocking rates – 3,816 acres in the South Camas and Hammett Livestock Company allotments) to moderate (allotments with moderate or high stocking rates – 4,115 acres in the Hammett #7, North Slope, Camas Creek Field, North Camas, and Ballantyne Section 15 allotments) trampling impacts on shrub structure, primarily in concentrated use areas. Adequate shrub cover would be maintained to meet winter habitat needs and Standards 4 (for shrub-dependent species in the Hammett #7, South Camas, North Slope, Camas Creek Field, North Camas, Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15 allotments) and 8 (for sage-grouse in North Slope) would continue to be met over the long term.

Breeding Habitat – Negligible to minor short-term disturbance impacts would occur annually for species other than sage-grouse (breeding habitat is not present), primarily where livestock use occurs prior to July 1 (North Slope, Camas Creek Field, Hammett Livestock Company, Ballantyne Section 15).

Nesting Habitat – Sage-grouse nesting habitat requirements would be met over the long term where grass, forb, and shrub cover would be maintained at acceptable levels (up to 1,430 acres in

North Slope and Hammett #7). Negligible (Hammett #7) to minor (North Slope) trampling and disturbance impacts could occur annually where use coincides with sage-grouse nesting. Habitat condition would be maintained for upland species. Minor short-term changes in structure (trampling, reduction in cover) would occur annually where livestock use occurs prior to July 1. Standard 8 (upland component) would be met for sage-grouse in the Hammett #7 and North Slope allotments (1,889 acres). Standards 4 and 8 would continue to be met for upland species (8,017 acres of shrub and grassland habitats).

Brood-rearing Habitat – Upland habitat conditions would be maintained in acceptable conditions over the long term. Livestock trampling and consumption would cause minor habitat structure impacts annually; however, utilization rates would be <40% through much of the brood-rearing period in allotments where the majority of use occurs after July 1 (Hammett #7, South Camas, Camas Creek Field, North Camas). Long-term minor to moderate habitat structure impacts would occur in concentrated use areas, especially in allotments with high stocking rates (North Slope, Camas Creek Field, North Camas). Standard 8 would be met for sage-grouse in the Hammett #7 (uplands), North Slope, and North Camas allotments (up to 2,151 acres). Standards 4 and 8 would continue to be met for upland species (8,017 acres of shrub and grassland habitats).

Disease

Livestock trampling could create isolated areas of *C. tarsalis* habitat on accessible streams (up to 18.6 miles) and at five springs. The PFC streams and springs are well vegetated or rock-armored; therefore, only minor bank or pugging damage would occur.

Riparian Birds

Minor short-term changes in habitat structure and impacts from trampling and disturbance would occur annually where livestock have access to streams. Suitable habitat conditions would be maintained on 18.6 miles of PFC streams in seven allotments (Table 19) and at five spring wetlands (Table 20). Standard 8 would continue to be met over the long term.

Raptors

Upland and riparian habitat conditions would be maintained over the long term (sections 3.2.2.4, 3.5.2.1); therefore, prey species habitat requirements would be met. Ground nesting species in concentrated use areas would be most affected by minor annual impacts to habitat structure. Negligible (allotments with low stocking rates) to minor (moderate or high stocking rate) disturbance and trampling impacts could occur annually primarily during nesting season.

Big Game

Maintaining shrub, perennial grass, and forb components (habitat condition) would meet seasonal big game habitat needs over the long term. Forage competition could occur annually, primarily where heavy or severe livestock use occurs. Moderate (low stocking rate) to heavy (moderate or high stocking rate) browse use could occur where use occurs after grasses and forbs have cured (generally mid-August through November) in Hammett #7, North Slope, Camas Creek Field, and Hammett Livestock Company; however, impacts in mule deer winter range would be negligible (<300 acres in North Slope). Standard 4 would be maintained on 10,652 acres.

Allotments Not Meeting Standards 4 and 8 – As Permitted

Greater Sage-grouse

Winter Habitat – Shrub cover would be maintained in unburned areas (up to 28,586 acres in the Hammett #1, East Hammett #5, Hammett #6, and East Bennett Mountain allotments) over the long term. Livestock would cause minor to moderate impacts to habitat structure in concentrated use areas in Hammett #1 and East Hammett #5 (shrub habitats at lower elevations). Livestock disturbance would not occur during the winter. Shrubs would recover slowly in burned areas (up to 8,103 acres).

Breeding Habitat – Minor livestock disturbance could occur annually at two leks in Hammett #1 where use would overlap the breeding season; however, human disturbance associated with livestock management would be limited to turnout and supplement placement, occurring at the beginning of the breeding season. Negligible to minor livestock and human disturbance of shrubsteppe and grassland species would occur annually (up to 34,953 acres in Hammett #1, East Hammett #5, Hammett #6, and East Bennett Mountain allotments).

Nesting Habitat – Adequate sage-grouse nesting cover would not be provided in Hammett #1, East Hammett #5, and lower elevations of Hammett #6 because of static or downward conditions or >40% utilization in concentrated use areas. Standards 4 and 8 would not be met in these areas over the long term. Low-stature perennial grass dominated communities would not provide horizontal nesting cover. Minor (outside concentrated use areas) to moderate (within concentrated use areas) disturbance and trampling impacts would occur annually during the nesting period. Fall use in Hammett #1 would have minor to moderate additional habitat structure impacts by removing residual vegetation that could serve as early nesting cover. Standards 4 and 8 would be met in Hammett #6 (pastures 1-3) where tall-stature perennial grasses and shrubs would be maintained or increase over the long term. For shrub-dependent species, progress toward meeting Standards 4 and 8 would be made in recently burned areas (up to 8,103 acres) where shrubs become re-established.

Brood-rearing Habitat – Annual spring use would reduce grass and forb abundance and diversity, adversely affecting habitat conditions and structure over the long term. Minor trampling impacts would occur annually where livestock use overlaps brood-rearing (up to June 30 in East Hammett #5 and July 9 in Hammett #1). Static conditions at 18 springs (15 FAR and three NF condition springs) would not meet sage-grouse late brood rearing habitat requirements over the long term. Standards 4 and 8 would not be met for sage-grouse and other upland species (up to 34,953 acres).

Disease

Annual livestock trampling impacts on livestock accessible streams (5.7 miles of FAR condition streams, Hammett #1 and East Hammett #5) and at 19 FAR and NF condition springs (four allotments, Table 20) would maintain or increase *C. tarsalis* habitat over the long term. Livestock would have negligible to minor annual trampling impacts on accessible portions of PFC streams (up to 30.9 miles) and six PFC springs.

Riparian Birds

Livestock grazing on 5.7 miles of FAR condition streams would have moderate to major long-term impacts to habitat condition and structure. Minor (PFC streams and springs) to moderate (FAR and NF condition streams and springs) disturbance and trampling impacts would occur annually on accessible portions of streams or at 24 springs (Hammett #1, East Hammett #5, Hammett #7, and North Camas allotments, Table 19 and Table 20). Livestock use would coincide with nesting and brood-rearing periods in Hammett #1 and East Hammett #5, but primarily brood-rearing in Hammett #7 and North Camas. Mountain quail habitat condition would remain degraded on 1.3 miles of West Fork Cold Springs Creek. Standard 8 would not be met over the long term in FAR and NF condition riparian and wetland areas; however, they would be met where suitable habitat would be maintained on 30.3 miles of PFC streams and three PFC springs.

Raptors

Static or downward trends in upland and riparian habitat conditions would have minor to moderate impacts on prey species and nesting cover over the long term (up to 39,261 acres). Negligible (outside concentrated use areas) to moderate (within concentrated use areas) disturbance and trampling impacts would affect primarily ground nesting species annually.

Big Game

Static or downward trends in grass and forb diversity and abundance, mainly below 5,000 feet, would adversely affect seasonal range in Hammett #1, East Hammett #5, and Hammett #6. Fall livestock grazing would have minor (North Slope) to moderate (Hammett #1) adverse impacts on browse species in mule deer winter range. Standard 4 would not be met over the long term.

Allotments Not Meeting Standards 4 and 8 – Adjusted Management

Greater Sage-grouse

Winter Habitat – Impacts would be similar to Alternative B-As Permitted; however, lower stocking rates would reduce habitat structure impacts in Hammett #1 and East Hammett #5.

Breeding Habitat – Impacts would be similar to Alternative B-As Permitted; however, moderate impacts could occur where herding activities disturb sage-grouse at leks.

Nesting Habitat – Slow improvements in habitat conditions, primarily in areas >4,500 feet (Hammett #1) or outside of concentrated use areas (East Hammett #5), would help make progress toward meeting Standard 8. Increases in tall-stature perennial grasses would improve nesting cover over the long term. However, Standard 8 would not be met where current conditions would be maintained over the long term (lower elevation areas of Hammett #1, concentrated use areas of East Hammett #5). Low-stature perennial grasses and exotic annuals would not provide adequate nesting cover. Minor improvements in habitat structure would occur with low stocking rates (Hammett #1, East Hammett #5). For shrub-dependent species, progress toward meeting Standards 4 and 8 would be made in recently burned areas (up to 4,768 acres) where shrubs become re-established. Minor to moderate disturbance and trampling impacts would occur in Hammett #1 and East Hammett #5; however, implementation of deferred systems (where most livestock would be in the designated use area) or rest would reduce impacts on

15,765-18,559 acres where relatively few livestock would be. Herding activities could cause minor, short-term disturbances annually.

Brood-rearing Habitat – Implementation of deferred or rest rotation systems and reduced stocking rates resulting in negligible to minor habitat condition improvements would result in minor increases in grass and forb diversity and abundance, especially in areas with <40% utilization or that are essentially unused in the spring. Negligible to minor trampling impacts would occur annually where livestock use overlaps brood-rearing (up to June 30 in East Hammett #5 and July 9 in Hammett #1); however, impacts would be less than Alternative B-As Permitted in allotments with low stocking rates (Hammett #1, East Hammett #5). Progress toward meeting sage-grouse late brood rearing habitat requirements would occur where conditions improve at 15 springs (12 FAR and three NF condition springs) over the long term. Significant progress would be made toward meeting Standards 4 and 8 for sage-grouse and other upland species (up to 29,600 acres in Hammett #1 and East Hammett #5); however, burned areas where exotic annuals remain dominant would not meet standards.

Disease

Impacts would be similar to Alternative B-As Permitted for streams in Hammett #1; however, minor improvements in functioning condition could reduce *C. tarsalis* habitat over the long term. Annual livestock trampling impacts would occur on livestock accessible streams (1.3 miles of FAR condition streams, East Hammett #5) and at 15 FAR and NF condition springs (two allotments, Table 20); however, implementation of deferred rotation systems (Hammett #1, East Hammett #5) would reduce *C. tarsalis* habitat over the long term at 15 springs. Trampling impacts at PFC springs and accessible portions of PFC streams would be as described in Alternative B-As Permitted.

Riparian Birds

Static or slightly improving conditions on 4.4 miles of FAR condition streams (Hammett #1) would have negligible to minor benefits for understory dependent species. However, shrub dependent species condition and structure requirements would not be met where willows are suppressed over the long term. Condition and structure improvements in West Fork Cold Springs Creek (1.3 miles, East Hammett #5) would have moderate long-term benefits for mountain quail and other species. Slow improvements at 19 FAR and NF condition springs would have minor long-term benefits for wetland dependent species. Disturbance and trampling impacts during the breeding season would occur primarily in alternate years (Hammett #1, East Hammett #5). Progress would be made toward meeting Standard 8 where stream or spring conditions improve, but Standard 8 would not be met where conditions remain at FAR (e.g., 4.4 miles, Hammett #1). Standard 8 would be met where suitable habitat would be maintained on 30.3 miles of PFC streams and three PFC springs.

Raptors

Static or upward trends in upland and riparian habitat conditions would have minor benefits (areas improving) or adverse impacts (conditions static in degraded areas) for prey species and nesting cover over the long term (up to 31,519 acres in Hammett #1 and East Hammett #5). Negligible (outside concentrated use areas) to moderate (within concentrated use areas) disturbance and trampling impacts would affect primarily ground nesting species annually;

however, implementation of deferred or rest-rotation systems would reduce or eliminate impacts in areas not scheduled for livestock use.

Big Game

Static or upward trends in grass and forb diversity and abundance would improve seasonal range conditions over the long term. Forage competition could occur annually, primarily where heavy or severe livestock use occurs; however, limiting fall use (Hammett #1, East Hammett #5) would moderately reduce impacts on palatable shrubs. Slow improvements in winter range would occur over the long term where perennial grasses and shrubs increase in recently burned areas (up to 4,768 acres). Herding would cause negligible to minor disturbance impacts annually during the fawning/calving season. Progress toward meeting Standard 4 would occur except where exotic annual grasses dominate.

Fencing

Impacts would be as described in Alternative A.

3.6.2.5 Alternative C – Permittee Application

For allotments currently meeting Standards 4 and 8 (East Bennett Mountain, South Hammett #7 [except late-brood rearing habitat], West Hammett #7, South Camas, North Slope, Camas Creek Field, Hammett Livestock Company, Ballantyne Section 15, and Joost Section 15 allotments), changes in upland and riparian habitat conditions and structure would similar to Alternative B. Changes in turnout dates and running maximum permitted numbers could alter the timing and magnitude of structure, disturbance, and trampling impacts; however, Standards 4 and 8 would be met over the long term. Implementation of deferred grazing and reduced stocking rates (beyond Alternative B-Adjusted Management for Hammett #1 and East Hammett #5) would result in minor to moderate improvements in upland and riparian conditions. Standards 4 and 8 would be met over the long term in most areas (up to 39,261 upland acres, 5.7 miles of FAR condition streams, and 15 FAR condition springs) except where major impacts occur or exotic annuals remain dominant. Proposed range management projects would have minor to moderate short and long-term habitat condition, disturbance, and trampling impacts.

Allotments Meeting Standards 4 and 8

Greater Sage-grouse

Winter Habitat – Impacts would be similar to Alternative B, but running maximum permitted numbers in Hammett Livestock Company (including Joost Section 15) could have minor impacts on shrub structure which could affect shrub-dependent species other than sage-grouse (outside winter range). Sheep use in the Joost Section 15 Pasture would have minor structural impacts over the long term.

Breeding Habitat – Impacts would be similar to Alternative B. For species other than sage-grouse (breeding habitat is not present), minor increases in disturbance impacts could occur where turnout occurs earlier (South Hammett #7). Later turnout (Hammett Livestock Company, Ballantyne Section 15) would reduce disturbance during breeding. Sheep use in the Joost Section 15 Pasture would have minor condition, structural, disturbance, and trampling impacts annually. Moderate long-term impacts could occur at consistently used bedding sites.

Nesting Habitat – Impacts to habitat condition and structure would be similar to Alternative B. While habitat conditions would be maintained in South Hammett #7, minor increases in structural damage, disturbance, and trampling would occur at least one in three years where turnout occurs June 1 and livestock would be present during the last month of sage-grouse nesting. Later turnout (Hammett Livestock Company, Ballantyne Section 15) would reduce trampling and disturbance during nesting. Impacts from sheep use in the Joost Section 15 Pasture would be as described in Breeding Habitat. Minor to moderate (concentrated use areas) increases in disturbance and trampling would occur when maximum permitted numbers of livestock are used (Hammett Livestock Company). Standards 4 and 8 would continue to be met for upland species (8,017 acres of shrub and grassland habitats).

Brood-rearing Habitat – Impacts to habitat condition and structure would be similar to Alternative B. Earlier turnout (one-in-three years) could have minor adverse structure, disturbance, and trampling impacts in South Hammett #7, especially for early sage-grouse brood-rearing habitat. Sheep use in the Joost Section 15 Pasture would have minor condition, structural, and disturbance impacts for upland species (sage-grouse habitat is not present). Running maximum livestock numbers (Hammett Livestock Company) would occur primarily during early brood rearing, causing minor to moderate short-term structure, disturbance, and trampling impacts. Standards 4 and 8 would be met for upland species (8,017 acres of shrub and grassland habitats).

Disease

Impacts would be similar to Alternative B. Sheep use in the Joost Section 15 Pasture could increase *C. tarsalis* habitat on 0.2 miles of intermittent stream and two springs. Reconstruction of the pond in South Camas would provide additional *C. tarsalis* habitat where standing water and trampling would occur annually.

Riparian Birds

Impacts would be similar to Alternative B. Sheep use in the Joost Section 15 Pasture could have minor to moderate structure, disturbance, and trampling impacts on 0.2 miles of intermittent stream.

Raptors

Impacts would be similar to Alternative B. Livestock use in the Joost Section 15 Pasture would have minor impacts to condition and minor to moderate impacts to structure over the long term, but Standards 4 and 8 would continue to be met. In Hammett Livestock Company, running maximum livestock numbers could have minor to moderate disturbance and trampling impacts on ground nesting species in concentrated use areas.

Big Game

Impacts would be similar to Alternative B. Livestock use periods that extend further into the fall (up to 5,567 acres in West Hammett #7, South Camas, Hammett Livestock Company, and Ballantyne Section 15) could create minor to moderate increases in palatable shrub use in seasonal mule deer range. Sheep use in the Joost Section 15 Pasture would have minor impacts on habitat condition and structure for seasonal (mule deer, elk) and winter (elk) range. Standard 4 would continue to be maintained on 10,652 acres.

Allotments Not Meeting Standards 4 and 8

Greater Sage-grouse

Winter Habitat – Lower stocking rates (than Alternative B-Adjusted Management) would help reduce structural and trampling impacts to shrubs. However, minor (maximum permitted numbers run ≤20% of the time) to major (maximum permitted numbers run annually) structural and trampling impacts could occur in Hammett #1 and Hammett #5, primarily in concentrated use areas. Standard 8 would be met except where major impacts occur.

Breeding Habitat – Minor disturbance impacts (livestock, supplement placement) would only occur every other year in Hammett #1 when use of the East Pasture coincides with lek attendance. Effective implementation of deferred grazing in Hammett #1 and Hammett #5 would eliminate disturbance impacts in areas that don't receive spring use (between 14,667 and 18,300 acres annually, two leks in Hammett #1, East Pasture). There would be less disturbance in spring-use areas than Alternative B because of lower stocking rates; however, running maximum permitted numbers could cause minor to moderate increases in disturbance impacts, primarily in concentrated use areas. Annual minor to moderate disturbance impacts in Hammett #6 would primarily affect grassland species over the short term and shrubsteppe species over the long term as shrubs become reestablished in burned areas.

Nesting Habitat – Impacts would be similar to Alternative B-Adjusted Management. Minor to moderate improvements in vigor and frequency of perennial grasses and forbs would increase horizontal nesting cover for sage-grouse in Hammett #1 and Hammett #6. Disturbance and trampling impacts in Hammett #1 and Hammett #5 would be lower than Alternative B-Adjusted Management because of lower stocking rates and more effective implementation of the deferment system. Disturbance and trampling impacts in Hammett #6 would be greater because they could occur annually in each pasture. Running maximum permitted numbers could have minor (maximum permitted numbers used ≤20% of the time) to major (consistently run) condition, structure, trampling, and disturbance impacts primarily in concentrated use areas. Standards 4 and 8 would be met except in areas affected by major impacts from consistently running maximum permitted numbers or where shrub recovery does not provide adequate cover for shrubsteppe species.

Brood-rearing Habitat – Impacts would be similar to Alternative B-Adjusted Management. Minor to moderate improvements in vigor and frequency of perennial grasses and forbs would have a greater benefit to habitat conditions and structure over the long term. Impacts to uplands associated with disturbance, trampling, and running maximum permitted numbers would be as described in Nesting Habitat above. Late brood-rearing habitat requirements would not be met where consistent maximum livestock numbers keep springs in FAR condition. Maintenance or development of seven springs could have minor to moderate short and long-term condition, structure, disturbance, and trampling impacts. Slow improvement toward PFC at 15 FAR condition springs (Section 3.5.2.4) would have moderate benefits to sage-grouse late brood-rearing habitat. Maintaining North Bourbon Spring and moving the trough out of the wetland would have short-term structure and disturbance impacts, but condition would improve and trampling would be slightly reduced over the long term. Standards 4 and 8 would be met or significant progress would be made toward meeting them for sage-grouse and other upland

species (up to 34,953 acres of shrub and grasslands in the Hammett #1, East Hammett #5, Hammett #6, South Hammett #7, and East Bennett Mountain allotments).

Disease

Improvement toward PFC on 5.7 miles of streams and 17 springs could cause a moderate reduction in *C. tarsalis* habitat over the long term. Use at 16 springs in Hammett #1 and Hammett #5 would occur either in spring or fall which could help reduce trampling impacts, especially where reduced flow in the fall limits saturated soils susceptible to damage. Trampling impacts at Sackrider Spring would maintain *C. tarsalis* habitat over the long term. Trampling impacts at PFC springs and accessible portions of PFC streams would be as described in Alternative B-As Permitted. Consistently running maximum livestock numbers in Hammett #1 and Hammett #5 could increase *C. tarsalis* habitat over the long term.

Riparian Birds

Improvement toward PFC on 5.7 miles of streams and maintenance of PFC in remaining streams (30.9 miles) would result in moderate improvements in habitat condition and structure. Shrub and ground nesting and foraging species would benefit over the long term. Improvements in West Fork Cold Springs Creek would be similar to Alternative B-Adjusted Management, but increased fall use, especially if maximum livestock numbers are consistently used, could slow the rate of recovery. Improvement to PFC at 15 FAR condition springs would have moderate long-term benefits for wetland dependent species. Disturbance and trampling impacts during the breeding season would only occur in alternate years (Hammett #1, Hammett #5). Standard 8 would be met over the long term.

Raptors

Minor to moderate improvements in habitat condition and structure would benefit prey species and ground and shrub nesting species over the long term. Disturbance and trampling impacts would be similar to Alternative B-Adjusted Management, but would be reduced Hammett #1 and Hammett #5 because of lower stocking rates and absence of livestock during the nesting period where spring use is not scheduled (between 14,667 and 18,300 acres annually). Using maximum livestock numbers would have minor (outside concentrated use areas; <20% of the time) to moderate (within concentrated use areas; >20% of the time) disturbance and trampling impacts for ground and shrub nesting species.

