Final

ENVIRONMENTAL ASSESSMENT
WY-090-EA09-112

AUTHORIZATION OF LIVESTOCK GRAZING: LEAVITT CREEK (#01456) AND LEAVITT BENCH (#11413) ALLOTMENTS

Bureau of Land Management
Kemmerer Field Office Planning Area
May 2009

Chapter 1: Introduction

1.1 Background

The area which now comprises the Bureau of Land Management's (BLM) Kemmerer Field Office (KFO) was first settled in the 1860's. Although some farming likely occurred, pioneer settlers found the area to be more suited for the grazing of livestock than for subsistence farming based on the primitive and harsh conditions of the area. There is no documented intensive grazing management on what are now the public lands administered by the KFO and there were no established livestock numbers or seasons of use during this early settlement period.

After the enactment of the Taylor Grazing Act in 1934, grazing allotments were created. The number and kind of livestock and the seasons of use were established for the area. To comply with provisions of the Taylor Grazing Act, grazing has traditionally been authorized through 10-year term grazing permits. In 1946, the BLM was established, and in the 1950's and 1960's range surveys were completed on the public lands to determine the amount of forage being produced. Following these surveys, grazing capacity for the allotments was adjudicated. The number of livestock authorized on most of the allotments was decreased to facilitate meeting critical management objectives (e.g., healthy rangelands and sustainable forage production). The BLM has determined that as applications for the renewal of these grazing permits are received; National Environmental Policy Act (NEPA) documentation would be required prior to renewal. The BLM KFO authorized officer has determined that an Environmental Assessment (EA) is the appropriate document for grazing permit renewal.

1.2 Purpose and Need for the Proposed Action

If authorized, grazing would be in accordance with 43 CFR § 4100 and consistent with all applicable federal laws and BLM policies. Expiration dates for the two grazing permits analyzed in this EA are summarized in Table 1.The purpose of the proposed action is to renew the 10-year grazing permits with appropriate terms and conditions. BLM also intends to apply appropriate terms and conditions to permits that authorize livestock grazing. These terms and conditions include number of livestock, type of livestock, season of use, and other terms and conditions appropriate to manage livestock grazing according to the principles of multiple use and sustained yield. The Taylor Grazing Act (1934), the Federal Land Policy and Management Act (1976), and the Public Rangelands Improvement Act (1978) requires the BLM to manage grazing on public land according to the principles of multiple use and sustained yield. This action is also needed to ensure that all grazing authorizations implement provisions of and are in conformation with the existing Land Use Plan (LUP).

Table 1. Grazing permit expiration dates

Grazing Authorization Numbers	Allotment Name	Expiration Date
4912168	Leavitt Creek	2/28/2015
4910743	Leavitt Bench	2/28/2016

1.3 Conformance with Land Use Plan

The Proposed Action is in conformance with the Kemmerer Resource Management Plan/Final Environmental Impact Statement approved on April 29, 1986. This EA is tiered to the FINAL Environmental Impact Statement (*1986*) prepared during adoption of the LUP. This EA is also tiered to the PROPOSED Final Environmental Impact Statement for Kemmerer Resource

Management Plan (*2009*) Section 3.6.4 on pages 3-121 through 3-125. The proposed action would occur in an area identified as available for livestock grazing and on BLM owned lands where grazing is authorized. Livestock grazing is also consistent with the LUP decision and resource management goals and objectives. The general key goals of BLM LUP include:

- The improvement of the ecological condition of public lands by preventing destructive uses and by providing orderly use and improvement.
- Special consideration and authority for the protection and management of areas with special environmental concern.
- Stabilizing the social and economic environment of the local community with special consideration for the family owned and operated ranch business and lifestyle.
- Improve range conditions on I category allotments and maintain range conditions on other allotments.

1.4 Relationship to Statutes, Regulations, and Associated Land Use Plans

In conformance with the Secretary of Interior's Policy, alternatives would be in compliance with 43 CFR § 4100 which states, in part, "The authorized officer shall manage livestock grazing on public lands under the principal of multiple use and sustained yield." The alternatives also consider 43 CFR § 4130.2(a) which states, in part, "Grazing permits or leases shall be issued to qualified applicants to authorize use on public lands and other lands under the administration of the BLM that are designated as available for livestock grazing though land use plans."

The alternatives are consistent with the Fundamentals of Rangeland Health (43 CFR § 4180) and Wyoming's Standards and Guidelines for Rangeland Health, which address watersheds, ecological condition, water quality and habitat for special status species. The alternatives are also consistent with the Wyoming Riparian Management Policy which states, in part, that riparian areas will be maintained in or improved to "Proper Functioning Condition." In addition, the alternatives would comply with the following laws and/or regulations, other plans, and are consistent with Federal, State, and local laws, regulations:

- Taylor Grazing Act of June 30, 1934, as amended
- Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.)
- Public Rangelands Improvement Act of 1978
- Endangered Species Act of 1973 as amended
- 43 CFR § 4100 Grazing Administration-Exclusive of Alaska
- Clean Water Act Section 303d
- Section 106 of the National Historic Preservation Act of 1966 as amended
- National Environmental Policy Act of 1969
- Sikes Act of 1969, as amended (Habitat Improvement on Public Land)
- Fish and Wildlife Improvement Act of 1978
- Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds
- Kemmerer Resource Management Plan/Final Environmental Impact Statement approved on April 29, 1986
- Grazing Regulations as codified in 43 CFR § 4100 as amended in 2005
- State of Wyoming Executive Order 2008-2, Greater Sage Grouse Core Area Protection

1.5 Scoping

The BLM decision making process is conducted in accordance with the requirements of the Council on Environmental Quality (CEQ) regulation implementing NEPA, and the U.S. Department of Interior and BLM policies and procedures implementing NEPA. Interested publics, State Agencies, other federal agencies and individual permit holders are involved, by NEPA and the associated regulatory and policy framework, in the selection of reasonable alternatives to proposed actions and the preparation of environmental documents that disclose the potential impacts of the proposed actions and the alternatives.

BLM accomplished public involvement, consultation, and coordination with a written scoping notice to permittees and affected interests on September 30, 2008. The scoping notice advised those on the mailing list of BLM's intent to consider renewal of the 10-year grazing permits on the allotments analyzed in this EA. A response to scoping was received from the Wyoming Game and Fish Department in a letter dated October 30, 2008, in which the agency stated there are no terrestrial or aquatic wildlife concerns pertaining to the renewal of the grazing permits analyzed in this EA.

A second response received from the Western Watersheds Project in a letter dated November 3, 2008 raised some comments in relation to the Draft RMP and are beyond the scope of this EA. Pertinent issues such as water quality, BLM sensitive species, soils, vegetation, and socio-economics, are addressed in this EA. Additional comments from Western Watersheds related to purpose and need, alternatives, and cumulative impacts are also addressed in this EA. The Western Watersheds Project did not offer any site-specific information regarding the allotments considered in this EA.

CHAPTER 2: PROPOSED ACTION AND ALTERNATIVES

This chapter describes the alternative development process and the alternatives carried forward and fully analyzed. The three alternatives that will be fully analyzed are the No Action (continuation of current leases and current management), the No Grazing alternative and the Preferred Alternative which considers grazing management with modified Permit Terms and Conditions.

The development of management alternatives for this allotment was guided by provisions of FLPMA and NEPA, as well as planning criteria listed and enumerated in the Kemmerer RMP. Other laws, as well as BLM planning regulations and policy, also directed alternative considerations and focused the alternatives on appropriate landscape and allotment specific decisions.

Alternative 1 - No Action Re-offer the current permit with existing terms and conditions

This alternative re-offers grazing permits for the Levitt Creek and Leavitt Bench Allotments with the same terms and conditions as the existing authorizations. The grazing permits, which were issued under Public Law 106-113, would be renewed without modification to the terms and conditions. This allotment would be managed in accordance with the Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming. Any area in the allotment not in compliance with the Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management

for the Public Lands Administered by the BLM in the State of Wyoming may either have a permit withheld or grazing modified.

