



U.S. Department of the Interior
Bureau of Land Management
High Desert District
Kemmerer Field Office



ENVIRONMENTAL ASSESSMENT: WY-090-EA09-19

SAGE CREEK ALLOTMENT SPLIT & ASSOCIATED GRAZING MANAGEMENT: SAGE CREEK (#01449), CHRISTENSEN (#11108) AND WESTFORK (#01428) ALLOTMENTS



The Bureau of Land Management is responsible for the balanced management of the public lands and resources and their various values so that they are considered in a combination that will best serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield; a combination of uses that take into account the long-term needs of future generations for renewable and nonrenewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness, and natural, scenic, scientific, and cultural values.

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION	1
1.1 Purpose and Need	2
1.2 Background	2
1.3 Scoping and Identified Issues.....	2
CHAPTER 2: PROPOSED ACTION AND ALTERNATIVES	4
2.1 Alternative 1 – Proposed Action	4
2.2 Alternative 2 – Current Management (No Action Alternative)	6
2.3 Alternative 3 – No Grazing Alternative	7
2.4 Conformance with Laws, Regulations and the Land Use Plan	7
CHAPTER 3: AFFECTED ENVIRONMENT	7
3.1 Elements of the Human Environment.....	8
CHAPTER 4: ENVIRONMENTAL EFFECTS	21
4.1 Floodplains	21
4.2 Non-native or Invasive Plant Species	22
4.3 Threatened, Endangered, Proposed or Candidate Species	22
4.4 Water Quality, Drinking or Ground.....	23
4.5 Wetlands/Riparian Zones	24
4.6 Livestock.....	25
4.7 Social & Economic Resources.....	26
4.8 Soils	26
4.9 Special Status Species – Animal	27
4.10 Special Status Species Vegetation.....	28
4.11 Vegetation.....	29
4.12 Wildlife	30
4.13 Cumulative Effects.....	32
CHAPTER 5: REFERENCES	33
CHAPTER 6: LIST OF PREPARERS	35
APPENDIX A – MAPS	A-1
APPENDIX B – LETTER CONCERNING LIVESTOCK WEIGHTS	A-23
APPENDIX C – STANDARD TERMS AND CONDITIONS	A-29
APPENDIX D – PERSONS AND AGENCIES CONSULTED	A-33

CHAPTER 1: INTRODUCTION

Environmental Assessment	WY-090-EA09-19
Title: Sage Creek Allotment Split and Associated Grazing Management: Sage Creek (#01449), Christensen (#11108) and Westfork (#01428) Allotments.	
Allotment Category: Sage Creek Allotment: I – Improve – The objective is to <u>improve</u> resource conditions on the allotment. Christensen Allotment: C – Custodial – The objective is to <u>maintain</u> resource conditions on the allotment. Westfork Allotment: M – Maintain – The objective is to <u>maintain</u> resource conditions on the allotment.	
Location: Uinta County, Wyoming Sage Creek Allotment (#01449) Christensen Allotment (#11108) Westfork Allotment (#01428) *(see respective maps in Appendix A for details)	Environmental Assessment Prepared by: Bureau of Land Management Kemmerer Field Office 312 Highway 189 North Kemmerer, WY 83101

1.1 Purpose and Need

Need: The BLM has a responsibility under the Taylor Grazing Act (TGA) of 1934 and the Federal Land Policy and Management Act (FLPMA) of 1976 to respond to applications for livestock grazing permits. In order to graze livestock on public land within the Sage Creek, Christensen and Westfork allotments a livestock operator must hold a valid grazing permit.

Purpose: The purpose of the action is to maintain livestock grazing opportunities for the Sage Creek, Christensen and Westfork allotments in a manner that will provide for multiple use and sustained yield.

Decision to be Made: The BLM will determine what (if any) changes need to be made to grazing management on these allotments. These changes will be reflected on any grazing permits authorizing grazing on these allotments.

1.2 Background

This assessment focuses on livestock grazing on three allotments in southeastern Uinta County, Wyoming: the Sage Creek allotment, the Christensen allotment, and the Westfork allotment. Bureau of Land Management (BLM) records demonstrate that livestock were grazing on these allotments as early as 1937. It is likely that livestock utilized these areas for some time prior to 1937.

Historically a single operator used the Sage Creek and Christensen allotments in connection with each other. However, recent changes in private land ownership have altered livestock management on the Sage Creek, Christensen and Westfork allotments.

This change in private land ownership has prompted a need for change in how the Bureau of Land Management (BLM) manages these lands for livestock grazing.

1.3 Scoping and Identified Issues

Scoping:

On March 24, 2008 a scoping letter was sent to the livestock operators on the Sage Creek and Christensen

allotments, as well as appropriate state organizations, and all other interested parties (see Appendix D for a list of individuals and agencies that were consulted). On December 1, 2010 a scoping letter was sent to the livestock operator on the Westfork allotment, as well as appropriate state organizations, and all other interested parties.

These letters requested that any information, comments or concerns with livestock grazing on the Sage Creek, Christensen, and Westfork allotments be submitted to the BLM for consideration. BLM received a letter from the Wyoming Game and Fish Department, dated April 17, 2008, stating they have no terrestrial wildlife or aquatic concerns related to livestock grazing on these allotments. We also received a letter from Western Watersheds Project dated April 7, 2008. The issues identified in these letters are discussed in the Issues section, below.

Internal scoping (i.e. within the BLM) was conducted from November 20, 2008 to December 15, 2008. The issues identified through internal scoping are discussed in the Issues section, below.

Issues:

The following issues were identified through the scoping process, and will be addressed in this EA:

- What are the potential impacts to *Thelesperma pubescens* (Uinta Greenthread), a rare plant that occurs on the Sage Creek allotment?
- How would a No Grazing scenario affect the human environment?
- How have historical land uses affected current landscape capabilities on these allotments?
- How does livestock grazing impact water quality on these allotments?
- How does livestock grazing impact the condition of riparian systems on these allotments?
- How does livestock grazing impact sensitive wildlife species on these allotments?
- What are the cumulative effects of livestock grazing and other land uses in the area, such as oil and gas production and Off Highway Vehicle (OHV) use?
- What are some of the economic consequences of the various alternatives?
- How does livestock grazing impact soils on these allotments?
- What are the historical native plant communities on these allotments? How do these historical plant communities compare to current plant communities?
- How does livestock grazing relate to the spread of noxious weeds?

The comments listed in **Table 1-2** were considered, but will not be further addressed in this environmental document.

Table 1-2. Comments not further addressed in this EA	
Comment	Why it won't be further addressed in this EA
Maintaining and improving wildlife habitat and restoring degraded range conditions should be included in the Purpose and Need section of the EA	The Purpose and Need section states that grazing will be managed according to the principles of multiple use and sustained yield. Maintaining and improving wildlife habitat and restoring degraded range conditions are part of multiple use and sustained yield.
The EA needs to assess whether or not livestock grazing is an appropriate use of this area. The EA must show that Grazing is the best use for the land on these allotments. The EA must validate the RMP's assumption that livestock grazing is appropriate on these allotments.	The Kemmerer Resource Management Plan (RMP) (2010) has determined that grazing is an appropriate use of these allotments, under the principles of multiple use and sustained yield. This EA validates the RMP's decision to allow grazing on these allotments, by comparing the No Grazing alternative to the other alternatives.
Include alternatives that analyze grazing at 75%, 50% and 25% of current use levels.	These percentages are arbitrary. No data collected on these allotments justifies such action or analysis. All these percentages represent is an array of options between the preferred alternative and the No Grazing alternative. Therefore, they fall within the range of alternatives already analyzed in this EA.

Table 1-2. Comments not further addressed in this EA

Comment	Why it won't be further addressed in this EA
The EA should reflect current scientific evidence that demonstrates that livestock consume more forage than is accounted for by the traditional definition of an Animal Unit Month.	This comment was addressed in a letter from the BLM to Western Watersheds Project, dated April 30, 2008. See Appendix B for a copy of that letter.
The BLM must demonstrate that it has followed the direction of the Kemmerer Field Office RMP for I category allotments.	The 1986 RMP did give guidance for <u>potential</u> management opportunities on I Category allotments. However, the RMP also gave the BLM some flexibility on if and when to implement these <u>potential</u> management opportunities. Also, the 1986 RMP was replaced with an updated Land Use Plan in 2010. Overall, analysis based on this comment is beyond the scope of this environmental document.
What are the impacts to predators killed by the BLM, livestock permittees, or Animal Damage Control on these allotments?	The BLM is not involved in any predator control activities on these allotments. None of the actions analyzed in this EA authorize predator control on these allotments. Predator Control actions are managed by the State of Wyoming and are beyond the scope of this environmental document.
The EA must disclose what utilization levels are on sensitive native, perennial bunchgrasses.	Unfortunately, due to staffing limitations and higher priority areas, there is no current utilization data for these allotments. However, utilization data in and of itself provides little insight into how grazing is affecting vegetation resources (Cleary et al, 2008). Therefore, after careful consideration, this comment was determined to be beyond the scope of this environmental document.

CHAPTER 2: PROPOSED ACTION AND ALTERNATIVES

2.1 Alternative 1 – Proposed Action

The proposed action is to split the Sage Creek allotment (#01449) into two separate allotments, and to apply new terms and conditions to these two allotments, as well as the Christensen (#11108) and Westfork (#01428) allotments.

Allotment Split

The purpose of splitting the allotment is to make it more administratively functional. This action will assist the BLM in managing livestock grazing within the area. Additionally, this split has been requested by the livestock operators who currently utilize the Sage Creek allotment. Overall, the purpose of the split is to assist with BLM's orderly administration of the rangeland resources in the area.

The Sage Creek allotment (#01449) will be split roughly in half as follows:

Beginning at the NW corner of Section 4 and proceeding east ½ mile to the ¼ section corner, thence south and east approximately ½ mile to intersect deeded lands in Sect 4, then following BLM/Deeded boundary through Sections 4, 8, 9, 17 and 20 of T. 13N. R114W (see "Sage Creek Proposed Allotment Split" map in Appendix A for details). Note that this boundary follows existing fencelines. Therefore, this alternative would not require additional fence construction.

The east half of the allotment will retain the Sage Creek allotment name, and number (#01449). The west half of the allotment will become the Upper Cottonwood Creek allotment and an allotment number will be assigned at a later date. Ownership information and AUM allocations are given in **Table 2-1**

Table 2-1. New Allotment Ownership Distribution and AUM Allocation

Allotment	BLM Acres	Private Acres	Total Acres	Public Land AUMs
Sage Creek	17,095	3,236	20,331	1,792
Upper Cottonwood Creek	7,730	4,148	11,878	586

Grazing Permits

The Proposed Action is to issue/renew livestock grazing permits for the Sage Creek (#01449), Upper Cottonwood Creek, Christensen (#11108), and Westfork (#01428) allotments. In accordance with 43 CFR 4130.2 the term of these grazing permits shall be for 10 years or less. **Table 2-2** shows total available grazing use for each allotment.

Table 2-2. Summary of Total Available Grazing Use by Allotment

Allotment	Allotment #	Season of Use	# of Livestock	Livestock Kind	Active AUMs
Sage Creek	01449	06/01 to 10/31	356	Cattle	1,792
Upper Cottonwood Creek	NA	06/01 to 10/31	116	Cattle	586
Christensen	11108	05/01 to 05/31	38*	Cattle	40
Westfork	01428	05/16 to 10/31	40	Cattle	227

*See additional terms and conditions listed later in this section

- **Season of Use:** Livestock will only be authorized to graze on the allotment during the season of use. Livestock may graze throughout the entire season of use, or for shorter periods of time within the season of use. Livestock will not be authorized to graze for any period of time outside the season of use. Dates given are month/day (mm/dd).
- **# of Livestock:** The number of livestock authorized to graze on the allotment.
- **Livestock Kind:** The kind of livestock that will be authorized to graze on the allotment. See Active AUMs for total number of AUMs allocated to each kind of livestock.
- **Active AUMs:** The total number of Animal Unit Months available for livestock use on public land within the allotment.

Grazing permits for these allotments will not exceed the season of use given in **Table 2-2**. The total number of active AUMs for all permits on the allotments will not exceed the Active AUMs given in **Table 2-2**. The total number of AUMs associated with a specific livestock kind for all permits on a given allotment will not exceed the AUMs associated with a specific livestock kind in **Table 2-2**.

The following mandatory terms and conditions will be included in every grazing permit issued for this allotment:

- **Term:** The period of time during which the grazing permit will be valid. The terms will not exceed 10 years.
- **Allotment:** Name and number of the allotment where livestock grazing is being authorized.
- **Number of Livestock:** The number of livestock authorized to graze on the allotment. For a given permit, this number may vary depending on the season of use, so long as the number of AUMs allocated to the permit is not exceeded.
- **Kind of Livestock:** The kind of livestock authorized to graze on the allotment.
- **Season of Use:** The time of year during which livestock will be authorized to graze on the allotment. This must be within the time frame specified in **Table 2-2** (Season of Use).
- **AUMs:** Total forage authorized for livestock consumption. Total AUMs for all permits on an allotment shall not exceed the number given in **Table 2-2** (Active AUMs).

The following terms and conditions will be included on every grazing permit issued for the Sage Creek and Upper Cottonwood Creek 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.
- Assigned range improvements (i.e. fences, water developments, etc...) shall be maintained on a regular basis, and must be functional prior to the start of grazing each year.

The following terms and conditions will be included on every grazing permit issued for the Westfork allotment:

- Placement of salt and mineral supplements will not be authorized on BLM land within the allotment. All such supplements must be located on private land.
- Assigned range improvements (i.e. fences, water developments, etc...) shall be maintained on a regular basis, and must be functional prior to the start of grazing each year.

The following terms and conditions will be included on every grazing permit issued for the Christensen allotment:

- Use in the Christensen allotment will be to the extent shown, with numbers, season of use, kind, and class of livestock not restricted as long as abuse to the federal range does not occur.
- Placement of salt and mineral supplements will not be authorized on BLM land within the allotment. All such supplements must be located on private land.
- Assigned range improvements (i.e. fences, water developments, etc...) shall be maintained on a regular basis, and must be functional prior to the start of grazing each year.

Grazing permits for these allotments will also include all of the Standard Terms and Conditions listed in Appendix C.

2.2 Alternative 2 – Current Management (No Action Alternative)

The No Action alternative is to issue/renew livestock grazing permits for the Sage Creek (#01449), Christensen (#11108), and Westfork (#01428) allotments. In accordance with 43 CFR 4130.2 the term of these grazing permits shall be for 10 years or less. **Table 2-3** shows total available grazing use for this allotment.

Table 2-3. Summary of Total Available Grazing Use by Allotment

Allotment	Allotment #	Season of Use	# of Livestock	Livestock Kind	Active AUMs
Sage Creek	01449	06/01 to 10/31	472	Cattle	2,378
Christensen	11108	05/01 to 05/31	38*	Cattle	40
Westfork	01428	05/16 to 10/31	40	Cattle	227

*See additional terms and conditions listed later in this section

- **Season of Use:** Livestock will only be authorized to graze on the allotment during the season of use. Livestock may graze throughout the entire season of use, or for shorter periods of time within the season of use. Livestock will not be authorized to graze for any period of time outside the season of use. Dates given are month/day (mm/dd).
- **# of Livestock:** The number of livestock authorized to graze on the allotment.
- **Livestock Kind:** The kind of livestock that will be authorized to graze on the allotment. See Active AUMs for total number of AUMs allocated to each kind of livestock.
- **Active AUMs:** The total number of Animal Unit Months available for livestock use on public land within the allotment.

Grazing permits for these allotments will not exceed the season of use given in **Table 2-3**. The total number of active AUMs for all permits on the allotments will not exceed the Active AUMs given in **Table 2-3**. The total number of AUMs associated with a specific livestock kind for all permits on a given allotment will not exceed the AUMs associated with a specific livestock kind in **Table 2-3**.

The following mandatory terms and conditions will be included in every grazing permit issued for this allotment:

- **Term:** The period of time during which the grazing permit will be valid. The terms will not exceed 10 years.
- **Allotment:** Name and number of the allotment where livestock grazing is being authorized.
- **Number of Livestock:** The number of livestock authorized to graze on the allotment. For a given permit, this number may vary depending on the season of use, so long as the number of AUMs allocated to the permit is not exceeded.
- **Kind of Livestock:** The kind of livestock authorized to graze on the allotment.
- **Season of Use:** The time of year during which livestock will be authorized to graze on the allotment. This must be within the time frame specified in **Table 2-3** (Season of Use).
- **AUMs:** Total forage authorized for livestock consumption. Total AUMs for all permits on an allotment shall not exceed the number given in **Table 2-3** (Active AUMs).

The following terms and conditions will be included in every grazing permit issued for the Christensen allotment:

- Use in the Christensen allotment will be to the extent shown, with numbers, season of use, kind and class of livestock not restricted as long as abuse to the federal range does not occur.