Big Game

Minor to moderate increases in grass and forb diversity and abundance would improve seasonal range conditions over the long term (up to 39,261 acres). Minor (outside concentrated use areas) to moderate (within concentrated use areas) forage competition for grasses and forbs would occur annually in each allotment; however, competition would not occur in pastures that are not scheduled for spring use (between 14,667 and 18,300 acres annually in Hammett #1 and Hammett #5). Improvements in 5.7 miles of riparian areas would increase fawn and calf hiding cover over the long term. Running maximum livestock numbers could increase competition in concentrated use areas, but overall livestock forage consumption would be the same (AUMs consumed would not change). For a given pasture, fall use in Hammett #1 and Hammett #5 would cause minor reductions in palatable shrub forage availability in alternate years. Herding

would cause negligible to minor disturbance impacts annually during the fawning/calving season. Standard 4 would be met except where exotic annual grasses dominate.

Fencing
Impacts from existing fencing would similar to Alternative A; however, minor to moderate (depending on amount modified) reductions in avian collisions and big game mortality and improved big game movement would occur where fences are modified to meet wildlife specifications. New fencing (up to 7.9 miles of permanent fence in the Hammett #1 and Hammett #5 allotments and 1.6 miles of temporary electric fence in Hammett #1, Table 6) would cause minor to moderate increases in avian and big game mortality (collision, predation). Fence marking and distance from leks (0.7–3.5 miles in Hammett #1 from active leks; 1.6-3.6 miles in Hammett #5 from a historic lek) could help reduce collision mortalities for sage-grouse. Metal fence posts would limit perch suitability for predators. Up to 3.5 miles of new fence in mule deer winter habitat would increase big game mortality and impede movements. Letting down fence in Hammett #5 (3.1 miles) and removing temporary electric fencing during nonuse periods (1.6 miles in Hammett #1) would reduce mortality and movement impacts annually.

3.6.2.6 **Alternative D – BLM Proposal**

For allotments currently meeting Standards 4 and 8, changes in upland and riparian habitat conditions and structure would similar to Alternative C; however, greater improvement would occur in South Hammett #7 and greater impacts would occur in Joost Section 15. Implementation of deferred grazing, rest (Hammett #1, Hammett #6), and reduced stocking rates (beyond Alternative C for Hammett #1 and Hammett #5) would result in greater improvements in upland and riparian conditions than Alternative C. Standards 4 and 8 would be met over the long term in most areas (up to 39,261 upland acres, 5.7 miles of streams, and 18 springs) except where exotic annuals remain dominant. Proposed range management projects would have minor to moderate short and long-term habitat condition, disturbance, and trampling impacts.

Allotments Meeting Standards 4 and 8
With the exception of South Hammett #7 (Blackhawk Pasture) and Joost Section 15, effects of livestock grazing on greater sage-grouse, disease, riparian birds, raptors, and big game would be as described in Alternative C (9,404 acres).

<u>South Hammett #7 (Blackhawk Pasture)</u>
Delaying turnout to August 15 every year would eliminate livestock use during breeding, nesting, and the majority of the brood-rearing seasons. Habitat conditions (grass and forb components) would improve over the long term. Late season livestock use could have minor to moderate structural impacts where browse utilization is >50%. Negligible disturbance and trampling impacts would occur because juvenile and adult animals could readily avoid livestock. Running maximum livestock numbers would have minor impacts in concentrated use areas. Standards 4 and 8 would be met over the long term.

<u>Joost Section 15</u>
Moderate to major condition, structure, trampling, and disturbance impacts would occur in concentrated use areas (15-20% of the allotment). Minor impacts would occur in the remaining areas. Use would coincide with the latter part of breeding (neotropical migrants), nesting, and

early brood-rearing seasons. Nesting and brood-rearing habitat for riparian and wetland dependent species would be degraded on 0.2 miles intermittent stream and two springs. Minor structure and trampling impacts would affect raptors and big game. Trampling in these areas could increase *C. tarsalis* habitat. Standards 4 and 8 would not be met over the long term.

Allotments Not Meeting Standards 4 and 8

Greater Sage-grouse

Winter Habitat – Lower stocking rates (than Alternative C) and rest (Hammett #1, Hammett #6) would help reduce structural and trampling impacts to shrubs. Impacts from fall use would occur one-in-three years in Hammett #1. Running maximum livestock numbers, which would be similar to permitted numbers in Alternative C, would have minor structural impacts in concentrated use areas. Standard 8 would be met over the long term.

Breeding Habitat – Minor disturbance impacts (livestock, supplement placement) would occur one-in-three years in Hammett #1 when spring use coincides with lek attendance. Disturbance impacts would not occur in areas that are rested (between 1,005 and 24,493 acres in Hammett #1 and Hammett #6) or use is deferred until fall (between 4,516 and 28,451 acres in Hammett #1 and Hammett #5). There would be less disturbance in spring-use areas than Alternative C because of lower stocking rates. Running maximum permitted numbers would have minor short-term effects. Minor short-term disturbance impacts could occur annually where animals are moved between use pastures in Hammett #6.

Nesting Habitat – Habitat condition improvements would occur at a faster rate than Alternative C. Minor to moderate impacts to grass and forb structure could occur in concentrated use areas, but would occur less often (because of periodic rest) and would be less intense (because of lower stocking rates) than Alternative C. Minor shrub structure impacts would occur in concentrated use areas, but rest or deferment would allow long-term maintenance or improvements. Minor disturbance and trampling impacts would occur in spring use areas. Herding related disturbances would be similar to Alternative B-Adjusted Management for Hammett #5 and Hammett #6, but would be negligible in Hammett #1. Running maximum livestock numbers in Hammett #5 and Hammett #6 would have minor to moderate short-term structure, trampling, and disturbance impacts. Standards 4 and 8 would be met except in areas where shrub recovery does not provide adequate cover for shrubsteppe species.

Brood-rearing Habitat – Improvements in habitat condition and structure would occur at a faster rate than Alternative C. Impacts to uplands associated with disturbance, trampling, and running maximum permitted numbers would be as described in Nesting Habitat above. Maintaining five spring developments could have minor to moderate short and long-term condition, structure, disturbance, and trampling impacts. Recovery to PFC at up to 18 springs, or at least an upward trend in FAR condition, would have moderate benefits to sage-grouse late brood-rearing habitat, especially where livestock are excluded from three springs (Hammett #1). Temporary electric fencing at three springs would have minor collision impacts when fencing is in place during brood-rearing (one-in-three years). Standards 4 and 8 would be met except where exotic annuals dominate (up to 34,953 acres).

Disease
Impacts would be similar to Alternative C; however, lower stocking rates, rest, and lower maximum livestock numbers would help reduce the amount of trampling. Exclosures would eliminate livestock trampling at four springs (Hammett #1, North Camas) and reduce *C. tarsalis* habitat over the long term.

Riparian Birds
Habitat condition impacts on 30.3 miles of streams in PFC would be similar to Alternative C; however, the rate of improvement on 5.7 miles of FAR condition streams would be faster. Reducing the stocking rate in Hammett #5 would have a minor benefit to West Fork Cold Springs Creek relative to Alternative C. Running maximum livestock numbers would cause minor to moderate structure, disturbance, and trampling impacts at accessible streams in Hammett #5. Improvements in condition at 19 FAR and NF condition springs, especially where livestock use is excluded (four springs in Hammett #1 and North Camas), would have moderate to major long-term benefits for wetland dependent species. Disturbance and trampling impacts during the breeding season would only occur in one-in-two years (Hammett #5) or one-in-three years (Hammett #1). Standard 8 would be met over the long term.

Raptors
Impacts to habitat condition and structure would be similar to Alternative C, but more rapid improvement in conditions would benefit prey and nesting raptors sooner. Lower stocking rates would reduce disturbance and trampling impacts where spring use is occurring. Short-term structure, disturbance, and trampling impacts would not occur in rested pastures (between 1,005 and 24,493 acres in Hammett #1 and Hammett #6) or would occur after nesting and brood-rearing in deferred use pastures (between 4,516 and 28,451 acres in Hammett #1 and Hammett #5). Using maximum livestock numbers would have negligible (outside concentrated use areas; <20% of the time) to minor (within concentrated use areas; >20% of the time) disturbance and trampling impacts for ground and shrub nesting species.

Big Game
Impacts to upland and riparian habitat conditions would be similar to Alternative C, but more rapid improvement in conditions would occur on up to 39,261 acres and 5.7 miles of FAR condition streams. Lower stocking rates (Hammett #1, Hammett #5), rest periods (Hammett #1, Hammett #6), and deferment (Hammett #1, Hammett #5) would reduce forage competition and disturbance during the spring relative to Alternative C. Running maximum livestock numbers would have minor condition and structure impacts in concentrated use areas. In big game winter range, lower stocking rates and reduced fall use (none in Hammett #6, one -in-three years in Hammett #1, one-in-two years in Hammett #5) would cause negligible to minor reductions in palatable shrub forage availability. Herding would cause negligible to minor disturbance impacts annually during the fawning/calving season. Standard 4 would be met except where exotic annual grasses dominate.

Fencing
Impacts from existing fencing would similar to Alternative A; however, moderate (50% or more meet standards over the long term) to major (all fences meet standards) reductions in avian collisions and big game mortality and improved big game movement would occur where fences

are modified to meet wildlife specifications. New fencing (up to 1.85 miles in two allotments, Table 6) would cause negligible to minor increases in avian mortality (collision, predation). Temporary electric fencing in Hammett #1 (1.6 miles) would be in sage-grouse nesting and brood-rearing habitat, but would not be up during late-brood rearing periods when sage-grouse would most likely use wetland areas. Fence marking and distance from leks (0.7–3.5 miles in Hammett #1; 1.6-3.6 miles in Hammett #5) could help reduce collision mortalities. Perch-proof fence posts would eliminate perch suitability for predators. Electric fencing could affect big game access to wetlands for two months in either the spring or fall, but would not affect winter movements. Up to 0.25 miles of new fence at Sackrider Spring would have a minor effect on big game access over the long term.

3.6.3 Cumulative Impacts – Wildlife/Special Status Animals

The temporal frame for cumulative impacts is defined by the continued presence of the effects of past actions and the anticipated longevity of reasonably foreseeable future actions. Direct and indirect effects would dissipate within 10 years of the end of the permit period; therefore, cumulative effects would be considered through 2033.

3.6.3.1 Scope of Analysis

Greater Sage-grouse

Sage-grouse habitat within a 14.5-mile buffer from known leks in the Bennett Mountain MA (445,439 acres, Table 21, Map 11b) will be used as the cumulative impacts analysis area (CIAA). The buffer covers typical movements sage-grouse make between seasonal ranges in the Mountain Home Sage-grouse Working Group area and buffers suggested in other studies (Connelly et al. 2000). Figures for sage-grouse primary vegetation components (i.e., Key, RI, and RII) will be presented because they represent a broader area (e.g., because of recent burns, 70% [42,047 acres] of RII habitat is not considered PPH or PGH).

Riparian Birds

Rated perennial and intermittent streams and springs in the Bennett Mountain MA will serve as the CIAA. These streams were chosen because livestock grazing proposed in alternatives B, C, and D will be used in conjunction with livestock grazing systems throughout the MA. Riparian-dependent species are either year-round residents and would migrate between elevations along streams, or are neotropical migrants and not present in the remainder of the year.

Raptors

Habitat within a 6-mile buffer around the 12 allotments (563,000 acres) will be used as the CIAA. The buffer covers typical movements of golden eagle, a representative resident raptor, during the non-breeding season (Marzluff et al. 1997).

Big Game

Because impacts identified for big game are primarily associated with winter range, a 5-mile buffer from mule deer and elk winter range in the allotments (261,200 acres, Map 10) will be used as the CIAA.

3.6.3.2 **Current Conditions and Effects of Past and Present Actions**

Past actions to be considered include livestock grazing, range management projects, energy infrastructure, road and utility corridor ROW construction and maintenance including energy infrastructure, fence construction, vegetation treatments (fuels, ESR, weed treatments), wildfire, and agricultural expansion. Collectively they have re-shaped natural ecosystems in the Bennett Mountain North and surrounding areas, resulting in the current wildlife habitat conditions. Historic overgrazing during the late 1800s and early 1900s, along with severe drought, resulted in long-term effects including changes in native plant community structure and species diversity. Historic development, agricultural expansion, energy infrastructure, and ROW construction and maintenance in lower elevation areas resulted in habitat fragmentation which is largely irreversible. Additionally, the expansion and spread of invasive non-native species throughout lower elevations, exacerbated by increased wildland fire frequency, has degraded wildlife habitat, as native perennial grasses and forbs have been replaced.

Greater Sage-grouse

Winter Habitat – Wildland fire, agricultural development, and infrastructure (roads, powerlines, fencing) have had major effects on current conditions. Of the 119,233 acres burned in the CIAA since 2002, 98% are below 5,400 feet. Approximately 70% (71 miles) of powerline infrastructure and 50% (112 miles) of maintained roads occur below 5,400 feet (Table 23). Fencing occurs throughout the area and almost none is marked. Uses on private lands have caused minor (livestock grazing) to major (irrigated agriculture, wind power) reductions in sagebrush.

Table 23. Wildlife habitat and infrastructure in cumulative effects analysis areas, Bennett Mountain North, Elmore County, Idaho.

Species	**Habitat**	**Acres in CI Analysis Area**		**Fences (w/in 4 miles of lek)**	**Powerlines (w/in 4 miles of lek)**	**Maintained Roads (w/in 4 miles of lek)**
		Total (acres burned 2002-2012)	**w/in 4 miles of lek (acres burned 2002-2012)**			
Sage-grouse	Key	280,843 (438)	210,581 (315)	261 (187)	77 (52)	146 (105)
	RI	63,348 (25,632)	32,551 (11,041)	106 (49)	50 (25)	42 (13)
	RII	100,248 (65,349)	59,825 (43,101)	173 (105)	83 (44)	37 (18)
Mule Deer	Winter	169,335 (63,708)		318	89	133
Elk		199,362 (46,344)				

Breeding Habitat – Fifty-seven leks have been identified in the CIAA of which 19 are considered active (birds present in 2012) and an additional nine are considered occupied (birds present within the last 5 years). Active leks are an average of 0.3 miles from the nearest fence, 1.1 miles from the nearest maintained road, 4.8 miles from the nearest powerline, and 3.6 miles from the nearest recent burn. Inactive leks are generally closer to maintained roads, powerlines (especially transmission lines), and recent fires.

Nesting and Brood-rearing Habitat – The majority (70%) of habitat within 4 miles of a lek is key habitat characterized by a shrub overstory; however, 18% of all types within 4 miles of a lek burned between 2002 and 2012. Livestock grazing is permitted on all public (211,310 acres) and State (23,293 acres) lands adjacent to leks and is one of the primary uses on non-farmed private lands (94,413 acres). The majority of public lands below 5,000 feet that have been consistently grazed during the growing period are likely not meeting Standard 8 for nesting or brood-rearing habitat. Unburned areas are characterized by low-stature perennial grasses, reduced forb diversity, and possibly exotic annuals. The majority of lands above 5,000 feet are likely meeting Standard 8, characterized by tall-stature perennial grasses and high forb diversity. Conditions at accessible springs are not known for the CIAA, but are likely similar to those in the Bennett Mountain North allotments (approximately 62% are in FAR or NF condition). Upland and spring conditions on State and private lands are likely similar although Standards and Guidelines do not apply. Within 4 miles of leks, there are 341 miles of fences, 121 miles of powerlines, and 136 miles of maintained roads (Table 23). Approximately 25 miles of fence have been marked to make them visible. The majority of powerlines (including five major [138-230kV] transmission lines) and maintained roads occur at lower elevation (<4,200 feet) or on the Camas Prairie where they substantially fragment habitat.

Riparian Birds

The majority of streams (78%) and springs (57%) on public lands are in PFC (Section 3.5.3.2). Inaccessible streams on State and private lands are likely in similar condition. Accessible segments are likely in FAR or NF condition and may be dewatered on private lands during irrigation season.

Raptors

Upper elevations are dominated by mountain big sagebrush, mountain shrub, and conifer communities that generally meet nesting and prey habitat requirements. Lower elevations are dominated by big sagebrush, bunchgrass, and exotic annual communities and agricultural fields. Livestock grazing occurs in the majority of the CIAA. Approximately 16% (87,302) acres burned between 2002 and 2012, the majority (90%) in lower elevations. Existing distribution and transmission lines provide perch and nesting habitat. Distribution lines that are not built to raptor specifications are a mortality factor.

Big Game

Lower elevations (south and west of Bennett Mountain) are characterized by big sagebrush and scattered bitterbrush communities in unburned areas. Elk winter range north of Bennett Mountain is characterized by mountain big sagebrush, mountain shrub, and conifer communities. Of the 318 miles of fence in winter range (Table 23), 52 miles are built to wildlife specifications for big game. Since 2002, wildfires have burned 38% of mule deer winter range and 23% of elk winter range (Table 23). Burned areas are dominated by perennial or exotic annual grasses which could provide suitable habitat for elk, but generally not for mule deer. Livestock grazing occurs primarily during the summer in upper elevations and winter, spring, and fall at lower elevations.

3.6.3.3 **Reasonably Foreseeable Future Actions**

Actions that would continue into the foreseeable future include livestock grazing, range management projects, infrastructure construction and maintenance, vegetation treatments, and OHV activity (Map 6c). The effects of future wildfires are also considered because these natural events are predictable to a certain degree based on the number and size of wildfires that have occurred in the past decade.

- Livestock grazing is authorized throughout the CIAAs. Seasons of use, stocking rates, and utilization levels vary by allotment. Current livestock grazing management practices on BLM-administered lands either meet or would be modified to meet or make significant progress toward meeting Standards and Guidelines during the analysis period. Twelve allotments (50,592 acres of BLM-administered lands) in the remainder of the Bennett Mountain MA (lower elevations) are not meeting Standards 4 and 8 for wildlife and current livestock grazing is considered a contributing factor. Seven allotments are not meeting Standards 4 and 8 because of other factors (primarily exotic annuals and fire). Assessments have not been completed in surrounding areas, but similar conditions would be expected (i.e., meeting standards in upper elevations that are used primarily after the growth period of grasses and not meeting standards at lower elevations where use occurs annually during the growth period or wildfires have recently occurred).

- Permittees have proposed 29 range management projects for eight allotments in the Bennett Mountain South permit renewal process. Projects include maintaining developments at five springs; developing water at four springs; maintaining two pipelines (3.1 miles); constructing 14.6 miles of new fences; maintaining two ponds; developing two new ponds; and creating four water haul sites. New fencing would be constructed to meet wildlife guidelines. No new projects have been proposed in the remaining allotments in the CIAAs at this time.

- Maintained roads and ROW are widespread in the CIAAs. Annual or semi-annual maintenance of existing powerline ROW includes weed and fuels control around power poles (up to 20 foot diameter) and repair or replacement of lines and poles. Annual (gravel) or semi-annual (paved) maintenance of existing roads would include grading, resurfacing, and potential replacement (e.g., culverts) or reconstruction (e.g., bridges). Maintenance activities would generally take place within existing footprints and could occur throughout the year, but the majority of work would occur March through November. A proposed 500-kV transmission line (Gateway West) would largely parallel existing transmission lines in the southern part of the CIAAs. One of two alternatives would be selected: the proposed route (43.3 miles including 15.8 miles along an existing 230-kV transmission line) or an alternate (28.4 miles including 20.8 miles in common with the proposed route).

- Authorized and unauthorized cross-country OHV activities occur throughout the area, and although the spatial and temporal extent is difficult to quantify, the effects to wildlife would be short-term disturbance and short or long-term habitat modification. Antler hunting in the lower elevation areas has increased rapidly in the last few years. Areas outside the Morley Nelson Snake River Birds of Prey National Conservation Area, some

mule deer winter range, and WSAs are currently designated as open to cross-country travel. OHV use would likely be restricted to designated routes in the Four Rivers Field Office when the land use plan is approved.

- Between 2002 and 2012, wildfires have burned 119,233 acres in the sage-grouse CIAA (including areas that are not classified as sage-grouse habitat, the CIAA is representative of where the majority of fires occur), or approximately 10,839 acres annually. In upper elevation (>4,500 feet) areas that burn once, perennial grasses and forbs would be expected to recover over the short term and shrubs would recover over the long term. Areas that burn two or more times over the long term could also recover, but if the fire-return interval is too short, shrubs would not become re-established and exotic annuals could become dominant. At lower elevation (≤4,500 feet) areas that burn once, recovery could be similar to upper elevation areas if perennial species were dominant prior to a fire or ESR efforts are successful. Lower elevation areas that burn more than once (within five years) or were dominated by exotic annuals prior to a fire would likely become dominated by exotic annuals with no shrub cover unless ESR efforts are successful. Fires caused a short-term loss of shrub and tree cover on 12.8 miles of streams (Section 3.5.3.2). In lower elevation areas, the Paradigm Project could help reduce wildland fire size over the long term.

3.6.3.4 **Cumulative Impacts - Alternative A**

Greater Sage-grouse

Winter Habitat – Removing livestock from 12 allotments (up to 35,058 acres of shrub-dominated habitat) would have minor additive benefits from improved habitat condition and structure. Livestock grazing in the remaining areas (43 allotments, 775,475 acres of BLM-administered lands of which approximately 500,000 acres have a shrub overstory) would have minor (allotments with low stocking rates or areas receiving ≤40% utilization) to moderate (moderate to high stocking rates or concentrated use areas) impacts on shrub structure. Existing, unmarked fences would have minor to moderate collision impacts annually. Construction of 10.6 miles of new fence, built to wildlife specifications, would have minor mortality and predator perch impacts over the long term. Maintaining existing ROW would have negligible impacts (e.g., vehicle traffic crushing shrubs). Construction of a new transmission line would have moderate direct impacts (i.e., loss of shrubs in disturbed areas) and minor (where line occurs in exotic annual or agriculture vegetation types) to major (where line occur in shrub-dominated types) long-term indirect impacts if animals avoid areas under the line. Cross-country OHV use would cause short-term disturbances annually and minor long-term impacts to habitat structure. Wildland fire would have major impacts over the long term where fire affects remaining shrubs communities.