These permits will be renewed under the authority of Section 426, Public Law 111-8 and contains the same mandatory terms and conditions as the expired permit. These permits may be cancelled, suspended, or modified, in whole or in part to meet the requirements of applicable laws and regulations.

A. Terms and Conditions

Other Administrative Terms and Conditions contained in BLM grazing permits are incorporated by reference. The complete grazing permits can be viewed at the KFO. The following is a summary of mandatory terms and conditions and allotment specific terms and conditions.

1.

Table 2. Grazing Preference on the Leavitt Creek and Leavitt Bench allotments

Allotment Name	Grazing Authorization Number	Kind of Livestock	From	To	AUM's
Leavitt Creek	4912168	Cattle	May 1	Sept 15	66
Leavitt Bench	4910743	Cattle	May 1	Sept 30	402
				Total:	468

2. Terms and Conditions of this grazing permit or lease may be modified if additional information indicates that revision is necessary to conform with 43 CFR § 4180

3. Permittee must maintain all assigned range improvements in good working order and in an aesthetic state. BLM encourages the permittee to participate in rangeland monitoring activities. All grazing use within the Leavitt Creek and Leavitt Bench Allotment will be in accordance 43 CFR § 4000 to end

B. Monitoring

The BLM and the Permittee will participate in rangeland monitoring according to guidelines in the Wyoming Rangeland Monitoring Guide: A cooperative and voluntary approach to monitoring rangelands (USDI 2001).

Alternative 2 - Proposed Action

This proposed action is to issue a new 10-year grazing permit for the Leavitt Creek and Leavitt Bench Allotments with the same terms and conditions described in Alternative 1, plus the addition of the following modifications. This alternative would require that salt and mineral supplements be placed at least ¼ mile away from any riparian areas. A number of studies have shown that strategic supplement placement can be used to manipulate livestock distribution, and provide an incentive for livestock to utilize more upland vegetation, thereby reducing use and stress on riparian systems (Bailey & Welling 1999, Bailey *et al* 2001, Bailey *et al* 2008, McDougald *et al* 1989, McInnis & McIver 2001). This would likely lead to an improvement in the condition of riparian systems within these allotments.

A. Terms and Conditions
Grazing preference will remain the same as described in Table 2. In addition to grazing preference, the following terms and condition will be applied to the grazing permits on the Leavitt Creek and Leavitt Bench allotments:

Salt and/or mineral supplement placement will be at least 1/4 mile away from water troughs, riparian areas, aspen stands, sensitive plant species, and historic trails and monuments, on BLM administered land. BLM encourages permittees to follow this practice on their private land.

A minimum stubble height of 4-6" on key riparian species (specifically deep rooted sedge species) must remain at the end of the grazing season. If this stubble height is reached prior to the scheduled off date, then livestock must be moved to another pasture, or removed from the allotment for the remainder of the grazing season.

Terms and Conditions of this grazing permit or lease may be modified if additional information indicates that revision is necessary to conform with 43 CFR § 4180.

Permittee must maintain all assigned range improvements in good working order and in an aesthetic state. BLM encourages the permittee to participate in rangeland monitoring activities. All grazing use within the Granny Peak Allotment will be in accordance 43 CFR § 4000 to end.

B. Monitoring
Monitoring will remain the same as described in Alternative 1.

Alternative 3 - No Grazing by Allowing the Existing Permit to Expire
Under this alternative, the existing grazing permit would be allowed to expire and BLM would require the permittee to remove livestock from the allotment. Under this alternative, livestock grazing would not be authorized by the BLM for this allotment and none of the available forage on BLM lands would be allocated to livestock. BLM would not collect fees associated with the grazing permit. BLM would have limited regulatory and land management authority on allotments if the grazing permits were not renewed. Implementation of this alternative would not allow BLM to meet its legislative mandates under the following federal laws.

1) The TGA of 1934 provides the basic legislative authority for livestock grazing on public lands, with provisions for protection of the lands from degradation and for orderly use and improvement of public rangelands. The TGA established a system for the allotment of grazing privileges to livestock operators based on grazing capacity and use priority, and for the delineation of allotment boundaries. It also established standards for rangeland improvements and implemented grazing fees.
2) FLPMA and PRIA mandate the management of public land for multiple use and Sustained yield. Specifically, the regulations implementing these acts call for rangeland management strategies that provide forage for economic use as well as for the maintenance or restoration of watershed function, nutrient cycling, water quality, and habitat quality.
3) The Kemmerer Resource Management Plan/Final Environmental Impact Statement has been finalized and the Record of Decision should be signed in early 2009. The Final EIS can be reviewed on the BLM web site. BLM's preferred alternative in the FEIS

demonstrates that livestock grazing is appropriate on designated lands in the KFO based on case law.

Chapter 3: Affected Environment

BLM determined the following issues were not relevant to renewal of these grazing permits and were excluded from further analysis in this document: air quality, mineral resources, fire and fuel management, areas of critical environmental concern, recreation, wild and scenic rivers, wilderness and wilderness study areas, and environmental justice. The following issues are analyzed in detail due to their relevance to renewal of grazing authorizations on BLM lands.

3.1 Livestock Grazing Management

In 1985, BLM established three categories for allotments to identify areas where management was potentially needed, as well as to prioritize workloads and the use of range improvement funds. Allotments were classified as Improve Existing Resource Conditions (I), Maintain Existing Resource Conditions (M), or Custodial Management (C) (USDI 2008). The Leavitt Creek and the Leavitt Bench Allotments are rated in the I category.

BLM strives to manage livestock grazing according to provisions of the grazing regulations and the Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming. BLM has not completed the Wyoming Rangeland Standards Conformance Review Summaries for either the Leavitt Creek or Leavitt Bench Allotments.

Field observations conducted by BLM range management specialists identified two significant grazing management challenges in the Leavitt Creek and Leavitt Bench Allotments. First is the preponderance of private land in the allotments. The Leavitt Creek allotment is composed of 913 acres of public land (74%), and 320 acres of private land (26%). The Leavitt Bench Allotment is composed of 4,893 acres of public land (76%) and 1,419 acres of private land (22%). The private lands in both allotments are located on both sides of the main creeks that flow through the area. With these creeks being the primary source of water in both of these allotments, livestock tend to congregate in these privately owned riparian areas and in the publicly owned uplands close to the creeks.

Private lands within the Leavitt Creek and Leavitt Bench Allotments are critical not only to maintaining the region's ranching community, culture, or tradition but also provide connectivity between private and public lands and between rural and urban communities. In many cases private lands are disproportionately important to the maintenance of a region's natural heritage because they are disproportionately more productive (Knight 2007). This situation is manifest in the Leavitt Creek and Leavitt Bench Allotments where most of the springs and waters are on private lands.

The second management challenge is livestock distribution. Nearly half of the Leavitt Creek Allotment is dry "badlands" devoid of water and vegetation resulting in livestock concentrating along Leavitt Creek. In the Leavitt Bench Allotment, the private lands are located along Cottonwood Creek running through the center of the allotment. The remaining parts of the allotment contain minimal water resulting in livestock concentrations along the private riparian

area and the public uplands close to the riparian area. These two factors prevent uniform livestock distribution throughout the allotments and result in extensive forage utilization around water developments and in riparian areas.

3.2 Soils

The general soil group within the Leavitt Creek and Leavitt Bench Allotments is the Overthrust Belt (BLM, 2009). This soil group is characterized by steep, sloping ridges with narrow valleys. Dominant parent materials include residuum formed over sediments; colluviums, including landslide and earth-flow deposits; and alluvium on footslopes and drainages. Variable soil textures occur due to geological overthrusting and complex soil/geomorphic relationships. In the narrow valleys and drainages, very deep and well-drained soils are common. The upland ridges are characterized by soils of varying depths, both red and brown in color.

According to data contained in the BLM GIS system, there are two known soil types in the Leavitt Creek Allotment (Figure A-1):

1) Order Entisol, Subgroup Rock Outcrop
2) Order Entisol, Subgroup Typic Torrifluvents

The northern half of this allotment is composed of rock outcrops and clay buttes commonly called “badlands” which are devoid of water and vegetation. As a result, livestock are congregated in the southern half the allotment along Leavitt Creek where soils do exhibit signs of compaction and erosion.