No additional terms and conditions will be applied to grazing permits for the Sage Creek and Westfork allotments.

Grazing permits for these allotments will also include all of the Standard Terms and Conditions listed in Appendix C.

2.3 Alternative 3 – No Grazing Alternative

Under the No Grazing Alternative, livestock grazing would not be authorized on the Sage Creek (#01449), Christensen (#11108) and Westfork (#01428) allotments. The Kemmerer RMP (2010) would be amended to exclude livestock grazing on these allotments. No grazing permits would be issued, and existing grazing permits would be cancelled. All AUMs associated with these allotments would be permanently retired. Livestock grazing would be excluded in order to enhance the other land uses in BLM’s multiple use mandate (see Federal Land Policy and Management Act of 1976).

2.4 Conformance with Laws, Regulations and the Land Use Plan

Livestock grazing is allowed on public land under the direction of the Taylor Grazing Act (1934), the Federal Land Policy and Management Act (1976), and the Public Rangelands Improvement Act (1978). The Kemmerer Field Office Resource Management Plan [RMP] (2010) allows livestock grazing within the Sage Creek, Christensen and Westfork allotments. In accordance with these acts and regulations, livestock grazing management must follow the principles of multiple use and sustained yield.

The Proposed Action and No Action alternatives comply with all applicable laws and regulations. Both alternatives also comply with the Kemmerer RMP. The No Grazing alternative does not currently comply with the Kemmerer RMP, however it is included in this document to provide a baseline that demonstrates the impacts of grazing in comparison to a no grazing scenario.

CHAPTER 3: AFFECTED ENVIRONMENT

The Sage Creek allotment is located in the southeast portion of Uinta County, Wyoming, approximately 10 miles south of the town of Mountain View. Annual precipitation ranges from 8 – 10” in the northern portion of the allotment, to 18 – 20” on Hickey Mountain, in the southern portion of the allotment. Elevation on the allotment ranges from ~6900 feet in the northern lowlands, to ~8800 feet on Hickey Mountain. Slope Distribution is given in **Table 3-1** (see slope map in Appendix A).

The Christensen allotment is located in the southeast portion of Uinta County, Wyoming, approximately 8 miles east of the town of Lyman. Average annual precipitation is 6 – 8”. Elevation on the allotment ranges from ~6500 feet to ~7000 feet. Slope Distribution is given in **Table 3-1** (see slope map in Appendix A).

The Westfork allotment is located in the southeast portion of Uinta County, Wyoming, approximately 13 miles south west of the town of Mountain View. Average annual precipitation is 16-18". Elevation on the allotment ranges from ~7,900 feet to ~8,600 feet. Slope distribution is given in **Table 3-1** (see slope map in Appendix A).

Table 3-2 shows ownership distribution for these allotments (see maps in Appendix A).

Table 3-1. Slope Distribution by Allotment

Slope	Percent of Allotment by Area		
	Sage Creek	Christensen	Westfork
0-5	46.12%	78.67%	32.68%
5-25	46.64%	21.00%	62.01%
25-50	6.39%	0.32%	5.05%
50-75	0.78%	0.01%	0.25%
>75	0.07%	0.00%	0.00%

Table 3-2. Ownership information for the Sage Creek, Christensen and Westfork allotments

Allotment Name	Allotment Number	Public Acres	Private Acres	Total Acres
Christensen	11108	840	1,960	2,800
	<i>Percent:</i>	30%	70%	100%
Sage Creek	01449	24,823	9,418	34,241
	<i>Percent:</i>	72%	28%	100%
Westfork	01428	795	2,065	2,860
	<i>Percent:</i>	28%	72%	100%

3.1 Elements of the Human Environment

Table 3-3 lists the critical elements of the human environment. **Table 3-4** lists other elements of the human environment that are considered in this EA. Only elements determined to be potentially impacted by one or more of the alternatives (PI) will be assessed in the Environmental Effects portion of this document.

Table 3-3. Critical elements of the human environment considered in this EA

PI – Potential Impact. One or more of the alternative may have an impact on the element;
 NI – No Expected Impact. No impact on the element is expected from any of the alternatives;
 NP – Not Present. The element is not present within the allotment(s).

PI	NI	NP	Element	Information/Rationale
	ü		Air Quality	“While there is limited ambient air quality-monitoring data available for the study area, air quality is generally considered good, with no regions designated as non-attainment for National Ambient Air Quality Standards (NAAQS) or Wyoming Ambient Air Quality Standards (WAAQS).” (BLM 2008, pg 3-5).
		ü	Areas of Critical Environmental Concern	There are no ACECs within or near any of these allotments.
	ü		Cultural Resources	Cultural resource reviews were completed for these allotments on January 4, 2008 (Christensen), January 8, 2008 (Sage Creek), and April 30, 2010 (Westfork). None of the alternatives have the potential to affect historic properties because they do not authorize or promote any surface disturbing activities.
	ü		Environmental Justice	None of the alternatives would have a disproportionately adverse affect on persons of any race, color, national origin or income level.
		ü	Farmlands (Prime or Unique)	No Prime or Unique Farmlands (as defined by 7 CFR 657.5) are present within any of these allotments.
ü			Floodplains	Small floodplains associated with Sage Creek, Reed Reservoir Creek, Honey Creek, Cottonwood Creek and the Westfork of the Smithsfork river are present within these allotments. Sage Creek’s floodplain has been impacted in the past because the stream has been entirely diverted to fill Reed Reservoir. Periodically, this diversion fails, allowing large volumes of water down the stream channel. This has caused some headcuts, and other erosion events, which have, in turn, altered Sage Creek’s floodplain. See “Wetlands/Riparian Zones” within this table for more information about the condition of these streams and their floodplains.
		ü	Native American Religious Concerns	No areas of Native American Religious Concern have been identified within or near these allotments.
ü			Non-native or Invasive Plant Species	The following Non-native, and potentially invasive, plant species are present on these allotments: <i>Bromus tectorum</i> (Cheatgrass) <i>Halogeton glomeratus</i> (Halogeton) <i>Hyoscyamus niger</i> (Black Henbane) <i>Carduus nutans</i> (Musk Thistle) <i>Cirsium arvense</i> (Canada Thistle) Most of these plants occur along roadways within these allotments. They all occur in scattered communities and in very low densities. Note that Musk Thistle and Canada Thistle are designated as noxious weeds by the Wyoming Weed and Pest Council.

Table 3-3. Critical elements of the human environment considered in this EA

PI – Potential Impact. One or more of the alternative may have an impact on the element;
 NI – No Expected Impact. No impact on the element is expected from any of the alternatives;
 NP – Not Present. The element is not present within the allotment(s).

PI	NI	NP	Element	Information/Rationale
				<p>The BLM coordinates with the Uinta County Weed and Pest to treat invasive plant species on these allotments. An integrated weed management strategy is used, where multiple methods of control are utilized (i.e. herbicides, biological control, mechanical treatments, weed education opportunities, etc...). Thus far, treatments have proven to be very successful in Uinta county.</p>
Ü			<p>Threatened, Endangered, Proposed or Candidate Species</p>	<p>Sage Creek A wildlife clearance was completed for the Sage Creek allotment on July 18, 2008 based on the BLM GIS database and a field visit. This clearance identified suitable habitat present for the threatened Canada lynx as well as for the mountain plover, a proposed species for the Endangered Species Act (ESA).</p> <p>Canada lynx inhabit mature, older growth forests that contain downed trees to provide cover and plentiful numbers of their primary prey, the snowshoe hare. Sage Creek allotment is within a designated Lynx Analysis Unit (LAU) that is shared with the US Forest Service. LAU #31 consists of 55,645 acres of which only 4,263 acres are on BLM lands. Of those, 646 acres are considered suitable lynx habitat.</p> <p>Mountain plover are small terrestrial shorebirds that inhabit shortgrass prairie and shrub-steppe landscapes. These birds are migratory, arriving in Wyoming in early April to breed and departing for their wintering grounds during September. Their nests are located on the ground, often in areas used historically or currently by prairie dogs, bison, domestic livestock or pronghorn antelope. Other positive indicators for mountain plover habitat include near-level terrain with less than 5% slope, bare ground, cactus, sparse or widely spaced plants, and short vegetation (<10cm).</p> <p>Habitat for endangered Colorado River fishes include backwaters, sloughs, oxbow lakes, seasonally inundated flood plains, and reservoirs. The nearest habitat for these fishes occurs downstream of the project below Flaming Gorge Reservoir, Utah in the Green River and its associated 100-year floodplain. Downstream effects to endangered Colorado River fishes were deemed possible, but considered unlikely to adversely affect the population.</p> <p>Habitat was not available for the following Threatened or Endangered (T&E) species or candidate species: black-footed ferret, Ute ladies’-tresses, blowout penstemon, grizzly bear or yellow-billed cuckoo. Individual gray wolves, an endangered species under the ESA, dispersing in the area may be impacted but as no known denning sites are located on the allotment, the gray wolf population will not be affected.</p> <p>The allotment, which is located in a sage-grouse core area, is within 2 miles of multiple known leks and it does contain suitable sage grouse nesting and brood rearing habitat throughout the entire allotment. Nesting habitat contains thick vegetative cover dominated by big sagebrush but may contain a variety of other species such as rabbitbrush and greasewood to ensure both horizontal and vertical concealment from predators (Connelly et. al 1991; Gregg et. al. 1994; Hanf et. al 1994). In addition to concealment, nesting and brood rearing areas require large numbers of forbs and insects to provide food for the young (Dunn and Braun 1986; Klott and Lindzey 1990).</p>

Table 3-3. Critical elements of the human environment considered in this EA

PI – Potential Impact. One or more of the alternative may have an impact on the element;
 NI – No Expected Impact. No impact on the element is expected from any of the alternatives;
 NP – Not Present. The element is not present within the allotment(s).

PI	NI	NP	Element	Information/Rationale
				<p>Christensen A wildlife clearance was completed for the Christensen allotment on September 17, 2008 based on the BLM GIS database and a field visit. This clearance identified suitable habitat present for the mountain plover, but not for Canada lynx, black-footed ferret, ute ladies-tresses, blowout penstemon, grizzly bear, gray wolf or yellow-billed cuckoo. Downstream effects to endangered Colorado River fishes were considered unlikely as no impoundments were located on the allotment even though it is within the Colorado River drainage. The allotment is not located in a sage-grouse core area, nor is it within two miles of a known lek, but it does contain suitable habitat for nesting and brood-rearing.</p> <p>Westfork A wildlife clearance was completed for the Westfork allotment on September 20, 2010 based on the BLM GIS database. This clearance identified suitable habitat present for the sage-grouse, but not for mountain plover, Canada lynx, black-footed ferret, ute ladies-tresses, blowout penstemon, grizzly bear, gray wolf, or yellow-billed cuckoo. Downstream effects to endangered Colorado River fishes were considered unlikely as no impoundments are located on the allotment even though it is within the Colorado River drainage. The northern half of the allotment is located in a sage-grouse core area and it is within 2 miles of one known lek (Perry Bench). The allotment does contain suitable sage grouse nesting and brood rearing habitat.</p>
		ü	Wastes, Hazardous or Solid	There are no known hazardous or solid wastes present on any of these allotments. None of the alternatives are expected to produce or contribute any hazardous or solid wastes.
ü			Water Quality, Drinking or Ground	The primary water sources on these allotments are Reed Reservoir, Reed Reservoir Creek, Sage Creek, Honey Creek and Cottonwood Creek. None of these water sources are currently on the Wyoming Department of Environmental Quality’s 303(d) list. This list describes water sources that do not currently meet state water quality standards. No other water quality concerns have been identified for these water sources.
ü			Wetlands/Riparian Zones	<p>Sage Creek The following streams are located on the Sage Creek Allotment:</p> <ul style="list-style-type: none"> · Sage Creek · Reed Reservoir Creek · Honey Creek · Cottonwood Creek. <p>In 1998 these streams were assessed for Proper Functioning Condition (PFC). Another PFC assessment was performed in 2008 and found improvement in Honey Creek and Cottonwood Creek. These sections of stream were originally rated as Functional At Risk (FAR) in 1998 but were rated as PFC in 2008.</p>

Table 3-3. Critical elements of the human environment considered in this EA

PI – Potential Impact. One or more of the alternative may have an impact on the element;
 NI – No Expected Impact. No impact on the element is expected from any of the alternatives;
 NP – Not Present. The element is not present within the allotment(s).

PI	NI	NP	Element	Information/Rationale
				<p>Reed Reservoir Creek is an “artificial” riparian system. It exists as a result of the creation of Reed Reservoir. Water seeping from the reservoir’s dam feeds the stream system. Historically this drainage was used like an irrigation ditch. Water was released from the reservoir and sent downstream for irrigation purposes. More recently, the way water is released from the reservoir has changed, and conditions on Reed Reservoir Creek have started to improve as a result. In the 2008 PFC assessment Reed Reservoir Creek showed signs that it was beginning to improve (from Functioning at Risk (FAR) with a trend not apparent, to FAR with an upward trend).</p> <p>Sage Creek has been entirely diverted to fill Reed Reservoir. However, the diversion occasionally blows out, allowing large volumes of water to flow down Sage Creek. The effects of these large volume water events has caused Sage Creek to be rated as Non Functional in both the 1998 and 2008 PFC assessments.</p> <p>Overall, according to the most recent PFC stream assessment on the Sage Creek allotment (2008), the streams in the West half of the allotment were in better condition than the streams in the East half of the allotment.</p> <p>Christensen Approximately ½ mile of Cottonwood Creek crosses BLM administered land within the Christensen allotment. This is the only riparian area on BLM land within the allotment. This segment of Cottonwood Creek was rated as Non Functional in a 1998 PFC assessment. Stream conditions on this allotment are related to irrigation and flow regimes from Reed Reservoir, on the Sage Creek allotment.</p> <p>Westfork Both the West Fork and the East Fork of the Smiths Fork River runs through this allotment. However, only about ~¼ mile of the West Fork runs through BLM land. The East Fork is entirely on private land within this allotment. A PFC assessment was performed on the West Fork in 1998. That assessment rated this segment of stream to be in Proper Functioning Condition (PFC).</p>
		ü	Wild and Scenic Rivers	No Wild and Scenic Rivers are present within these allotments.
		ü	Wilderness	No designated wilderness areas are present within these allotments.

Table 3-4. Other elements of the human environment considered in this EA

PI – Potential Impact. One or more of the alternative may have an impact on the element;
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PI	NI	NP	Element	Information/Rationale
	ü		Fluid or Solid Minerals	<p>Twenty three well pads have been developed within the Sage Creek allotment, most of which are located on BLM land. Most of these wells are no longer producing and have been reclaimed and abandoned; however, there are a few that are still currently in use. Three very old well pads are located on private land within the Christensen allotment. These wells were developed in the 1930's, and have long since been abandoned. No current or historic wells exist within the Westfork allotment.</p> <p>In the mid-1990s interest in exploration for diamonds developed in portions of the Sage Creek Allotment, and other areas outside the allotment. Within the allotment, the areas of interest were near the western and southwestern boundaries, and in the northeastern portion. Mining claims were staked, and some exploration drilling occurred in promising areas, however no commercial deposits were located.</p> <p>Gravel deposits in the allotments are potential sources of construction materials.</p> <p>Livestock grazing does not impact the presence or abundance of fluid and solid minerals, nor does it impede others from utilizing these resources.</p>
	ü		Forested Area/Products	<p>There are some small timber stands present on the Sage Creek and Westfork allotments (primarily coniferous species and aspens (<i>Populus tremuloides</i>)). No logging activities are currently taking place on these allotments. The Christensen allotment has no timber stands.</p>
	ü		Geology	<p>The Sage Creek and Christensen allotments are near the western edge of the Green River Basin geologic province. The eastern boundary of the Overthrust Belt, which consists of a complex array of folded and faulted formations, is about 10 to 15 miles west of the allotments. The allotments are situated over the west flank of the Moxa Arch, a buried anticline which controls the location of numerous oil and gas fields from the Uinta Mountains north to the vicinity of LaBarge, Wyoming (Blackstone 1981).</p> <p>Surface formations in the Sage Creek Allotment are primarily Tertiary and Quaternary-age sedimentary units that are relatively flat-lying. The Bridger Formation (Eocene) covers most areas of the allotment in T. 13 N., R. 113 W., T. 14 N., R. 113 W., T. 14 N., R. 114 W., and T. 14 N., R. 115 W. The portion of the allotment in T. 13 N., R. 115 W., is covered mostly by Quaternary terrace gravel deposits, which extend into the western portion of T. 13 N., R. 114W. The Bishop Conglomerate (Oligocene) caps Hickey Mountain, and contains boulder and cobble conglomerates. Slumping and landslide deposits involving the Bishop Conglomerate and Bridger Formation occur along the northwest flank of Hickey Mountain, and along the east side of Cottonwood Creek in the southern portion of the allotment. Quaternary alluvium, alluvial fans, and colluviums are common along Sage Creek and its tributaries.</p> <p>The Christensen Allotment's surface is mostly underlain by deposits of Quaternary alluvium along Cottonwood Creek, and Quaternary gravel on Cottonwood Bench. Small areas of Bridger Formation outcrops occur within the allotment on the east side of Cottonwood Creek (Dover & M'Gonigle 1993).</p>