Breeding Habitat – Removing livestock grazing from one allotment with two active leks would have negligible additive benefits for sage-grouse by reducing disturbance impacts. Removing livestock from 12 allotments (up to 44,650 acres of shrub- and grass-dominated habitat) would have minor additive benefits by reducing disturbance impacts. Spring livestock grazing in remaining areas would have negligible to minor adverse disturbance impacts annually. Existing, unmarked fences would have minor collision impacts annually. Construction of 10.6 miles of new fence (>1 mile from an active lek) would have negligible mortality and predator perch

impacts over the long term. Maintenance of existing ROW and OHV activity could have minor annual disturbance impacts. Sage-grouse breeding generally occurs when accessibility is limited because of soil moisture; however, improved access during the latter part of spring could disturb other species. The new transmission line could have a moderate impact on one active lek (2.7 miles away, the remaining active leks are ≥7.5 miles away) and would be within 4 miles of nine historic leks; however, most have not been active since the 1970s and there are three existing powerlines within 2.5 miles of the active lek. Wildland fire would have moderate to major indirect impacts where it reduces or eliminates adjacent nesting habitat.

Nesting and Brood-rearing Habitat – Removing livestock grazing from five allotments with sage-grouse nesting habitat and 12 allotments with shrubsteppe and grassland habitat would have minor additive benefits to habitat conditions and structure. Livestock grazing on 28 allotments with sage-grouse nesting habitat and 45 allotments with shrubsteppe and grassland habitat would have moderate long-term condition, structure, disturbance, and trampling impacts. Moderate to major impacts would occur at wetland areas that are maintained in FAR or NF conditions. Impacts could decline over the long term as permits are adjusted to reduce spring use and utilization levels. Existing, unmarked fences would have moderate collision and predator perch impacts annually. Construction of new fencing (7.7 miles within 4 miles of a lek) would have minor mortality and predator perch impacts over the long term. The proposed fences would be between 0.3-1 mile of 16 springs and could have minor to moderate long-term impacts on use of late brood-rearing habitat. Existing ROW and OHV activity would have moderate long-term adverse impacts primarily on habitat condition, structure, and fragmentation. Minor to moderate (concentrated use areas) disturbance and trampling impacts would occur annually in OHV spring use areas. The new transmission line would have minor to moderate short-term impacts because 68% (13.8 miles) would occur in recently burned areas where shrubs are absent. Moderate long-term impacts would occur where shrubs re-establish. Wildland fire would have moderate to major impacts to habitat condition and structure for shrub and perennial grass dependent species.

Riparian Birds

Improvement to PFC on 5.7 miles of streams and 19 FAR and NF condition springs would have moderate to major additive benefits to riparian-dependent species. Livestock-related condition, structure, and trampling impacts would occur an additional 5.5 miles of streams and six springs over the short term, but would decrease as grazing permits are modified to improve conditions. Existing, unmarked fences would have minor collision impacts annually. Proposed fences would be >0.3 miles from springs and one fence would cross Alkali Creek which could cause moderate trampling impacts over the long term. Existing ROW and OHV activity would have negligible to minor structure and disturbance impacts because these activities generally occur at discrete locations where they cross streams. Long-term recovery of shrub and tree cover on 12.8 miles of recently burned riparian areas would cause a major improvement in condition and structure. Wildfires could have negligible to major short-term impacts on condition and structure.

Raptors

Improvements in upland and riparian habitats in the 12 allotments would have minor to moderate additive benefits to prey species and nesting habitat conditions and structure. Modifying livestock grazing in the remaining 28 allotments would result in minor to moderate improvements in habitat conditions and structure over the long term. Existing and proposed

fences would have minor collision impacts annually. Road and powerline maintenance and OHV activities would have negligible to minor short-term impacts. Modifying distribution lines to meet raptor requirements would have moderate to major long-term benefits. The new transmission line would cause minor short-term impacts on habitat conditions and structure, but would have negligible long term impacts as vegetation recovers. Wildfires would have minor (grassland dependent prey and raptors) to major (shrubsteppe dependent prey and raptors) impacts on condition and structure.

Big Game

Improvements in conditions and eliminating livestock competition on six allotments with winter range (32,766 acres in the CIAA) would have minor additive benefits. Minor to moderate livestock-related impacts would occur in the remaining area; however, changes in grazing management on BLM-administered lands (up to 116,295 acres) would result in minor to moderate condition improvements in seasonal range over the long term. Existing fencing (318 miles) in winter range would have minor to moderate movement and mortality impacts annually. Proposed fencing would have minor movement and mortality impacts annually. Maintenance of powerline and road ROW could have minor, short-term disturbance impacts annually. Transmission line construction would have moderate condition, structure, and disturbance impacts over the short term. OHV activity would cause moderate to major disturbance impacts annually except in closed areas (e.g., post-wildfire). Wildfires would have minor (elk) to major (mule deer) impacts on habitat condition and structure.

3.6.3.5 **Cumulative Impacts - Alternative B**

Greater Sage-grouse

Continued livestock use in areas currently meeting Standards 4 and 8 (up to 10,652 acres) would have negligible to minor additive condition, structure, disturbance, and trampling impacts over the long term, primarily where spring use occurs or in concentrated use areas. Use as permitted in allotments not meeting Standards 4 and 8 (up to 39,261 acres) would have moderate additive condition, structure, disturbance, and trampling impacts, especially in nesting and brood-rearing habitats. Use at adjusted management levels in allotments not meeting Standards 4 and 8 (up to 39,261 acres) would have minor (areas with reduced stocking rate, deferred grazing) to moderate (consistent growing season use, concentrated use areas) additive condition, structure, disturbance, and trampling impacts. Impacts from other activities would be as described in Section 3.6.3.4. Road maintenance activities could occur in Hammett #7, South Camas, Creek Field, and North Camas. OHV and wildland fire impacts would potentially spatially overlap grazing impacts in the 12 allotments.

Riparian Birds

Continued livestock use in areas currently meeting Standards 4 and 8 (18.6 miles of streams, eight springs) would have negligible additive condition, structure, disturbance, and trampling impacts in accessible areas. Use as permitted in allotments not meeting Standards 4 and 8 (5.7 miles of accessible streams, 19 springs in FAR or NF condition) would have moderate additive condition, structure, disturbance, and trampling impacts. Use at adjusted management levels in allotments not meeting Standards 4 and 8 would have minor additive condition, structure, disturbance, and trampling impacts. Impacts from other activities would be as described in Section 3.6.3.4.

Raptors
Continued livestock use in areas currently meeting Standards 4 and 8 would have negligible additive structure, disturbance, and trampling impacts. Use as permitted in allotments not meeting Standards 4 and 8 would have minor additive condition, structure, disturbance, and trampling impacts. Use at adjusted management levels in allotments not meeting Standards 4 and 8 would have negligible to minor additive condition, structure, disturbance, and trampling impacts. Impacts from other activities would be as described in Section 3.6.3.4.

Big Game
Continued livestock use in areas currently meeting Standard 4 (up to 10,652 acres) would have negligible additive competition impacts over the long term, primarily in concentrated use areas of elk winter range. Use as permitted in allotments not meeting Standard 4 (up to 39,261 acres) would have moderate additive condition and competition impacts. Use at adjusted management levels in allotments not meeting Standard 4 (up to 39,261 acres) would have negligible to minor additive benefits where conditions improve and competition decreases. Impacts from other activities would be as described in Section 3.6.3.4. OHV and wildland fire impacts would potentially spatially overlap grazing impacts in Hammett #1, East Hammett #5, and Hammett #6.

3.6.3.6 **Cumulative Impacts - Alternative C**

Greater Sage-grouse
Cumulative impacts from livestock use in areas currently meeting Standards 4 and 8 (up to 10,652 acres) would be as described in Section 3.6.3.5. Implementing deferred grazing systems and/or reducing stocking rates in allotments not meeting Standards 4 and 8 (up to 39,261 acres) would have minor to moderate additive benefits of improved conditions and structure and reduced disturbance and trampling impacts. Maintenance or development of eight springs would have minor additive condition, structure, disturbance, and trampling impacts to late brood-rearing habitat. Modifying fences to meet wildlife standards would have minor to moderate (depending on amount modified) additive benefits in reduced avian collisions. Constructing 7.9 miles of new fencing would have minor additive collision and raptor perch impacts. Impacts from other activities would be as described in Section 3.6.3.4.

Riparian Birds
Cumulative impacts from livestock use in areas currently meeting Standards 4 and 8 (18.6 miles of streams, eight springs) would be as described in Section 3.6.3.5. Implementing deferred grazing systems in allotments not meeting Standards 4 and 8 (5.7 miles of accessible streams, 19 springs in FAR or NF condition) would have minor additive benefits of improved condition and structure and reduced disturbance and trampling impacts. Impacts from other activities would be as described in Section 3.6.3.4.

Raptors
Cumulative impacts from livestock use in areas currently meeting Standards 4 and 8 would be as described in Section 3.6.3.5. Implementing deferred grazing systems in allotments not meeting Standards 4 and 8 would have negligible to minor additive benefits of improved condition and structure and reduced disturbance and trampling impacts. Impacts from other activities would be as described in Section 3.6.3.4.

Big Game

Cumulative impacts from livestock use in areas currently meeting Standard 4 and would be as described in Section 3.6.3.5. Implementing deferred grazing systems and/or reduced stocking rates in allotments not meeting Standard 4 (up to 39,261 acres) would have minor additive benefits from improved condition and reduced competition impacts. Modifying fences to meet wildlife standards would have minor to moderate (depending on amount modified) additive benefits in improved movement and reduced mortality. Construction of 7.9 miles of fence (3.1 miles would be let down) would have minor additive mortality and movement impacts. Impacts from other activities would be as described in Section 3.6.3.4.

3.6.3.7 **Cumulative Impacts – Alternative D**

Greater Sage-grouse

Cumulative impacts from livestock use in areas currently meeting Standards 4 and 8 (up to 10,652 acres) would be as described in Section 3.6.3.5. Providing periodic rest, deferred use, and/or reducing stocking rates in allotments not meeting Standards 4 and 8 (up to 39,261 acres) would have moderate additive benefits of improved conditions and structure and reduced disturbance and trampling impacts. Maintaining five spring developments and fencing four springs would have negligible additive condition, structure, disturbance, and trampling impacts to late brood-rearing habitat. Modifying all fences to meet wildlife standards would have moderate additive benefits in reduced avian collisions. Impacts from other activities would be as described in Section 3.6.3.4.

Riparian Birds

Cumulative impacts from livestock use in areas currently meeting Standards 4 and 8 (18.6 miles of streams, eight springs) would be as described in Section 3.6.3.5. Providing periodic rest, deferred use, reducing stocking rates, and/or excluding four springs in allotments not meeting Standards 4 and 8 (5.7 miles of accessible streams, 19 springs in FAR or NF condition) would have minor to moderate additive benefits of improved condition and structure and reduced disturbance and trampling impacts. Impacts from other activities would be as described in Section 3.6.3.4.

Raptors

Cumulative impacts from livestock use in areas currently meeting Standards 4 and 8 would be as described in Section 3.6.3.5. Providing periodic rest, deferred use, and/or reducing stocking rates in allotments not meeting Standards 4 and 8 would have minor additive benefits of improved condition and structure and reduced disturbance and trampling impacts. Impacts from other activities would be as described in Section 3.6.3.4.

Big Game

Cumulative impacts from livestock use in areas currently meeting Standard 4 and would be as described in Section 3.6.3.5. Providing periodic rest, deferred use, and/or reducing stocking rates in allotments not meeting Standard 4 (up to 39,261 acres) would have minor to moderate additive benefits from improved condition and reduced competition impacts. Four spring exclosures would have negligible additive movement impacts. Modifying all fences to meet

wildlife standards would have moderate additive benefits in improved movement and reduced mortality. Impacts from other activities would be as described in Section 3.6.3.4.

3.7 Wilderness Study Area

3.7.1 Affected Environment - Wilderness Study Area

The King Hill Creek Wilderness Study Area (WSA) contains 29,309 acres of BLM-administered lands (23,815 acres are in the Boise District and 5,494 acres are in the Twin Falls District). The entire WSA encompasses portions of five grazing allotments (Map 12). In the Twin Falls District the WSA is wholly contained in the King Hill Allotment. The four allotments in the Boise District include portions of:

- Hammett #1 (20,564 acres),
- Hammett #4 (1,993 acres),
- Hammett #7 (272 acres), and
- King Hill Canyon (3 acres).

Hammett #1 and Hammett #7 allotments are assessed in direct and indirect impacts sections and Hammett #4 and King Hill Canyon allotments are included in the cumulative effects analysis.

King Hill Creek WSA is managed by BLM to protect the wilderness values that made it eligible for consideration by Congress for future designation as protected wilderness. These wilderness values include solitude, naturalness, opportunities for a primitive and unconfined recreation experience, and the presence of special features that enhance wilderness values.

The 1991 Idaho Wilderness Study Report (USDI 1991) described the wilderness characteristics for King Hill Creek WSA as having scenic, highly convoluted topography with a maze of drainages, ridges, hills, and peaks. Predominant vegetation in the lower elevations of the southern edge of the area includes Wyoming big sagebrush, Sandberg bluegrass, and cheatgrass, while the ridges generally have low sagebrush-bluebunch wheatgrass sites with a few junipers. The peaks in the northern part of the area are covered with mountain big sagebrush with bluebunch wheatgrass or Idaho fescue depending on aspect. Small clumps of Douglas-fir and aspen are present at higher elevations. Riparian areas contain poison ivy, rushes, sedges, grasses, and willows. The ground surface is extremely rocky. The Wilderness Study Report details the primary wilderness characteristics as quoted below.

> *Naturalness* – "The King Hill Creek WSA contains hilly to mountainous topography with a maze of drainages. The WSA is predominantly natural but there are several site-specific signs of man that impact the area including 4 miles of ways (currently termed primitive routes), 9.9 miles of fence, eight spring developments, and one reservoir within the WSA. Two cherry-stem roads intrude into the northern part of the area."
>
> *Solitude* – "The size of the King Hill Creek WSA in combination with the good-to-excellent topographic and vegetative screening provides outstanding opportunities for solitude in most of the area. The maze of drainages, ridges, hills, and peaks provides excellent screening among visitor groups and excellent potential for dispersing recreation uses. On 2,160 acres, adjacent to a heavily traveled county road in the northwestern part of the WSA, outstanding opportunities for solitude are lacking due to vehicular sights and sounds."

Primitive and Unconfined Recreation – "The size of the King Hill Creek WSA, in combination with its diverse landforms and scenic quality, provide outstanding opportunities for primitive and unconfined recreation. The natural features attract people interested in backpacking, day hiking, nature photography, wildlife viewing, fishing, hunting, and rockhounding. However, there are no significant wildlife habitats, geologic features, or scientific and educational values in the area that would attract large number of visitors to the area."

The Wilderness Study Report did not identify the presence of any additional "special features" that would enhance wilderness values.

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 benchmark for the "manner and degree" of an existing use is the physical and visual impact that use was having on the area on October 21, 1976 because it is that impact that would have affected the wilderness review (BLM Manual 6330, 1.6C2e and 1.6D3a). Changes in numbers of livestock or season of use may be allowed if the effects are found to be negligible. Changes cannot cause declining conditions or trend of the vegetation or soil. A proposed grazing increase cannot impair an area's wilderness values (BLM Manual 6330, 1.6D3).

The naturalness of the WSA is affected by several authorized land uses including livestock grazing and motorized vehicle use on cherry-stems and primitive routes. Much of the upland areas and 4.2 miles of streams are not meeting Standards (sections 3.2.1 and 3.5.1). Areas where livestock have degraded the naturalness are often associated with concentrated use areas, accessible streams (West Fork King Hill Creek, Deer Creek), and spring developments (e.g., Twin Springs). These tend to be areas most recognized by general wilderness users as being affected by human uses.

WSA monitoring reports and aerial photography review have identified numerous, new (post-inventory) motor vehicle routes and evidence of extensive cross-country vehicle use within the WSA. This use has created a range of damage from faint tire tracks across vegetation to what appears to be a well-established two-track trail. BLM policy is to limit motorized and mechanized vehicles to the roads and primitive routes identified in the original wilderness inventory, and to prohibit all cross-country vehicle travel. Lack of clear OHV designations in previous land use plans resulted in a 2008 OHV Limitation Order being signed by the Boise District Manger restricting OHV travel to only those routes and primitive routes (originally called "ways") identified during the original wilderness inventory for the King Hill Creek WSA as depicted in the 1987 Jarbidge Wilderness Final Environmental Impact Statement (FEIS, USDI 1987b) and the 1991 Idaho Wilderness Study Report. Maps showing the travel restrictions were posted at key access points to the WSA and are available at both the Boise and Twin Falls District Offices, the Shoshone and Four Rivers Field Office, the BLM Idaho State Office and on the internet.

Defining travel limitations in the WSA was necessary to prevent further impairment of wilderness values and to prevent resource impacts to soils, vegetation and wildlife habitat. Any routes in the WSA that were not identified in the Jarbidge Wilderness FEIS or the Idaho Wilderness Study Report are closed to motorized vehicle use. Cross-country travel within the WSA is specifically prohibited. The travel limitations apply to all motorized vehicle use with the exception of law enforcement and emergency personnel or administrative uses authorized by the BLM.

Though the Jarbidge Wilderness FEIS recommended the WSA as not suitable for wilderness designation, only Congress can designate an area as Wilderness or release it from further consideration as wilderness. The BLM is mandated to manage the area to maintain or improve the identified wilderness characteristics until Congress makes a decision.

3.7.2 Environmental Consequences – Wilderness Study Area

The following assumptions apply for analysis purposes:

- The WSA designation only applies to BLM-administered lands and not to State or private lands. Any references to acres or percentages refer to BLM-administered lands only.
- Short-term effects would be <3 years; long term effects would be ≥3 years.

3.7.2.1 General Discussion of Impacts

Proposed projects in WSAs are evaluated according to policies described in BLM Manual 6330 – Management of BLM Wilderness Study Areas (USDI 2012c), with additional clarification from the supplemental Idaho guidance specific to range developments (USDI 2003). The BLM's Manual 6330 states that livestock developments existing prior to the approval of FLPMA "may continue to be used and maintained in the same manner and to the same degree as such use was being conducted on [October 21, 1976]. In other words, they can have the same, but not more, physical or visual impact as they did" when FLPMA was approved, even if this impairs wilderness suitability (Section 1.6 D3a(i)). This is an exception to the non-impairment standard as identified under BLM Manual 6330 - 1.6 C2e as "Grandfathered Uses."

A proposed new project must not impair the area's suitability for preservation as wilderness. A proposed permanent project must truly enhance wilderness values, and the effects of the action on all wilderness values identified in the wilderness inventory must be considered. Alternative methods for accomplishing objectives, including "minimum tool" alternatives, must be considered. For example different methods for controlling livestock movement throughout the allotment might include fencing, herding livestock using motorcycles or all-terrain vehicles (ATVs), or herding livestock using horses. In this example all three options would meet the objective of controlling livestock movement, but the "minimum tool" would be herding livestock using horses. 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 is not distinctly recognizable by the average visitor as being made or caused by humans."

Any new projects must not require motorized access or motorized or mechanized equipment for maintenance as these would not be allowed in the area were it designated as protected wilderness. There are few authorized vehicle routes (primitive routes) within the WSA which limits easy access to much of the WSA. The BLM must insure that approval of a proposed

action would not create a situation where the cumulative effect of existing and proposed uses would impair wilderness suitability.

Continued livestock grazing in wilderness was a compromise to achieve passage of the Wilderness Act in 1964. Livestock grazing is a human related activity which runs contrary to the concept of wilderness being "untrammeled by man" and being "affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable." Evidence of livestock and livestock management in the King Hill Creek WSA (e.g., vegetation trampling, water developments, and fences) removes an element of naturalness from this area. While domestic cattle and sheep are animals, they are not considered wildlife that naturally occur in the landscape, wilderness visitors have a different experience when they encounter livestock verses when they encounter wildlife (Johnson et al. 1997). Livestock can also affect a visitor's experience of primitive and unconfined recreation, solitude, and their impression of the naturalness of an area. A logical extension of this would be visitors to a WSA would have similar expectations and experiences when encountering livestock or evidence of livestock and livestock management.

Prior to the passage of FLPMA and the initiation of the BLM's evaluation of lands for wilderness consideration, eight spring developments were constructed (with headboxes, plastic or galvanized pipe, and troughs or a pond) in areas that would later be designated as a WSA. Additionally about 10 miles of allotment boundary fence also exits within the WSA. The repair, maintenance, and reconstruction of these facilities are allowed to occur as long as these activities do not exceed the original level of development.

3.7.2.2 **Alternative A – No Grazing**

The direct and indirect effects on the wilderness values of naturalness, solitude, and primitive and unconfined recreation would be moderate to major, beneficial, long-term impacts. Removing livestock would eliminate direct impacts from livestock trampling, defecation, and encounters with visitors. Over the long term, the area would return to a more natural condition (e.g., recovery of wetland areas and riparian zones [Section 3.5.2.2] and native upland vegetation [Section 3.2.2.3]), thus improving naturalness. Although naturalness is generally thought of in terms of the ecosystem as a whole, there is also the effect on a visitor's experience of what they perceive as natural and their expectations of naturalness in a wilderness setting. Visitors seeking solitude in the WSA would more likely achieve this goal if they knew they would not encounter evidence associated with livestock management activities (Hollenhorst and Jones 2001). As range management projects are not maintained, slowly deteriorate, and blend into the landscape, one's chances of achieving solitude or having an unconfined type of recreation would improve.