The Leavitt Bench Allotment contains three known soil types (Figure B-1):

1) Order Entisol, Subgroup Rock Outcrop
2) Order Entisol, Subgroup Typic Torrifluvents
3) Order Aridisol, Subgroup Ustic Haplargids

Topography allows livestock to disperse throughout the Leavitt Bench Allotment but the animals tend to congregate along Cottonwood Creek, which is the only source of water. As a result of this livestock congregation, soils along Cottonwood Creek do exhibit signs of compaction and erosion.

Aridisols are $CaCO_3$-containing soils of arid regions that exhibit at least some subsurface horizon development. They are characterized by being dry most of the year and have limited leaching. Aridisols in these allotments are Argids, Aridisols with clay accumulation, and Cambids, Aridisols with a weakly developed B horizon. Range, wildlife, and recreation are common uses on this soil order.

Entisols are soils of recent origin with usually no genetic horizons except an A horizon. All soils that do not fit into one of the other 11 orders are Entisols. They are characterized by great diversity, both in environmental setting and land use. Many Entisols are found in steep, rocky settings, especially in these two allotments.

All soils in these allotments, regardless of Soil Order, would be considered fragile (easily broken or destroyed without protection) (USDA/NRCS, 1996). Steep topography in the Leavitt Creek

Allotment prevents uniform livestock distribution resulting in congregations along the riparian areas in canyon bottoms. When livestock do venture up onto the steep slopes, these fragile soils are susceptible to erosion produced by livestock trampling and trailing. Hydrologic cover is critical to keeping these fragile soils from eroding. As a result of livestock congregation in riparian areas, soils along Leavitt Creek and Cottonwood Creek do exhibit signs of compaction and erosion.

3.3 Biological Resources

3.3a Riparian and Wetland Vegetation

The Leavitt Creek Allotment contains one lotic (flowing) system, Leavitt Creek (Figure A-2). A PFC assessment conducted in 1998 showed portions of Leavitt Creek on BLM lands within the Leavitt Creek Allotment were functioning at risk with an upward trend and portions were in Proper Functioning Condition. The PFC assessment noted problems with the stream width to depth ratio. Riparian vegetation appeared to have a diverse age class distribution and species composition. Willow and cottonwood showed signs of heavy utilization but recovery was apparent. Erosion was noted in the 'badlands" portion of the allotment with a resulting natural high sediment load in the system.

The Leavitt Bench Allotment contains one lotic (flowing) system, Cottonwood Creek (Figure B-2). In the Leavitt Bench Allotment extensive forage utilization was noted along Cottonwood Creek along with bank cuts and erosion. Some old sign of beaver was noted in the southern end of the allotment but the animals appeared to have moved upstream off the allotment. Water extraction for irrigation of private land causes stream condition deterioration. Many cottonwoods on the private lands are dead or dying.

Condition of riparian areas is evaluated using a Proper Functioning Condition (PFC) Assessment. A PFC for the Leavitt Creek Allotment was completed on May 19, 1998 and part of the public land portions of Leavitt Creek were rated at proper functioning condition and part were functioning at risk (Table 3). A PFC for the portions of cottonwood creek on public land in the Leavitt Bench allotment was completed on September 4, 2008 and public land portions of Cottonwood Creek were rated as Functioning at Risk. .

Table 3. Proper Functioning Condition Assessments

Allotment	Completion Date	Stream	Rating	Trend
Leavitt Creek	5/19/98	Leavitt Creek	Part Functional-At Risk Part at Proper Functioning Condition	Not Apparent
Leavitt Bench	9/4/2008	Cottonwood Creek	Functional-At Risk	Not Apparent

Through the Standards and Guidelines Implementation Plan, BLM strives for 4-6" residual stubble height, for highly palatable forbs, sedges, and grasses, along stream banks and other mesic sites at the end of the growing season or at the time livestock are removed from allotments.

3.3b Upland Vegetation

The northern half of the Leavitt Creek Allotment is exposed rock and clay commonly called "badlands" and is devoid of upland vegetation. The southern portion is composed of a Wyoming big sagebrush community (Figure A-3). The Leavitt Bench Allotment is predominately composed of a sagebrush community with cottonwood and willow riparian habitat types along Cottonwood Creek. There is a small amount of irrigated alfalfa in the east portion of the Leavitt Bench Allotment along Cottonwood Creek (Figure B-3).

3.3c Wildlife, Viable Populations of Native Plants and Animals

Field observations suggest the plant communities within the Leavitt Creek and Leavitt Bench Allotments are capable of sustaining viable populations and diversity of native plant and animal species appropriate to the area. Wildlife resource data from the BLM GIS database is contained in Figure A-4 for the Leavitt Creek Allotment and Figure B-4 for the Leavitt Bench Allotment. The BLM Wildlife Clearance and Determination and Evaluation for consultation forms were completed February 13, 2009 for both the Leavitt Creek and Leavitt Bench Allotments.

Wildlife Resources in the Leavitt Creek Allotment

BLM completed a programmatic consultation with the US Fish and Wildlife Service (FWS) on August 29, 2000. BLM made and FWS concurred with a "May Affect Likely to Adversely Affect" determination for the impacts from grazing on Colorado River and Green River endangered fish. This determination was based on removal of water from the Colorado River watershed by evaporation from existing stock ponds. BLM made a No Effect determination for impacts on all other threatened and endangered species.

The Leavitt Creek Allotment contains no potential habitat for sage grouse nor is there any overlap onto the allotment from any 2-mile buffer around a known lek. The Leavitt Creek Allotment does not have any issues related to sage grouse core areas as identified in the Wyoming Governor's Sage Grouse Core Area Executive Order 2008-2.

This allotment does not contain potential habitat for sage obligate birds, pygmy rabbit, Idaho pocket gopher, or the Long-eared myotis. There is potential habitat for the ferruginous hawk, burrowing owl, and the mountain plover.

Wildlife Resources in the Leavitt Bench Allotment

BLM completed a programmatic consultation with the US Fish and Wildlife Service (FWS) on August 29, 2000. BLM made and FWS concurred with a "May Affect Likely to Adversely Affect" determination for the impacts from grazing on Colorado River and Green River endangered fish. This determination was based on removal of water from the Colorado River watershed by evaporation from existing stock ponds. BLM made a No Effect determination for impacts on all other threatened and endangered species.

The Leavitt Bench Allotment contains potential habitat for the burrowing owl, ferruginous hawk, peregrine falcon, sage grouse, sage obligate birds, pygmy rabbit, mountain plover, white-tailed prairie dog, white-faced ibis, long-billed curlew, Northern leopard frog, spotted frog, and Trelease's milkvetch.

There is one known sage grouse lek near the western edge of the Leavitt Bench Allotment, however, BLM does not have any monitoring data for this lek. There are three additional leks within one mile of the western bourndary, along with potential nesting and brood rearing habitat. The entire Leavitt Bench Allotment is in an occupied Wyoming Governor's Sage Grouse Core Area per State of Wyoming Executive Order 2008-2.

Big Game

The Wyoming Game and Fish Department sets big game herd unit population objectives. These herd unit boundaries do not correspond with BLM allotment boundaries, but are discussed here to give the reader a better understanding of population and habitat parameters for each species.

The Leavitt Creek and Leavitt Bench Allotments occur within the boundaries of the Uinta Elk Herd Unit number E423. The elk population is currently at the population objective for this unit and the 10 year trend has also been at the population objective (WGFD 2007). Neither the Leavitt Creek nor the Leavitt Bench Allotment contains crucial big game winter range Elk prefer conifer aspen ecotone for security and thermal needs, but this preferred habitat does not exist in the Leavitt Creek or Leavitt Bench Allotments. Due to the limited amount of preferred elk habitat and competition with mule deer, WGFD is currently striving to reduce the elk herd in these allotments.