Table 3-4. Other elements of the human environment considered in this EA

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				Livestock grazing has no potential to impact geologic resources.																																																	
	ü		Land Resources	There are a number of radio towers and associated buildings on top of Hickey Mountain. These fall within the Sage Creek allotment boundary, however, due to the steep slopes and less abundant vegetation on top of Hickey Mountain, livestock rarely utilize this area. There are also a number of roads, a couple overhead power lines and a couple of underground pipelines that run through these allotments.																																																	
ü			Livestock	<p>Sage Creek There are currently two grazing permits for the Sage Creek allotment (#01449). Information for these permits is given below:</p> <table border="1"> <thead> <tr> <th>Permit #</th> <th>Number</th> <th>Kind</th> <th>Begin</th> <th>End</th> <th>%PL</th> <th>AUMs</th> </tr> </thead> <tbody> <tr> <td>4912554</td> <td>356</td> <td>Cattle</td> <td>06/01</td> <td>10/31</td> <td>100</td> <td>1,791</td> </tr> <tr> <td>4913282</td> <td>116</td> <td>Cattle</td> <td>06/01</td> <td>10/31</td> <td>100</td> <td>583</td> </tr> </tbody> </table> <p>Currently, by mutual private agreement, one permittee operates on the West side of the allotment, while the other operates on the East side of the allotment. The fencing structure already exists to support this operation. Because of this, the proposal to split the allotment is strictly an administrative action and will not be analyzed further in this document. Other impacts from livestock grazing will be addressed in Chapter 4 of this document.</p> <p>Christensen Currently, there is one livestock grazing permit on the Christensen allotment (#11108). Information for this permit is given below:</p> <table border="1"> <thead> <tr> <th>Permit #</th> <th>Number</th> <th>Kind</th> <th>Begin</th> <th>End</th> <th>%PL</th> <th>AUMs</th> </tr> </thead> <tbody> <tr> <td>4912554</td> <td>38</td> <td>Cattle</td> <td>05/01</td> <td>05/31</td> <td>100</td> <td>39</td> </tr> </tbody> </table> <p>· Use on the Christensen allotment will be to the extent shown, with numbers, season of use, kind and class of livestock not restricted as long as abuse to the federal range does not occur.</p> <p>Westfork Currently, there is one livestock grazing permit on the Westfork allotment (#01428). Information for this permit is given below:</p> <table border="1"> <thead> <tr> <th>Permit #</th> <th>Number</th> <th>Kind</th> <th>Begin</th> <th>End</th> <th>%PL</th> <th>AUMs</th> </tr> </thead> <tbody> <tr> <td>4913282</td> <td>40</td> <td>Cattle</td> <td>05/16</td> <td>10/31</td> <td>100</td> <td>222</td> </tr> </tbody> </table>	Permit #	Number	Kind	Begin	End	%PL	AUMs	4912554	356	Cattle	06/01	10/31	100	1,791	4913282	116	Cattle	06/01	10/31	100	583	Permit #	Number	Kind	Begin	End	%PL	AUMs	4912554	38	Cattle	05/01	05/31	100	39	Permit #	Number	Kind	Begin	End	%PL	AUMs	4913282	40	Cattle	05/16	10/31	100	222
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PI	NI	NP	Element	Information/Rationale
				<p>A Standards for Healthy Rangelands assessment was completed for the Sage Creek and Christensen allotments in 2009. This assessment showed that these allotments were not meeting the Standards for Healthy Rangelands. On both allotments Standard #1 (related to soils) and Standard #2 (related to riparian areas) were not meeting the required standards.</p> <p>Water loss for irrigation and flow regulations from Reed Reservoir were determined to be the primary factors contributing to substandard stream and soil conditions on the allotments. However, the reservoir is on private land, and the operator holds valid water rights; therefore the factors contributing to nonconformance with the standards for healthy rangelands are beyond the BLM’s ability to regulate.</p> <p>The streams that did not meet PFC standards are all associated with irrigation. Conversely, the streams that are not associated with irrigation, but are still grazed by livestock, are in proper functioning condition. Because of these factors the BLM determined that livestock use is not a significant contributing factor to nonconformance with the Wyoming Standards for Healthy Rangelands.</p> <p>The Westfork allotment has not been assessed for conformance with the Wyoming Standards for Healthy Rangelands.</p>
	ü		Paleontology	<p>The geologic formation of concern within the allotments with a high potential for occurrence of vertebrate fossils is the Bridger Formation. The Bridger Formation is well known and has been intensively studied for its fossils, which include mollusks, plants, insects, and plants, and vertebrate fossils including fish, reptiles, and a large variety of mammals (Robinson <i>et al.</i> 2002).</p> <p>It is remotely possible that livestock could tromp on some fossils on the surface. However, the fossils that are exposed at the surface, and in place in the Bridger Formation, tend to occur on outcrops with moderate to steep slopes, and generally with sparse vegetation. Also, these allotments contain extensive areas of Tertiary and Quaternary gravels, alluvium, and other surficial deposits which are not considered to have high potential to contain intact vertebrate fossils, but do have vegetation. Thus grazing would be concentrated in areas with little or no potential for impacting vertebrate fossils.</p>
	ü		Recreation	<p>Off Highway Vehicle (OHV) use is concentrated in Section 33 and 34 of Township 15N Range 114W and Sections 3 and 4 of Township 14N Range 114W. Recreation is dispersed throughout the allotment with OHV riding activities combined with hunting, picnicking and rock and mineral collection.</p>
ü			Social & Economic Resources	<p>Livestock grazing is a substantial element of the agricultural industry in Wyoming. Moline <i>et al.</i> (1991) found that agriculture plays an important role in Wyoming’s economy for several reasons:</p> <ul style="list-style-type: none"> • Agricultural expenditures tend to be consistent, even during periods of general economic instability. • Many of the resources required for production in the agricultural industry are provided by the local resource pool. • Most agricultural operations in the state are locally owned and operated, thereby providing more money and jobs within the state.

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				<p>Uinta County, Wyoming contains 344 active farms and ranches that span 742,809 acres (USDA 2009a). These ranching operations sustain 44,517 cattle and 41,231 sheep (USDA 2009a), currently valued at ~\$50,891,063 (based on values of \$1,020 per head of cattle, and \$133 per head of sheep, USDA 2008). In 2007 these farms and ranches spent \$20,582,000 on production costs, with the average operation spending \$59,830 (USDA 2009a). As stated above, many of the resources required for production can be provided by the local resource pool (Moline <i>et al.</i> 1991), therefore it is likely that much of the capital spent on production costs went to local communities.</p> <p>Many of these ranching operations utilize federal land in and around Uinta county as part of their annual operation. Current grazing fees on public land are \$1.35 per Animal Unit Month (AUM), compared to \$5.13/AUM on Wyoming State Land, and ~\$15.70/AUM on private, non-irrigated grazing land (USDA 2009b). Grazing fees on these allotments currently generate ~\$3,557 annually. Money generated from public land grazing fees on these allotments are distributed as follows:</p> <ul style="list-style-type: none"> • 50% - Range Improvement Fund. This money is used to implement range improvements (i.e. water developments, fence construction, spring developments, etc...) in the area where the grazing fees were generated. • 12.5% - State of Wyoming • 37.5% - U.S. Treasury <p>The Wyoming Economic Analysis Division (2010a) estimates that the population of Uinta county increased by 6.0% between April 1, 2000 and July 1, 2009. In response to this population growth, the number of housing units in Uinta county increased from 8,011 in 2000 to 8,927 in 2009 (an 11.4% increase) (Wyoming Economic Analysis Division 2010b). Some of this housing development is occurring in rural settings, on or near lands previously used for ranching and farming.</p>																									
ü			Soils	<p>Sage Creek The Sage Creek allotment contains three general soil groups: Green River Basin Uplands, Mountainous Areas, and Relict Alluvial Fans (BLM 2008, pgs 3-12 to 3-14).</p> <p>The following soil subgroups are found on the Sage Creek allotment, listed by Order:</p> <table border="1"> <thead> <tr> <th>Alfisols</th> <th>Aridisols</th> <th>Entisols</th> <th>Inceptisols</th> <th>Mollisols</th> </tr> </thead> <tbody> <tr> <td>Typic Haplocryalfs</td> <td>Ustic Haplargids</td> <td>Typic Torriorthents</td> <td>Typic Dystrocryepts</td> <td>Typic Argicryolls</td> </tr> <tr> <td></td> <td>Ustic Haplocambids</td> <td>Typic Torrifluvents</td> <td></td> <td>Fluventic Haplaquolls</td> </tr> <tr> <td></td> <td>Typic Natrargids</td> <td>Typic Torripsamments</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Ustic Torriorthents</td> <td></td> <td></td> </tr> </tbody> </table> <p>Christensen The Christensen allotment contains two general soil groups: Green River Basin Uplands, and Relict Alluvial Fans (BLM 2008, pgs 3-12 to 3-14).</p>	Alfisols	Aridisols	Entisols	Inceptisols	Mollisols	Typic Haplocryalfs	Ustic Haplargids	Typic Torriorthents	Typic Dystrocryepts	Typic Argicryolls		Ustic Haplocambids	Typic Torrifluvents		Fluventic Haplaquolls		Typic Natrargids	Typic Torripsamments					Ustic Torriorthents		
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				<p>The following soil subgroups are found on the Christensen allotment, listed by Order:</p> <table border="1"> <thead> <tr> <th>Entisols</th> <th>Mollisols</th> </tr> </thead> <tbody> <tr> <td>Typic Torrfluvents</td> <td>Fluventic Haplaquolls</td> </tr> <tr> <td>Typic Torriorthents</td> <td></td> </tr> <tr> <td>Typic Torripsamments</td> <td></td> </tr> </tbody> </table> <p>Westfork The Westfork allotment contains three general soil groups: Green River Basin Uplands, Mountainous Areas, and Relict Alluvial Fans (BLM 2008, pgs 3-12 to 3-14).</p> <p>The following soil subgroups are found on the Christensen allotment, listed by Order:</p> <table border="1"> <thead> <tr> <th>Alfisols</th> <th>Entisols</th> <th>Inceptisols</th> <th>Mollisols</th> </tr> </thead> <tbody> <tr> <td>Typic Haplocryalfs</td> <td>Typic Torrfluvents</td> <td>Histic Cryaquepts</td> <td>Fluventic Haplaquolls</td> </tr> <tr> <td></td> <td>Typic Cryofluvents</td> <td>Typic Dystrocryepts</td> <td>Typic Argicryolls</td> </tr> </tbody> </table> <p>Soils on these the Sage Creek and Christensen allotments did not meet the Wyoming Standards for Healthy Rangelands. This was due to irrigation issues (see Livestock section of this table, and the Wetlands/Riparian Zones portion of Table 3-3). However, most of the soils on these allotments are stable and functioning properly. Only the small portions of soil around Sage Creek, Cottonwood Creek, and Reed Reservoir Creek did not meet the required standards.</p> <p>The Westfork allotment has not yet been assessed for conformance with the Standards for Healthy Rangelands. However, soil conditions on the allotment appear to be good, with no signs of excessive soil erosion.</p> <p>There is no existing data that documents the presence or abundance of biological soil crusts within these allotments. However, biological soil crusts often occupy open spaces between plants in semi-arid plant communities. Therefore, it is possible that a variety of soil crusts may exist within these allotments.</p>	Entisols	Mollisols	Typic Torrfluvents	Fluventic Haplaquolls	Typic Torriorthents		Typic Torripsamments		Alfisols	Entisols	Inceptisols	Mollisols	Typic Haplocryalfs	Typic Torrfluvents	Histic Cryaquepts	Fluventic Haplaquolls		Typic Cryofluvents	Typic Dystrocryepts	Typic Argicryolls
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ü			Special Status Species – Animal	<p>Sage Creek According to a wildlife clearance based on the BLM GIS database and a field visit completed July 18, 2008, the Sage Creek allotment contains potential habitat for sensitive raptors including ferruginous hawks (basin-prairie shrub, grasslands and rock outcrops), burrowing owls (basin-prairie shrub and grasslands), northern goshawks (conifer and deciduous forests) and peregrine falcons (tall cliffs). It also contains habitat for sage-obligate birds including the sage thrasher, Brewer’s sparrow, sage sparrow and loggerhead shrike which use basin-prairie shrub and mountain-foothill shrub habitat. The allotment has habitat for BLM sensitive mammals such as the pygmy rabbit (basin-prairie and riparian shrub), white-tailed prairie dog (basin-prairie shrub and</p>																				

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PI	NI	NP	Element	Information/Rationale
				<p>grasslands), Idaho pocket gopher (shallow stony soils) and long-eared myotis (conifer and deciduous forest) as well as habitat for BLM sensitive fish and amphibians which include Colorado cutthroat trout, northern leopard frog (beaver ponds, foothills, permanent water in plains), Great Basin spadefoot toad (spring seeps, permanent and temporary water), boreal toad (pond margins, wet meadows and riparian areas), and spotted frog (ponds, sloughs, small streams).</p> <p>Christensen According to a wildlife clearance based on the BLM GIS database and a field visit completed September 17, 2008, the Christensen allotment contains potential habitat for sensitive raptors such as ferruginous hawks, burrowing owls and peregrine falcons. It also contains habitat for pygmy rabbits, white-tailed prairie dogs, Idaho pocket gophers and for sage-obligate birds including the sage thrasher, Brewer’s sparrow, sage sparrow and loggerhead shrike. The allotment also contains habitat for BLM sensitive amphibians which include the northern leopard frog, Great Basin spadefoot toad, and spotted frog.</p> <p>Westfork According to a wildlife clearance based on the BLM GIS database completed September 20, 2010, the Westfork allotment contains potential habitat for Idaho pocket gophers, ferruginous hawks and for sage-obligate birds including the sage thrasher, Brewer’s sparrow, sage sparrow and loggerhead shrike. The allotment also contains habitat for BLM sensitive amphibians which include the northern leopard frog, Great Basin spadefoot toad, and spotted frog.</p>
ü			Special Status Species – Vegetation	<p><i>Thelesperma pubescens</i> (Uinta Greenthread) is a rare plant that occurs within the Sage Creek allotment. It is currently listed as a sensitive species by the BLM in Wyoming. This plant typically grows in cobbly soils that are sparsely vegetated with cushion plant communities and sagebrush in the foothills of the Green River Basin (Fertig 2005). Within the Sage Creek allotment it is limited to the rocky slopes of Hickey Mountain.</p>
ü			Vegetation	<p>The BLM assumes that current plant communities are generally the same as historic plant communities on these allotments. This is because plant communities on these allotments are composed of a wide variety of native vegetation, and the BLM does not possess any site specific data that indicates a significant change in vegetation communities has taken place. Although there are some non-native and invasive species present on these allotments, they are very sparse and do not appear to have altered overall community composition.</p> <p>Sage Creek The primary vegetation type on the Sage Creek allotment is Sagebrush Steppe. These vegetation communities consist of moderately spaced <i>Artemisia tridentata</i> (Sagebrush) plants in the overstory with a wide variety of forbs and grasses, in relatively high densities, in the understory and interspaces. Some other, less prominent, vegetation communities on the allotment include: Aspen Forest, Spruce-fir, Juniper Woodland, Saltbush-Greasewood, and Grass Dominated Wetland. Some of the dominant understory species found throughout the allotment include: <i>Achnatherum hymenoides</i> (Indian Ricegrass), <i>Hesperostipa comata</i> (Needle and Thread), <i>Thinopyrum intermedium</i> (Intermediate Wheatgrass), <i>Elymus elymoides</i> (Squirrel Tail), <i>Poa fendleriana</i></p>

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				<p>(Muttongrass), <i>Phlox</i> spp. (Phlox), <i>Atriplex gardneri</i> (Gardner’s Saltbush) and <i>Bromus inermis</i> (Smooth Brome).</p> <p>Christensen There are two dominant vegetation communities within the Christensen allotment: Sagebrush Steppe and Saltbush-Greasewood.</p> <p>The Sagebrush Steppe communities consist of moderately spaced <i>Artemisia tridentata</i> (Sagebrush) plants with a variety of herbaceous plants in the understory and the interspaces. Some of the dominant herbaceous vegetation in these communities include: <i>Achnatherum hymenoides</i> (Indian ricegrass), <i>Hesperostipa comata</i> (Needle and Thread), <i>Thinopyrum intermedium</i> (Intermediate wheatgrass), <i>Opuntia polyacantha</i> (Pricklypear), and some small isolated communities of <i>Bromus tectorum</i> (Cheatgrass) and <i>Halogeton glomeratus</i> (Halogeton). The herbaceous vegetation in these communities is sparse but consistent. This is appropriate considering limitations imposed by climate and soil.</p> <p>The Saltbush-Greasewood communities consist of <i>Sarcobatus vermiculatus</i> (Greasewood) and <i>Atriplex confertifolia</i> (Shadscale Saltbush) in the overstory with a few <i>Achnatherum hymenoides</i> (Indian ricegrass) and <i>Hesperostipa comata</i> (Needle and Thread) plants in the interspaces.</p> <p>Westfork The primary vegetation type within the allotment is Sagebrush Steppe. Species composition is similar to those described under the Sage Creek allotment above. However, there are also portions of aspen and conifer communities in the South East portion of the allotment. There is also riparian habitat associated with the East and West Fork of the Smithsfork River. These riparian communities consist of riparian sedges, rushes, willows and cottonwoods.</p>
	ü		Visual Resource Management	<p>The RMP (BLM 2010) has designated the area within and around the Sage Creek, Christensen and Westfork allotments as Class II and Class III Visual Resources.</p> <p>The objective of Class II Visual Resource Management is to design alterations so as to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.</p> <p>The objective of Class III Visual Resource Management is to design proposed alterations so as to partially retain the existing character of the landscape. Contrasts to the basic elements (form, line, color, and texture) caused by a management activity may be evident and begin to attract the attention in the characteristic landscape; however, the changes should remain subordinate to the existent characteristic landscape.</p> <p>None of the alternatives are expected to alter the landscape to the point where it would attract the attention of the casual observer. Therefore, there are no expected impacts to Visual Resource Management.</p>

Table 3-4. Other elements of the human environment considered in this EA
 PI – Potential Impact. One or more of the alternative may have an impact on the element;
 NI – No Expected Impact. No impact on the element is expected from any of the alternatives;
 NP – Not Present. The element is not present within the allotment(s).