3.7.2.3 **Alternative B – Continue Current Use**

Wilderness values of naturalness and primitive and unconfined recreation would be somewhat impaired over the short and long term. Although grazing in WSAs is a "grandfathered" use, many visitors to a WSA would prefer not to see evidence of livestock management activities (i.e., cattle or grazing facilities) and the presence of these can have a short, minor to major, direct effect on a visitor's experience when they are encountered (Hollenhorst and Jones 2001). Additionally, similar long term, direct and indirect adverse effects to visitors' experiences can occur from seeing the effects grazing may have on vegetation, riparian areas, and wetlands.

Within portions of the WSA, existing allotment fences and spring developments, which have not been consistently maintained, would continue to have an effect on primitive and unconfined recreation and naturalness wilderness values. Surface disturbance from livestock trailing and loss of shrubs along a corridor adjacent to the fence line would continue, and cause further loss of naturalness. Without actively moving livestock, animals would continue to concentrate for extended periods around water sources resulting in trampling and loss of vegetation with short and long-term impacts to naturalness and scenic values. Livestock grazing during the spring and fall, either As Permitted or Adjusted Management, would prevent the degraded segments of West Fork King Hill and Deer creeks from improving in condition (Section 3.5.2.3). Use of active, non-motorized herding to keep livestock in designated use areas (Adjusted Management) would maintain naturalness and primitive and unconfined recreational activities.

WSA guidelines allow motorized access within the WSA for routine maintenance of existing range improvement projects. This motorized use within the WSA would continue to have adverse impacts to naturalness and solitudes, especially when this use occurs off the cherry stem roads or inventoried trails (ways).

3.7.2.4 **Alternative C – Permittee Application**

The impacts of grazing livestock would be similar to that described in Alternative B; however, minor to moderate improvements in upland and riparian conditions, as described in sections 3.2.2.5 and 3.5.2.4, would slowly improve the naturalness of the area over the long term. Two additional elements of Alternative C affect King Hill Creek WSA beyond those described above; spring development repairs and the proposed pasture division fence.

Spring Maintenance

Maintenance, repair, and project replacement activities at South Twin Deer, Ground Hog, Muddy, and North Bourbon springs (Table 6, Appendix 6, Map 3a) would cause direct, major, adverse effects on all identified wilderness values (naturalness, solitude, and unconfined and primitive recreation) from the sights, sounds, and presence of construction equipment in the WSA. However, these would be short-term effects, and proper rehabilitation of affected areas would mitigate impacts. The maintenance would occur in the same manner and degree, as allowed by current WSA policy. Replacement of the water systems would not be feasible without the use of motorized and mechanical heavy equipment (backhoe or tractor) in addition to motor vehicles. Vehicle impacts on vegetation would occur primarily in previously disturbed areas (Appendix 6) and would recover over the short term. Heavy equipment use would likely impacts a larger area around existing projects from digging and earth moving. Replacing existing water systems would provide an opportunity to develop them in a manner that would reduce the visual impacts, which would have a minor, positive, long-term effect on naturalness. Motorized access is only legal to Ground Hog Spring, which is at the end on a cherry-stem, and North Bourbon Spring which is adjacent to a road on the WSA boundary. South Twin Deer and Muddy springs are located on linear disturbances within the WSA boundary that were not identified in the original wilderness inventory. Public access to Ground Hog Spring is blocked by private land. Motorized access to South Twin Deer and Muddy springs for maintenance would continue to maintain the primitive route and give the appearance of a legal route for public use. This would continue to encourage public encroachment into the WSA with motorized

vehicles, which would degrade all wilderness values (naturalness, solitude, primitive unconfined recreation) in the short and long term.

To summarize, maintenance of spring developments could have a minor, long-term, positive affect on the naturalness around the springs from a more properly functioning water system. However, this benefit would be outweighed by the short-term, adverse impacts to naturalness and solitude from the sights, sounds, presence, and surface disturbance of project replacement, and the long-term, adverse impacts to all wilderness values (naturalness, solitude and primitive recreation) from the continued use of motorized and mechanized vehicles on both legal trails and unauthorized routes.

Division Fence

BLM Manual 6330 1.6 – C3a(i) outlines requirements for new livestock developments in WSAs. The manual states, "New livestock management developments may only be approved if they meet the non-impairment standard or one of the exceptions, such as protecting or enhancing wilderness characteristics. In determining whether a development meets the protecting or enhancing wilderness characteristics exception, the BLM will determine if the structure's benefits to the natural functioning of the ecosystem outweigh the increased presence of human developments and any loss of naturalness or outstanding recreational opportunities caused by the new development." Additionally, the manual states, "the BLM should consider whether or not the development will be substantially unnoticeable. The project must not require new motorized access since this would constitute surface disturbance and so would not meet the non-impairment standard."

The proposed fence (4.8 miles) would divide Hammett #1 North Pasture into two pastures to facilitate a deferred grazing system (Map 3a). The grazing system would have a negligible effect in the short term and a minor to moderate effect in the long term toward improving naturalness of the vegetation. This improvement would also depend on the steady movement of livestock through the allotment without animals concentrating in areas for extended periods.

Construction of this project by itself would not lead to enhancement of any wilderness values and would introduce a new, unnatural element into the environment. The terrain along the proposed fence is extremely rocky and the following assumptions are used in evaluating the effects of fence construction.

- Motorized vehicles (ATV, utility terrain vehicle, or four-wheel drive truck) would be used to transport equipment and materials along the fence line;
- Existing, unauthorized routes would be used to access the construction site;
- A rock drill would be required to set many, if not most, of the fence posts;
- The fencing would take about six weeks to build using mechanized and motorized equipment, much longer using no motorized or mechanized equipment; and
- Daily trips would be made to the construction location.

Fence construction would have the following direct impacts: new surface disturbance, loss of vegetation, introduction of motorized vehicles in a non-motorized area, human created sounds and noise associated with construction, and creation of new linear disturbances associated with motorized vehicle use. All of these direct impacts would be major, adverse effects on the

naturalness of the area in the short-term and, with the exception of construction noise, would be moderate to major, adverse effects over the long-term. There would be major adverse effects to solitude and primitive and unconfined recreational opportunities in the short-term for users who encounter the workers during fence construction. Following completion of the fence, there would be additional short and long-term indirect effects due to cattle trailing along the fence lines, which would also impair naturalness along the fence.

The presence of the fence would have additional major, adverse, direct and indirect effects on naturalness and opportunities for primitive and unconfined recreation. The fence would be located in an area with minimal vegetative or topographic screening. The fence would not be substantially unnoticeable in the WSA, as it would be visible from different locations along the plateau and from rimrock areas. This would impair views of the plateau and rugged scenery. Due to the prominent location and lack of topographic or vegetative screening, fencing would impair naturalness and slightly impair visitors' movement in and out of the area. Because livestock would have access to riparian areas and wetlands during either the spring or fall, naturalness would remain moderately impaired until these areas are in PFC.

The minor improvement in naturalness of the vegetation from a deferred system would not outweigh the adverse effects the fence would have on overall naturalness, and primitive, unconfined recreational opportunities. The fence would not lead to enhancement of wilderness values and overall would have adverse long-term impacts on wilderness values and suitability for designation as Wilderness by Congress.

The fence would not be considered a "grandfathered" range project, as there is no record of a fence pre-FLPMA or during the wilderness inventory, and no record of the proposed fence being previously authorized. An alternative "minimum tool" approach to achieving the seasonal rotation would be to actively herd cattle each use period.

3.7.2.5 **Alternative D – BLM Proposal**

While the timing and stocking rates may differ from other alternatives, the effects of continued livestock grazing within the WSA would be similar as those described in Alternative B; however, the improvements in naturalness of vegetation would be greater. The effects of maintaining three springs in Hammett #1 would be the same as described in Alternative C. Use of active, non-motorized herding to keep livestock in designated use areas would maintain naturalness and primitive and unconfined recreational activities.

Temporary electric fencing is proposed around three springs within the King Hill Creek WSA. The purpose of the temporary exclosure fences is to keep livestock away from these areas during the use season. The BLM's WSA Manual 6330 states that "[n]ew livestock developments may only be approved if they meet the non-impairment standard or one of the exceptions, such as protecting or enhancing wilderness characteristics." BLM Manual 6330 Section 1.6 C.2.f. also states that "[a]ctions that clearly benefit a WSA by protecting or enhancing these characteristics are allowable even if they are impairing, though they must still be carried out in the manner that is least disturbing to the site."

Springs, and the associated wetlands around them, are an unusual natural feature in a rocky desert environment. Protecting these features would enhance the wilderness characteristic of naturalness in the WSA. Temporary electric fencing around three springs would keep grazing animals away from the springs, which would have short and long-term moderate beneficial effects protecting vegetation adjacent to the springs from trampling, which in turn would improve the naturalness of the springs. However there would also be a short term, adverse visual effect to the naturalness during the time the fences are in place and possible concentration of livestock use along the fenceline, resulting in fenceline contrast trampling.

The presence of existing range projects in the WSA already imposes an unnatural element into the environment and can also have an adverse effect to the wilderness characteristic of primitive, unconfined recreation. A temporary fence around the spring/wetlands would be an additional minor adverse effect to the naturalness of the WSA. This additional human element, when viewed in light of the fact that the springs/wetlands are associated with existing range projects (headbox, piping, and water trough) in the allotment, will protect the naturalness of the springs/wetlands areas. When livestock are not grazing in the area, the fence wires and panels would be removed, which would seasonally eliminate a large portion of the exclosure around the springs. Only the steel fence posts would remain.

Non-motorized methods would be used to construct and maintain the temporary exclosures in the King Hill Creek WSA. No vegetation alteration or removal would occur when placing the temporary fencing. These two procedures would ensure that motorized access would not be required in the future to maintain these facilities.

3.7.3 Cumulative Impacts – Wilderness Study Area

3.7.3.1 Scope of the Analysis

The area used to assess cumulative impacts includes all land within the King Hill Creek WSA boundary (Map 12). The WSA boundary is used rather than a larger area because of the unique nature of the management direction specific to the WSA. The temporal scale dates back to 1972, which is the year water rights were granted for spring developments in the WSA, and ends in 2025, slightly longer than the 10-year permit period for the analyzed grazing permits.

3.7.3.2 Current Conditions and Present Effects of Past, Present, and Foreseeable Future Actions

Past actions have contributed to the existing state of the wilderness values associated with the King Hill Creek WSA as described in the Affected Environment (Section 3.7.1). Primary influences that have occurred in the past will likely continue into the foreseeable future and continue to affect wilderness values. These actions include motorized vehicle use (associated with authorized uses and recreational uses), grazing, and vegetative changes from wildfire and exotic species introductions.

- The passage of FLPMA (1976), the Record of Decision of the Jarbidge Wilderness Final Environmental Impact Statement (1987) and finally the Idaho Wilderness Study Report (1991) established the King Hill Creek WSA and the laws and policies by which it is managed.

- The initial and intensive wilderness inventories, conducted in the late 1970s, and the analysis documents identified two cherry-stem roads in the northern part of the WSA, 4 miles of "ways" (now called primitive routes), 9.9 miles of fence, seven spring developments, and one reservoir within the WSA (including the Shoshone District portion). These projects were developed prior to the period when BLM considered lands for potential wilderness values. At that time the area was managed the same as other public lands without one resource having priority over another. Range developments were not limited by regulations pertaining to the wilderness values of naturalness, solitude, or unconfined and primitive recreational opportunities. Though the Wilderness Study report states seven spring developments and one reservoir existed, the inventory map shows a total of seven water developments, all on the Shoshone District portion of the WSA. No developments were identified on the Boise District portion of the WSA; however, range improvement files indicate that five springs were developed during the time frame of 1972 – 1974. It is unknown why these spring developments (and two others likely developed prior to 1972) were not addressed in the inventory or identified on the inventory map. Motorized equipment, involving some blading and resultant berms, was obviously used in the development of these springs, though with the exception of Ground Hog and Bullet springs, primitive routes to these springs were not identified on the WSA map.

  Off-highway vehicle use in Idaho and in much of the western states has substantially increased over the last 30 years. Idaho OHV registration increased from about 3,000 in 1973 to more than 130,000 in the last few years (IDPR 2011). This increase has been due to both increased participation rates and registration compliance. The current OHV registration numbers have remained around 134,000 for the past five years and will likely stay stable or increase slightly over the next ten years.

  The Bennett Mountain area is a popular area for big game hunting. Much of the area is easily accessed from the Bennett Mountain Road or many other roads and primitive routes in the area. Four-wheel drive vehicles or OHVs are used extensively throughout the general area. Most of the land north of the WSA is privately owned, which limits the easy public access to northern parts of the WSA. Motorized access into the WSA is currently authorized on about 5 miles of cherry-stem routes and 3 miles of open primitive routes. Motorized use on legal routes in the WSA introduces not only a mechanized device but also increased noise, increased soil erosion, reduced air quality, and the potential spread of non-native seed. In addition to the authorized routes, over 23 miles of unauthorized routes have been identified since the initial wilderness inventory. These impacts have also impaired the identified wilderness values of the WSA.

  Resource specialists have determined that increasing OHV use in the WSA and other types of motorized and mechanized equipment for scouting, hunting, and antler-hunting (among other uses) combined with general increases in the prevalence and capabilities of OHVs has led to a proliferation of routes in the area beyond those that existed in the WSA when it was established. Primitive routes and trails created after the WSA was established threaten wilderness values there; allowing continued use would be inconsistent with the non-impairment requirement set forth in BLM regulations.

The WSA also encompasses a portion of IDFG's Hunt Unit 45, popular for its world-class trophy mule deer bucks. Today's motorized vehicles are in much wider use during fall hunting and winter/spring antler-shed hunting, and can carry riders farther into remote areas that were previously inaccessible. As a result, deer, antelope and elk are being increasingly disturbed when they are most vulnerable. IDFG reports greater mortality among the area's fawns in recent years.

Recreational OHV use has also reduced shrub-grass-forb cover, which forms habitat for a variety of wildlife. Proliferation of OHV routes frequently leads to encroachment by invasive grasses and noxious weeds – which further degrade and fragment grassland habitat and naturalness of the area.

In September 2008, an OHV Limitation Order was sign by the Boise District Manager limiting OHV travel within the Boise District portion of the WSA to only those roads and primitive routes identified during the wilderness inventory. A similar Closure Order was sign by the Shoshone Field Office Manager in June 2011 restricting OHV use on the in the Shoshone portion. These restrictions on motorized vehicle use were intended to address increased conflicts between motorized and non-motorized users in the area. Managing unauthorized OHV use will continue to be a challenge given the current and expected future limited funding and law enforcement staff.

- Grazing, trampling, vector, indirect, and project-related impacts from permitted livestock use are adversely affect vegetation throughout the WSA. Trampling and loss of native vegetation directly affecting naturalness. Proper grazing management to meet Standards would limit impacts on the area's naturalness. However, livestock grazing would likely continue to result in temporally and spatially variable areas of plant community alterations that cause minor to moderate effects (i.e., reduced naturalness). These effects would be greatest in concentrated use areas and pastures receiving consistent spring use without rest.

- Wildfires have burned approximately 19% (5,606 acres) of BLM land in the WSA since 1991. ESR and habitat restoration projects would be expected to maintain or improve plant communities and ecological processes in burned and/or degraded areas; however, it can take more than 25 years to reestablish native shrub/steppe habitat.

3.7.3.3 **Cumulative Impacts - Alternative A**

While removing livestock grazing from 71% (20,836 acres) of the CIAA would cause minor to moderate additive improvements to vegetative conditions and in turn improve naturalness, minor to moderate adverse impacts to naturalness would still be present from the effects of past grazing practices. Moderate short- and long-term adverse impacts from grazing activities would also continue to occur over the remaining 29% (8,473 acres) of the area.

Off-highway vehicle (OHV) use in the area would likely continue to have moderate to major adverse effects on wilderness values. Illegal routes and cross-country vehicle travel impair wilderness values and characteristics as well as causing erosion, soil loss, disturbance of wildlife, and loss of wildlife habitat. The combination of rising population and an extensive public lands

base easily accessible by paved and gravel roads has created an expanding network of OHV trails on public lands leading into the WSA boundary. These factors would have moderate to major, long-term, adverse impacts to the values of naturalness, solitude, and primitive and unconfined recreation. This would only compound the overall short and long-term adverse effects to the wilderness values which the BLM is mandated to protect.

Impacts to naturalness can be viewed in terms of the areas ecological condition or vegetative condition. Elevation and annual precipitation would have a major effect on vegetation responses to activities (Section 3.2.3.4). Plant communities above 5,000 feet and/or areas with higher effective precipitation would be able to recover more easily from impacts. These plant communities are generally resilient and in good condition, and composed primarily of native mid-to-late seral sagebrush and mountain shrub communities. Plant community condition (naturalness) in these communities would remain relatively static. A little more than half (51%) of the WSA lies below 5,000 feet elevation. Lower elevations would be more likely to incur minor to major impacts to naturalness from activities such as livestock grazing, wildland fire, and OHV use. These impacts could be mitigated to some degree depending on the success of education programs about the importance of wilderness values, enforcement of travel and transportation rules, and vegetation treatments outside the WSA boundary (e.g., successful fuel breaks could reduce wildfire size).

Activities that cumulatively impact wilderness values (naturalness, solitude and primitive and unconfined recreation) would be generally the same for each alternative, but the degree of impact would be lowest in Alternative A due to the removal of livestock throughout a majority of the WSA.

3.7.3.4 **Cumulative Impacts – Alternative B**

The implementation of Alternative B-As Permitted would have moderate adverse additive effects over the long term on naturalness due to the lack of improvement in vegetative condition. Alternative B-Adjusted Management would have minor additive benefit to naturalness over the long term. Present livestock grazing and associated facilities would have minor to moderate adverse additive impacts over the long term to the wilderness values of solitude and primitive and unconfined recreational opportunities. Impacts from other activities would be the same as described in Alternative A.

3.7.3.5 **Cumulative Impacts – Alternative C**

All wilderness values would see a long term moderate adverse additive effect from the construction of fencing. The incremental addition of permanent range improvements within the boundary of a WSA would, over time, degrade the values that BLM is mandated to protect. Long-term improvement in upland and riparian conditions would have minor additive benefits in improved naturalness. Impacts from other activities would be the same as described in Alternative A.

3.7.3.6 **Cumulative Impacts – Alternative D**

When viewed as improved vegetative condition, moderate improvements in naturalness would have a minor to moderate positive additive effect on overall wilderness values. Solitude and

primitive and unconfined recreational opportunities would be unchanged. Impacts from other activities would be the same as described in Alternative A.

3.8 Cultural Resources

3.8.1 Affected Environment – Cultural Resources

Baseline data was reviewed to determine the extent of recorded cultural resources in the CIAA. The data review included: 1) the Class I Inventory – Southwestern Idaho Cultural Resources Overview Boise and Shoshone Districts (1982); 2) the Class II Cultural Resources Inventory Boise District (1987); 3) all known Class III Inventories within the allotment; and 4) all known recorded cultural resource site forms within each of the allotments. Additional context and syntheses contributed to our understanding of Idaho archaeology and are readily available for public review (Meatte, 1990; Plew, 2008; Hutchison, 1993).

Twenty three surveys have been conducted within the 12 allotments that inventoried about 428 acres. The surveys were small project surveys on BLM parcels. The surveys recorded 23 cultural resource sites. The sites included 14 lithic scatters, one historic scatter, five rock features, two rock shelters, and a site with petroglyphs.

Most of the sites have not been evaluated for eligibility to the National Register of Historic Places (NRHP). As a practice, the BLM and the Idaho SHPO treat unevaluated cultural resource sites as eligible until proof is offered to change that evaluation. Of the 23 sites recorded, only four had been evaluated as eligible, and seven as not eligible, with 12 listed as unevaluated. Other more modern constructed features in or near the project area are not considered cultural resource sites, but they help describe the existing environment, including: jeep trails, dirt, gravel and paved roads, electricity transmission lines, fences, range improvements, radio towers, a fire lookout, private residences and other buildings on private property, the town of Pine, and the Anderson Ranch Dam and Reservoir.

3.8.2 Environmental Consequences – Cultural Resources

3.8.2.1 General Discussion of the BLM Cultural Resources Impacts Analysis Process and Mitigation

Since about 1975, the BLM has been preserving and protecting cultural resource sites by considering impacts to cultural resources as ground disturbing projects are proposed to comply with section 106 of NHPA. This process includes consulting with the Idaho SHPO, and local tribes about proposed projects. Mitigation measures to avoid or minimize impacts to cultural resources included: relocating a project to avoid a known cultural site; enforcing stipulations placed on the project as mitigation to protect cultural resources from the proposed impacts; or not approving the project. Additional mitigation included: constructing fences around some cultural resource sites to exclude livestock from impacting the sites; conducting Class III surveys; recording sites; collecting and curating artifacts; testing subsurface cultural deposits; and excavating archaeological sediments.

To determine if proposed grazing activities conducted under the renewed grazing permit would impact cultural resources, the following procedures were conducted by the Four Rivers

archaeologist. Assessments were conducted for each allotment. A map was created to indicate where cultural resource surveys had been conducted, where sites were recorded, where range improvements had been made, and where proposed range improvements would be located to assess conflicts between cultural resources and grazing impacts.

Using professional judgment and over twenty years of experience on the Boise District, the archaeologist assessed impacts of each alternative on cultural resources. Only sites located on BLM parcels were considered for direct and indirect impacts.

A hard copy of this data and a summary of the analyses will be shared with the Idaho SHPO to comply with the National Programmatic Agreement, the State Protocol, and NEPA as part of BLM's consultation process.

3.8.2.2 **General Discussion of Effects**

Trampling

Direct impacts from grazing could include surface disturbance and soil compaction with subsequent damage to and repositioning of artifacts through trampling. The presence of livestock can impact sites by leaving hoof prints, churning soils, digging depressions, digging wallows, and beating incised paths along fence alignments. These actions by livestock physically damage and move artifacts and cultural features. In addition to artifact breakage, a loss of site integrity and loss of archaeological context information could occur. Livestock grazing transports, moves, buries, and uncovers artifacts and features horizontally across the site surface and moves them vertically through the site sediments. Livestock defecation and urination reduces the aesthetics of cultural sites.