The Leavitt Creek and Leavitt Bench Allotments occur within the boundaries of the Uinta-Cedar Mountain Pronghorn Herd Unit number PH411. The pronghorn population is currently 2% above the population objective for this unit and the 10 year trend has been at the population objective (WGFD 2007). These two allotments are characterized by the sagebrush steppe ecotone. Pronghorn habitat consists of water and low-growth sagebrush in combination with rabbitbrush and bitterbrush. Due to the size of the pronghorn herd, WGFD is currently striving to maintain the pronghorn herd at the population objective in these two allotments.

The Leavitt Creek and Leavitt Bench Allotments occur within the boundaries of the Uinta Mule Deer Herd Unit number MD423. The mule deer population is currently at the population objective for this unit and the 10 year trend is at or slightly below the population objective (WGFD 2007). These allotments are characterized by the sagebrush steppe ecotone. Mule deer habitat consists of water and low-growth sagebrush in combination with rabbitbrush and bitterbrush. WGFD is striving to increase the mule deer population in these two allotments.

Based on information contained in the BLM Wildlife Clearance forms, BLM biologists have concluded that renewal of the two grazing permits analyzed in this EA, with modified terms and conditions, will not contribute to the listing of any BLM Sensitive Species. The BLM does not apply timing stipulations to grazing permits, because adhering to the Standards and Guidelines should maintain the range for multiple uses. Additionally, in a letter dated October 30, 2008, the Wyoming Game and Fish Department stated there are no terrestrial or aquatic wildlife concerns pertaining to the renewal of the grazing permit for the Leavitt Creek and Leavitt Bench Allotments.

3.4 Water Quality

Although the water quality standard for this allotment is unknown, there are no waters in the allotment listed on the Wyoming Department of Environmental Quality's impaired waterbody list or monitoring list. Also, none of the streams in the allotment are listed on the August 17, 1998 State of Wyoming Approved Clean Water Act Section 303(d) list of waterbodies with credible impairment data.

3.5 Cultural Resources

For the Leavitt Creek Allotment, BLM Archaeologists conducted a literature review and completed the National Historic Preservation Act compliance review required under Section 106 on February 5, 2008. The literature review revealed that four inventories have been conducted in the allotment vicinity. Linear survey coverage within the Leavitt Creek Allotment identified two prehistoric cultural properties, neither of which were evaluated as eligible for listing on the National Register of Historic Places. These surveys concluded that no effects on any cultural resources had been documented as attributable to authorized grazing use.

For the Leavitt Bench Allotment, BLM Archaeologists conducted a literature review and completed the National Historic Preservation Act compliance review required under Section 106 on February 5, 2008. The literature review revealed that 14 previous inventories had been completed in the allotment vicinity. Approximately 22% of the Leavitt Bench Allotment has been surveyed for cultural resources resulting in the location of 10 sites. Six of the sites are listed as eligible for listing on the National Register of Historic Places and four were listed as not eligible. These surveys concluded that no effects on any cultural resources had been documented as attributable to authorized grazing use.

The compliance review concluded that pursuant to the Revised Wyoming State Protocol IV A.1, the undertaking has no potential to affect historic properties because issuing these leases does not authorize or promote surface disturbance and renewal of grazing leases/permits where type of animals and seasons of use do not change are exempt from further cultural review.

The compliance review contained the following standard stipulations for continued grazing on the Leavitt Creek and Leavitt Bench Allotments:

1) Authorization is for standard livestock grazing only. Any related projects (e.g. fence lines, water pipelines and troughs, spring developments, reservoirs, etc.) and locations for feed supplements (e.g. crystalyx and other mineral feed supplements etc.) within the allotment boundaries require separate authorizations.
2) If future grazing activity within the allotment boundaries should expose previously undetected cultural resources or if BLM determines that significant historic properties are being damaged by grazing activities within the allotment boundaries, the terms and conditions of the permit will be amended to protect any such historic properties until such time as protective barriers and/or mitigation of these adverse impacts can be conducted.

3.6 Lands and Realty

Uinta County adopted a Comprehensive Plan in 2002-2003, which establishes guidelines for industrial, commercial, and residential developments. This plan emphasizes the value and need

to conserve natural resources such as open space, wildlife, natural vegetation, soil, water, and cultural resources. The plan also establishes County Policy for balancing the preservation of natural resources with developments and establishes goals for encouraging conservation of natural resources. According to information provided in an e-mail dated October 23, 2008, the Uinta County Planner indicated there are no industrial, commercial, or residential developments planned in or adjacent to the Leavitt Creek or Leavitt Bench Allotments (K. Williams personal communication 2008).

3.7 Social and Economic Conditions

According to statistics published by the USDA National Agricultural Statistics Service in the 2007 Census of Agriculture, Uinta County had 344 active farms and ranches with a total acreage of 742,809. Ranches contained approximately 44,000 cattle and 41,000 sheep valued at approximately $50 million. These data clearly show the economy of Uinta County benefits from livestock grazing operations, the related capital spent to establish and maintain ranching operations, and contributions to the labor force. Additionally, both the Leavitt Creek and Leavitt Bench Allotments are in a largely undeveloped and rural area. Tourism is an important industry, attracting visitors who enjoy the rural isolated nature of the area. Livestock grazing, for some people, compliments the frontier setting they seek in their visits to this area.

There are two permittees using the Leavitt Creek and Leavitt Bench Allotments, and the BLM establish a balance of livestock numbers and season of use such that any substantial change in grazing would negatively affect the overall ranching operation. A 1991 study by economists at the University of Wyoming (Moline et.al 1991) revealed that agriculture is an important source of export income for the state's economy. The study also showed that the great majority of inputs to agricultural production come from within the state, and that profits and other income from agricultural production tend to stay within the state. Taken together, these findings indicate that agricultural production is an important contributor to the state's economy. In a 2000 study, economists at the University of Wyoming (Taylor and Coupal 2000) compared the income provided to county governments and public schools to the financial demands on community services by agricultural and residential developments. The study shows that on average in Wyoming, ranching activity generates nearly twice as much income for the community services as it requires in expenditures on community services, whereas residential development generates about half as much income as it requires in expenditures. These findings underscore the importance of agricultural production in terms of contributions to local economies. Ranching in the Leavitt Creek and Leavitt Bench Allotments contributes to this local and statewide trend.

Public lands in the Leavitt Creek and Leavitt Bench Allotments are integral to small family ranching businesses. The grazing permit allows access to public lands thereby consolidating the livestock operation and contributing to livestock production, which is the main source of income for these ranching families. The grazing permit also contributes the rancher's lifestyle and the cultural image of Wyoming as the "Cowboy State."

Public Lands contribute to the receipts of the state in which they are located through "Payment of In Lieu of Taxes" by the federal government. The two allotments analyzed in this EA were established according to provision of Section 3 of the Taylor Grazing Act. For Section 3 allotments, 50% of the fees collected from the grazing permit are distributed through the BLM's

range improvement fund, 12.5% are allocated to the State, and 37.5% are allocated to the National Treasury. In Wyoming, the 12.5% is administered by the grazing advisory board established under Wyoming Revised Statue 9-571 and 9-572. Counties also collect taxes on the ranches livestock and real property based on the assessed taxable values.

Chapter 4 Environmental Consequences

4.1 Livestock Grazing Management

The scarcity and sporadic distribution of water developments on BLM lands results in livestock congregations in private riparian areas. These livestock congregations and the resulting extensive utilization of riparian areas and adjoining upland areas present the greatest challenge to livestock grazing management in the Leavitt Creek and Leavitt Bench Allotments.

Impacts of the No Action Alternative

Renewal of the existing grazing permit with the same terms and conditions would allow the continuation of the livestock congregation in riparian areas. Extensive utilization of forage in riparian areas and soil compaction from livestock congregations would continue. The riparian areas in Leavitt Creek and Cottonwood Creek would be expected to continue functioning at risk as defined by the PFC assessment. Under the No Action alternative, livestock grazing under existing terms and conditions and according to provisions of the KFO LUP would continue.