PI	NI	NP	Element	Information/Rationale
		ü	Wild Horses	There are no Wild Horse Herd Management Areas within the BLM Kemmerer Field Office resource area.
ü			Wildlife	<p>According to wildlife clearances based on the BLM GIS database and field visits, the Sage Creek allotment contains elk parturition areas along the southern boundary of the allotment and the Westfork allotment contains elk parturition areas in the southern half of the allotment. The Christensen allotment does not contain elk parturition grounds. All three allotments contain potential habitat for non-sensitive raptors in addition to the following wildlife species:</p> <ul style="list-style-type: none"> • Pronghorn antelope: The Sage Creek allotment contains crucial winter range in the northeastern corner of the allotment in addition to winter yearlong range for the Uinta-Cedar Mountain Herd, Unit 411 (population objective of 10,000, but at 8,800 as of 2006). The Christensen allotment contains crucial winter range and summer/winter range while the Westfork allotment contains spring/summer/fall range for the same herd. • Mule deer: The Sage Creek allotment contains crucial winter range along the entire eastern edge of the allotment and yearlong range for the Uinta Herd, Unit 423 (population objective of 20,000 but at 18,536 as of 2006). Both the Christensen and the Westfork allotments contain winter yearlong range for the same herd. • Elk: The Sage Creek allotment is within Big Game Crucial Winter Range for elk in the southeastern portion of the allotment for the Uinta Herd, Unit 423 (population objective of 600 but at 750 as of 2006). The Christensen allotment does not contain range but the Westfork allotment contains winter yearlong range. • Moose: The Sage Creek allotment contains winter yearlong range for the Uinta Herd, Unit 415 (population objective of 900 and at 900 as of 2006). The Westfork allotment contains Big Game Crucial Winter Range for moose along the western edge and in the northeastern corner of the allotment. The Christensen allotment, however, does not contain any moose range. • Small mammals (ground squirrels, jack rabbits, cottontail rabbits) • Migratory bird habitat

CHAPTER 4: ENVIRONMENTAL EFFECTS

4.1 Floodplains

4.1.1 Proposed Action Alternative

The Proposed Action alternative will provide better floodplain protection than the No Action alternative, but less protection than the No Grazing Alternative.

There are a number of ways in which grazing can affect floodplain characteristics. Livestock directly impact the floodplain by removing deep rooted riparian vegetation (which helps distribute hydrologic energy during high streamflow events) and by compacting and disturbing soil through livestock hoof action. Some indirect effects livestock grazing may have on floodplain characteristics include: impacts to channel morphology; change in shape and quality of the water column and alteration of streamside soil structure (Fleischner 1994).

The Proposed Action alternative will alleviate the impacts listed in the paragraph above, by limiting the amount of time that livestock spend grazing in floodplain areas. Under this alternative, salt and mineral supplements must be placed at least ¼ mile away from streams and their associated floodplains on BLM land within the Sage Creek and Upper Cottonwood Creek allotments, while salt and mineral supplements will not be authorized anywhere on BLM land within the Christensen and Westfork allotments.

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, Nader *et al* 1998). By reducing the amount of time livestock spend in riparian areas, the Proposed Action alternative will reduce vegetation consumption, which will allow for better vegetative cover on the floodplain. This will also allow deep rooted riparian species to become well established on the floodplain and provide for better soil protection and stability. Under this alternative, better livestock distribution will reduce the amount of bank shear from livestock trample.

Overall, the Proposed Action alternative provides some protection for floodplains within these allotments. Under this alternative floodplain characteristics are expected to improve from current conditions on most streams within these allotments. However, we would not expect to see much improvement in Sage Creek and Reed Reservoir Creek, as the undesirable condition of the floodplain in these streams is related to private land irrigation practices upstream from the BLM land.

4.1.2 No Action Alternative

The No Action alternative provides less protection for floodplains within these allotments than the Proposed Action and No Grazing alternatives.

Impacts under the No Action alternative are expected to be similar to those listed in section 4.1.1, but without the additional protections that come from strategic supplement placement. Under the No Action alternative, there are no specific terms and conditions that would offer protection to floodplains on these allotments. However, when the Standards for Healthy Rangelands assessment was completed for the Sage Creek and Christensen allotments, they found that substandard floodplain conditions were a result of irrigation practices on private land in the area. Therefore, livestock grazing was not determined to be a significant causal factor in unsatisfactory floodplain conditions.

Overall, under the No Action alternative, floodplains on these allotments are expected to remain at current conditions, neither improving, nor deteriorating.

4.1.3 No Grazing Alternative

The No Grazing alternative provides more protection for floodplains than the Proposed Action and No Action alternatives.

Under this alternative livestock would not be allowed to graze on these allotments. This would limit defoliation of streamside vegetation to insects and wildlife. Soil compaction and bank shearing would also be minimal and limited to natural events under this alternative. Therefore, the floodplain would have a better chance of holding together during high streamflow events.

Overall, under the No Grazing alternative we would expect to see an improvement in floodplain characteristics on most streams within these allotments. However, even under this alternative, we would not expect to see much improvement in Sage Creek and Reed Reservoir Creek, as the undesirable condition of the floodplain in these streams is related to private land irrigation practices upstream from the BLM land.

4.2 Non-native or Invasive Plant Species

4.2.1 Proposed Action Alternative

The presence and abundance of invasive plants is not expected to be considerably different under this alternative, than under the No Action and No Grazing alternatives.

Like birds and other wildlife, livestock can potentially transport invasive plant seeds on their coat and feet or in their digestive tract. Livestock may carry the seeds of invasive plants that are already present on an allotment, or they may carry seeds of invasive plants they were exposed to on private pastures. They have the potential, therefore, to disperse and introduce non-native or invasive plant species to an allotment. However, Stohlgren *et al* (1999) found that exotic species richness and frequency were basically the same on both grazed and ungrazed sites, suggesting that livestock grazing may not have a significant impact on the abundance of exotic plant species at a landscape scale.

Because invasive plant species may be introduced and distributed in a variety of ways (including wind dispersion, water dispersion, animals (domestic and wild), vehicles, hikers and other recreationists), and because of the efforts the BLM and county agencies are taking to control invasive plant populations within the area, the presence, or absence, of livestock within these allotments is not expected to have a substantial impact on the presence or abundance of invasive plant species.

4.2.2 No Action Alternative

Impacts from Non-native or Invasive Plant Species are expected to be the same as under the Proposed Action alternative (see section 4.2.1).

4.2.3 No Grazing Alternative

Impacts from Non-native or Invasive Plant Species are expected to be the same as under the Proposed Action alternative (see section 4.2.1).

4.3 Threatened, Endangered, Proposed or Candidate Species

4.3.1 Proposed Action Alternative

The Proposed Action alternative would provide more protection than the No Action alternative for the threatened, endangered, proposed and candidate species listed in **Table 3-3**. The Proposed Action alternative would not provide as much protection as the No Grazing alternative.

Within the Kemmerer Field Office boundaries, the USFWS requires eight threatened or endangered animal species and two plant species to be analyzed for all proposed actions (USFWS 2010). Of those ten species, only the Canada lynx would potentially be affected by the implementation of this Proposed Action and impacts would likely be contained within the Lynx Analysis Units in the Sage Creek and Upper Cottonwood Creek allotments where aspen stands exist.

Domestic livestock grazing in riparian areas in suitable lynx habitat can alter the structure and composition of aspen and riparian shrubs that hares (the Canada lynx's primary prey) depend on. Grazing in excess of the designated amount of forage may create competition for forage and reduction in escape cover for hares and other small mammals. Light to moderate grazing will not be likely to substantively reduce forage for snowshoe hares.

The majority of the Sage Creek allotment contains open shrub-steppe and high desert habitat but it also contains small forested areas in the Southern region of the allotment. This densely forested area did not appear to be heavily used by livestock but grazing may lead to the reduction of viable aspen and riparian shrub recruitment.

Cattle grazing will not remove any habitat in this allotment, and will not affect the disturbance limits allowed for an LAU. Informal consultation was initiated with the USFWS on June 3, 2010 in which a “may affect, not likely to adversely affect” determination was made. The BLM received a concurrence letter from the USFWS on July 12, 2010.

Livestock grazing under the Proposed Action has the potential to degrade sage-grouse nesting habitat by changing the composition, quantity, or quality of vegetation and litter. It can also reduce the amount of herbaceous cover, thereby reducing protection from predators as well as reducing prey quality and quantity. Cattle could also potentially trample nests, though nests are typically placed directly under a sagebrush plant where it would be unlikely for livestock to tread. All these impacts may be especially detrimental if livestock grazing coincides with peak chick mortality during early brood rearing. Chick survival is dependent upon an abundant prey source consisting of insects such as beetles and grasshoppers and an abundant plant community of forbs to provide both food and prey habitat (Cagney et. al. 2010).

Under the Proposed Action impacts may not be as severe in the Sage Creek and Upper Cottonwood Creek allotments as under the No Action alternative because cattle will be distributed more evenly across the allotments. This will occur by placing salt licks and mineral supplements ¼ mile from riparian areas, water resources and aspen stands. Better distribution of cattle means that they will not congregate in select areas for lengthy periods of time and therefore, grazing pressure would be reduced in these areas. This change in management will help prevent habitat degradation or alteration which in turn reduces habitat fragmentation for sage-grouse.

4.3.2 No Action Alternative

The No Action alternative would have more negative impacts to threatened, endangered, proposed and candidate species than the Proposed Action or No Grazing alternatives.

Under the No Action alternative, cattle would continue to congregate near preferred riparian areas if salt licks and/or mineral supplements remain in these locations. Sage-grouse rely on sagebrush habitats throughout the year but hens move their chicks to more moist sites, such as riparian areas, where more succulent vegetation is available after upland plants become more dry in late June or July. The increased hoof action from cattle results in trampling of available cover and forage for sage-grouse during a critical time of chick development.

4.3.3 No Grazing Alternative

The No Grazing alternative would provide the most protection to threatened, endangered, proposed and candidate species within the allotments as compared to the Proposed Action or the No Action alternatives.

The absence of livestock would allow habitats to recover from grazing pressure creating a more natural landscape environment which would eliminate or reduce deleterious impacts from habitat alteration such as reductions in cover and forage quality, inadvertent nest destruction due to trampling and reductions in species richness and diversity. The riparian areas would be able to recover to provide bank stability and forage for many wildlife species. However, if private landowners fence private lands to prevent livestock trespass onto public lands within the allotment area, then there could be detrimental impacts to wildlife habitat and populations such as an increase in sage-grouse mortality due to fence collisions or due to the addition of artificial hunting perches for raptors from fence posts.

4.4 Water Quality, Drinking or Ground

4.4.1 Proposed Action Alternative

The Proposed Action alternative provides more water quality protection than the No Action alternative, but not as much as the No Grazing alternative.

Livestock tend to spend a disproportionate amount of time near riparian areas, and other water sources, especially later in the grazing season when temperatures are warmer, and upland forage decreases in quantity and quality (McInnis & McIver 2001, Marlow & Pogacnik 1986, Belsky *et al* 1999). Spending more time near water sources, means that cows tend to urinate and defecate near those water sources more frequently. Cattle excrement contains nutrients and pathogens that could potentially impact water quality. However, scientific evidence linking livestock grazing on rangelands to impaired water quality is lacking (Nader *et al* 1998).

Under this alternative, salt and mineral supplements must be placed at least ¼ mile away from streams on BLM land within the Sage

Creek and Upper Cottonwood Creek allotments, while salt and mineral supplements will not be authorized anywhere on BLM land within the Christensen and Westfork allotments. 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, Nader *et al* 1998). Better distribution of livestock would limit the time they spend near water sources, which would limit the amount of excrement deposited near those water sources.

Overall, the Proposed Action alternative would maintain or improve water quality on these allotments, in relation to current water quality conditions.

4.4.2 No Action Alternative

The No action alternative provides less protection to water quality than the Proposed Action and No Grazing alternatives.

Because the No Action alternative does not contain any stipulations that would improve livestock distribution on these allotments, cattle would likely spend a disproportionate amount of time near riparian areas, and other sources of water (McInnis & McIver 2001, Marlow & Pogacnik 1986, Belsky *et al* 1999). Spending more time near water sources, means that cows tend to urinate and defecate near those water sources more frequently. Cattle excrement contains nutrients and pathogens that could potentially impact water quality. However, scientific evidence linking livestock grazing on rangelands to impaired water quality is lacking (Nader *et al* 1998).

Because livestock have been grazing on these allotments for at least the past 70 years, any impacts they would have on water quality are likely already occurring. Therefore, under this alternative, water quality is not expected to change from current conditions.

4.4.3 No Grazing Alternative

The No Grazing alternative provides more water quality protection than the Proposed Action and No Action alternatives.

By removing livestock from these allotments, this alternative would reduce the amount of animal waste deposited in or near water sources. Waste contains nutrients and pathogens that could potentially impact water quality. Some nutrients found in animal waste stimulate algal growth and may lead to algal blooms (Belsky *et al* 1999). However, scientific evidence linking livestock grazing on rangelands to impaired water quality is lacking (Nader *et al* 1998).

Overall, water quality would be expected to remain the same, or improve under this alternative.

4.5 Wetlands/Riparian Zones

4.5.1 Proposed Action Alternative

The Proposed Action alternative will provide more protection for wetland and riparian systems than the No Action alternative, but less protection than the No Grazing alternative.

Livestock tend to spend a disproportionate amount of time near riparian areas, and other water sources, especially later in the grazing season when temperatures are warmer, and upland forage decreases in quantity and quality (McInnis & McIver 2001, Marlow & Pogacnik 1986, Belsky *et al* 1999). While grazing in riparian areas there are a number of direct and indirect impacts livestock may have on stream systems. Direct impacts to riparian systems from livestock grazing include: removal of riparian vegetation and soil disturbance from livestock hoof action. Some indirect affects livestock grazing may have on riparian systems include: impacts to channel morphology, change in shape and quality of the water column and alteration of streamside soil structure (Fleischner 1994).

Under this alternative, salt and mineral supplements must be placed at least ¼ mile away from streams on BLM land within the Sage Creek and Upper Cottonwood Creek allotments, while salt and mineral supplements will not be authorized anywhere on BLM land within the Christensen and Westfork allotments. 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 lead to an improvement in the condition of riparian systems within these allotments.

4.5.2 No Action Alternative

The No Action alternative will provide less protection for riparian and wetland habitat than the Proposed Action and No Grazing alternatives.

Because the No Action alternative does not contain any stipulations that would improve livestock distribution on these allotments, cattle would likely spend a disproportionate amount of time near riparian areas (McInnis & McIver 2001, Marlow & Pogacnik 1986, Belsky *et al* 1999). While grazing in riparian areas there are a number of direct and indirect impacts livestock may have on stream systems. Direct impacts to riparian systems from livestock grazing include: removal of riparian vegetation and soil disturbance from livestock hoof action. Some indirect affects livestock grazing may have on riparian systems include: impacts to channel morphology, change in shape and quality of the water column and alteration of streamside soil structure (Fleischner 1994).

4.5.3 No Grazing Alternative

The No Grazing alternative would provide more protection to riparian and wetland resources than the Proposed Action and No Action alternatives.