Variables that may add to the effect of livestock grazing on cultural resources include livestock type (cattle, horse, or sheep), number of animals, and the presence of congregation areas.

Livestock Type – Horses, with their hard hooves that often have metal shoes, would have the greatest potential to impact soils and artifacts at sites. Cattle would have a moderate potential and sheep would generally have a minor potential to impact soils and artifacts.

Livestock Numbers – The number of livestock in an allotment is used as an indicator in assessments because impacts to cultural resources would increase as the number of grazing livestock increases. Livestock numbers will be used to compare the different alternatives.

Congregation Areas - Locations where livestock congregate are the locations where the greatest impacts to cultural resources may occur and is the focus of this analysis. Congregation areas are defined as those areas where livestock concentrate for limited or extended periods of time and create surface and subsurface disturbances, including vegetation removal, concentrated trampling and wallowing, which can create measurable subsurface disturbance, and may result in displacement and damage to artifacts and features. Congregation areas include unfenced springs, perennial water courses, ponds, lakes, and range improvements such as troughs, stock ponds and salting areas. Also, sheltered areas located in rock shelters, overhangs and along rock faces that provide shade and protection from the wind are known areas of congregation. Springs and accessible perennial water sources are generally understood to be areas of potential high

sensitivity for cultural resources, while shelters, troughs and salting areas may be in lower sensitivity areas depending on relationship to water resources (Coddington 2008; Broadhead 1999; U.S. Army 1990).

The magnitude of grazing impacts on sites could range from no effect to major effect. One animal could break a unique artifact or destroy a feature; then, each additional animal increases the chance of impacting that site. The potential for damage to surface and subsurface sites would increase where livestock congregate (e.g., bedding and existing watering sites, temporary watering sites, corrals, salting areas) or when soil moisture conditions are at or near saturation. Livestock grazing could also cause indirect impacts. Livestock remove vegetation by ingesting or trampling plant materials, which could increase wind and water erosion, results in transport, burial, and exposure of artifacts. Because the livestock are often moving as they graze, they usually spend less than one minute in a cultural resource site; however, cultural sites at springs often receive greater impacts because cattle are drawn to the water and tend to congregate there for long periods of time.

Some sites are protected from grazing impacts because fences or terrain restrict livestock access. Other sites would be protected from impacts due to the inherent nature of the site, such as a pictograph on the underside of an overhanging rock outcrop in a steep draw or hunting blinds on steep canyon talus slopes.

Rock cairns, rock walls, and other rock features could be affected by grazing livestock if the rock features were located where livestock congregate due to increased duration and increased numbers of livestock at a given congregation area. Historic scatters would not likely be affected by grazing because the characteristics and data that make them significant, such as dateable bottle bottoms and bottle tops are less prone to damage by grazing livestock.

Ground Disturbance Associated with Range Improvements

Proposed projects could also impact cultural resources by disturbing the soils or stratigraphy of an archaeological site; for example, a six foot by six foot hole six feet deep is required to construct a spring development and a four foot by four foot hole four feet deep is required to maintain a spring box. Additional trenches that are two feet wide by two feet deep are required to bury the fill pipe and the overflow pipe to each water trough. The digging would adversely impact the integrity of the buried deposits of a prehistoric site. A cultural site located at or near a developed spring would be indirectly impacted by the livestock when they congregate and trample the area around the trough.

The construction and maintenance of stock ponds and reservoirs result in similar direct and indirect impacts as noted for spring developments, but the amount of soil disturbance is considerably greater. The construction, maintenance and use of fences could impact cultural resources directly by driving vehicles and ATVs over sites, digging post holes in sites and indirectly by causing livestock to wear down a “trail” through a site along both sides of the fence.

Impact Analysis by Alternative

To understand how grazing livestock may impact the cultural resources found on each allotment, the following assumptions were made: a) the types of impacts expected from reissuing a grazing permit are trampling and ground disturbance from range improvement construction, livestock use, and maintenance as described above; b) trampling and soil disturbance can be measured in relative terms using the number of livestock using the allotment; c) exclosure fences can be designed and used to protect cultural resource sites; d) direct and indirect effects will only be analyzed for sites considered NRHP eligible or unevaluated on BLM administered land; e) the effects of range improvements will be measured using the number of existing and proposed range improvements; f) an adverse effect is defined as an impact that would render a site ineligible for NRHP listing; and g) all effects are considered long term and irreversible because cultural resources are fragile and irreplaceable.

3.8.2.3 **Alternative A – No Grazing**

Trampling

Based on the assumptions noted above, Alternative A would be the most beneficial for the protection and preservation of recorded and undiscovered cultural resources because grazing would not be authorized for a period of 10-years. There would be no new livestock impacts from trampling, soil disturbance, artifact breakage, or loss of site context and integrity. No adverse direct or indirect impacts to historic properties would be caused by cattle, sheep or horses. Precipitation events and wildlife could potentially cause minor soil erosion, leading to exposure and damage to cultural resources.

Range Improvements

There would be no proposed projects that would impact cultural resources. Normal maintenance would not occur on any existing fences, springs developments, or ponds; therefore, the integrity of cultural resources would be maintained.

3.8.2.4 **Alternative B – Continue Current Use**

Trampling

Grazing maximum numbers of 5,313 cattle per year in the project area would result in soil disturbance, artifact breakage, and loss of site context and integrity across the allotments as described above. Authorized grazing permits issued would result in approximately the same disturbance footprint that has occurred for the last 10-years because grazing management would not change. Precipitation events, wildlife and livestock grazing would continue to cause minor soil erosion and vegetation removal. Soil disturbance, artifact breakage, and loss of site context and integrity would continue at livestock congregation areas, and specifically at three spring developments (Ground Hog, Mud, and Twin Deer). Site integrity would continue to be degraded, resulting in an adverse effect to eligible sites as compared to Alternative A.

Range Improvements

There would be no new proposed projects that would impact cultural resources. Normal fence maintenance would occur. Exclosure fences would not be installed to protect cultural resources from livestock impacts; therefore the current site degradation would continue at the current rate.

3.8.2.5 **Alternative C – Permittee Application**

Trampling

Most of the cultural sites noted above would continue to be exposed to additional impacts from livestock grazing for a period of 10-years. Alternative C would be the least beneficial for the protection and preservation of unrecorded cultural resources. Grazing maximum numbers of up to 10,947 cattle per year represents the greatest number of grazing animals and could result in the greatest impact to cultural resources. Increased levels of livestock grazing would result in increased soil disturbance, artifact breakage, and loss of site context and integrity across each allotment. Alternative C represents up to 5,634 more animals per year above Alternative B, resulting in additional impacts to cultural resources. Soil disturbance, artifact breakage, and loss of site context and integrity would continue at livestock congregation areas, and specifically at three spring developments (Ground Hog, Mud, and Twin Deer). Precipitation events, wildlife, and livestock grazing would continue to cause minor soil erosion and vegetation removal. Site integrity would continue to be degraded. This would result in a greater adverse effect to eligible sites when compared to Alternatives A and B.

Range Improvements

There would be 7.9 miles of new fence constructed and two new spring developments (Map 3a). Class III cultural surveys of the fence segments and spring developments did not identify any eligible sites; therefore, the construction would not have an adverse impact on known cultural resources and exclosure fences would not be necessary. Normal fence maintenance would occur. Six spring developments and one pond would be maintained. Four of the six developments have eligible sites that could be degraded; however, mitigation would ensure that the effects would not be adverse to the known sites.

3.8.2.6 **Alternative D – BLM Proposal**

Trampling

Similar to Alternative B, most of the cultural sites noted above would continue to be exposed to additional impacts from livestock grazing for a period of 10 years. Grazing maximum numbers of up to 6,577 cattle per year would represent a slight increase of grazing animals over Alternative B, but less than Alternative C. Soil disturbance, artifact breakage, and loss of site context and integrity would continue at livestock congregation areas, and specifically at three spring developments (Ground Hog, Mud, and Twin Deer). Increased trampling would result in slight increases of soil disturbance, artifact breakage, and loss of site context and integrity across the allotments. Site integrity would continue to be degraded due to precipitation events, wildlife and livestock grazing from trampling, minor soil erosion and vegetation removal.

Range Improvements

Four spring exclosures (three temporary and one permanent) would be constructed and six projects (five developed springs, one pond) would be maintained (Map 4a). Temporary exclosure fences would be installed at three spring developments (Ground Hog, Mud, and Twin Deer) and one permanent fence would be constructed to protect cultural resources from livestock impacts; therefore, there would be no new degradation at the four sites. Normal fence maintenance would occur. Five spring developments and one pond would be maintained. Four of the five springs have eligible sites that could be degraded, however, mitigation of three

exclosure fence constructions noted above, and sufficient data documentation of the fourth site would ensure that the effects would not be adverse to the known sites.

3.8.3 Cumulative Impacts – Cultural Resources

Cultural resources are fragile, finite and irreplaceable resources. The recorded cultural sites and the unknown cultural sites added together account for the entire universe of cultural resources within the project area. Cultural resources are impacted by grazing as noted above, but could also be affected by vandalism and unauthorized artifact collecting. Cultural resources located on State and private lands are not protected by federal archaeological laws and policies. Cultural sites on private land could be impacted by farming or construction activities. Cultural resources are not like animals that can reproduce offspring, or plants that reproduce through seeds, or plants that can recover from trampling and fire impacts.

3.8.3.1 Scope of Analysis

The geographic scope for analyses is limited to the boundaries of each grazing allotment because cultural artifacts and features do not move, and the direct and indirect effects to cultural resources do not extend outside these boundaries. The cumulative effects analysis area includes BLM, USFS, State, and private land. The analysis time frame is ten years.

3.8.3.2 Past, Present, and Foreseeable Future Actions

Past and current activities that are impacting cultural resources within the cumulative effects analysis area include: livestock grazing and trailing, rangeland management projects, recreational activities, wildfires and ESR treatments, and road and utility ROW use and maintenance. It is suspected that many unrecorded cultural sites exist that have also been affected by these activities.

Future impacts from the activities listed above would continue to occur on BLM, USFS, State, and private land parcels for a period of ten years. Natural weathering and deterioration of cultural sites would continue on all allotments.

All proposed projects on BLM and USFS administered lands would follow the Section 106 guidelines to implement the NHPA and historic properties would be avoided or the adverse impacts would be mitigated. Because there would be no effect from the proposed fencing, range improvement maintenance, and exclosure construction, they will not be included in this cumulative effects analysis.

3.8.3.3 Cumulative Impacts - Alternative A

Alternative A would provide the greatest protection for cultural resources because there would be no direct or indirect impacts from livestock grazing on BLM lands. The anticipated increase in vegetative cover would reduce wind and water erosion, protecting cultural resources, especially in allotments that are not currently meeting Rangeland Health Standards.

Past and current activities that are impacting cultural resources within the cumulative effects analysis area include: livestock grazing and trailing, rangeland management projects, recreational activities, wildfires and ESR treatments, and road and utility ROW use and maintenance. It is

suspected that many unrecorded cultural sites exist that have also been affected by these activities.

Future impacts from the activities listed in the paragraph above, especially in congregation areas, would continue to occur on BLM, USFS, State, and private land parcels for a period of ten years. Natural weathering and deterioration of cultural sites would continue on all allotments.

3.8.3.4 **Cumulative Impacts - Alternative B**

Past and current activities that are impacting cultural resources within the cumulative effects analysis area include: livestock grazing and trailing, rangeland management projects, recreational activities, wildfires and ESR treatments, and road and utility ROW use and maintenance. It is suspected that many unrecorded cultural sites exist that have also been affected by these activities.

Future impacts from the activities listed above would continue to occur on BLM, USFS, State, and private land parcels for a period of ten years. Natural weathering and deterioration of cultural sites would continue on all allotments.

Cumulative impacts to cultural resources would be very similar between alternatives, but the impacts would vary in magnitude based on the number of livestock authorized on the allotment. Alternative B would authorize 5, 313 animals for a period of ten years. The livestock trampling impacts on BLM, USFS, State, and private lands, especially in congregation areas, would be an additive impact every year for a period of ten years.

3.8.3.5 **Cumulative Impacts - Alternative C**

Past and current activities that are impacting cultural resources within the cumulative effects analysis area include: livestock grazing and trailing, rangeland management projects, recreational activities, wildfires and ESR treatments, and road and utility ROW use and maintenance. It is suspected that many unrecorded cultural sites exist that have also been affected by these activities.

Future impacts from the activities listed in the paragraph above would continue to occur on BLM, USFS, State, and private land parcels for a period of ten years. Natural weathering and deterioration of cultural sites would continue on all allotments.

The cumulative impacts to cultural resources would be very similar between Alternatives A, B and C, but the impacts would vary in magnitude based on the number of animals authorized on the allotment. Alternative C would authorize 5, 634 animals more than Alternative B for a period of ten years. The livestock trampling impacts on BLM, USFS, State, and private lands, especially in congregation areas, would be an additive impact every year for a period of ten years.

3.8.3.6 **Cumulative Impacts - Alternative D**

Past, current and future activities that are impacting cultural and historic properties within the cumulative effects analysis area include: livestock grazing (non-BLM-administered) and trailing, rangeland management projects, recreational activities, wildfires and ESR treatments, and road

and utility ROW use and maintenance. It is suspected that many unrecorded cultural sites exist that have also been affected by these activities.

Impacts would continue to occur on BLM, USFS, State, and private land parcels from the uses listed above. Alternative D would authorize 6,577 animals more than Alternative B for a period of ten years. The livestock trampling impacts on BLM, USFS, State, and private lands, especially in congregation areas, would be an additive impact every year for a period of ten years.

3.9 Livestock Management/Social and Economics

3.9.1 Affected Environment - Livestock Management/Social and Economics

The BLM does not have specific social and economic information on permittees; therefore, information and analyses are based on county data from the period 1970 through 2010. The following data were derived from the Economic Profile System-Human Dimensions Toolkit (EPS) developed by Headwaters Economics (Headwater Economics 2012). The EPS uses data from the Economic Analysis, Labor Statistics, and Census bureaus. Ranch related data is contained in the farm/agricultural datasets and is not presented separately. Data, in part, are presented for farm proprietors. "Proprietors" refers to employment and income from sole proprietorships, partnerships, and tax-except cooperatives and probably most closely describes permittees. Many permittee households may have income from wages and salaries, a separate category in the EPS which is not reported here except where proprietors are reported as a percent of the total.

Approximately 6.3% of Elmore County's civilian workforce is employed by the agricultural sector (Table 24). This represents all forms of agriculture production, including livestock operators. Some forms of ranching depend on public lands for grazing forage. Public lands comprise 69.6% of the total land in the county. Approximately 32.5% of farms in the county are primarily engaged in raising cattle. The number of farm proprietorship represents approximately 2.5% of employment within the county. Farm earnings account for 6.6% of total earnings in the county and farm proprietors account for 2.8% of earnings. From 1970 to 2010, the population of Elmore County increased by approximately 37.1%.

Healthy rangeland ecosystems can provide multiple goods and services that can increase the economic, social, and cultural well-being of individuals and communities. To the degree that rangeland resources are degraded, an opportunity exists—through restoration of ecosystem health—to obtain these goods and services at a higher and more productive level. Rangeland ecosystem goods and services are divided into three main categories: biological (e.g., wildlife habitat), hydrological/atmospheric (e.g., stable watersheds, water quality), and miscellaneous (e.g., recreation, tourism). Travel and tourism industries account for 18.8% of the county's economy.

Table 24. Social and economic factors in Elmore County, Idaho.

Factor			Number/Value
Population (2010)[1]			27,038
Number Employed (2010)[2]			13,604
Non-Farm Employment[2]			12,738
Percent unemployed (2010)[3]			8.5
Median Household Income (2010)[4]			$42,356
Change in Employment (1970 to 2010)[4]			↑ 65.3
Farm Proprietors	Number in 2010[2]		340
	Number in 2010 (% of Total Number Employed)[2]		2.5
Farming and Ranching income and expenses		Cash receipts from marketing livestock & products (not crops) change 1995-2010[4]	↑ $59,289,000
		Realized net income 2010[4]	$57,767,000

[1] Elmore County, Idaho Public Records, http://www.open-public-records.com/idaho/elmore_county_public_records.htm

[2] U.S. Dept. of Commerce, Bureau of Economic Analysis, http://www.bea.gov/iTable/iTable.cfm?ReqID=70&step=1&isuri=1&acrdn=4

[3] Elmore County Work Force Trends, August 2012, Idaho Dept. of Labor. http://labor.**idaho**.gov/publications/lmi/pubs/**Elmore**Profile.pdf

[4] American Fact Finder, U.S. Census Bureau, http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?fpt=table
Bureau of Economic Analysis, U.S. Dept. of Commerce, http://www.bea.gov/iTable/iTable.cfm?ReqID=70&step=1&isuri=1&acrdn=5

3.9.2 Environmental Consequences – Livestock Management/Social and Economics

3.9.2.1 **Alternative A – No Grazing**

Not permitting livestock use on 12 allotments (7,602 AUMs) could have minor to major economic impacts at the individual level, but negligible impacts at the county level. Permittees would not be able to graze livestock for the ten-year period and potentially would need to provide other forage. Hay and pasture costs vary annually according to their respective markets; however, an average of private pasture prices could be assumed to range between $15 and $22/AUM. This would result in an annual increase in cost of between $104,300 and $157,787 for the 7,602 AUMs to the permittees, but could increase income at the county level if private pasture is provided in Elmore County. Should other forage sources not be feasible, a withdrawal from the livestock business could result in an undefinable net loss in income to permittees and the county. Impacts at the county level would be considered negligible because the number of proprietors and associated workers affected ($\leq$40) would be <0.3% of the total number employed in the county. Changes in gross and net income at the county level would likely be at a similar magnitude. Minor to moderate improvements in rangeland ecosystem goods and services would occur over the long term.

3.9.2.2 **Alternative B – Continue Current Use**

Grazing at permitted levels on eight allotments would not change current costs and income for permittees or their contribution to the county's income.

As Permitted

Grazing at permitted levels in the Hammett #1, East Hammett #5, and East Bennett Mountain allotments (5,375 AUMs) would represent a 2,627 AUM increase over current use levels with voluntary adjustments (Adjusted Management, Table 25). The increase would raise costs and income for permittees (moderate to major economic impact) and raise their contribution to the county's income (negligible economic impact). However, moderate to major costs associated with lost rangeland ecosystems goods and services on up to 33,803 acres would occur because those use levels would not meet Standards (sections 3.1.2.3, 3.2.2.4, 3.5.2.3, and 3.6.2.4).

Table 25. Comparison of permitted AUM levels relative to current permitted use (Alternative B-As Permitted) and current voluntary reductions (Alternative B-Adjusted Management, 12 Bennett Mountain North allotments, Elmore County, Idaho.

Allotment	Change	Alternative				
		B-As Permitted	B-Adjusted Management	C	D Maximum Permitted	D Minimum Permitted
Hammett #1		3,736 AUMs	1,541 AUMs	2,100 AUMs	1,574 AUMs	0 AUMs
	From Alternative B-As Permitted		-59%	-44%	-58%	-100%
	From Alternative B-Adjusted Management	142%		36%	2%	-100%
Hammett #5[1]		1,639 AUMs	1,207 AUMs	1,131 AUMs	987 AUMs	987 AUMs
	From Alternative B-As Permitted		-26%	-31%	-40%	-40%
	From Alternative B-Adjusted Management	36%		-6%	-18%	-18%
Hammett #6[2]		912 AUMs		912 AUMs	769 AUMs	444 AUMs
	From Alternative B-As Permitted				-16%	-51%
Other Allotments		1,315 AUMs	1,315 AUMs	1,305 AUMs	1,305 AUMs	1,305 AUMs
Total		7,602 AUMs	4,975 AUMs	5,448 AUMs	4,635 AUMs	2,736 AUMs
	From Alternative B-As Permitted		-35%	-28%	-39%	-64%
	From Alternative B-Adjusted Management			10%	-7%	-45%

[1] Includes East Hammett #5 and East Bennett Mountain for Alternative B and Hammett #5 and East Bennett Mountain (new configuration) for alternatives C and D.

[2] Includes Hammett #7 (South Hammett #7 and West Hammett #7 in alternatives C and D), South Camas, North Slope, Camas Creek Field, Hammett Livestock Company (includes Joost Section 15 in Alternative C), North Camas, Ballantyne Section 15, and Joost Section 15 (Alternative D).

Adjusted Management

Grazing at Adjusted Management levels in the Hammett #1, East Hammett #5, and East Bennett Mountain allotments (2,748 AUMs) would have minor to moderate economic impacts for permittees and negligible economic impacts at the county level. Permittee costs to implement deferred grazing systems would be greater than Alternative B-As Permitted. Permittees have operated at these levels since 2007 and maintained economic viability. Maintenance (where

conditions are maintained) or minor to moderate decreases (where conditions decline) in rangeland ecosystem goods and services would occur over the long term.

3.9.2.3 **Alternative C – Permittee Application**

Grazing at permitted levels on 10 allotments would not change current costs and income for permittees or their contribution to the county's income. Activating 40 AUMs in the Joost Section 15 Allotment (and running sheep as part of the Hammett Livestock Company Allotment) would have negligible to minor increased costs and income for the permittee and a negligible change at the county level. Modifications to the Hammett #1 and Hammett #5 allotments (a 66% [2,144 AUMs] reduction from Alternative B-As Permitted or an 18% [483 AUMs] increase from Alternative B-Adjusted Management levels) would have minor economic impacts for permittees and negligible economic impacts at the county level (Table 25). Permittees have operated at similar levels since 2007 and maintained economic viability. Using fencing to implement deferred grazing systems would reduce expenses associated with herding. Minor increases in rangeland ecosystem goods and services would occur over the long term where watershed and vegetation conditions improve. After-the-fact billing would provide minor economic and business benefits to four permittees. Transferring grazing preference for three permittees would be an administrative action that would benefit the permittee's business but would not affect any resources.