Impacts of the Proposed Action

The proposed action could produce positive benefits to the environment compared to the No Action Alternative because movement of mineral supplements would facilitate redistribution of livestock in the two allotments analyzed in this EA, but would be a minor inconvenience to permit holders. The limiting of stubble height on green lines has proven to be an effective tool in limiting the negative impacts of livestock and wildlife grazing on riparian areas (Hall and Bryant, 1995; U of Idaho, 2004).

The Proposed Action would likely create a change in the grazing pattern by attracting livestock away from riparian areas thereby reducing the current level of trampling and vegetation utilization in these areas. Utilization of forage and soil compaction in riparian areas could be reduced. A livestock management practice, such as this, that attracts livestock away from the riparian areas should contribute to the proper functioning of riparian areas as defined by the PFC assessments and could maintain stubble heights of 4-6 inches. Standard grazing management would allow for maintenance of existing water developments and construction of new waters, which indirectly benefit wildlife. Grazing management under these revised terms and conditions would be in conformance with the KFO Land Use Plan and the Wyoming Standards for Healthy Rangelands. Implementation of the proposed action could produce incremental beneficial improvements to the range by facilitating uniform livestock grazing distribution. Improvements in the range condition of riparian areas would produce beneficial impacts to wildlife by increasing nesting, foraging, and roosting habitats.

Impacts of the No Grazing Alternative

Removal of livestock from BLM owned lands in the Leavitt Creek and Leavitt Bench Allotments would contribute to reducing livestock congregations. However, livestock grazing on private and state owned lands within and adjacent to these two allotments would continue to produce direct

effects equivalent to those observed under the No Action Alternative. BLM would have little to no regulatory authority over livestock grazing in these two allotments thereby severely reducing the agency's management flexibility.

Ranching operations and lifestyle would be curtailed dramatically for the permittees on these allotments. Loss of the grazing permit may force permittees to sell private lands associated with these allotments resulting in landscape level fragmentation produced by development. Implementation of this alternative would not allow BLM to meet its congressional mandates for multiple use and sustained yield and would not allow implementation of compatible land use decisions specified in the KFO Land Use Plan. Range management practices would focus on large ungulates such as deer and elk. BLM would not collect grazing fees thereby reducing the agencies ability to build range improvements that are also used by wildlife.

4.2 Soils

Impacts of the No Action Alternative

Renewal of the existing grazing permit with the same terms and conditions would allow continuation of the livestock congregation in riparian areas. Livestock congregations result in extensive forage utilization which produces less standing biomass and litter, both of which are needed for surface cover to protect soils from wind and water erosion. Grazing under the No Action Alternative would be expected to maintain and continue the current level of soil compaction and erosion conditions.

Direct impacts to soils could result from Livestock's inherent tendency to develop trails to and from water, mineral supplements, and along fences. Impacts from stock trails could include erosion which can be visible from a distance. Soil along some portions of fences, waterways and trails can be compacted due to concentrated livestock use. Soil compaction can result in greater exposure to wind and water erosion, could reduce soil crusts and lower forage production. Overgrazing on privately owned riparian areas resulting from livestock congregations can impair the integrity of the soils and add to sediment load in waterways.

The uneven livestock grazing distribution occurring under the No Action Alternative indirectly impacts soil conditions in the watershed. Naturally occurring sediment normally gets trapped by vegetation near streams as it is carried downstream from the uplands by rain or snow melt. However in heavily grazed riparian areas, resulting from livestock congregations, heavy forage utilization allows some of the sediment to get past the vegetation trap.

Impacts of Proposed Action

The proposed action could produce positive benefits to the environment compared to the No Action Alternative because movement of mineral supplements would facilitate redistribution of livestock grazing in the Leavitt Creek and Leavitt Bench Allotments. Utilization of forage and soil compaction in riparian areas would be reduced. The reduction of livestock congregations and dispersion of forage utilization would produce less intensive forage utilization levels which would lead to increases in plant biomass production resulting in adequate soil protection. Implementation of the proposed action could produce incremental beneficial improvements to soil conditions by facilitating uniform livestock grazing distribution. Management and uniform

distribution of livestock grazing can produce appropriate use of vegetation and avoid excessive amounts of downstream sediment runoff.

Impacts of the No Grazing Alternative

Removal of livestock from BLM owned lands in the Leavitt Creek and Leavitt Bench Allotments would contribute to reducing livestock congregations leading to an improvement in soil conditions and reduced utilization of riparian areas. However, livestock grazing on private and state owned lands within and adjacent to these two allotments would continue to produce direct effects on soils equivalent to those observed under the No Action Alternative.

Removal of livestock from public lands on the two allotments analyzed in this EA should lead to decreased hoof compaction, especially in riparian areas where livestock tend to congregate. Over time, the lack of renewed compaction, combined with the annual freeze-thaw cycle, may lead to a decrease in surface soil density and improved soil condition. However, livestock grazing, and its attendant impacts, would probably continue on adjacent private and state-owned lands in the checkerboard areas.

If livestock were removed from the Leavitt Creek and Leavitt Bench Allotments, 468 AUM's of harvestable forage would be excluded from livestock use. The resulting increase in available plant biomass would produce an increase in ground cover providing more protection from wind and water erosion. Livestock trails and the resulting erosion would heal over time. Complete healing would not be expected because wildlife and people would continue to follow some trails established by livestock.

Removal of livestock grazing from the federally-owned sections within the allotments analyzed in this EA may produce an indirect benefit to the watershed through the potential increased vigor of cool-season grasses and sedges within the riparian zones. Improved health and vigor of these plants may help stabilize the stream banks and increase filtration of sediment from runoff. Improved plant cover and re-colonization by bunchgrasses is likely to be slower in the uplands, where plant-available water supplies are more limited. Increased ground cover should reduce rain-induced erosion as well as increase infiltration, leading to reduced runoff. However, this expected recovery would be limited in areas where grazing-tolerant plants have become so dominant as to limit availability of light, space and water.

If grazing were to continue on privately-owned lands in these allotments, fences would have to be built by the landowner(s) to prevent trespass onto federally owned lands. Given the natural tendency of cattle to congregate and trail along fence lines, it is likely that paths and forage depletion would occur along the fences. The resultant decrease in canopy cover would fail to decrease the impact of raindrops on the soil surface, while the expected increase in compaction would increase runoff from both rain and snowmelt. These factors would combine to increase the likelihood of both wind and water erosion in the areas adjacent to fences. This may result in blowouts and gullies which could impact the federal lands in these allotments through deposition or by the eroding area actually spreading into the federal lands.

4.3 Biological Resources

4.3a Riparian and Wetland Vegetation

Impacts of the No Action Alternative

Renewal of the existing grazing permit with the same terms and conditions would allow continuation of the livestock congregation in riparian areas. Field observations by BLM range management staff have documented livestock congregations which result in extensive utilization of forage in riparian areas, both privately and publicly owned. The PFC assessment conducted in 1998 showing portions of Leavitt Creek on BLM lands were functioning at risk would continue. The raw banks denuded of vegetation, active headcuts, and limited regrowth of willow and sedge that results in excessive runoff and contributes to accelerated erosion, heavy sedimentation, and streambank instability would continue. The livestock congregations that produce lower stubble heights, trampling, compaction, erosion, sedimentation, and fecal contamination would continue. Water diversions for private land irrigation would continue to negatively impact riparian vegetation.

Impacts of Proposed Action

The proposed action could produce positive benefits to the environment compared to the No Action Alternative because movement of mineral supplements would facilitate redistribution of livestock in the Leavitt Creek and Leavitt Bench Allotments. Utilization of forage and soil compaction in riparian areas could be reduced. The reduction of livestock congregations and dispersion of forage utilization could improve stream channel characteristics and functioning ability. Implementation of the proposed action could produce incremental beneficial improvements to forge conditions in riparian areas by facilitating uniform livestock grazing distribution. Uniform livestock grazing distribution and the resulting uniform vegetation utilization would reduce over grazing on privately owned riparian areas and could be considered a beneficial indirect effect. Water diversions for private land irrigation would continue to negatively impact riparian vegetation.