On many streams, removal of livestock can lead to decreased 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).

Due to irrigation issues associated with Reed Reservoir and the Sage Creek diversion, Sage Creek and Reed Reservoir Creek may not respond to grazing exclusion like most streams would. This is because conditions on these streams are determined more by frequency and intensity of high water flow events, rather than frequency and intensity of herbivory. Therefore, it is possible that these streams would not recover to Proper Functioning Condition in the absence of livestock grazing.

4.6 Livestock

4.6.1 Proposed Action Alternative

The Proposed Action alternative will be more beneficial to livestock operations than the No Grazing alternative. In relation to the No Action alternative, there will be some benefits, and some costs associated with the Proposed Action alternative.

This alternative would allow livestock to utilize (annually) 1,792 public AUMs on the Sage Creek allotment, 586 public AUMs on the Upper Cottonwood Creek allotment, 40 public AUMs on the Christensen allotment and 227 public AUMs on the Westfork allotment.

Under this alternative, salt and mineral supplements must be placed at least ¼ mile away from streams on BLM land within the Sage Creek and Upper Cottonwood Creek allotments, while salt and mineral supplements will not be authorized anywhere on BLM land within the Christensen and Westfork allotments. This will promote more uniform livestock distribution, which will encourage livestock to make use of vegetation that may otherwise be underutilized. However, this alternative will require some additional work on behalf of the livestock operator to ensure that salt and mineral supplements are placed a sufficient distance from key areas on the Sage Creek and Upper Cottonwood Creek allotments. On the Christensen and Westfork allotments, livestock operators will have to find adequate locations on their private land to place salt and mineral supplements.

Overall, even though this alternative requires some additional work by the livestock operators, this alternative will allow livestock grazing to continue on these allotments in a sustainable manner, while minimizing conflicts with other resource values in the area.

4.6.2 No Action Alternative

The No Action alternative will be more beneficial to livestock operations than the No Grazing alternative. In relation to the Proposed Action alternative, there will be some benefits, and some costs associated with the No Action alternative.

This alternative would not require the strategic placement of salt and mineral supplements. This would reduce the level of work required by livestock operators on these allotments, but would also reduce livestock distribution in the area. The lack of these grazing permit terms and conditions may lead to conflicts with other resource values in the area. Therefore, this alternative may not be as

sustainable for livestock operations within these allotments as the Proposed Action alternative.

4.6.3 No Grazing Alternative

The No Grazing alternative would have the greatest impact on livestock grazing of all the alternatives.

The No Grazing alternative would entirely eliminate livestock grazing on public land within these allotments. The current permittees would then need to find other private or public pastures on which to graze their livestock. If acquisition of other pasture is not possible, or is not financially sustainable, the permittees would then have to reduce their livestock numbers. This alternative would also require herding and/or fence modifications to keep livestock off of public land. All of these factors would place additional financial stress on the current permittees.

4.7 Social & Economic Resources

4.7.1 Proposed Action Alternative

The Proposed Action alternative would impact social and economic resources less than the No Grazing alternative. Impacts under this alternative would be the same as under the No Action alternative.

The Proposed Action alternative would not alter the number of livestock, season of use, or amount of allocated forage from previous levels. Although this alternative would require the strategic placement of salt and mineral supplements, the primary cost to livestock operators to implement this action would be in time and planning. Overall impacts to the finances of the livestock operators are expected to be minimal.

4.7.2 No Action Alternative

The No Action alternative would have less impact on social and economic resources than the No Grazing alternative. Impacts under this alternative would be the same as under the Proposed Action alternative.

The No Action alternative would not alter the number of livestock, season of use, or amount of allocated forage from previous levels. However, as discussed in section 4.6.2 this alternative may not be as sustainable if resource conflicts arise in relation to livestock grazing. Therefore, this alternative would not have a direct impact on the finances of the livestock operators or the surrounding community, but the possibility exists that it could lead to undesirable impacts in the future.

4.7.3 No Grazing Alternative

The No Grazing Alternative would have a greater impact on social and economic resources than the Proposed Action and No Action alternatives.

The No Grazing alternative would place additional financial stress on livestock operators who rely on public land grazing to sustain their operation. Many ranchers would be forced to sell their ranches if they lost their ability to graze on their public land allotments (Sulak & Huntsinger 2002, 2007 as cited in Brunson & Huntsinger 2008). Even if the livestock operators were able to find private pasture to compensate for losing their public AUMs, the increased cost would be almost 12 times more per AUM (see Social and Economic Resources in **Table 3-4**).

Moline *et al.* (1991) found that the agricultural industry plays an important, stabilizing role for local communities in Wyoming. The loss of these 2,645 public AUMs would equate to the loss of approximately 550 livestock, valued at ~\$561,000 (based on livestock numbers from the previous permit, at a value of \$1,020 per head, USDA 2008). Local businesses that provide services for livestock operators may be negatively impacted if these operators decided to reduce their livestock numbers as a result of losing their ability to graze on public land.

4.8 Soils

4.8.1 Proposed Action Alternative

The Proposed Action alternative will provide more soil protection than the No Action alternative, but less protection than the No

Grazing alternative.

Livestock grazing can impact the soil profile by reducing aboveground biomass, thereby exposing more of the soil surface to splash and wind erosion, and by compressing the soil surface (Holechek *et al* 2004, pp. 379). This has been shown to lead to lower infiltration rates (Taylor *et al* 1993), which leads to more surface runoff (Liacos 1962), which can lead to increased sediment production (Pluhar *et al* 1987), indicating an increase in the amount of erosion occurring in the area. Soil compaction and erosion is likely to be most noticeable near fences, livestock trails and other areas of concentrated movement.

Some other potential impacts from livestock grazing include: improved nutrient recycling, improved availability of some nutrients, changes in carbohydrate fixation, integrating mulch into the soil, and increasing the rate of humus development (Holechek 1981). Livestock grazing may also improve carbon sequestration in some plant communities (Reeder & Schuman 2002).

Livestock impact biological soil crusts by compressing the soil surface. However, biological soil crusts are more greatly impacted by disturbances that remove, bury or kill the crustal organisms, than by disturbances that merely compact them (Belnap *et al* 2001). Impacts to biological soil crusts may alter the availability of water and nutrients, and increase susceptibility to wind and water erosion.

The Proposed Action alternative would require that salt and mineral supplements be placed at least ¼ mile away from key habitat features, such as water sources, aspen stands, and important historical sites. In addition to protecting these important resources, this would promote more uniform livestock distribution across the allotments. Better distribution of livestock will minimize impacts to soil resources.

4.8.2 No Action Alternative

The No Action alternative would provide less protection to soils than the Proposed Action or No Grazing alternatives.

Under this alternative, the general impacts to soils that occur as a result of livestock grazing (as described in section 4.8.1) would be the same. However, this alternative lacks the requirement for strategic placement of salt and mineral supplements. This may influence livestock distribution, allowing them to congregate more than they would under the Proposed Action alternative. Soils within these congregation areas would be more greatly impacted than they would under the Proposed Action alternative.

4.8.3 No Grazing Alternative

The No Grazing alternative would provide more protection for soils on these allotments than the Proposed Action or No Action alternatives.

This alternative would alleviate some of the impacts livestock have on soil resources (see section 4.8.1). Removal of livestock from these allotments would be expected to decrease compaction which would increase infiltration rates (Pluhar *et al* 1987). It would also allow vegetation to provide more protection from splash and runoff erosion.

The absence of livestock may also allow certain crustal organisms (like moss) to become more strongly established. However, abundance of biological soil crusts in Sagebrush Steppe communities may be limited by the abundance of perennial grasses, which limits the amount of bare soil available for crustal organisms to colonize (Muscha & Hild 2006).

Removal of livestock may alter the nutrient cycle by removing a nutrient source and sink. Livestock tend to make some nutrients more available by depositing excrement on the soil surface. However, they also make other nutrients less available by consuming plant materials that contain those nutrients and permanently removing them from the system.

4.9 Special Status Species – Animal

4.9.1 Proposed Action Alternative

The Proposed Action alternative would provide more protection than the No Action alternative for the special status species listed in **Table 3-3**; however, this alternative would not provide as much protection as the No Grazing alternative.

The potential negative impacts from cattle grazing on the special status species listed in **Table 3-3** could include trampling of nests/burrows, competition for forage, reduction in food quality or quantity, and reduction of vegetative cover (Taylor 1986).

However, the modifications under the Proposed Action could assist in more moderate levels of use, resulting in retention of plant residue in both upland and riparian sites within the Sage Creek allotment, thereby improving overall plant community health (Cagney et al, 2010). Improved plant community health could result in improved stand density, diversity and vigor, resulting in more abundant food and cover for pygmy rabbit, pronghorn, mule deer and sage obligate bird species (sage thrasher, sage sparrow, Brewer's sparrow and loggerhead shrike).

There are some beneficial impacts of cattle grazing for those wildlife species that live in and near prairie dog towns and short grass/cushion plant communities such as mountain plover, prairie dogs, and burrowing owls. For instance, prairie dogs tend to prefer areas with short grass which allow prairie dogs to observe and avoid potential predators. Cattle grazing the area could reduce the overhead cover allowing more prairie dogs to observe and consequently avoid predators. Improved predator avoidance may make it more difficult for BLM sensitive raptor species to locate and capture prey. Also, cattle grazing may reduce species richness and diversity if their prey base emigrates away from the allotments due to habitat alteration or fragmentation.

Grazing can negatively impact amphibians as well as Colorado cutthroat trout by alteration of stream channel characteristics, bank vegetation structure and composition, and aquatic vegetation structure and composition. It can also cause changes in food availability, water temperature or quality, increased turbidity in the water column.

Dispersing cattle within the Sage Creek allotment under the Proposed Action can bring positive benefits. For instance, the northern leopard frog breeds and lays eggs in semi-permanent ponds and in the margins of larger lakes and beaver ponds. The Great Basin spadefoot toad requires both ephemeral and permanent water sources to breed. Placement of mineral supplements far from these resources such that cattle do not overuse these areas may limit detrimental impacts to natural springs and low lying areas that catch water which provide habitat for these amphibian species.

4.9.2 No Action Alternative

The No Action alternative would have more negative impacts to some sensitive species than the Proposed Action or the No Grazing alternatives because the cattle would not be more evenly distributed.

Under the No Action alternative, cattle would continue to congregate in large numbers for lengthy periods of time near sensitive riparian areas if salt licks and/or mineral supplements remain in these locations causing trampling of available cover and forage for sensitive species using these areas. Other general effects to BLM sensitive species from cattle grazing would be the same under the Proposed Action and the No Action alternatives as previously discussed in section 4.9.1.

4.9.3 No Grazing Alternative

The No Grazing alternative would provide the most protection to special status species within the allotments in comparison to the Proposed Action or the No Action alternatives.

The absence of livestock would allow habitats to recover from grazing pressure creating a more natural landscape environment which would eliminate or reduce deleterious impacts from habitat alteration such as reductions in cover and forage quality, inadvertent nest or burrow destruction due to trampling and reductions in species richness and diversity. The riparian areas would be able to recover to provide bank stability and forage for many wildlife species. However, if private landowners fence private lands to prevent livestock trespass onto public lands within the allotment area, then there could be detrimental impacts to wildlife habitat and populations. Fence posts could provide artificial hunting perches for raptors which may increase predation on small wildlife species and the fence wires may be difficult to see increasing the likelihood of collisions.

4.10 Special Status Species Vegetation

4.10.1 Proposed Action Alternative

The Proposed Action alternative may provide slightly more protection to *T. pubescens* than the No Action alternative, but slightly less protection than the No Grazing alternative.

In a report on the status of *Thelesperma pubescens* (Uinta greenthread) in Wyoming (Heidel 2004), intense livestock grazing was determined to be a potential threat to *T. pubescens* because it could potentially reduce plant vigor, and viability. *T. pubescens* is found on the sparsely vegetated, windswept summit of Hickey Mountain, and some of the benches below the summit. Sheep could

potentially graze in *T. pubescens* habitat; however, cattle would not likely utilize the area due to steep slopes, distance from water and lack of vegetation. Under the Proposed Action alternative, only cattle would be allowed to graze on the Sage Creek allotment, and salt and mineral supplements would not be allowed within ¼ mile of *T. pubescens* populations.

4.10.2 No Action Alternative

The No Action alternative would provide the least protection to *T. pubescens* of all the alternatives, though the difference in impacts between the alternatives is slight.

Under the No Action alternative, impacts to *Thelesperma pubescens* is expected to be similar to those listed under the Proposed Action alternative. The Proposed Action alternative may provide slightly more protection than the No Action alternative, because the no Action alternative lacks a stipulation requiring salt and mineral supplements to be placed away from *T. pubescens* communities.

4.10.3 No Grazing Alternative

The No Grazing alternative would provide the most protection to *T. pubescens* of all the alternatives, though the difference in impacts between the alternatives is slight.

Intense livestock grazing has been identified as a potential threat to *T. pubescens* because it could potentially reduce plant vigor, and viability (Heidel 2004). Total removal of livestock would eliminate this potential threat; however, on the Sage Creek allotment *T. pubescens* tends to grow in areas rarely utilized by cattle. Because of this, the benefit *T. pubescens* would gain from the exclusion of livestock would be minimal.

4.11 Vegetation

General Grazing Impacts

Grazing impacts will influence different plant species in different ways, depending on their resistance and tolerance to herbivory. Over time, plants that are resistant to grazing tend to become more dominant, while plants that are sensitive to grazing tend to become less abundant.

The interactions between grazers and grazed plants are complex and difficult to study and understand (Holechek 2004, pp. 140).

Table 4-1 compares some of the ways livestock grazing may benefit vegetation, with some of the ways livestock grazing may be deleterious to vegetation.

Table 4-1. Ways in which livestock grazing may be beneficial or deleterious to vegetation resources.

Potentially Beneficial	Potentially Deleterious
Grazers reduce the amount of excess vegetation that can have a negative effect on net carbohydrate fixation (Holechek 2006).	Livestock grazing may alter species composition within vegetation communities (Fleischner 1994).
Grazers may help maintain an optimal leaf area index (Holechek 2006).	Livestock grazing may alter ecological succession (Fleischner 1994).
Livestock grazing may reduce water loss to transpiration (Holechek 2006).	Livestock grazing may change vegetation stratification (Fleischner 1994).
Grazing removes excess accumulations of dead material that may inhibit net growth (Holechek 2006, Holechek 1981).	Livestock grazing may decrease water availability for plants, by increasing soil compaction (Fleischner 1994).
Grazing may promote tillering in some grass species (Holechek 2006).	Forage removal may allow soil temperatures to rise, which could increase evaporation (Fleischner 1994).
Grazers may stimulate plant growth by inoculating plant parts with their saliva (Holechek 2006).	Livestock grazing alters the nutrient cycle (Fleischner 1994) which may affect nutrient availability for plants.
Livestock can help trample seeds into the ground, which may improve germination rates (Holechek 1981).	Herbivores modify the growth form of plants by consuming terminal buds thereby promoting lateral branching (Fleischner 1994).
Livestock grazing may reduce the frequency of wildfires (Holechek 1981). Note: may be beneficial or detrimental.	Livestock grazing may reduce the frequency of wildfires (Holechek 1981). Note: may be beneficial or detrimental.
Some plants increase the flow of growth hormones following herbivory (McNaughton 1979).	
Some plant species may be more productive and more fit as a result of being grazed (McNaughton 1979, Paige and Whitham 1987).	

When considering the impacts listed in **Table 4-1**, it is important to remember that the specific impacts, and the degree to which the plants are affected, are directly influenced by the intensity and season of grazing. For example, species composition may not be altered under a conservative stocking rate (~35% forage utilization), but may be altered under a heavy stocking rate (forage utilization >50%).

Overall, response to herbivory is influenced by a number of factors, including (Holechek *et al* 2004, pp. 141, McNaughton 1979):

- Genetic potential of the plant
- Which plant tissues are removed
- Developmental stage of the plant at the time of defoliation
- Growth promoting features
- Intensity and frequency of herbivory
- Environmental constraints (i.e. light, nutrients, temperature, water availability, etc...)

4.11.1 Proposed Action Alternative

The Proposed Action alternative will be more beneficial to vegetation resources on these allotments than the No Action alternative, but not as beneficial as the No Grazing alternative.

Under this alternative the AUMs listed in **Table 2-2** (a total of 2,645 AUMs) would be removed from the system each year. Livestock may impact vegetation by removing it, or trampling it. Some of the impacted plants may recover and still be able to set seed. Some plants will not be able to recover sufficiently to produce a seed crop during that growing season.

The Proposed Action alternative will alleviate potential stress to riparian and upland vegetation, by promoting more uniform livestock distribution. Early in the grazing season, livestock tend to spend more time grazing in the uplands (DelCurto *et al* 2005). As the grazing season progresses, they tend to spend progressively more time in the riparian areas, especially when temperatures are high (DelCurto *et al* 2005). Strategic supplement placement can be used to manipulate livestock distribution, and promote more uniform utilization of vegetation throughout the grazing season (Bailey & Welling 1999, Bailey *et al* 2001, Bailey *et al* 2008, McDougald *et al* 1989, McInnis & McIver 2001).