3.9.2.4 **Alternative D – BLM Proposal**

Grazing at permitted levels on nine allotments would not change current costs and income for permittees or their contribution to the county's income. Impacts from activating 40 AUMs in the Joost Section 15 Allotment would be the same as Alternative C. Modifications to the Hammett #1, Hammett #5, and Hammett #6 allotments would have minor to major income impacts for permittees and negligible impacts at the county level. For the three allotments, a reduction of 308 AUMs (8%) from Alternative B-Adjusted Management levels would occur. However, annual variations in available AUMs could cause major economic impacts for individual permittees (varying between 405 and 769 AUMs for Hammett #6 and 0 and 1,574 AUMs for Hammett #1). Economic impacts from using herding (Hammett #1) or fencing (Hammett #5 and Hammett #6) to implement grazing systems would be as described in alternatives B and C respectively. Minor increases in rangeland ecosystem goods and services would occur over the long term.

3.9.3 Cumulative Impacts – Livestock Management/Social and Economic

Because negligible to moderate impacts at the operator level would be negligible at the county level; cumulative impacts will not be addressed.

4.0 Consultation and Coordination

4.1 List of Preparers

Name	Position	Resource
Mike Barnum	Rangeland Management Specialist	Livestock Grazing
Lara Hannon/Tom McGinnis	Ecologist	Uplands
Mark Steiger	Botanist	Special Status Plants
Jill Holderman/Joseph Weldon	Wildlife Biologist	Wildlife
Allen Tarter	Natural Resources Specialist	Riparian
Dean Shaw	Archaeologist	Cultural
Michele Porter	Geographic Information System Specialist	Geographical Information Resources
Seth Flanigan	NEPA Coordinator	Reviewer
Tate Fischer	Field Office Manager, FRFO	Reviewer
Matt McCoy	Assistant Field Office Manager	Reviewer

4.2 List of Agencies, Organizations, and Individuals Consulted

Affected Permittees (Table 4)
Advocates for the West
Boise National Forest, Mountain Home Ranger District
Burns Paiute Tribe Tribal Chairman
Committee for Idaho's High Desert c/o Pam Marcum
Confederate Tribes of the Umatilla Tribal Chairman
Congressman Honorable Raul Labrador
Golden Eagle Audubon
Governor State of Idaho, Honorable CL "Butch" Otter
Grazing Board Resource Area Representatives, Weldon Branch
Grazing Board Resource Area Representatives, Stan Boyd
High Desert Coalition Incorporated c/o Ted Hoffman
Idaho Bird Hunters Incorporated c/o Game Bird Conservation Committee
Idaho Conservation League, John Robinson
Idaho Department of Agriculture
Idaho Department of Fish & Game c/o Bob Martin
Idaho Department of Lands c/o Dean Johnson
Idaho Department of Parks & Recreation attn. Jeff Cook
Idaho Farm Bureau Federation c/o Judy Bartlett
Idaho Lieutenant Governor Honorable Brad Little
Idaho State Historic Preservation
Idaho Wildlife Federation attn. Kent J Laverty
Land and Water Fund c/o Laird Lucas
Nez Perce Tribes Tribal Chairman
Resolution Advocates c/o Doug McConnaughey
Senator Honorable Jim Risch

Senator Honorable Mike Crapo
Shoshone-Bannock Tribe c/o Nathan Small
Sierra Club Middle Snake Group
The Nature Conservancy
US Fish and Wildlife Service
US House of Representatives Honorable Mike Simpson
Western Watersheds Project
Western Watersheds Project, Katie Fite
Wilderness Society

Native American Consultation

BLM is required to consult with Native American tribes to "help assure (1) that federally recognized tribal governments and Native American individuals, whose traditional uses of public land might be affected by a proposed action, will have sufficient opportunity to contribute to the decision, and (2) that the decision maker will give tribal concerns proper consideration" (U.S. Department of the Interior, *BLM Manual Handbook H-8120-1*). Tribal coordination and consultation responsibilities are implemented under laws and executive orders that are specific to cultural resources which are referred to as "cultural resource authorities," and under regulations that are not specific which are termed "general authorities." Cultural resource authorities include: the *National Historic Preservation Act of 1966*, as amended (NHPA); the *Archaeological Resources Protection Act of 1979*; and the *Native American Graves Protection and Repatriation Act of 1990, as amended*. General authorities include: the *American Indian Religious Freedom Act of 1979*; the NEPA; the FLPMA; and *Executive Order 13007-Indian Sacred Sites*. The proposed action is in compliance with the aforementioned authorities.

Southwest Idaho is the homeland of two culturally and linguistically related tribes: the Northern Shoshone and the Northern Paiute. In the latter half of the 19th century, a reservation was established at Duck Valley on the Nevada/Idaho border west of the Bruneau River. Today, the Shoshone-Paiute Tribes residing on the Duck Valley Reservation actively practice their culture and retain aboriginal rights and/or interests in this area. The Shoshone-Paiute Tribes assert aboriginal rights to their traditional homelands as their treaties with the United States, the Boise Valley Treaty of 1864 and the Bruneau Valley Treaty of 1866, which would have extinguished aboriginal title to the lands now federally administered, were never ratified.

Other tribes that have ties to southwest Idaho include the Bannock Tribe and the Nez Perce Tribe. Southeast Idaho is the homeland of the Northern Shoshone Tribe and the Bannock Tribe. In 1867 a reservation was established at Fort Hall in southeastern Idaho. The Fort Bridger Treaty of 1868 applies to BLM's relationship with the Shoshone-Bannock Tribes. The northern part of the BLM's Boise District was also inhabited by the Nez Perce Tribe. The Nez Perce signed treaties in 1855, 1863 and 1868. BLM considers off-reservation treaty-reserved fishing, hunting, gathering, and similar rights of access and resource use on the public lands for all tribes that may be affected by a proposed action.

The Shoshone-Paiute Tribes were consulted during the April 19, 2012 Wings and Roots Program, Native American Campfire meeting. Concerns about proposed spring developments were raised at that meeting. The Shoshone-Paiute Tribes required consultation on a case-by-case

basis and site visits after the permits were issued. The Shoshone-Bannock Tribes did not respond to a April 3, 2012 scoping letter.

4.3 **Public Participation**

Public comments were received from:
Idaho Department of Fish and Game
John McCallum, Iron Horse Ranch, LLC
Kelly Riggs, Double Anchor Ranches, Inc.
Shoshone-Paiute Tribes, Wings and Roots Program, Native American Campfire (April 19, 2012)
Skip Owen
Western Watersheds Project

5.0 Literature Cited

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6.0 Appendices

6.1 Appendix 1. Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management

Standards for Rangeland Health

Introduction
The Standards for Rangeland Health, as applied in the State of Idaho, are to be used as the Bureau of Land Management's management goals for the betterment of the environment, protection of cultural resources, and sustained productivity of the range. They are developed with the specific intent of providing for the multiple uses of the public lands. Application of the standards should involve collaboration between the authorized officer, interested publics, and resource users.

Rangelands should be meeting the Standards for Rangeland Health or making significant progress toward meeting the standards. Meeting the standards provides for proper nutrient cycling, hydrologic cycling, and energy flow.

Monitoring of all uses is necessary to determine if the standards are being met. It is the primary tool for determining rangeland health, condition, and trend. It will be performed on representative sites.

Appropriate to soil type, climate, and landform, indicators are a list of typical physical and biological factors and processes that can be measured and/or observed (e.g., photographic monitoring). They are used in combination to provide information necessary to determine the health and condition of the rangelands. Usually, no single indicator provides sufficient information to determine rangeland health. Only those indicators appropriate to a particular site are to be used. The indicators listed below each standard are not intended to be all inclusive. The issue of scale must be kept in mind in evaluating the indicators listed after each standard. It is recognized that individual isolated sites within a landscape may not be meeting the standards; however, broader areas must be in proper functioning condition. Furthermore, fragmentation of habitat that reduces the effective size of large areas must also be evaluated for its consequences.

Standard 1 (Watersheds)
Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:

1. The amount and distribution of ground cover, including litter, for identified ecological site/s) or soil-plant associations are appropriate for site stability.
2. Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/surface sealing, and compaction layers below the soil surface is minimal for soil type and landform.

Standard 2 (Riparian Areas and Wetlands)
Riparian-wetland areas are in properly functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:

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

Standard 3 (Stream Channel/Floodplain)

Stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:

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

Standard 4 (Native Plant Communities)

Healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:

1. Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.
2. The diversity of native species is maintained.

3. Plant vigor (total plant production, seed and seedstalk production, cover, etc.) is adequate to enable reproduction and recruitment of plants when favorable climatic events occur.
4. Noxious weeds are not increasing.
5. Adequate litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 5 (Seedings)
Rangelands seeded with mixtures, including predominately non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow, and the hydrologic cycle.

Indicators may include, but are not limited to, the following:
1. In established seedings, the diversity of perennial species is not diminishing over time.
2. Plant production, seed production, and cover are adequate to enable recruitment when favorable climatic events occur.
3. Noxious weeds are not increasing.
4. Adequate litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 6 (Exotic Plant Communities, other than Seedings)
Exotic plant communities, other than seedings, will meet minimum requirements of soil stability and maintenance of existing native and seeded plants. These communities will be rehabilitated to perennial communities when feasible cost effective methods are developed.

Indicators may include, but are not limited to, the following:
1. Noxious weeds are not increasing.
2. The number of perennial species is not diminishing over time.
3. Plant vigor (production, seed and seedstalk production, cover, etc.) of remnant native or seeded (introduced) plants is maintained to enable reproduction and recruitment when favorable climatic or other environmental events occur.
4. Adequate litter and standing dead plant material is present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 7 (Water Quality)
Surface and ground water on public lands comply with the Idaho Water Quality Standards.

Indicators may include, but are not limited to, the following:
1. Physical, chemical, and biologic parameters described in the Idaho Water Quality Standards.

Standard 8 (Threatened and Endangered Plants and Animals)
Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

Indicators may include, but are not limited to the following:
1. Parameters described in the Idaho Water Quality Standards.

2. Riparian/wetland vegetation with deep, strong, binding roots is sufficient to stabilize streambanks and shorelines. Invader and shallow rooted species are a minor component of the floodplain.
3. Age class and structural diversity of riparian/wetland vegetation are appropriate for the site.
4. Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.
5. The diversity of native species is maintained.
6. The amount and distribution of ground cover, including litter, for identified ecological site(s) or soil-plant associations are appropriate for site stability.
7. Noxious weeds are not increasing.

Guidelines for Livestock Grazing Management

Introduction

Guidelines direct the selection of grazing management practices, and where appropriate, livestock management facilities to promote significant progress toward, or the attainment and maintenance of, the standards. Grazing management practices are livestock management techniques. They include the manipulation of season, duration (time), and intensity of use, as well as numbers, distribution, and kind of livestock. Livestock management facilities are structures such as fences, corrals, and water developments (ponds, springs, pipelines, troughs, etc.) used to facilitate the application of grazing management practices. Livestock grazing management practices and guidelines will be consistent with the Idaho Agricultural Pollution Abatement plan.

Grazing management practices and facilities are implemented locally, usually on an allotment or watershed basis. Grazing management programs are based on a combination of appropriate grazing management practices and facilities developed through consultation, coordination, and cooperation with the Bureau of Land Management, permittees, other agencies, Indian tribes, and interested publics.

These guidelines were prepared under the assumption that regulations and policies regarding grazing on the public lands will be implemented and will be adhered to by the grazing permittees and agency personnel. Anything not covered in these guidelines will be addressed by existing laws, regulations, Indian treaties, and policies.

The BLM will identify and document within the local watershed all impacts that affect the ability to meet the standards. If a standard is not being met due to livestock grazing, then allotment management will be adjusted unless it can be demonstrated that significant progress toward the standard is being achieved. This applies to all subsequent guidelines.

Guidelines

1. Use grazing management practices and/or facilities to maintain or promote significant progress toward adequate amounts of ground cover [determined on an ecological site basis) to support infiltration, maintain soil moisture storage, and stabilize soils.

2. Locate livestock management facilities away from riparian areas wherever they conflict with achieving or maintaining riparian-wetland functions.
3. Use grazing management practices and/or facilities to maintain or promote soil conditions that support water infiltration, plant vigor, and permeability rates and minimize soil compaction appropriate to site potential.
4. Implement grazing management practices that provide periodic rest or deferment during critical growth stages to allow sufficient regrowth to achieve and maintain healthy, properly functioning conditions, including good plant vigor and adequate vegetative cover appropriate to site potential.
5. Maintain or promote grazing management practices that provide sufficient residual vegetation to improve, restore, or maintain healthy riparian-wetland functions and structure for energy dissipation, sediment capture, ground water recharge, streambank stability, and wildlife habitat appropriate to site potential.
6. The development of springs, seeps, or other projects affecting water and associated resources shall be designed to protect the ecological functions, wildlife habitat, and significant cultural and historical/ archaeological/paleontological values associated with the water source.
7. Apply grazing management practices to maintain, promote, or progress toward appropriate stream channel and streambank morphology and functions. Adverse impacts due to livestock grazing will be addressed.
8. Apply grazing management practices that maintain or promote the interaction of the hydrologic cycle, nutrient cycle, and energy flow that will support the appropriate types and amounts of soil organisms, plants, and animals appropriate to soil type, climate, and landform.
9. Apply grazing management practices to maintain adequate plant vigor for seed production, seed dispersal, and seedling survival of desired species relative to soil type, climate, and landform.
10. Implement grazing management practices and/or facilities that provide for complying with the Idaho Water Quality Standards.
11. Use grazing management practices developed in recovery plans, conservation agreements, and Endangered Species Act, Section 7 consultations to maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.
12. Apply grazing management practices and/or facilities that maintain or promote the physical and biological conditions necessary to sustain native plant populations and wildlife habitats in native plant communities.
13. On areas seeded predominantly with non-native plants, use grazing management practices to maintain or promote the physical and biological conditions to achieve healthy rangelands.
14. Where native communities exist, the conversion to exotic communities after disturbance will be minimized. Native species are emphasized for rehabilitating disturbed rangelands. Evaluate whether native plants are adapted, available, and able to compete with weeds or seeded exotics.
15. Use non-native plant species for rehabilitation only in those situations where:
    a. native species are not readily available in sufficient quantities;
    b. native plant species cannot maintain or achieve the standards; or

c. non-native plant species provide for management and protection of native rangelands.
d. Include a diversity of appropriate grasses, forbs, and shrubs in rehabilitation efforts.

16. On burned areas, allow natural regeneration when it is determined that populations of native perennial shrubs, grasses, and forbs are sufficient to revegetate the site. Rest burned or rehabilitated areas to allow recovery or establishment of perennial plant species.
17. Carefully consider the effects of new management facilities (e.g., water developments, fences) on healthy and properly functioning rangelands prior to implementation.
18. Use grazing management practices, where feasible, for wildfire control and to reduce the spread of targeted undesirable plants (e.g., cheatgrass, medusa head, wildrye, and noxious weeds) while enhancing vigor and abundance of desirable native or seeded species.
19. Employ grazing management practices that promote natural forest regeneration and protect reforestation projects until the Idaho Forest Practices Act requirements for timber stand replacement are met.
20. Design management fences to minimize adverse impacts, such as habitat fragmentation, to maintain habitat integrity and connectivity for native plants and animals.

6.2 Appendix 2. Terms and conditions common to most or all permits, Alternative B, Bennett Mountain North, Idaho.

Terms and Conditions[1]	Permittee[2]											
	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**
All appropriate documentation regarding base property leases, lands offered for exchange-of-use, and livestock control agreements must be approved prior to turn-out. Leases of land and/or livestock must be notarized prior to submission and be in compliance with Boise District policy.	X	X	X	X		X	X	X	X	X	X	
Changes to the scheduled use requires prior approval.	X	X	X	X	X	X	X	X	X	X	X	
Failure to pay the grazing bill within 15 days of the due date specified shall result in a late fee assessment of $25.00 or 10% of the grazing bill, whichever is greater, not to exceed $250.00. Payment made later than 15 days after the due date, shall include the appropriate late fee assessment. Failure to make payments within 30 days may be a violation of 43 CFR 4140.1(B) (1) and shall result in action by the authorized officer under 43 CFR 4150.1 and 4160.1-2.		X			X	X	X			X		
Livestock exclosures located within your grazing allotments are closed to all domestic grazing use.	X	X	X	X	X	X	X	X	X	X	X	
Payment may be made by cash, check, or VISA/MC.										X		
Permittee shall contact the BLM Authorized Officer at least two weeks prior to maintenance on existing reservoirs and spring developments so that an archaeologist can evaluate the area for site potential and effects.				X								
Pursuant to 43 CFR 10.4(B), the permittee must notify the BLM field manager, by telephone with written confirmation, immediately upon the discovery of human remains, funerary objects, sacred objects, or objects or cultural patrimony on federal land. Pursuant to 43 CFR 19.4(C), the permittee must immediately stop any ongoing activities connected with the discovery and make a reasonable effort to protect the discovered remains or objects.			X	X							X	
Salt and/or Supplement shall not be place within one quarter (¼) mile of springs, streams, meadows, aspen stands, playas, or water developments.	X	X			X	X	X	X	X	X	X	

Terms and Conditions[1]	Permittee[2]											
	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**
Salt and/or Supplement shall not be place within one quarter ¼ mile of springs, streams, meadows, aspen stands, playas, special status plant populations, or water developments.			X	X								
Trailing activities must be coordinated with the BLM prior to initiation. A trailing permit, crossing permit or similar authorization may be required prior to crossing public lands. Permittee will also notify any all affected permittees in advance of trailing.				X								
Turn-out is subject to the Boise District Range Readiness criteria.	X	X	X	X	X	X	X	X	X	X	X	
You are required to coordinate trailing activities with the BLM prior to initiation. A trailing permit or similar authorization may be required prior to crossing public lands. (Permittee will also notify any/all affected permittees in advance of trailing.)	X	(X)	X		X	X	(X)	X	(X)	(X)	X	
You are required to maintain rangeland improvements in accordance with the cooperative agreements and range improvement permits in which you are a signatory or assignee. (All maintenance of range improvements within a Wilderness Study Area requires prior consultation with the authorized officer.)	(X)	(X)	X	X	X	(X)	(X)	(X)	(X)	(X)	X	
Your certified Actual Use Report is due within 15 days of completing your authorized annual grazing use.	X	X	X	X	X	X	X	X	X	X	X	

[1] The terms and conditions listed may not exactly reflect what is on the current permit, but is reasonably close. Please see the proposed decisions to get an accurate representation of the correct wording.

[2] A = Iron Horse Ranch, LLC (1101651); B = Casa Del Norte LP (1102221); C = Double Anchor Ranch (1101847); D = Owen (1101849); E = Crescent Moon, LLC (1101868); F = Barber-Caven Ranches (1101603); G = Samuel D. Blackwell (1101784); H = Tree Top Ranches, LP (1101879); I= J. D. Aldecoa & Sons, Inc. (1101604); J = Faulkner Land & Livestock (1101884); K = Half Moon Ranch (1101633); L = L.G. Davison & Sons, Inc. (1101643)

6.3 Appendix 3. Terms and conditions specific to individual permits, Alternative B, Bennett Mountain North, Idaho.

The terms and conditions listed below reflect those on the current permit that specifically relate to the allotments analyzed in this EA. Please see the proposed decisions to get a complete representation of all terms and conditions.

Iron Horse Ranch, LLC (1101651) – Hammett #1 (01033) and Hammett #7 (01039)

1. Minimum of four (4) inch stubble height will be left on herbaceous (grasses & grasslike plants) vegetation within the riparian vegetation along 3.2 miles of Little Canyon Creek and 7.0 miles of the W.F. of King Hill Creek within the Hammett #1 Allotment (#01033), as identified in the 1987 Jarbidge RMP Riparian/Fisheries objectives for MUA-2 Upper Bennett Hills and MUA-3 Lower Bennett Hills.
2. Livestock numbers may be higher for a shorter period of time and differ annually in each allotment providing the permitted period of use and total AUMs have not been exceeded, and the annual use has been coordinated in advance and approved by BLM.
3. Exchange of Use AUMs may be credited on the annual license each year based on documented State leases.
4. The Charter Mt Ranch Hammett #7 Allotment (#01039) pasture on the east side of the allotment is considered an FFR pasture to be managed at the discretion of the permittee providing the period of use and AUMs have not been exceeded and the use is not detrimental to the public lands.
5. Permittee shall provide reasonable administrative access across private and leased lands to the BLM for the orderly management and protection of the public lands.

Casa Del Norte, LP (1102221) – Hammett #1 (01033)

1. 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.

Double Anchor Ranch (1101847) – East Hammett #5 (01037) and East Bennett Mountain (01101)

1. Livestock grazing within the Double Anchor FFR, SW Alkali Seeding, East Hammett #5, and East Bennett Mountain Allotments will be in accordance with this final decision, dated 9/10/04.
2. All allotments listed on this grazing permit are subject to the requirements of 43 CFR 4180 – Fundamentals of Rangeland Health and Guidelines for Grazing Administration. This permit shall be modified (if necessary) to meet these requirements upon completion of a Standard and Guidelines Assessment, and Determination as scheduled by the Authorized Officer.
3. Exchange of Use AUMs will be reflected in the annual billing based on current EOU agreements.
4. Voluntary Non-Use (generally 500 AUMs) may be taken on an annual basis without limitation in E Hammett #5 in the fall to assist in making improvement in riparian habitats on Cold Springs Creek.
5. 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 has been reached.

Owen (1101849) – Hammett #6 (01038)

1. Livestock grazing within Plateau, Hammett #6, Lower Bennett Creek, and Hammett Individual Allotments will be in accordance with the Final Decision 9/10/04.
2. All Allotments listed on this Grazing Permit are subject to the requirements of 43 CFR 4180 – Fundamentals of Rangeland Health and Guidelines for Grazing Administration. This permit shall be modified (if necessary) to meet these requirements upon completion of a Standard and Guidelines Assessment, and Determination as scheduled by the Authorized Officer.
3. In Hammett #6 Allotment, use in the Lower Pasture (containing Thorn Creek) will occur prior to April 13, each year. Use during May will alternate between the Upper Pasture of Dive Creek and the next Lower pasture containing Willow Creek. Use in the pasture west of Dive Creek will occur from May 19 to May 25. Use in this pasture may overlap the critical growth period in some years. If improvement

does not occur, early removal in alternate years may be necessary. The permittee will distribute the cattle to minimize overuse of critical areas.