The Proposed Action would also require permittees to participate in range monitoring to ensure stubble height of 4-6 inches for highly palatable forbs, sedges, and grasses. This modification to the terms and conditions in the Proposed Action could prevent stubble height from getting below 3 inches, a point at which livestock grazing preference shifts to riparian shrubs and young trees causing unacceptable impacts to riparian areas (Hall and Bryant 1995). Livestock sometimes concentrate around certain springs and streams in the allotment, resulting in lower stubble heights, trampling, compaction, erosion, sedimentation, and fecal contamination. BLM has a very limited ability to regulate stubble height usage on privately owned riparian areas, resulting in many of these privately owned riparian areas in the two allotments analyzed in this EA showing signs of over utilization.

Impacts of the No Grazing Alternative

Removal of livestock from BLM owned lands in the Leavitt Creek and Leavitt Bench Allotments would contribute to reducing livestock congregations leading to an improvement in the PFC assessments and reduced utilization of riparian areas. However, livestock grazing on private and state owned lands within and adjacent to these two allotments would continue to produce direct effects in riparian areas equivalent to those observed under the No Action Alternative. Water diversions for private land irrigation would continue to negatively impact riparian vegetation.

On BLM owned riparian areas, plant populations within the communities that are commonly grazed would have an opportunity to complete all phenological stages. Riparian vegetation would be available for wintering big game. Indirect impacts to the ecological function of these plant communities would continue to be associated with the environmental perturbations associated with fire, insect, and invasive species.

On most streams, removal of livestock would likely decrease channel width, promote more stable banks, decrease water temperature, promote woody vegetation growth and development, raise the water table, promote more continuous waterflow, and reduce sediment loads (Kauffman & Krueger 1984, Dobkin *et al* 1998, Myers & Swanson 1995). In many cases, total removal of livestock provides the greatest protection for riparian and wetland systems (Belsky et al 1999, Fleischner 1994).

In addition, depleted or denuded areas are very vulnerable to invasion by poisonous or noxious weeds which could then invade the federally owned lands. Vegetation near streams would only be grazed by wildlife, leaving more biomass to filter the natural sediment carried into the waterways by precipitation.

4.3b Upland Vegetation

Impacts of the No Action Alternative

The checkerboard land ownership pattern adjacent to these two allotments limits BLM's ability to manage large tracts of land. Management of the small tracts is not sufficient to produce changes in the successional stages of the landscape. Therefore the allotment will continue to be dominated by the late seral stages of plant succession. The allotment will continue to be characterized by older mature stands of upland vegetation that have limited capability to produce the diverse composition and age classes needed to stabilize soils, reduce water infiltration rates, and minimize erosion, which are three primary factors that produce high quality upland vegetation. Recolonization by perennial grasses will be limited resulting in large areas of bare ground.

Indirect impacts to vegetation occur in areas of moderate to severe utilization and include shifts in the vegetative community toward species less palatable to livestock or more resistant to grazing pressure. The livestock grazing congregations produced by the No Action Alternative can produce a downward trend in ecological conditions, where cool season bunch grasses and native riparian species decrease, while sagebrush and short-grasses increase on the uplands, and non-native mesic species increase near the riparian areas.

Impacts of the Proposed Action

The proposed action could produce positive benefits to the environment compared to the No Action Alternative because movement of mineral supplements would facilitate redistribution of livestock grazing in the Leavitt Creek and Leavitt Bench Allotments contributing to uniform utilization of forage. Indirect impacts would occur under this alternative because the checkerboard land use pattern adjacent to these two allotments will continue to limit BLM's ability to manage upland vegetation on a landscape basis.

Impacts of the No Grazing Alternative

Removal of livestock from these two allotments would eliminate livestock congregations leading to a reduction in utilization of upland areas adjacent to riparian areas. Ranching operations and lifestyle would be curtailed dramatically for the permittees on these two allotments. Implementation of this alternative would not allow BLM to meet its congressional mandates for multiple use and sustained yield.

An indirect effect from removal of cattle from public lands could be an increase in the risk of catastrophic wildfire. The removal of cattle would be expected to increase the quantity of vegetation in the upland areas, which would dry out during the growing season thereby producing an increased fuel load.

4.3c Wildlife, Viable Populations of Native Plants and Animals

Impacts of the No Action Alternative

Renewal of the existing grazing permit with the same terms and conditions would maintain conditions of plant communities within the Leavitt Creek and Leavitt Bench Allotments that are capable of sustaining viable populations and diversity of native plant and animal species appropriate to the area. Renewal of the existing grazing permit would produce no additional negative impacts to the sage grouse utilizing the fringes of the allotments. The extensive forage utilization observed in privately owned riparian areas in the Leavitt Bench Allotment resulting from livestock congregations, has also produced an abundance of forage in the more rugged publicly owned upland areas that are the crucial big game winter range. Therefore, continuation of the existing grazing permit would not produce any additional negative impacts to wintering big game.

Impacts of Proposed Action

The proposed action could produce positive benefits to the environment compared to the No Action Alternative because movement of mineral supplements would facilitate redistribution of livestock in the Leavitt Creek and Leavitt Bench Allotments thereby reducing the extensive forage utilization observed in the privately owned riparian areas in the Leavitt Bench Allotment. The KFO would implement the stipulations contained in the BLM National Sage Grouse Conservation Strategy (USDI 2004) and the Wyoming Game and Fish Greater Sage Grouse Conservation Plan (WGFD 2003) when warranted. Potential negative affects to BLM sensitive species were addressed in the PROPOSED FEIS for the Kemmerer Resource Management Plan (*2009*) Section 3.4.8, to which this document is tiered. Grazing management under these revised terms and conditions would be in conformance with the KFO LUP.

Grazing has the potential to degrade sage grouse nesting habitat, or improve it under some circumstances (late brood rearing and fall) by changing the composition, quantity, or quality of vegetation and litter. The Proposed Action will likely assist in uniform distribution of livestock thereby reducing the likelihood of over utilization of brood rearing habitat. Uniform livestock distribution could also provide a potential benefit to sage grouse in late brood rearing and fall habitats if cattle are allowed to remove rank vegetation from riparian areas and then be removed before damage to riparian areas occurs.

The effects of livestock grazing under the Proposed Action on wildlife could be minimal because actions undertaken to improve rangeland and riparian habitat (livestock water developments, exclosures, fencing, and conversions) must meet the Wyoming Standards for Healthy Rangelands. Forage utilization levels would be evaluated on a case-by-case basis and would consider habitat conditions and forage for livestock and wildlife. Water developments could benefit wildlife by providing additional sources of water but could also adversely impact wildlife habitat, particularly in sensitive habitats, through possible reductions in forage and cover due to increased distribution of animals. However, implementation of the Wyoming Standards for Healthy Rangelands would ensure that impacts were not significant. Adverse impacts of fences on wildlife could be minimal because of location requirements that will not impede wildlife movement and that fences be removed, modified, or reconstructed where documented conflicts with wildlife occurred. Future livestock conversions (sheep to cattle or vice versa) would be carefully analyzed.

Impacts of the No Grazing Alternative

Removal of livestock from these two allotments would contribute to reducing livestock congregations leading to an improvement in the PFC assessments and reduced utilization of riparian areas. All stipulations and mitigations listed in State and Federal sage grouse conservation strategies could be fully implemented on federal lands. Removal of livestock from BLM owned lands would increase the amount of undisturbed habitat available to BLM sensitive species especially ground nesting birds.

If the No Grazing Alternative were implemented, ranchers may be inclined to fence private lands to prevent livestock trespass onto public lands. Considering the importance of this allotment as big game crucial winter range, fencing would have an indirect effect by creating a serious impediment to seasonal migration of some big game animals, especially pronghorn antelope (Spillett, J.J. et.al. 1967, Yoakum J.D. 1979, and JHWF 2001)..

4.4 Water Quality

Impacts of the No Action Alternative

Portions of Leavitt Creek in the Leavitt Creek Allotment and Cottonwood Creek in the Leavitt Bench Allotment are not listed in the State of Wyoming Department of Environmental Quality impaired waterbody list or in the 303(d) report. Because livestock have been grazing this allotment for decades, and the creeks are not on the impaired waterbody list, suggests continuation of grazing at current levels will not immediately produce stream degradation. Therefore implementation of this alternative would have no impacts on water quality as it relates to the impaired waterbody list.

