

Environmental Assessment

Livestock Trailing – South Trail

BLM

High Desert District – Kemmerer Field Office

February 2014



It is the mission of the Bureau of Land Management to sustain the health, diversity and productivity of the public lands for the use and enjoyment of present and future generations.

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DOI-BLM-WY-D090-EA13-18

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1.0 INTRODUCTION

Title: Livestock Trailing EA – South Trail

EA Number: DOI-BLM-WY-D090-EA13-18

Type of Project: This Environmental Assessment (EA) has been prepared to analyze and disclose environmental consequences of authorizing crossing and trailing permits to livestock operators. This EA is a site-specific analysis of potential impacts that could result from the implementation of the Proposed Action and the No Trailing alternative. This EA will tier to and incorporate information and analysis contained in the Kemmerer Resource Management Plan (RMP) (USDI BLM 2010a).

Location: The project is located in Uinta County, Wyoming. Livestock trailing in Uinta County occurs primarily on the “South Trail” system which passes through 58 BLM grazing allotments on mixed federal, private and state lands (Appendix 1, Map 1). The Union Pacific Railroad was built in the 1860’s through Uinta County. The federal government granted to the Union Pacific Railroad every other section of land for 20 miles on either side of the Railroad as an incentive to construct the Railroad. As a result, Uinta County is composed of approximately 50% federal land (this pattern is called “checkerboard”), and therefore the trailing use made in this County affects less federal land than in other areas in the Kemmerer BLM Field Office.

Preparing Office:

Wyoming High Desert District
Kemmerer Field Office
312 Highway 189 North
Kemmerer, Wyoming 83101

Applicants:

The majority of trailing applications on the “South Trail” system come from four major sheep operators including: JR Broadbent Grazing Assoc., Larson Livestock Inc., Painter and Company Inc., and Sims Sheep Company LLC. Historically, other occasional applications have been received from sheep and cattle operators including: Martin Aimone, Gino Foianini, Richard Hamilton, Dennis Hunzeker, Julian Land and Livestock Corporation, Lilac Properties, Judd Redden, Fred Roberts, W&M Thoman Ranches LLC, and Myra A. Turner Family Living Trust. Applicants may include anyone needing to trail livestock across federal land in the Kemmerer Field Office (KFO).

1.1 Background

Grazing permittees and other livestock operators frequently request to trail livestock across BLM managed lands for a variety of reasons. These reasons primarily include (1) moving livestock to and from grazing allotments on BLM managed lands and (2) moving livestock to and from grazing allotments on state, private, or other federally managed lands. Livestock operators request authorizations to trail livestock throughout the KFO on an as needed basis and in accordance with 43 Code of Federal Regulations (CFRs) 4130 and 4160 and with provision of the Taylor Grazing Act and the Federal Land Policy and Management Act.

Historically, ranchers have been trailing livestock through the Uinta County area for over 100 years and created many of the established roads and trails we see today. In fact, many of these roads and trails have become county and state roads along which much of the trailing still occurs. There is no requirement for a trailing permit from the State of Wyoming or Uinta County for trailing livestock on their roads. This trail network is referred to by the BLM as the “South Trail” system. (The KFO also has a trailing system in the northern portion of the field office, referred to as the “North Trail” system, which will be discussed in a separate analysis.) Over the past 20 years, 15 different livestock operators in Uinta County have submitted trailing applications with the BLM to request authorization to trail livestock through portions of

one or more of the 58 grazing allotments that intersect the South Trail system. The approximate 237-mile South Trail system consists of multiple trail corridors that cross state land (8.8 miles), private land (116.5 miles), U.S. Forest Service (USFS) land (1.3 miles) and/or on BLM administered land (110.1 miles) (Appendix 1, Map 1).

Seven segments have been identified within the South Trail system based on the use patterns of four operators who submit multiple applications for sheep trailing annually: Larson Livestock Inc., Sims Livestock, JR Broadbent Grazing Assoc., and Painter and Co. Inc. (Appendix 1, Map 2).

- 1) Segment 1 (northwest area of the trail system) is used almost exclusively by Sims Livestock and runs north-south near the Hwy 189 corridor from Hwy 412 (Carter Highway/Highway 189 intersection south to about three miles north of Interstate 80). This segment is used primarily in spring and fall to move livestock between allotments and private land before and after summer use in the mountains (in Segment 2).
- 2) Segment 2 is used by Sims and JR Broadbent Grazing Association (southwest area of the trail system). From north to south, the segment runs from the south edge of Segment 1 to the forest boundary at the WY-UT state boundary. One portion parallels I-80 from the Hinshaw Exit and 13 miles east to the west edge of the Bigelow Bench Allotment. The east leg of the segment follows a dog-leg shaped path that briefly merges with the west leg before running west-southwest to join Segment 3.
- 3) Segment 3 is dominated by Larson L&L and Broadbent herds (south and central portions of the trail system). This segment follows I-80 from the East Lyman Exit to roughly where the Travel Centers of America truck stop is located. From that point, the trail follows county roads more-or-less straight south to the forest. From the forest boundary, a short segment reaches northwest to meet Segment 2.
- 4) Segment 4 (west central portion of the trail system) is a short, unbranched segment used solely by Larson L&L to trail sheep from the Carter Lease Allotment across Bigelow Bench to the Leroy Allotment along the Muddy Creek channel.
- 5) Segment 5 (north-central portion of the trail system) is used by Broadbents, Sims, and Larson L&L. This segment is the Carter Highway right-of-way.
- 6) Segment 6 (east side of the trail system) is used almost exclusively by Larson L&L and runs directly south from the east Lyman exit to the Manila Highway. This segment is used to run sheep to and from summer pastures in the Kemmerer and Rock Springs Field Office.
- 7) Segment 7 (east area of the trail system) runs almost directly southeast from the East Lyman Exit through the Indian Flat and Lyman Cattle allotments to the Cedar Mountain Allotment in the Rock Springs Field Office. This segment is used by both Broadbent and Larson operations intermittently in spring, summer and fall.