4.11.2 No Action Alternative

The No Action alternative will be less beneficial to vegetation than the Proposed Action and No Grazing alternatives.

The **General Grazing Impacts** given in section 4.11 would be the same under this alternative. However, this alternative lacks the requirement for strategic placement of salt and mineral supplements. This may influence livestock distribution, allowing them to congregate more than they would under the Proposed Action alternative. As stated in section 4.11.1, the degree of impact to vegetation is highly influenced by the intensity and frequency of herbivory. Therefore, the No Action alternative is expected to have a greater impact on vegetation than the Proposed Action alternative.

4.11.3 No Grazing Alternative

The No Grazing alternative will be more beneficial to vegetation resources than the Proposed Action and No Action alternatives.

The No Grazing alternative would eliminate the impacts listed in **Table 4-1** (both potentially beneficial impacts, and potentially deleterious impacts). Vegetation would be entirely devoted to wildlife and ecosystem functions (such as nutrient cycling, sediment filtration, etc.). However, West *et al* (1984) found that total exclusion of livestock does not always lead to an improvement in forage production. Other studies have also shown that removal of livestock grazing can lead to lower forage production, an increase in shrub cover, and a decrease in species richness and plant diversity (Manier & Hobbs 2007, Patton *et al* 2007).

4.12 Wildlife

4.12.1 Proposed Action Alternative

The Proposed Action alternative would have the same impacts as the No Action alternative on the wildlife species listed in **Table 3-3**. However, impacts to these species would be greater under this alternative than under the No Grazing alternative.

All of these allotments contain yearlong range and/or crucial winter range for pronghorn antelope, mule deer, elk and moose. The Christensen and Westfork allotments also contain spring/summer/fall range for pronghorn. The presence of livestock could temporarily displace some big game from preferred habitats (behavioral avoidance) and create competition for forage (Kraussman 1996). Studies of elk and mule deer have demonstrated that these species will avoid or decrease use of areas that are simultaneously being grazed by cattle (Frisna 1992; Griffith and Peak 1989; Wallace and Kraussman 1987). Pronghorn antelope may be impacted by grazing via alteration of vegetation structure and from a reduction in fawn production in modified/degraded habitat (Ellis 1970). By limiting cattle access to June through October, competition would not occur during winter when forage is scarcer but it would occur during fawning season for big game in some areas of the allotment under the Proposed Action.

In addition to the impacts on big game species, grazing may also impact migratory birds and small mammals such as rodents and lagomorphs. Currently there are 836 bird species that are protected under the Migratory Bird Treaty Act which makes it illegal for people to “take” migratory birds, their eggs, feathers or their nests. Take is defined as any attempt at hunting, pursuing, wounding, killing, possessing or transporting birds, nests, eggs or parts thereof and includes incidental take as a result of human activities including livestock grazing. Cattle grazing under the Proposed Action may impact migratory birds by alteration of habitat structure and community composition, reduction in cover, reduction in food quality or trampling/destruction of nests.

Cattle grazing has been shown to decrease rodent species diversity and richness (reviewed in Jones 2000) as well as abundance (Rosenstock 1996) and to create competition for forage between cattle and jackrabbits (Sparks 1968). Since it has been well documented that a significant positive relationship exists between maternal body mass and the mean mass of both individual progeny and entire litters (Huxley 1927; Leitch et al. 1959; Rahn et al. 1975; Millar 1977; Blueweiss et al. 1978), cattle grazing may ultimately result in lower reproductive success and infant survival for birds and mammals as a result of lower maternal body mass due to competition with cattle for forage. Since reproduction takes place for both birds and small mammals in the spring and summer, these impacts would be similar under both the Proposed Action and the No Action Alternative.

4.12.2 No Action Alternative

The No Action alternative would have the same impacts as the Proposed Action alternative on the wildlife species listed in **Table 3-3**. However, impacts to these species would be greater under this alternative than under the No Grazing alternative.

Renewal of the existing grazing permit with the same terms and conditions would maintain conditions of plant communities within the allotments analyzed in this EA that are capable of sustaining viable populations and diversity of native plant and animal species appropriate to the area. Continuation of current management under the No Action Alternative would not produce additional negative impacts to species utilizing the allotment. Since the timing of grazing is the same under the Proposed Action and the No Action alternatives, impacts to big game, small mammals and birds would be the same as previously discussed in section **4.12.1**.

4.12.3 No Grazing Alternative

The No Grazing alternative would provide the most protection to wildlife species within the allotments as compared to the Proposed Action and No Action alternatives.

The absence of livestock would allow habitats to recover from grazing pressure creating a more natural landscape environment which would eliminate or reduce deleterious impacts from behavioral avoidance on the part of big game animals, habitat alteration such as reductions in cover and forage quality, inadvertent nest or burrow destruction due to trampling and reductions in species richness and diversity. The riparian areas would be able to recover to provide bank stability and forage for many wildlife species, thus improving their functioning condition.

However, if private landowners fence private lands to prevent livestock trespass onto public lands within the allotment area, then there could be detrimental impacts to wildlife habitat and populations. The fences could negatively impact wildlife due to collisions and to impediments to seasonal migration of big game animals, especially pronghorn antelope (Spillett et.al., 1967, Yoakum 1979). Additionally, fence posts could provide artificial hunting perches for raptors which may increase predation on small mammals and other wildlife species

4.13 Cumulative Effects

4.13.1 Cumulative Effects Common to All Alternatives

4.13.1.1 Landscape Grazing

Much of the land in this region is grazed on a regular basis. Therefore, many of the impacts described for the Proposed Action and No Action alternatives are also occurring throughout the area. Therefore, grazing throughout the landscape has a cumulative effect on a landscape scale. This is especially important when considering things like wildlife and water quality, as these resources may be impacted more by landscape scale impacts, than site specific impacts.

4.13.1.2 Oil & Gas

Considerable oil and gas development has been taking place in southwest Wyoming over the past few years. Some of this development has occurred in and around the Sage Creek, Westfork and Christensen allotments (see Fluid or Solid Minerals in **Table 3-4**). Most of the development around these allotments has occurred over the last 20-30 years.

Development of well pads and associated pipelines and roadways has the potential to displace vegetation, and fragment habitat. The degree and duration of disturbance is directly associated with the intensity and duration of development, and the success of reclamation. Oil and gas development, along with the other effects listed in this chapter, may act together to impact livestock grazing, wildlife habitat (including sage grouse), water quality, soil stability, the presence of invasive plants, the condition of riparian and wetland systems, and the presence and abundance of desirable vegetation (including *Thelesperma pubescens*).

Especially considering the current push for America to become more energy independent, it is likely that oil and gas development will continue in and around these allotments.

4.13.1.3 Vegetation Treatments

A number of vegetation treatments have occurred on private land within the Sage Creek and Christensen allotments, in an attempt to thin sagebrush and promote the growth of herbaceous forage. On the Sage Creek allotment, these treatments appear to have been successful. However, on the Christensen allotment some of these vegetation treatments have allowed some small colonies of *Bromus tectorum* (Cheatgrass) and *Halogeton glomeratus* (Halogeton) to establish, rather than desirable native forage.

When successful, these vegetation treatments can increase the abundance and vigor of herbaceous species. Vegetation treatments can create a more diverse vegetation mosaic, which can be beneficial for livestock and wildlife.

4.13.1.4 Recreation Activities

Common recreational activities in this area are described in **Table 3-4**. These, and other, recreational activities are taking place throughout the region. Recreational activities can impact the soil profile by compressing the soil surface. They can also introduce and spread non-native and invasive plant species. These impacts are minimized by the Kemmerer RMP (BLM 2010), which requires that all OHV use be limited to designated roads.

4.13.1.5 Irrigation

Irrigation has played a significant role in current resource conditions on these allotments. Sage Creek has been entirely diverted to fill Reed Reservoir. Reed Reservoir has historically been used to provide water for the Christensen allotment. Some of the water sent to the Christensen allotment was used to feed a private land pivot. Much of Cottonwood Creek is diverted for irrigation purposes. By altering the flow regime of these streams, the vegetation and soil resources have been impacted. Similar irrigation practices are followed throughout this portion of Uinta County, with similar impacts.

4.13.2 Cumulative Effects - Alternative 1: Proposed Action

As mentioned in section **4.13.1.1** livestock grazing is occurring throughout the area that surrounds these allotments. The combination of landscape scale grazing, and other human activities that disturb soils and vegetation (such as roads, irrigation, oil and gas development, housing development, recreational activities, etc...) may have a cumulative impact on the human environment. The

combination of these disturbances may further displace wildlife, impact water quality, degrade riparian habitat, and impact nutrient cycling and other important ecosystem functions.

The terms and conditions suggested under the Proposed Action alternative would alleviate some of the impacts livestock grazing contributes to landscape scale disturbance. However, these terms and conditions would only alleviate the impacts, not eliminate them.

4.13.3 Cumulative Effects - Alternative 2 – Current Management (No Action Alternative)

Cumulative effects under the No Action alternative would be the same as those described under section 4.13.2, except the No Action alternative does not include terms and conditions that would alleviate landscape scale disturbances.

4.13.4 Cumulative Effects - Alternative 3 – No Grazing Alternative

The No Grazing alternative may provide an incentive for private land owners to sell their land. Studies have shown that as many as 45% of ranches are being sold every decade in the United States (Gosnell & Travis 2005 as cited in Brunson & Huntsinger 2008). Studies have also shown that many ranchers would be forced to sell their ranches if they lost their ability to graze on their public land allotments, because their operation would not remain viable (Sulak & Huntsinger 2002, 2007 as cited in Brunson & Huntsinger 2008). When sold, private rangeland is often subdivided and used for housing developments, or their associated amenities. When this happens, the private rangeland loses most of its ecological values. Such developments not only eliminate habitat for plants and wildlife, but they also act to fragment the landscape, making it more difficult for wildlife to move from one block of suitable habitat to another.

The loss of habitat from development may combine with other impacts, such as landscape scale grazing, oil and gas development, recreational activities and other disturbances to have a cumulative impact on the human environment. The combination of these disturbances may further displace wildlife, impact water quality, degrade riparian habitat, and impact nutrient cycling and other important ecosystem functions. Some of these impacts may be offset, to some degree, by the removal of livestock grazing from the BLM land within these allotments.

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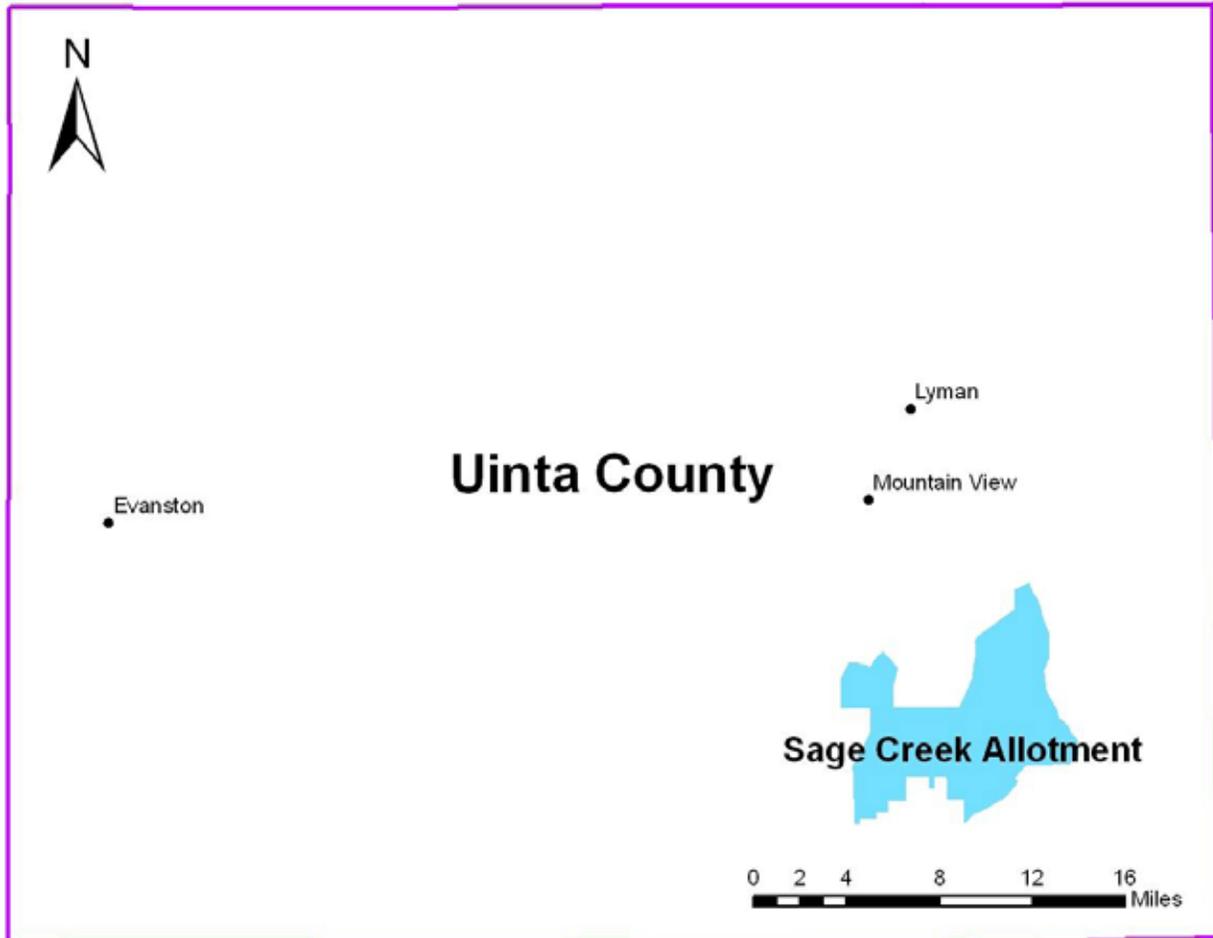
CHAPTER 6: LIST OF PREPARERS

 Spencer Allred	BLM Range Management Specialist / Project Lead
 Michele Easley	BLM Assistant Field Manager - Resources
 Jennifer Siani	BLM Wildlife Biologist
 Carl Bezanson	BLM Range Management Specialist / Noxious Weed Coordinator

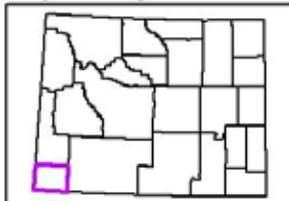
Appendix A:

Maps

Location of Sage Creek Allotment

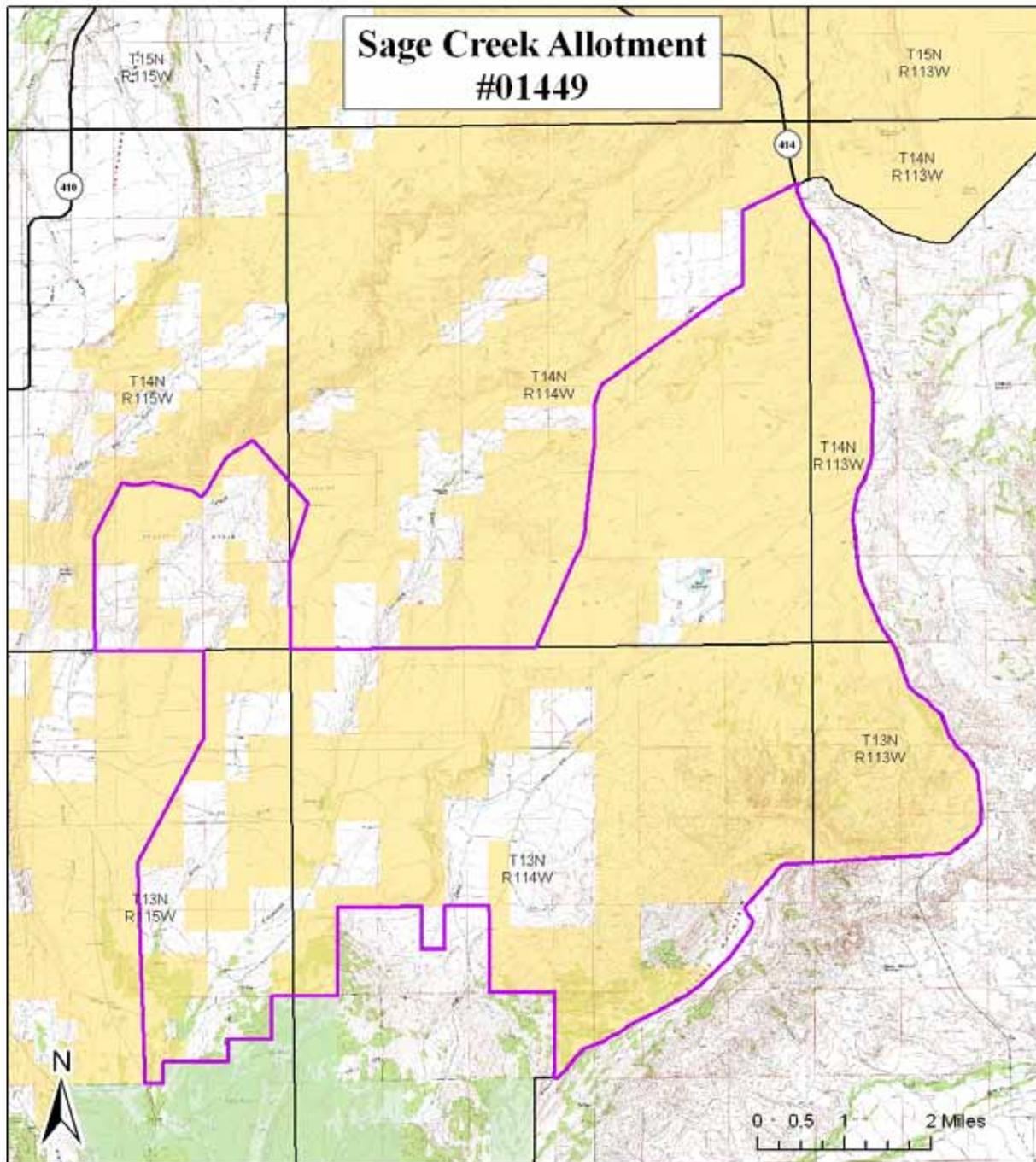


Wyoming Counties



NOTICE -- NOTICE-- NOTICE
Due to Federal and State Land Exchanges or Sales, this map may not accurately reflect Land Ownership Status.
Please consult the local BLM Field Office or USFS Ranger District for current updates or ownership status.