Impacts of the Proposed Action

Implementation of this alternative could contribute to improvements in water quality by reducing livestock congregations in riparian areas, which contributes to soil erosion. Reduction of soil erosion is a watershed management action that could provide benefits to wildlife by maintaining or restoring riparian habitat.

Impacts of the No Grazing Alternative
In the absence of livestock, slight improvements in water temperature, turbidity, and nutrient loads may occur. Therefore implementation of this alternative could have slight incremental beneficial impacts to water quality as compared to the No Action Alternative.

4.5 Cultural Resources
Impacts of the No Action Alternative
BLM Archaeologists concluded that standard grazing will have no effect on known cultural resources in the KFO provided recommended stipulations are implemented.

Impacts of the Proposed Action
No negative impacts to cultural resources would result from implementation of standard grazing. In addition, movement of mineral supplements ¼ mile away from known archaeological sites would produce incremental beneficial impacts to known sites by reducing ground disturbances caused by cattle using salt licks over an extended period of time.

Impacts of the No Grazing Alternative
Implementation of this alternative would have the same impacts as the No Action Alternative.

4.6 Lands and Realty
Impacts of the No Action Alternative
Renewal of the Leavitt Creek and Leavitt Bench Allotments existing grazing permit with the same terms and conditions would not conflict with the goals and objectives of the Uinta County Comprehensive Plan. Although there currently are no planned industrial, commercial, or residential developments in or adjacent to the allotments, grazing as authorized under the existing permit would not affect any future developments.

Impacts of the Proposed Action
Implementation of this alternative would have the same impacts as the No Action Alternative.

Impacts of the No Grazing Alternative
Implementation of this alternative would have the same impacts as the No Action Alternative.

4.7 Social and Economic Conditions
Impacts of the No Action Alternative
Renewal of the Leavitt Creek and Leavitt Bench Allotments existing grazing permit with the same terms and conditions would not reduce the economic benefits produced by ranching in the region. Under the No Action alternative, livestock grazing under existing terms and conditions and according to provisions of the KFO Land Use Plan would continue and there would be no impact to the ranching community, culture, or tradition.

Impacts of the Proposed Action
Implementation of this alternative would have the same impacts as the No Action Alternative.

Impacts of the No Grazing Alternative

Cancellation of the existing grazing permit for the Leavitt Creek and Leavitt Bench Allotments, under the No Grazing Alternative, would have negative impacts on the regions Socio-Economic conditions because private ranchers would be unable to sustain an economically viable ranching operation resulting in the permittees sustaining adverse economic impacts. If grazing were to be prohibited on BLM lands, the private lands within these two allotments could be sold for residential developments, which have less potential to generate income for community services. The grazing capacity of other federal permits or private leases may not accommodate the increased use or meet land management requirements.

The lack of fences would result in unauthorized grazing use onto BLM lands. Livestock trespass onto BLM lands would result in administrative costs to the agency. As an indirect effect of removing livestock from this allotment, BLM may have to expend a considerable amount of funds to fence out livestock from publicly owned lands. Adjacent private landowners could prevent BLM from accessing public lands thereby reducing the agencies management flexibility.

Permittees on these two allotments use public lands as an extension of their grazing operations on private and state lands. Because grazing on private and state land would continue if the grazing permits for these two allotments were not renewed, the number of livestock in the area may not change. If the grazing permits for BLM owned lands were cancelled, permittees would be forced to make changes in their current livestock operations, which would vary in degree and effect. Changes would include possible increase in inputs such as fencing or herding to assure that cattle remain on private or state land. This increase in inputs may make grazing on adjacent state and private lands untenable for ranchers. This in turn could result in the need for permittees to downsize or eliminate their grazing operations.

4.8 Cumulative Impacts

Current conditions in the project area result from a multitude of natural events and human actions that have taken place over many decades. Cumulative effects are defined as the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" (40 CFR § 1508.7). According to the 1994 BLM Handbook "Guidelines for Assessing and Documenting Cumulative Impacts," the analysis can be focused on those issues and resource values identified during scoping that are of major importance. After review of responses to scoping and available information, BLM identified the following issues as having the highest likelihood of generating potential cumulative impacts when added to activities associated with the Proposed Action. Major issues include wildlife, water quality, grazing management, and socio-economics.

The cumulative impact analysis contained in this EA evaluates the potential impacts associated with the Proposed Action in combination with the potential impacts associated with other relevant activities that have occurred, are occurring, or may occur in the project area. The geographic scope of the cumulative impact analysis for this environmental assessment encompasses the public and private lands in the northern portion of the Green River watershed. The two allotments analyzed in this EA contain minimal oil and gas development, however additional development is occurring and is expected to continue in the area northeast of these two allotments. Wind turbines are located on private lands west of these two allotments, with

appropriate right-of-ways granted and analyzed accordingly (BLM, 2002). Major actions in the future are the proposed Gateway West Transmission Line which, depending on the route selected, will pass within approximately 25 miles north of the allotments analyzed in this EA. In addition, the proposed route for a 42" natural gas pipeline (Ruby Pipeline) will proceed about 25 miles north of these two allotments. A discussion of past, present, and foreseeable future actions follows.

Grazing Management

Historically, the KFO permitted millions of sheep AUM's but that trend has decreased dramatically due to market conditions. Sheep prefer a diet composed of forbs whereas cattle feed predominantly on grasses. Sheep also use steep topography and plant communities that cattle do not such as saltbush flats, and desert shrub. Cattle generally move less than one mile from a water source whereas sheep herders can force these animals away from riparian areas after drinking. The change from sheep to cattle grazing, over time, has contributed to an increase in cumulative effects to riparian vegetation and wildlife habitat. Additional impacts to wildlife habitat occur from land disturbing activities such as road building, OHV activity, wildland fires, residential and commercial development, and oil and gas development.

Within the KFO, wildland fires and other natural events, contribute to changing landscape conditions, a trend that is expected to continue in the future. Grazing permits would be adjusted to maintain rangeland health standards when fire, drought, and other uncontrollable natural events occur. Future grazing authorizations with the revised terms and conditions assure that vegetative habitats maintain their range of phenological stages, composition, and vigor.

Season-long livestock use on some allotments could have a minor contribution to negative cumulative impacts by decreasing the abundance and vigor of riparian plant species. Season-long grazing combined with other past, present, and future land uses, such as fire, oil and gas development, and OHV traffic, could contribute to changes in vegetative composition toward more shallow rooted plants adapted to dryer sites. The combination of these land uses over time could leave stream banks without adequate vegetation protection from damage due to livestock trampling and high water events. The long-term affect on the landscape produced by a combination of these land uses over time could be decreased water storage capacity and forage production.

Uniform livestock grazing distribution resulting from implementation of the modified terms and conditions contained in the Proposed Action in conjunction with proper management of other past, present, and future land uses could be expected to improve wildlife habitat along with range and vegetation conditions. Both forage quality/quantity and plant physical structure for mule deer, antelope, and elk could be expected to improve over the current situation.

Socio-Economics

BLM works with the Uinta County Planning Department to reduce and control private subdivision proliferation and trespass onto adjoining public lands. The communities that occupy the KFO have generally been stable and small, although the residential development trend is increasing. Obviously, these permanent alterations have irreversibly committed land to housing development, resulting in fragmentation of plant/animal habitat, altered scenic vistas, etc.

Overall, the greatest potential development impact to habitat would occur from housing development on remaining scattered private land tracts throughout the KFO. Increased property values have created a strong real estate market prompting landowners to pursue subdivision development, reducing small acreages of habitat in several locations.