4. The current Exchange of Use Agreement for leased lands within Lower Bennett Creek and Hammett #6 Allotments is the basis for the %PL allowance. Permitted use levels and EOU will remain the same as under the past permit, but will be licensed as %PL. If the lease is renewed for exactly the same lands, the EOU authorization will continue for the remainder of the term of this Permit. If not, maximum numbers of cattle will be adjusted accordingly.

Crescent Moon, LLC (1101868) – Hammett #7 (01039)

1. Line 02 - Pasture 1 is for grazing use in Sheep Creek Field.
2. Line 03 – Pasture 2 is for use in the FFR in the state lease pasture. Livestock numbers may vary in the FFR providing use is consistent with management objectives (08/30/95).
3. You are required to maintain rangeland improvements in accordance with offered for Exchange-of-Use, and livestock control agreements must be approved prior to turn-out. Leases of land and/or livestock must be notarized prior to submission and be in compliance with Boise District policy.

Barber-Caven Ranches (1101603) – Hammett #7 (01039)

1. 60% of the Hammett 7 pasture used by Barber-Caven Ranches is private unfenced land owned by Barber-Caven and is the Base Property offered for the permit.
2. Livestock numbers may vary within the allotment providing the period of use and AUMs have not been exceeded.
3. 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 has been reached.

Samuel D. Blackwell (1101784) – South Camas (01043)

1. South Camas Allotment is used in conjunction with the USFS Grazing Permit [South Little Camas C&H Allotment (01006)] and private lands. Livestock numbers may vary providing the period of use and AUMs have not been exceeded and the use is not detrimental to the public lands.

Tree Top Ranches (1101879) – North Slope (01044)

1. This allotment is licensed at 100% federal although the federal land is only 16% of the total use area and is essentially an FFR Allotment. Livestock numbers may vary on public land providing the AUMs and use period have not been exceeded and the use is not detrimental to the public lands.
2. Permittee shall provide reasonable administrative access across private and leased lands to the BLM for the orderly management and protection of the public lands.
3. 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 has been reached.

Aldecoa and Sons (1101604) – Camas Creek Field (01091)

1. Non-use may be applied for annually, with no limitation for the duration of this permit.

Faulkner Land & Livestock (1101884) – Hammett Livestock Company (01195)

1. All grazing use including trailing north of the Snake River to Anderson Ranch and the Sec.15 Allotment must be applied for in advance and coordinated with the BLM prior to initiation with the Bruneau Resource area staff of Boise. This includes the Bennett Mountain areas.
2. Sheep camps must be moved every four days at least ½ mile. Bedding grounds must be changed daily. All litter from camp sites must be removed from the area.
3. Sheep bands may vary in number of sheep providing the total use in AUMs does not exceed the permitted level.
4. 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 has

been reached.
Half Moon Ranch (1101633) – North Camas (01098)
1. Livestock grazing within the Hammett #4 and North Camas allotments will be in accordance with the final decision, dated 9/10/04. 2. The allotment(s) listed on the grazing permit are subject to the requirements of 43 CFR 4180 – Fundamentals of Rangeland Health and Guidelines for Grazing Administration. This permit shall be modified (if necessary) to meet these requirements upon completion of a Standard and Guidelines Assessment, and Determination as scheduled by the Authorized Officer. 3. Livestock numbers may vary providing the period of use and AUMs by season have not been exceeded by the allotment.
L.G. Davison & Sons, Inc. (1101643) – Ballantyne Section 15 (01198)
1. This permit or lease is issued under the authority of Section 416, Public Law 111-88 and contains the same mandatory terms and conditions as the expired or transferred permit or lease. The permit or lease may be cancelled, suspended, or modified, in whole or in part to meet the requirements of applicable laws and regulations. 2. The Sec. 15 lease is for use in the Ballantyne Sec. 15 Allotment in the Anderson Ranch Unit. The term of this permit/lease coincides with the base lease from the Perkins Family which expires on 12-31-2007. Effective January 1, 2004 this base lease has been assigned to L G Davison & Sons, an Idaho Corporation from Dean Davison, lessee. The expiration date of this assignment of lease is also 12-31-2007. 3. Grazing use in this allotment is authorized for the above use period only.

6.4 Appendix 4. Terms and conditions common to all permits, Alternatives C and D, Bennett Mountain North, Idaho.

1. Livestock grazing must be conducted in accordance with the Terms and Conditions described in the Final Decision dated _____.
2. Livestock turn-out would be subject to District Range Readiness Criteria.
3. Changes to the scheduled use would require prior approval by the authorized officer.
4. You are required to submit a signed and dated Actual Grazing Use Report form (BLM Form 4130-5) for each allotment you graze. The completed form(s) must be submitted to this office within 15 days from the last day of your authorized annual grazing use.
5. Salt and/or supplements shall not be placed within one-quarter (1/4)-mile of springs, streams, meadows, aspen stands, playas, special status plant populations, eligible historic properties, or water developments. Use of supplements other than the standard salt or mineral block on public land requires annual authorization by the authorized officer.
6. A crossing permit may be required prior to trailing livestock across public lands. Crossing activities must be coordinated with the BLM prior to initiation. Permittee would also notify any/all affected permittees in advance of crossing.
7. Livestock exclosures located within your grazing allotment(s) would be closed to all domestic grazing use.
8. Range improvements must be maintained in accordance with the cooperative agreement and range improvement permits in which you are a signatory or assignee. All maintenance activities which may result in ground disturbance require prior approval from the authorized officer.
9. Bird ladders that meet BLM standards must be installed and functioning on water troughs located on public lands. The permittee would inform BLM if bird ladders are needed on permanent troughs, and BLM would supply bird ladders. The permittee would be responsible for providing bird ladders for temporary troughs. It would be the permittee's responsibility to maintain and install all bird ladders.
10. Pursuant to 43 CFR 10.4(b), you must notify the BLM Field Manager, by telephone with written confirmation, immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony on federal lands. Pursuant to 43 CFR 10.4(c), you must immediately stop any ongoing activities connected with such discovery and make a reasonable effort to protect the discovered remains or objects.
11. Permittees or lessees shall provide reasonable administrative access across private and leased lands to the BLM for the orderly management and protection of public lands.

6.5 Appendix 5. Terms and conditions specific to individual permits, Alternative C, Bennett Mountain North, Idaho.

Casa Del Norte – Hammett #1 (01033), South Hammett #7 (01039), and South Camas (01043)

1. Annual spring and fall use in the Hammett #1 Allotment would be authorized as follows. The permittee would use active, non-motorized, herding to insure livestock are present only in the authorized use area.
   Even numbered years: East Pasture, 05/01 through 07/01
   West Pasture, 09/30 through 11/30
   Odd numbered years: West Pasture, 05/01 through 07/01
   East Pasture, 09/30 through 11/30
2. Prior to the beginning of each authorized use period in the Hammett #1 Allotment, the permittee would coordinate their intended operating plans with the BLM.
3. If the objectives identified in the monitoring plan (Appendix 7 of DOI-BLM-ID-B010-2011-0021-EA) for the Hammett #1 Allotment are not being met at the end of year five, the rest-rotation system described in Alternative D (DOI-BLM-ID-B010-2011-0021-EA) would be implemented.
4. Livestock numbers in the Hammett #1 Allotment may vary, provided season of use and AUMs are not exceeded; however, the maximum number of livestock present at any one time would not exceed 750 head.
5. Annual use in the Blackhawk Pasture (3) of the South Hammett #7 Allotment would be deferred until after seed-ripe of perennial grasses in two of every three years. Annual use in the West Fork (1) and Long Draw (2) pastures could occur any time during the use period.
6. Prior to the beginning of each authorized use period in the South Hammett #7 Allotment, the permittee would coordinate their intended operating plans with the BLM.
7. If the objectives identified in the monitoring plan (Appendix 7 of DOI-BLM-ID-B010-2011-0021-EA) for the South Hammett #7 Allotment are not being met at the end of year five, the deferred system described in Alternative D (DOI-BLM-ID-B010-2011-0021-EA) would be implemented.
8. Livestock numbers in the South Hammett #7 Allotment may vary, provided season of use and AUMs are not exceeded; however, the maximum number of livestock present at any one time would not exceed 750 head.
9. Livestock numbers in the South Camas Allotment would be coordinated between BLM, USFS, and the permittee/lessee and may vary, provided the season of use and AUMs are not exceeded. The maximum number of livestock present at any one time would not exceed 55 head

Double Anchor Ranch –Hammett #5 (01037) and East Bennett Mountain (01101)

1. Annual spring and fall use in the Hammett #5 Allotment would be authorized as follows:
   Even numbered years: West (aka Ryegrass) Pasture, 04/15 through 08/01
   East (aka Cold Sprs) Pasture, 09/15 through 11/30
   Odd numbered years: East (Cold Sprs) Pasture, 04/15 through 08/01
   West (Ryegrass) Pasture, 09/15 through 11/30
2. Prior to the beginning of each authorized use period in the Hammett #5 Allotment, the permittee would coordinate their intended operating plans with the BLM.
3. If the objectives identified in the monitoring plan (Appendix 7 of DOI-BLM-ID-B010-2011-0021-EA) for the Hammett #5 Allotment are not being met at the end of year five, the deferred-rotation system described in Alternative D (DOI-BLM-ID-B010-2011-0021-EA) would be implemented. The pasture division fence would be removed and herding would be required to implement the system.
4. Livestock numbers in the Hammett #5 Allotment may vary, providing season of use and AUMs are not exceeded; however, the maximum number of livestock present at any one time would not exceed 450 head.
5. Use period and livestock numbers in the East Bennett Mountain Allotment may vary, provided AUMs are not exceeded; however, the maximum number of livestock present at any one time would not exceed 600 head.

Owen – Hammett #6 (01038)

1. In pastures 1-4, a deferred rotation system would be implemented. The pastures in total would be used for 30-45 days between May 1 and July 1; however, in a given pasture, no use would occur during the soft boot to seed dissemination period for grasses one in four years. Pastures 5 and 6 would be used annually between March 26 and April 30.
2. Prior to the beginning of each authorized use period in the Hammett #6 Allotment, the permittee would coordinate their intended operating plans with the BLM.
3. If the objectives identified in the monitoring plan (Appendix 7 of DOI-BLM-ID-B010-2011-0021-EA) for the Hammett #6 Allotment are not being met at the end of year five, the rest-rotation system described in Alternative D (DOI-BLM-ID-B010-2011-0021-EA) would be implemented.
4. Livestock numbers in the Hammett #6 Allotment may vary, providing season of use and AUMs are not exceeded; however, the maximum number of livestock present at any one time would not exceed 500 head.

Half Moon Ranch – West Hammett #7 (TBD) and North Camas (01098)

1. Prior to the beginning of each authorized use period in the West Hammett #7 Allotment, the permittee would coordinate their intended operating plans with the BLM.
2. If the objectives identified in the monitoring plan (Appendix 7 of DOI-BLM-ID-B010-2011-0021-EA) for the West Hammett #7 Allotment are not being met at the end of year five, then additional measures would be implemented to address livestock distribution issues.
3. Livestock numbers in the West Hammett #7 Allotment may vary, provided season of use and AUMs are not exceeded; however, the maximum number of livestock present at any one time would not exceed 455 head.
4. Livestock numbers in the North Camas Allotment may vary, provided season of use and AUMs are not exceeded; however, the maximum number of livestock present at any one time would not exceed 127 head.

Tree Top Ranches – North Slope (01044) and Camas Creek Field (10191)

1. Livestock numbers in the Camas Creek Field Allotment would be coordinated between BLM, USFS, and the permittee/lessee and may vary, provided the season of use and AUMs are not exceeded. The maximum number of livestock present at any one time would not exceed those specified on the USFS permit.
2. Livestock numbers in the North Slope Allotment may vary, providing season of use and AUMs are not exceeded; however, the maximum number of livestock present at any one time would not exceed 360 head.

Faulkner Land & Livestock – Hammett Livestock Company (01195)

1. Livestock numbers in the Hammett Livestock Company Allotment may vary, provided season of use and AUMs are not exceeded; however, the maximum number of livestock present at any one time would not exceed 2,000 head of sheep.
2. Bedding grounds must be changed daily. Sheep camps must be moved at least 0.5 miles every four days. All litter from sheep camp sites must be removed.

L.G. Davison & Sons, Inc.– Ballantyne Section 15 (01198)

1. Livestock numbers in the Ballantyne Section 15 Allotment would be coordinated between BLM, USFS, and the permittee/lessee and may vary, provided the season of use and AUMs are not exceeded. The maximum number of livestock present at any one time would not exceed 164 head.

6.6 Appendix 6. Operational procedures for spring maintenance or development, Alternatives C and D, Bennett Mountain North, Idaho.

Repair/maintenance of existing spring-fed livestock watering systems would occur at six springs (Hammett #1, Hammett #5, South Hammett #7, South Camas, and North Camas) and development of new watering systems could occur at two springs (Hammett #5).

Pre-construction

Prior to initiation of repair/maintenance activities, each site would be visited by BLM staff and those persons (BLM personnel, contractor, or permittee) who would be doing the actual on-the-ground work to evaluate the work to be done and the issues to be addressed. Sites would be evaluated to ensure development is viable and would not affect the long-term function of the spring. Those areas where soil/vegetation disturbance would occur would be marked and mitigation measures would be developed.

Construction

Access - All equipment/materials would be transported along existing two-track roads/existing trails (areas that have been previously disturbed). Some cross-country travel could occur (see Access Routes section below). All on-site movement of motorized equipment would be localized and unnecessary disturbance would be avoided.

Head-boxes and water supply pipelines – A hole would be excavated at the spring to maintain (4'X4'X4' hole) or replace/install (6'X6'X6' hole) a head-box. Up to 200 ft^2 of surface disturbance would occur. A 2'X2' trench up to 660' long would be dug to maintain or install water supply and overflow return lines. Troughs would be fitted with overflow/drainage systems which would discharge overflow/drainage water to natural drainage areas at least 100' away from the trough.

Troughs – In Hammett #5, vegetation could be cleared from up to 0.25 acres and a level site would be created for an aluminum trough. New trough installations would be located at least 100' from existing wetland areas. In the King Hill Creek WSA (Hammett #1 and South Hammett #7), used heavy equipment tires would be used to replace worn-out metal troughs at the three springs in Hammett #1. Vegetation disturbance would be minimized and the troughs would be placed in the same location as existing troughs.

Site rehabilitation - Disturbed areas would be re-contoured and seeded with BLM-approved seed mixes. Fencing at four springs would be constructed to BLM specifications.

Motorized equipment – The following equipment that could be used:

- D-3 Caterpillar Tractor with backhoe (dimensions: ≈6' W X 12' L X 8' H; Wt: ≈18,000 lbs) or Caterpillar 304E Excavator (dimensions: ≈6' W X 15' L X 8' H; Wt: ≈8,800 lbs)
- ATV-Utility type (dimensions: ≈5' W X 10' L X 6' H; Wt: ≈1,800 lbs)
- ATV-Single Rider type (dimensions: ≈4' W X 7' L X 4' H; Wt: ≈650 lbs)

Access

Hammett #1 (01033)

- Ground Hog Spring would be accessed from Hill City Road, via two-track roads across mostly private and public lands within the South Hammett #7 Allotment to the start of the cherry-stem which runs from the road at 03S10E02 SESE to the spring/development.
- Muddy Spring would be accessed from Bennett Mountain Road, via existing two-track roads across private and then public lands to the intersection with a closed two-track road at 04S10E03 NENW (west Boundary of WSA), then approximately 500 feet along closed two-track to the spring/development.
- Twin Deer Spring would be accessed from Bennett Mountain Road, via an existing two-track road across private lands to the west boundary of the WSA at 03S10E20 NWNE, then along a cherry-stem to the intersection with a closed two-track road at 03S10E20 NENE, then approximately one mile along the closed two-track to the spring/development.

Hammett #5 (01037)

- Section 22 Spring would be accessed from end of Bar 21 Road, via an existing two-track road across private and then public lands to the intersection of an old access road at 03S09E23 NWNW, then approximately 0.25 miles along an old, overgrown access road to the spring/development.
- Ryegrass Spring would be accessed from Ross Road, via an existing two-track road across private/public lands to the spring/development.
- Craster Spring would be accessed from Bennett Mountain Road, via an existing logging/two-track roads across private lands to the immediate vicinity of the site.
- Section 5 Spring (at head of Ryegrass Cr.) would be accessed from Highway 20, via Bennett Mountain Lookout Road and existing logging/two-track roads across private and public lands to the intersection with an old, overgrown trail/4-wheel drive road, at 02S09E31 SESE, then along the old trail/4-wheel drive road to the vicinity of the site.

South Hammett #7 (01039)

- North Bourbon Spring would be accessed from Hill City Road, via existing two-track roads across private land public lands within the allotment. The spring is located immediately adjacent to the two-track.

South Camas (01043)

- Section 24 Pond would be accessed from Hill City Road at the intersection of a two-track road, at 02S10E19 NWSW, which runs westerly to the pond site/development (approximately 0.5 miles).

North Camas (01098)

- Sackrider Spring would be accessed from Hill City Road, via an existing two-track across private and then public lands to the intersection with an existing ATV track at 02S10E19 NENE, then approximately 0.75 miles northwest along the ATV track to the vicinity of the spring/development.

6.7 Appendix 7. Adaptive management monitoring plan, Alternative C, Bennett Mountain North, Idaho.

This plan was developed in accordance with *Monitoring Strategy for Rangelands* (Idaho BLM 2007[6]). The monitoring plan provides a means to track progress towards meeting Idaho Standards for Rangeland Health and identifies triggers for adaptive management actions if specific criteria are not met in a designated timeframe. Trigger points for adaptive management are specified for each allotment. Coordination with permittees, local and state agencies, and the interested public would occur during monitoring site (key area[7]) establishment and data collection. Key areas would be selected using several criteria including (but not limited to):

- Known livestock and wildlife use patterns
- Proximity to range developments (e.g., fences, watering sites)
- Topographic position
- Ecological site type
- Vegetation type
- Historic disturbance (e.g., past wildland fire or vegetation treatments)

Uplands

Objectives:

- Increase the frequency of key native perennial grasses in upland areas where trends were previously downward.
- Increase or maintain frequencies of key native perennial grasses in upland areas where trends were previously upward and in areas currently dominated by medusahead.
- Stabilize gullies through the recruitment of native upland vegetation on sidewalls.

Methods:

- Actual use records would be compiled from the actual use reports submitted by the grazing permittees in accordance with grazing regulations.
- Permittees would photograph photo plots (PPs) every 1-2 years and take voluntary actions to correct known problems.
- BLM would collect and analyze monitoring data in the third and fifth years, and implement changes to the permit after the fifth year if trigger points are reached. Nested-plot frequency transects (NPFT) and PPs currently located in all Bennett Mountain North allotments would continue to be read by FRFO staff in accordance with Monitoring Strategy for Rangelands. Additional NPFT, PP[8], or other monitoring described in Interagency Technical Reference 1734-4, *Sampling Vegetation Attributes* (USDA/DOI

[6] White paper on file at U.S. Bureau of Land Management, Idaho State Office, Boise, Idaho.

[7] *Sampling Vegetation Attributes* defines key areas as follows: "[k]ey areas are indicator areas that are able to reflect what is happening on a larger area as a result of on-the-ground management actions. A key area should be a representative sample of a large stratum, such as a pasture, grazing allotment, wildlife habitat area, herd management area, watershed area, etc., depending on the management objectives being addressed by the study."

[8] Other PP beyond these official additional sites may be implemented at the permittee's discretion. These sites would be part of supplemental monitoring and may not be monitored by BLM; however, agreed upon BLM protocols and data sharing would be required.

1999) would be established in the following areas: Hammett #1 – up to 4 sites including southern portion below "rim" and West Fork King Hill Creek (below 4,500 feet elevation); Hammett #6 – up to 5 sites including pastures 2, 3, 4, and 6; South Hammett #7 – 1 site at each of the gullies in BLM parcels of Blackhawk, Vina, and Sackrider pastures; Hammett #5 – up to 3 sites in Preliminary Priority Habitat (PPH) for sage-grouse habitat (southeast portion of allotment), and up to 2 sites in mountain big sagebrush communities (outside PPH) where shrub cover is less than 30%.

- NPFT and PP monitoring may be augmented with other vegetation monitoring methods described in *Sampling Vegetation Attributes* and other agency references and manuals. Rangeland health would be assessed prior to the next ten-year permit renewal process, and may be periodically assessed in the interim, in accordance with BLM Technical Reference 1734-6, *Interpreting Indicators of Rangeland Health* (DOI, 2005) or an updated version.

Adaptive management triggers (by allotment):

Hammett #1:

- Utilization nearing 40% on perennial grasses during critical growth and nearing 50% outside the critical growth period would trigger the removal of livestock from the pasture;
- In the third year, at elevations ≤4,500 feet where medusahead is the dominant annual grass species, a downward trend for perennial grasses in PPs (or other measurements) would trigger a consultation with the BLM to adjust grazing practices to address issues.
- In the third year, at elevations >4,500 feet, a downward trend (or static trend in areas with previously downward trend) for perennial grasses in PPs (or other measurements) would trigger a consultation with the BLM to adjust grazing practices to address issues.
- In the fifth year, at elevations ≤4,500 feet where medusahead is the dominant annual grass species, a significant downward trend for perennial grass frequencies ($P < 0.1$) would trigger a spring, fall, rest system described in Alternative D.
- In the fifth year at elevations >4,500 feet, a downward trend (or static trend in areas with previously downward trend) for perennial grass or forb frequencies ($P < 0.1$) would trigger a spring, fall, rest system described in Alternative D.