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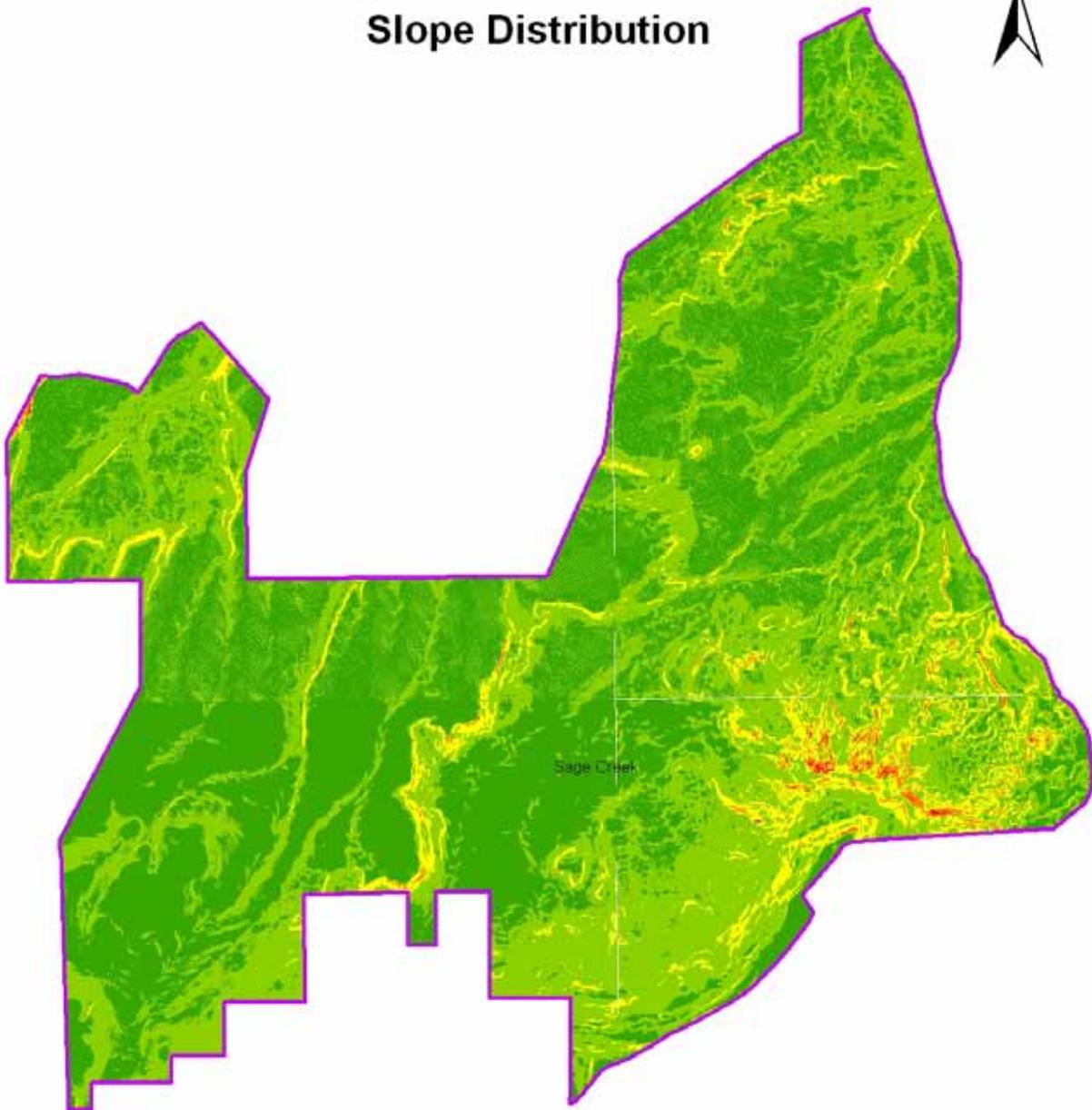
**Sage Creek Allotment
#01449**

	ALLOTMENTS		Bureau of Land Management		National Park Service
	Township-Range		Bureau of Reclamation		Private
	State Road		Fish and Wildlife Service		State
			Forest Service		

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Sage Creek Allotment Slope Distribution



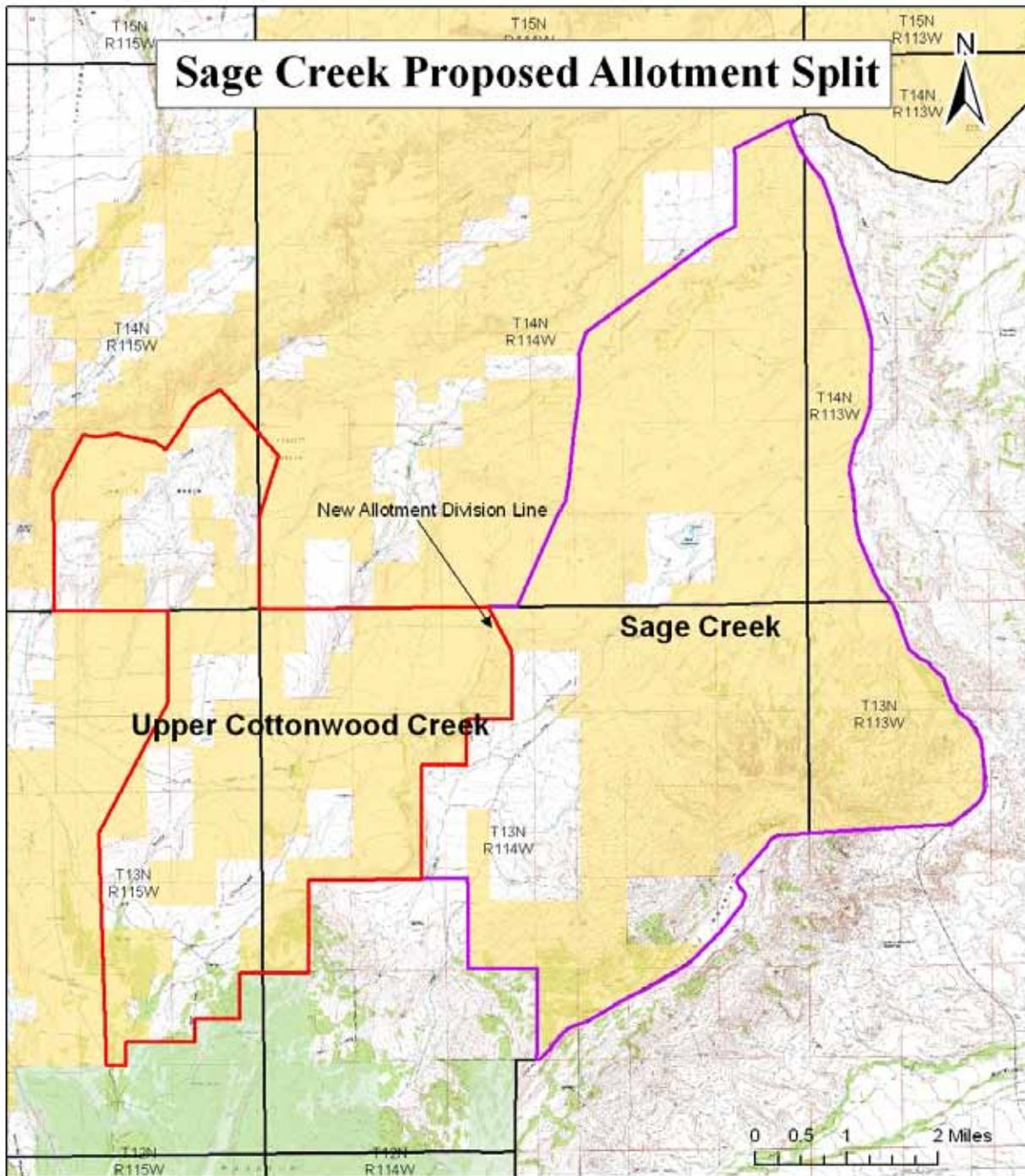
Percent Slope

-  0 - 5
-  5 - 25
-  25 - 50
-  50 - 75
-  >75

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ALLOTMENTS

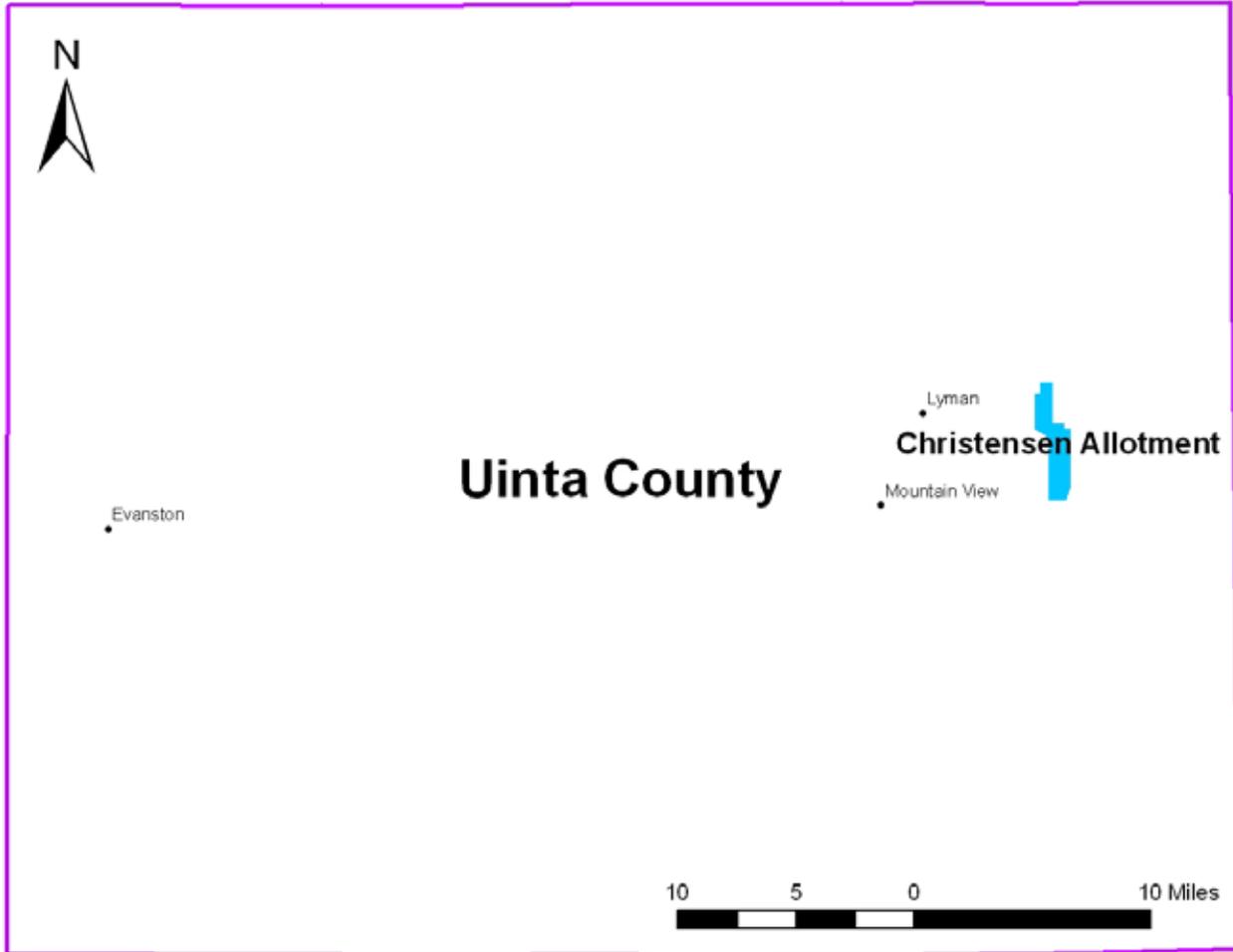
- Sage Creek
- Upper Cottonwood Creek
- Township-Range
- Bureau of Land Management
- Bureau of Reclamation

- Fish and Wildlife Service
- Forest Service
- National Park Service
- Private
- State

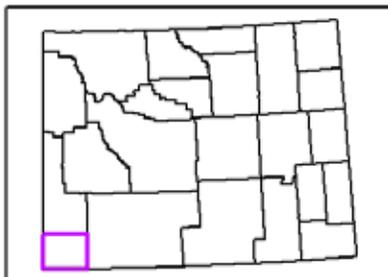
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Location of Christensen Allotment