If the No Grazing Alternative were chosen, the loss of federal grazing on BLM administered lands could negatively impact the economic viability of ranching in the area for the foreseeable future. As livestock ranches in the West become less economical, a trend towards subdivision and small rural home sites on the private land holdings has developed. The social impact is a change in lifestyle away from ranching and agriculture. Urban development throughout southwestern Wyoming could increase as a result of removing grazing from the public lands. However a trend toward subdivision is already in place on private lands in Uinta County. This occurs on lands traditionally used for agriculture as well as on non-agricultural lands. Some grazing lessees and other landowners have already begun to subdivide private property, leaving less private land available for agricultural use and putting more pressure on surrounding public lands for livestock grazing.

The loss of revenue produced by canceling these grazing permits would impact those businesses and industries that supply goods and services to livestock operators large and small. The high cost of hay and other feeds combined with the necessity to have pasture available for animals could force permittees to reduce livestock numbers beyond the simple adjustment needed to subtract public AUMs. This could mean the end of the major source of income for these permittees for the foreseeable future.

Wildlife

Minor landscape level negative cumulative impacts to vegetation and wildlife could occur from the combined influences of grazing and other past, present, and future land uses in these two allotments. However, uniform livestock grazing produced by implementation of the Proposed Action, in combination with other past, present, and future land uses, is expected to maintain or improve the physical structure and ecological function of plant communities. For example, these two allotments consists of a mixture of upland sage, grass-steppe, and mixed juniper. These plant communities provide habitat for a variety of small mammals such as ground squirrels, prairie dogs, shrews, bats, and various other rodents, rabbits, and burrowing species. In addition, a variety of small bird species, both migratory and year-round residents, may also occur in the area. These species are, in turn, preyed upon by larger carnivores such as fox, coyote, mountain lion, bear, badger, skunk, and by raptor species such as golden eagles and various hawks. Proper management of the multiple uses of BLM owned lands, including grazing, could improve the biodiversity of both plant and animal communities at the landscape level.

The majority of cumulative effects on wildlife habitat would result from surface disturbing and disruptive activities, such as mineral development and associated wells, roads, pipelines, and facilities; rangeland improvements; and other such activities (e.g., geophysical exploration). Effects would be in the form of habitat fragmentation and animal displacement. Vegetation treatments in the form of prescribed burns could also affect wildlife resources, particularly greater sage grouse.

Loss of vegetation due to residential or commercial development could result in a reduction in available habitat and quality of habitat and could result in increasing forage competition among grazing animals. Habitats could be made unavailable to wildlife because of human disturbance factors such as traffic, noise, or increases in livestock during sensitive time periods such as winter, parturition, nesting, and early rearing of young. Impacts on wildlife could be significant if activities were concentrated in areas of sensitive wildlife habitat and/or if increased development and surface disturbance altered existing migration corridors to the extent that access to important habitat areas was greatly reduced. Livestock water developments could be beneficial to wildlife by opening areas for forage consumption that are currently not available due to lack of water or distance from water. Effects from vegetation treatments, such as prescribed burns, could benefit most wildlife species through an increase in grass and forb species and vegetation production from conversion of high-density sagebrush to sagebrush/grass communities.

Habitat fragmentation occurs when a contiguous habitat is broken up (fragmented) by ground disturbing activities, causing a reduction in usable ranges and the isolation of smaller, less mobile species; a loss of genetic integrity within species or populations; and an increase in the abundance of habitat generalists that are characteristic of disturbed environments (i.e., competitors, predators, and parasites). The primary fragmentation factor affecting wildlife species (especially big game) is the reduction in usable habitat and the disruption of migration corridors. Transportation routes tend to fragment habitats and can act as barriers to some species, especially in severe winter conditions. Fragmentation factors affecting wildlife in the two allotments analyzed in this EA include state highways, rural roads, mineral development infrastructure, and rivers.

Rocky Mountain Elk

Elk are susceptible to displacement by human activities because of the lack of hiding and escape cover in this herd management unit. Persistent disturbance can shift the areas of use and weakens the tendency to return to the disturbed area. Mineral development generally causes the greatest disturbance effects to elk through direct loss of habitat, animal displacement, and disruption of migration corridors. Dispersed grazing with the limited numbers of livestock in the two small allotments analyzed in this EA would likely have a very minor and insignificant contribution to disturbance and habitat fragmentation.

Pronghorn Antelope

Roads, fences, and pipelines can fragment pronghorn habitat and can impede or block movement. The density at which these factors occur could have a significant effect on antelope migration and use of habitat. Mineral development would have the greatest adverse effects on pronghorn antelope herds through habitat fragmentation resulting from the proliferation of roads, pipelines, and wells. Depending on the timing of activities and the location of surface disturbance, the potential exists for disruption of crucial winter range continuity and migration corridors between key habitats. Dispersed grazing with the limited numbers of livestock in the two small allotments analyzed in this EA would likely have a very minor and insignificant contribution to disturbance and habitat fragmentation. There is some potential for positive impacts to pronghorn from the reduced competition for preferred forage types with the reduction in historic numbers of sheep.

Mule Deer

Mule deer tend to avoid areas of disruptive activity and are more sensitive to activity in open versus forested habitat. Mineral development would have the greatest adverse effects on mule deer habitats through direct loss of habitat and animal displacement. Depending on the timing of activities and the location of surface disturbance, the potential exists for long-term disruption of migration corridors between key parturition habitats. Dispersed grazing with the limited numbers of livestock in the two small allotments analyzed in this EA would likely have a very minor and insignificant contribution to disturbance and habitat fragmentation.

Greater Sage Grouse

Greater sage grouse populations have been declining over the last half century due to habitat fragmentation, degradation, and loss. Mineral development has the greatest potential to impact greater sage-grouse populations through direct habitat loss from well, road, pipeline, and transmission line construction; increased human activity and associated pumping noise causing displacement; increased legal and illegal harvest; and direct mortality associated with evaporation ponds and increased exposure to predation (Holloran 2005). These activities would result in direct loss of habitat, habitat fragmentation, and animal displacement (short or long term), depending on the amount, location, and timing of activities. Vegetation treatments in the form of prescribed burns could also affect greater sage-grouse through removal of large areas of sagebrush, conversion of sagebrush habitats, and increases in invasive species. Provided that the use of vegetation treatments is carefully evaluated before implementation, effects of treatments should not lead to long-term displacement of greater sage-grouse and could improve habitat for greater sage-grouse in some areas.

Greater sage-grouse nesting and wintering habitat requirements are quite specific. If this habitat were disturbed, it could require in excess of 20 years to restore affected habitat to predisturbance conditions. During this time, however, opportunities might exist to enhance remaining vegetation and habitat characteristics to provide more suitable habitat than currently exists. Dispersed grazing with the limited numbers of livestock in the two small allotments analyzed in this EA would likely have a very minor and insignificant contribution to disturbance and habitat fragmentation. Dispersed grazing also has the potential to improve sage grouse habitat (late brood-rearing and fall) by changing the composition, quantity, or quality of vegetation and litter in sage brush communities.

Water Quality

Cumulative impacts to soils and watersheds associated with livestock grazing congregations accrue over time and are additive on a landscape scale. The two allotments analyzed in this EA are all in the Upper Green River drainage. The two flowing streams in these allotments, Leavitt Creek and Cottonwood Creek both drain into a section of the Smith Fork River, which is on the Section 303(d) impaired waters list. These two allotments are located in two watersheds which are contributing to the sedimentation problem in the Smith Fork River. According to information contained in Wyoming's Integrated State Water Quality Assessment Report, habitat modifications are the major cause of the sedimentation problems in this stretch of the Smith Fork River, and *E.coli* and fecal coliform bacteria also contribute to listing (Wyoming DEQ 2008). The major causes of habitat modifications are soil disturbances from the railroad, highways, OHV activity, construction of infrastructure for oil and gas developments, and residential or

commercial developments in Lyman and Mountain View, WY. Dispersed grazing with the limited numbers of livestock in the two small allotments analyzed in this EA would likely have a very minor and insignificant contribution to sedimentation compared to the major habitat modifications occurring in the watershed. Additional habitat modification projects which could contribute to the sedimentation problem in the foreseeable future are the Gateway power transmission line and the Ruby natural gas pipeline. Appropriate mitigation and project design during site-specific analysis could minimize offsite sedimentation.

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