South Hammett #7 (Blackhawk Pasture):

- Utilization nearing 40% on perennial grasses during critical growth and nearing 50% outside the critical growth period would trigger the permittee to remove cattle from the pasture.
- In the third year, a downward trend for perennial grasses in PPs (or other measurements) would trigger a consultation with the BLM to adjust grazing practices to address issues.
- In the fifth year, a significant downward trend for perennial grass or forb frequencies ($P < 0.1$) would trigger a change to an August 15 annual turnout described in Alternative D.
- In the fifth year, a static or downward trend for perennial vegetation on gully banks would trigger a change to an August 15 annual turnout described in Alternative D.

West Hammett #7 (Sackrider and Vina pastures):

- Utilization nearing 40% on perennial grasses during critical growth and nearing 50% outside the critical growth period would trigger the permittee to remove cattle from the pasture.
- In the fifth year, a static or downward trend for perennial vegetation on gully banks would trigger a redistribution of livestock (e.g., changing salt/supplement locations or other methods).

Hammett #5 and Hammett #6:

- Utilization nearing 40% on perennial grasses during critical growth and nearing 50% outside the critical growth period would trigger the removal of livestock from the pasture.
- In the third year, a downward trend (or static trend in areas with previously downward trend) for perennial grasses in PPs (or other measurements) would trigger a consultation with the BLM to adjust grazing practices to address issues.
- In the fifth year, a downward trend (or static trend in areas with previously downward trend) for perennial grass or forb frequencies ($P < 0.1$) would trigger a deferred-rotation system, a reduction of AUMs, and/or maximum numbers, as described in Alternative D.

Riparian Areas

Unless otherwise noted, objectives and monitoring are specific to West Fork King Hill Creek (Hammett #1).

Objectives:

- Maintain a minimum 4-inch stubble height of Nebraska sedge and beaked sedge along the greenline.
- Reduce streambank alteration levels to ≤ 15 % at the end of each grazing period.
- Reduce levels of fall browsing use on willows to ≤ 20 % annually.
- Maintain water quality to levels meeting DEQ standards for contact recreation, and temperatures standards for cold water aquatic life and salmonid spawning (where applicable).
- Increase the frequency of obligate riparian and wetland plant species on the greenline by 200% in four years, and by 400% in ten years.
- Increase the percentage of sapling and young age classes of willows by 200% in four years, and by 400% in 10 years.
- Increase the overall percentage of vegetated and stable streambanks to achieve an 80% vegetated and stable streambank condition in 10 years.
- Reduce the greenline to greenline width by 30% in10 years.
- Reduce the level of fine sediment in the streambed to ≤30% in 10 years.
- Increase stream shading levels from 5% vegetative shade, to 60% in 10 years.
- Improve FAR segments of West Fork King Hill, Little Canyon, and West Fork Cold Springs creeks to proper functioning condition (PFC) for Standard 2 by 2020, and Standard 3 by 2022.
- Maintain cover of key plant species in springs and wetlands.

Methods:

- Periodically (minimum twice in five years) measure and record stubble height of Nebraska sedge and beaked sedge along the greenline using a stubble height transect.
- Periodically (minimum twice in five years) streambank alteration would be measured at the end of the grazing season in the functioning-at-risk (FAR) segments.
- Periodically (minimum twice in five years) conduct a willow browse ocular survey.
- Sample water quality (e.g., temperature) every two years and *E. coli* levels every four years.
- Conduct multiple indicator monitoring [MIM; Interagency Technical Bulletin (TB) 07-01 Monitoring Stream Channels and Riparian Vegetation - Multiple Indicators Revised (BLM 2008)] transects in years one, five, and nine.

Adaptive management triggers:

- In the third year, failure to meet any riparian objective would trigger a consultation with the BLM to adjust grazing practices to address issues.
- In the fifth year, a static or downward trend in MIM indicators would trigger a spring, fall, rest system described in Alternative D.

Wildlife:

Objectives and monitoring are specific to Hammett #1, Hammett #5, Hammett #6, and South Hammett #7.

Objectives:

- Increase frequency of tall- and mid-stature bunchgrasses and sage-grouse preferred forb species in Preliminary Priority Habitat in order to provide suitable habitat conditions for greater sage-grouse.
- Maintain or increase sagebrush canopy cover to provide suitable sage-grouse habitat.
- Provide adequate bitterbrush browse for mule deer.

Methods:

- Analysis results from upland vegetation and riparian monitoring would be used to determine condition of Greater sage-grouse and special status animal habitat.
- In addition, BLM would collect and analyze transect data in the third and fifth year in accordance with the Sage-Grouse Habitat Assessment Framework (HAF): Multi-scale Habitat Assessment Tool (Stiver et al. 2010). Seasonal habitats including breeding, late brood-rearing/wet meadows, and winter habitat would be evaluated through the HAF protocol.
- Browse transects would be conducted in accordance with Interagency Technical Reference 1734-3, Utilization Studies and Residual Measurements.

Adaptive management triggers:

- In the third year, failure to meet any upland vegetation or riparian objective, as they relate to special-status species, would trigger a consultation with the BLM to adjust grazing practices to address issues.
- In the fifth year, HAF assessment ratings in the marginal to unsuitable range would

trigger a change to alter livestock distribution or stocking rates as described in Alternative D.

- Utilization of bitterbrush approaching 50% would trigger the removal of livestock from the pasture.

6.8 Appendix 8. Terms and conditions specific to individual permits, Alternative D, Bennett Mountain North, Idaho.

Casa Del Norte – Hammett #1 (01033) and South Hammett #7 (01039)

1. Use in the Hammett #1 Allotment would be authorized on a three-year spring-fall-rest rotation as follows, with the cycle repeated after Year 3. The permittee would use active, non-motorized, herding to insure livestock are present only in the authorized use area.
   Year 1: 05/01 through 07/01
   Year 2: 09/30 through 11/30
   Year 3: REST
2. Prior to the beginning of each authorized use period in the Hammett #1 Allotment, the permittee would coordinate their intended operating plans with the BLM.
3. Livestock numbers in the Hammett #1 Allotment may vary, provided season of use and AUMs are not exceeded; however, the maximum number of livestock present at any one time would not exceed 796 head.
4. Annual use in the Blackhawk Pasture (3) of the South Hammett #7 Allotment would be deferred until August 15. Annual use in the West Fork (1) and Long Draw (2) pastures could occur any time during the use period.
5. Prior to the beginning of each authorized use period in the South Hammett #7 Allotment, the permittee would coordinate their intended operating plans with the BLM.
6. Livestock numbers in the South Hammett #7 Allotment may vary, provided season of use and AUMs are not exceeded; however, the maximum number of livestock present at any one time would not exceed 500 head.

Double Anchor Ranch –Hammett #5 (01037)

1. Annual spring and fall use in the Hammett #5 Allotment would be authorized as follows:
   Even numbered years: West (aka Ryegrass) Pasture, 04/15 through 08/01
   East (aka Cold Sprs) Pasture, 09/15 through 11/30
   Odd numbered years: East (Cold Sprs) Pasture, 04/15 through 08/01
   West (Ryegrass) Pasture, 09/15 through 11/30
2. Prior to the beginning of each authorized use period in the Hammett #5 Allotment, the permittee would coordinate their intended operating plans with the BLM.
3. Livestock numbers in the Hammett #5 Allotment may vary, providing season of use and AUMs are not exceeded; however, the maximum number of livestock present at any one time would not exceed 345 head.

Owen – Hammett #6 (01038)

1. A six-year rest-rotation system in the Hammett #6 Allotment would authorized as follows:
   Year 1: Pastures 1, 3, 5, and 6 would be available; pastures 2 and 4 would be rested.
   Year 2: Pastures 2, 4, 5, and 6 would be available; pastures 1 and 3 would be rested.
   Year 3: Pastures 1, 3, 4, and 5 would be available; pastures 2 and 6 would be rested.
   Year 4: Pastures 2, 5, and 6 would be available; pastures 1, 3, and 4 would be rested.
   Year 5: Pastures 1, 3, 4, 5, and 6 would be available; Pasture 2 would be rested.
   Year 6: Pastures 2, 4, and 5 would be available; pastures 1, 3, and 6 would be rested.
2. Prior to the beginning of each authorized use period in the Hammett #6 Allotment, the permittee would coordinate their intended operating plans with the BLM.
3. Livestock numbers in the Hammett #6 Allotment may vary, providing season of use and AUMs are not exceeded; however, the maximum number of livestock present at any one time would not exceed 255 head.

6.9 Appendix 9. Perennial grass phenology by precipitation and elevation ranges, Boise District, Idaho.

Species	Stage of Development	Early Spring Range[1]	Late Spring Range[2]	Late Summer Range[3]
Bluebunch Wheatgrass	Growth Started	3/28 (2/28)[4]	4/8 (3/15)	5/5
	Flower Stalks Start	5/1 (4/5)	4/25	
	Heads Showing	5/17 (5/4)	5/24	6/13
	Heads Fully Out	6/9	6/16	7/5
	Flowers in Bloom	6/15	6/27	7/13
	Seed Ripe	7/12	7/20	8/13
	Seed Disseminating	7/19	7/26	8/15
	Seed Disseminated	8/3	8/10	8/30
	Plant Drying	7/3	7/10	
	Plant Dry	8/10	8/17	
Idaho Fescue	Growth Started		(3/15)	5/5
	Flower Stalks Start		(5/6)	
	Heads Showing			6/10
	Heads Fully Out			7/2
	Flowers in Bloom			7/10
	Seed Ripe			8/10
	Seed Disseminating			
Sandberg Bluegrass	Growth Started	3/25 (2/28)	3/30 (3/3)	4/28
	Flower Stalks Start	4/5 (3/14)	(3/22)	
	Heads Showing	4/16 (3/15)	4/27	5/23
	Heads Fully Out	4/25 (4/5)	5/15 (4/6)	6/2
	Flowers in Bloom	5/17 (4/5)	5/25 (4/15)	6/20
	Seed Ripe	6/10 (4/19)	6/15 (4/22)	7/10
	Seed Disseminating	6/15 (5/3)	6/20	7/12
	Seed Disseminated	7/15	7/15 (6/5)	7/30
	Plant Drying	5/15	5/23	6/25
	Plant Dry		7/9	
Squirreltail	Growth Started	3/28	4/6 (3/3)	4/28
	Flower Stalks Start		(4/6)	
	Heads Showing	5/9 (5/3)	5/16 (5/3)	6/5
	Heads Fully Out	5/28	6/9	6/27
	Flowers in Bloom	6/10	6/19	7/7
	Seed Ripe	7/2	7/12	7/29
	Seed Disseminating	7/9	7/18	8/3
	Seed Disseminated			

[1] 8-12" annual precipitation; 2,700-4,500 feet elevation
[2] 10-17" annual precipitation; 4,500-5,800 feet elevation
[3] 20-30" annual precipitation; 6,500-8,000 feet elevation
[4] Dates in parentheses represent earliest day a stage of development was observed during 2003-2006 phenological transects conducted in the general area.

6.10 Appendix 10. Idaho BLM special status animal species known to, or potentially occurring, in the Bennett Mountain North allotments, Idaho.

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.
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.

The Bennett Mountain North allotments are outside the range of the following special status animal species, so they will not be considered further: northern Idaho ground squirrel, southern Idaho ground squirrel, Canada lynx, Snake River physa snail, American white pelican, Columbian sharp-tailed grouse, great grey owl, and boreal owl.

Note* NI=No impact, due to grazing
DI=direct impacts due to grazing
ID=indirect impacts due to grazing
BMN=Bennett Mountain North

Threatened, Endangered, Candidate Species	Scientific Name	Type	Habitat	Management Considerations
Birds				
Greater Sage-grouse (C)	*Centrocercus urophasianus*	1	Sagebrush obligate	Present, discussed in Section 3.6 (Greater Sage-grouse).
Yellow-billed Cuckoo (C)	*Coccyzus americanus*	1	Thick, wide riparian corridors, primarily dominated by cottonwoods. Known only as rare erratic breeder in the Snake River corridor mainly in southeast Idaho. Limited potential habitat occurs in BMN.	DI - If Standards 2 and 3 are not being met in riparian habitat.

Sensitive Species (Type 2, 3)

Sensitive Species	Scientific Name	Type	Habitat	Management Considerations
Birds				
Bald Eagle	*Haliaeetus leucocephalus*	2	Winter migrant to the BMN area. Habitat includes lakes, reservoirs, streams, and uplands.	NI - No known nesting pairs are present. ID – Could occur for wintering birds where livestock management affects big game presence and winterkill.
Peregrine Falcon	*Falco peregrinus anatum*	3	Nests on tall, sheer cliffs.	NI - No known nesting pairs occur in BMN.
Prairie Falcon	*Falco mexicanus*	3	Nests on cliffs, forages in shrubsteppe and grassland habitats.	ID – Prey base could be adversely affected in areas not meeting Standard 4.
Northern Goshawk	*Accipiter gentilis*	3	Aspen stands and conifer forests	Surveyed for and discussed in Section 3.6 (Raptors).
Ferruginous Hawk	*Buteo regalis*	3	Open country, nests on ground or rock outcrops, forages in shrubsteppe and grassland habitats.	Discussed in Section 3.6 (Raptors).
Mountain Quail	*Oreortyx pictus*	3	Riparian and adjacent shrubsteppe hillsides with berry-producing shrubs.	Surveyed for and discussed in Section 3.6.
Flammulated Owl	*Otus flammeolus*	3	Open ponderosa pine forests.	ID – Prey base could be adversely affected in areas not meeting Standard 4.
Calliope Hummingbird	*Stellula calliope*	3	Seral-stage forests in montane areas.	ID – Forage (nectar producing forbs and shrubs) could be adversely affected in areas not meeting Standard 4.
Lewis' Woodpecker	*Melanerpes lewis*	3	Open ponderosa pine forest, open riparian woodland, and logged or burned pine forests.	ID – Where grazing affects maintenance of riparian trees and forest succession.
Williamsons Sapsucker	*Sphyrapicus thyroideus*	3	Montane coniferous forests and mixed aspen-coniferous forests.	ID – Where grazing affects forest succession.
Willow Flycatcher	*Empidonax trailii*	3	Dense willow riparian areas.	Discussed in Section 3.6 (Riparian Birds).
Hammond's Flycatcher	*Empidonax hammondii*	3	Nests and forages in mature mixed-conifer forests.	ID – Insect prey base could be adversely affected in areas not meeting Standard 4.
Olive-sided Flycatcher	*Contopus barealis*	3	Mid-to high elevation, dry Douglas-fir and grand fir forests.	ID – Insect prey base could be adversely affected in areas not meeting Standard 4.
Loggerhead Shrike	*Lanius ludovicianus*	3	Shrubsteppe, open woodlands. Nests in tall shrubs and small trees.	Present, discussed in Section 3.6 (Greater Sage-grouse).

Sensitive Species	Scientific Name	Type	Habitat	Management Considerations
Sage Sparrow	*Amphispiza belli*	3	Sagebrush-steppe, nests in shrubs.	Present, discussed in Section 3.6 (Greater Sage-grouse).
Brewer's Sparrow	*Spizella breweri*	3	Sagebrush-steppe, nests in shrubs.	Present, discussed in Section 3.6 (Greater Sage-grouse).
Upland Sandpiper	*Baratramia longicauda*	4	Associated with prairies and mountain meadows.	ID – Prey base and nesting habitat could be adversely affected in areas not meeting Standard 4.
White-headed Woodpecker	*Picoides albolarvatus*	4	Open and mature ponderosa and mixed ponderosa/Douglas- fir forests.	ID – Where grazing affects forest succession.
Black-throated Sparrow	*Amphispiza bilineata*	4	Breeds in barren and grassy hillsides with scattered sagebrush and rabbitbrush.	Discussed in Section 3.6 (Greater Sage-grouse).
Swainson's Hawk	*Buteo swainsoni*	5	Open stands of grass dominated vegetation, sparse shrubland, and small open woodlands	Discussed in Section 3.6 (Raptors).
Blue (Dusky) Grouse	*Dendragapus obscurus*	5	Shrub-steppe and grassland near forest edge and montane forest communities with open canopies	ID – Nesting and foraging habitat could be adversely affected in areas not meeting Standard 4.
Long-billed Curlew	*Numenius americanus*	5	Short-grass or mixed-prairie with flat rolling topography.	DI/ID – Nest trampling could occur, livestock grazing could affect insect prey base.
Wilson's Phalarope	*Phalaropus tricolor*	5	Associated with wetlands; nests in sparse to dense vegetation of uplands and marshes.	ID – Nesting and foraging habitat could be adversely affected in areas not meeting Standard 2 or adjacent areas not meeting Standard 4.
Northern Pygmy-owl	*Glaucidium gnoma*	5	Habitat generalist from deciduous bottomlands to high elevation continuous forest.	ID – Where grazing affects forest succession.
Short-eared Owl	*Asio flammeus*	5	Large expanses of shrubsteppe.	Discussed in Section 3.6 (Raptors).
Western Burrowing Owl	*Athene cunicularia*	5	Gently-sloping areas of shrubsteppe	Discussed in Section 3.6 (Raptors).
Vaux's Swift	*Chaetura vauxi*	5	Associated with grand fir and mixed conifer forests, in BMN primarily during migration.	ID – Prey base could be adversely affected in areas not meeting standards 2 or 4.
Red-naped Sapsucker	*Sphyrapicus nuchalis*	5	Deciduous and mixed woodlands, aspen groves in ponderosa pine forests	ID – Where grazing affects forest succession.

Sensitive Species	Scientific Name	Type	Habitat	Management Considerations
			and open rangeland.	
Black-backed Woodpecker	*Picoides arcticus*	5	Lodgepole pine, mixed conifer forests.	ID – Where grazing affects forest succession.
Cordilleran Flycatcher	*Empidonax occidentalis*	5	Riparian areas with large trees and willow and alder thickets.	Discussed in Section 3.6 (Riparian Birds).
Pygmy Nuthatch	*Sitta pygmaea*	5	Strongly associated with ponderosa pine forests.	ID – Where grazing affects forest succession.
Sage Thrasher	*Oreoscoptes montanus*	5	Sagebrush obligate	Discussed in Section 3.6 (Greater Sage-grouse).
Green-tailed Towhee	*Pipilo chlorurus*	5	Shrubsteppe in areas with high diversity of shrub species.	Discussed in Section 3.6 (Greater Sage-grouse).
Grasshopper Sparrow	*Ammodramus savannarum*	5	Shrubsteppe grasslands	Discussed in Section 3.6 (Greater Sage-grouse).
Brewer's Blackbird	*Euphagus cyanocephalus*	5	Wide range of habitats; prefers human-modified habitat.	ID – Nesting and foraging habitat could be adversely affected in areas not meeting Standard 4.
Cassin's Finch	*Carpodacus cassinii*	5	Open coniferous forests.	ID – Nesting and foraging habitat could be adversely affected in areas not meeting Standard 4.
Mammals				
Pygmy Rabbit	*Brachylagus idahoensis*	2	Thick big sagebrush with deep soils. Limited habitat in BMN.	Discussed in Section 3.6 (Greater Sage-grouse).
Grey wolf	*Canus lupus*	2	Generalist habitat species. Follows big game herds.	NI associated with grazing are expected except human caused mortality.
Spotted Bat	*Euderma maculatum*	3	Rocky canyons and cliffs, forages over sagebrush.	ID – Insect prey base could be adversely affected in areas not meeting standards 2 or 4.
Townsend's Big-eared Bat	*Plecotus townsendii*	3	Winter in stable-climate caves, forage over sagebrush.	ID – Insect prey base could be adversely affected in areas not meeting standards 2 or 4.
Fisher	*Martes pennanti*	3	Mature to old-growth forests with high canopy closure, also associated with mesic forest conditions.	NI associated with grazing expected except human caused mortality.
Wolverine	*Gulo gulo luscus*	3	Extensive home ranges in high-elevation areas; forested drainage bottoms and cirque basins. A	NI associated with grazing expected accept human caused mortality.

Sensitive Species	Scientific Name	Type	Habitat	Management Considerations
			wolverine was spotted and confirmed by IDFG in 2006 in the Hammett area. No denning habitat occurs in BMN.	
Yuma Myotis	*Myotis yumanensis*	5	Wide elevation range including riparian, desert scrub and mesic woodland and forested areas.	ID – Insect prey base could be adversely affected in areas not meeting standards 2 or 4.
Long-eared Myotis	*Myotis evotis*	5	Coniferous forest and associated with forest-woodland riparian areas	ID – Insect prey base could be adversely affected in areas not meeting standards 2 or 4.
Long-legged Myotis	*Myotis volans*	5	Coniferous forest and deserts; may change habitat seasonally	ID – Insect prey base could be adversely affected in areas not meeting standards 2 or 4.
Western Small-footed Myotis	*Myotis ciliolabrum*	5	Winters in lava tube caves and rock crevices, under boulders, and beneath loose bark in summer	ID – Insect prey base could be adversely affected in areas not meeting standards 2 or 4.
Canyon bat (formerly Western pipistrelle)	*Parastrellus hesperus*	5	Canyons and deserts in rock crevices, under rocks, and burrows	ID – Insect prey base could be adversely affected in areas not meeting standards 2 or 4.
Reptiles				
Mojave Black-collared Lizard	*Crotaphytus bicinctores*	3	Deserts, presence of rocks and boulders.	ID – Prey base could be adversely affected in areas not meeting Standard 4.
Longnose Snake	*Rhinocheilus lecontei*	3	Deserts, grasslands, and rocky canyons.	ID – Prey base could be adversely affected in areas not meeting Standard 4.
Western Ground Snake	*Sonora semiannulata*	3	Deserts with loose or sandy soils.	ID – Prey base could be adversely affected in areas not meeting Standard 4.
Common Garter Snake	*Thamnophis sirtalis*	3	Riparian habitat, open meadows, and evergreen forests.	ID – Prey base could be adversely affected in areas not meeting standards 2 or 4.

7.0 Maps