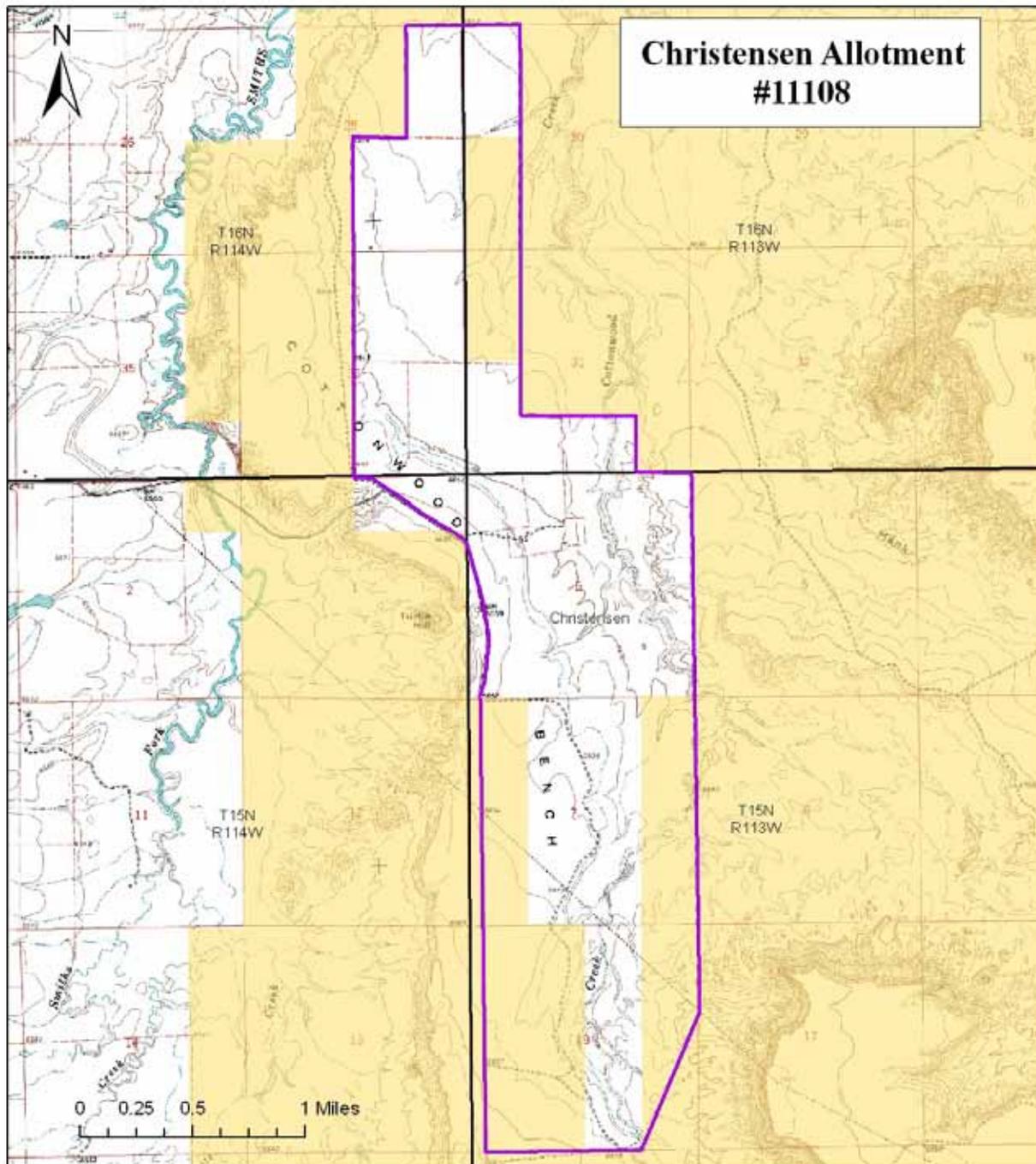


Wyoming Counties



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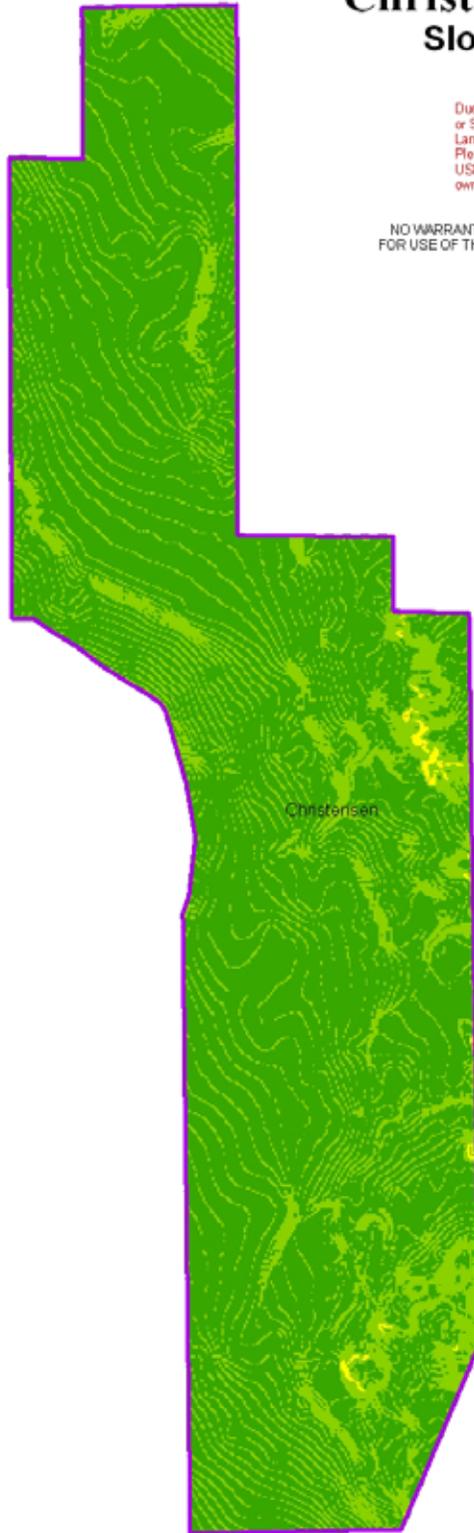
NO WARRANTY IS MADE BY THE BUREAU OF LAND MANAGEMENT FOR USE OF THE DATA FOR PURPOSES NOT INTENDED BY THE BLM.



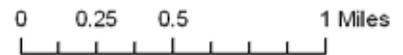
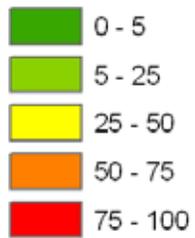
Christensen Allotment Slope Distribution

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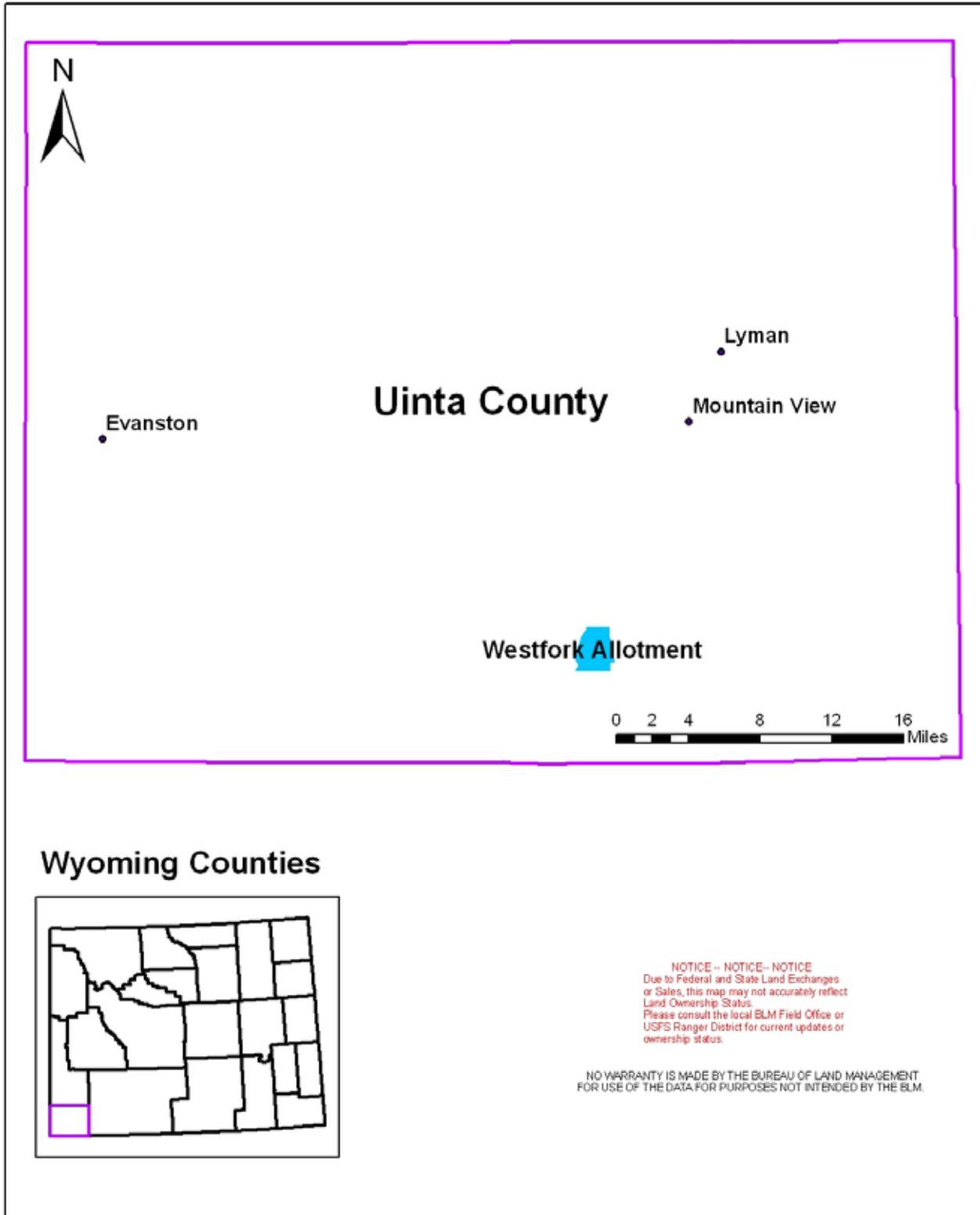
NO WARRANTY IS MADE BY THE BUREAU OF LAND MANAGEMENT FOR USE OF THE DATA FOR PURPOSES NOT INTENDED BY THE BLM.



Percent Slope



Location of Westfork Allotment



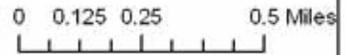
Westfork Allotment Slope Distribution



Percent Slope

- 0 - 5
- 5 - 25
- 25 - 50
- 50 - 75
- > 75

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Appendix B

Letter Concerning Livestock Weights



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Washington, D.C. 20240

<http://www.blm.gov>



APR 30 2008

Mr. Jon Marvel
Executive Director
Western Watersheds Project
P.O. Box 1770
Hailey, Idaho 83333-1770

Dear Mr. Marvel:

Thank you for your letters of March 20, 2008, to several Bureau of Land Management (BLM) State Offices regarding forage capacity and stocking rates. The report by John Carter, "Updating the Animal Unit Month," accompanied the letters. I am responding on behalf of all BLM offices.

For purposes of pragmatic and orderly range administration, the BLM's definition of an Animal Unit Month (AUM) for fee purposes at 43 CFR 4130.8-1(c) encompasses a variety of classes of animals that vary in weight and can differ significantly from a 1,000-pound animal. The forage consumed by a steer or heifer weighing 600 pounds grazing for one month is counted as an AUM, as is the forage consumed by a 1000-pound cow with a calf. The BLM's definition of an AUM at 43 CFR 4100.0-5 does not identify the quantity of forage that constitutes an AUM nor does the regulation at 43 CFR 4130.8-1 providing for payment of grazing fees.

After the passage of the Taylor Grazing Act, carrying capacity and stocking rates were initially determined through consultation with existing users of the land and advisory boards created by the Act. From the late 1930s through the 1960s, forage production inventories were conducted and stocking rates were determined through an adjudicatory process. Grazing permits were modified based on these inventories.

In response to the enactment of the National Environmental Policy Act (1969), the Federal Land Policy and Management Act (1976), the Public Rangelands Improvement Act (1978), and *NRCD v. Morton*, 388 F.Supp. 829 (D.D.C.1974) *aff'd*, 527 F.2d 1386 (D.C.Cir. 1976) *cert. denied*, 427 U.S. 913, the BLM initiated additional inventories using the Soil Inventory Method (SIM), the Soil Vegetation Inventory Method (SVIM), and the Range Site Inventory Method, now called the Ecological Site Inventory. These three inventories collected data, such as annual forage production in pounds/acre, and composition of plant type by percent (grass, forb, or shrub) that were used during the land use planning process to allocate uses for livestock, wildlife, wild horses and burros, and watershed health.

In the mid 1980s, the BLM established policy to use monitoring and evaluations as the basis to determine adjustments to existing permitted use levels. The BLM sets resource condition goals and objectives in resource management plans, and our local field offices issue grazing permits and leases with terms and conditions necessary to help achieve these goals and objectives. Recently, the BLM

has been conducting interdisciplinary land health assessments to help ensure that the BLM is sustaining the long-term health of our public lands.

The amount of permitted use is a mandatory term in grazing permits and leases. Permitted use will be modified when the authorized officer determines that such an adjustment is needed to manage, maintain, or improve rangeland productivity; to assist in restoring ecosystems to properly functioning condition; or to otherwise meet land health standards or land use plan objectives. In accordance with 43 CFR 4110.3, changes in permitted use must be supported by monitoring, field observations, ecological site inventory, or other data acceptable to the authorized officer. In accordance with 43 CFR 4130.3-3, the BLM evaluates the monitoring information collected, such as levels of forage utilization and changes in plant communities, and other data, including land health assessments, as a basis to consider and support decisions to increase or decrease grazing use or to change the terms and conditions of a permit or lease, such as season of use, duration of use, and other livestock management practices.

Since 1990, annual permitted use, BLM-wide, has been reduced from 13.6 million AUMs to 12.6 million AUMs. The increased size of livestock is just one of the many factors that account for adjustments in grazing use over time. Factors determining livestock use and potential effects on resource conditions are more complex than any one variable. The season of use, duration of use, current vegetation composition, and other resource issues are examples of other factors that are considered when establishing livestock use levels. In addition, the BLM works with permittees to adjust the amount of use to account for annual weather or forage production conditions. Since 1990, the amount of actual use made by livestock has ranged from 10.8 million AUMs to 6.7 million AUMs annually.

In summary, the BLM manages grazing impacts at the allotment level using the data gathered through monitoring, field observations, ecological site inventories, and land health assessments. Even though data for livestock weights or the amount of forage consumed per animal are not specifically gathered or identified, monitoring resource condition at the allotment level and, where necessary, making changes in grazing management, would account for differences in livestock weights and forage consumption.

Thank you for your interest in the management of our public lands. If you have further questions, please contact Rob Roudabush, Rangeland Resources Division Chief, at 202-785-6560 or Bob Bolton, Senior Rangeland Management Specialist, at 202-452-7792.

Sincerely,



Edwin L. Roberson
Assistant Director
Renewable Resources and Planning

Appendix C

Standard Terms and Conditions

The following Standard Terms and Conditions are included on every BLM grazing permit or lease in the United States.

1. Grazing permit or lease terms and conditions and the fees charged for grazing use are established in accordance with the provisions of the grazing regulations now or hereafter approved by the Secretary of the Interior.
2. They are subject to cancellation, in whole or in part, at any time because of:
 - a. Noncompliance by the permittee/lessee with rules and regulations.
 - b. Loss of control by the permittee/lessee with rules and regulations.
 - c. A transfer of grazing preference by the permittee/lessee to another party.
 - d. A decrease in the lands administered by the Bureau of Land Management within the allotment(s) described.
 - e. Repeated willful unauthorized grazing use.
 - f. Loss of qualifications to hold a permit or lease.
3. They are subject to the terms and conditions of allotment management plans if such plans have been prepared. Allotment management plans MUST be incorporated in permits or leases when completed.
4. Those holding permits or leases MUST own or control and be responsible for the management of livestock authorized to graze.
5. The authorized officer may require counting and/or additional or special marking or tagging of the livestock authorized to graze.
6. The permittee's/lessee's grazing case file is available for public inspection as required by the Freedom of Information Act.
7. Grazing permits or leases are subject to the nondiscrimination clauses set for in Executive Order 11246 of September 24, 1964, as amended. A copy of this order may be obtained from the authorized officer.
8. Livestock grazing use that is different from that authorized by a permit or lease MUST be applied for prior to the grazing period and MUST be filed with and approved by the authorized officer before grazing use can be made.
9. Billing notices are issued which specify fees due. Billing notices, when paid, become a part of the grazing permit or lease. Grazing use cannot be authorized during any period of delinquency in the payment of amounts due, including settlement for unauthorized use.
10. Grazing fee payments are due on the date specified on the billing notice and MUST be paid in full within 15 days of the due date, except as otherwise provided in the grazing permit or lease. If payment is not made within that time frame, a late fee (the greater of \$25 or 10 percent of the amount owed but not more than \$250) will be assessed.
11. No Member of, or Delegate to, Congress or Resident Commissioner, after his/her election or appointment, or either before or after he/she has qualified, and during his/her continuance in office, and no officer, agent, or employee of the Department of the Interior, other than members of Advisory committees appointed in accordance with the Federal Advisory Committee Act (5 U.S.C. App. 1) and Sections 309 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.) shall be admitted to any share or part in a permit or lease, or derive any benefit to arise therefrom, and the provision of Section 3741 Revised Statute (41 U.S.C. 22), 18 U.S.C. Sections 431-433, and 43 CFR Part 7, enter into and form a part of a grazing permit or lease, so far as the same may be applicable.

THIS PERMIT: 1. CONVEYS NO RIGHT, TITLE OR INTEREST HELD BY THE UNITED STATES IN ANY LANDS OR RESOURCES AND 2. IS SUBJECT TO (A) MODIFICATION, SUSPENSION OR CANCELLATION AS PROVIDED BY LAND PLANS AND APPLICABLE LAW, (B) REVIEW AND MODIFICATION OF TERMS AND CONDITIONS AS APPROPRIATE; AND (C) THE TAYLOR GRAZING ACT, AS AMENDED, THE FEDERAL LAND POLICY AND MANAGEMENT ACT, AS AMENDED, THE PUBLIC RANGELANDS IMPROVEMENT ACT, AND THE RULES AND REGULATIONS NOW OR HEREAFTER PROMULGATED THEREUNDER BY THE SECRETARY OF THE INTERIOR.

Appendix D

Persons and Agencies Consulted

**The following individuals and agencies were consulted concerning
livestock grazing on the Sage Creek, Christensen and Westfork
Allotments**

Fay Wadsworth	Former Landowner and Permit Holder
Beaver Creek Land & Cattle	Former Landowner and Permit Holder
Jen Nordstrom	Interested Individual
Jerry Pierce	Consultant, Twin Creeks Open Range, LLC
State Lands & Investments	State Agency
State Planning Coordinators Office	State Agency
U.S. Fish and Wildlife Service	Federal Agency
Wyoming Department of Agriculture	State Agency
Wyoming Game and Fish Department	State Agency
Ron Lockwood	Wyoming Game and Fish Department
Jonathan Ratner	Western Watersheds Project
Wyoming State Grazing Board	Interested Organization