Table 1 lists the allotments which intersect the South Trail system, the total acres for each allotment, the acres that would fall within the one mile trail buffer and the percent of those trail acres within each allotment from the BLM KFO GIS database. The one mile trail buffer is in accordance with the Kemmerer Field Office Record of Decision (ROD) Decision #6018 which states, “*Livestock trailing use will occur within ½ mile of the mapped centerline.*”

Fourteen of these allotments are fenced out or in some other way are separated from the actual trail by right-of-way fences, highways, or other barriers. The trail buffer (the analysis area) that is being analyzed may not actually be used for trailing.

Table 1. KFO Allotments Intersecting the South Trail System Buffer

KFO Allotments Intersecting the South Trail Buffer Total Allotment Acres and AUMs; Trail Buffer Acres by Allotment						
Number	Allotment Number	Allotment Name	Allotment Acres	Allotment AUMS	Trail Buffer Acres	Trail % of Allot.
1	11533	21 GROVE	3,524	50	629	18
2	11202	ALBERT CREEK	38,332	4,352	15,241	40
3	11540	ALTAMONT	9,199	408	3,421	37
4	21514	ASPEN	3,854	152	1,897	49
5	11311	AUSTIN PLACE	4,106	136	26	<1
6	11312	AUSTIN TRIANGLE	47,029	1,044	1,418	3
7	11529	BALSAM DRAW	1,949	43	1,028	53
8	11318	BIGELOW BENCH	16,459	1,012	1,322	8
9	21511	BIGELOW DITCH	4,571	80	1,266	28
10	11525	BLAKE HOLLOW	5,715	878	97	2
11	11317	BRIDGER AIRPORT	36,640	3,175	7,383	20
12	01440	BRIDGER BUTTE	3,051	500	454	15
13	01433	BUFFALO CORRAL	773	118	569	74
14	21505	BYRNE CREEK	9,860	284	461	5
15	11306	CARTER LEASE	238,797	30,828	6,509	3
16	11108	CHRISTENSEN	2,799	118	1,586	57
17	11319	COAL MINE DRAW	8,735	444	2,048	23
18	01442	CROOKED CANYON	4,864	344	219	5
19	01458	CUMBERLAND FLATS	42,817	3,523	1,445	3
20	01206	CUMBERLAND/UINTA	337,656	50,128	7,198	2
21	11522	EAST BRANCH	1,943	86	323	17
22	11302	GRANGER LEASE	470,678	29,244	953	<1
23	11528	GUILD RANCH	1,842	58	517	28
24	01527	HAGUE CREEK	1,301	80	898	69
25	11314	HAMBLIN	372	54	50	13
26	21510	HAYSTACK DRAW	9,685	869	2,399	25
27	01447	HIGHWAY	2,600	96	768	30
28	21507	HINSHAW CREEK	13,346	2	13	>1
29	01438	HORSE CREEK	2,432	88	931	38
30	11324	INDIAN FLAT	7,922	578	3,019	38
31	11541	KEMMERER JUNCTION	6,160	731	1,485	24
32	11543	LA CHAPELLE	4,032	504	1,546	38
33	11320	LEROY	12,364	1,580	2,213	18
34	11406	LITTLE CREEK	14,067	1,115	6,734	48
35	01450	LITTLE DRY CREEK	5,958	511	823	14

36	11105	LYM LEASE	298	12	270	91
37	11303	LYMAN CATTLE	46,896	3,433	9,671	21
38	11512	MEEKS CABIN	20,820	642	5,061	24
39	11308	MONUMENT	8,288	744	2,884	35
40	11539	MOSS CREEK	3,909	94	126	3
41	01552	MUDDY CREEK	971	82	444	46
42	11535	MYERS	18,508	386	6,310	34
43	11403	NEBRASKA FLAT	4,599	34	124	3
44	11313	NIPPLE	1,145	30	317	28
45	11315	OAKS	746	37	542	73
46	11408	POVERTY FLAT	3,569	443	1,458	41
47	01446	QUARRY CREEK	2,153	85	365	17
48	11542	RADIO TOWER	6,726	701	3,085	46
49	21001	REDDEN PASTURE	1,571	35	1,106	70
50	11310	SOUTH MONUMENT	434	10	312	72
51	11405	SPRING CREEK	8,005	87	3,438	43
52	21509	SPRING HOLLOW	7,671	228	77	1
53	01531	SULPHUR CREEK	1,599	26	694	43
54	11521	THE BOILERS DRAW	2,779	200	2,249	81
55	21508	TOMS DRAW	7,923	800	2,007	25
56	11316	UPPER RANCH	438	67	40	9
57	11544	VAN TASSEL	16,901	1,931	1,905	11
58	01453	WALL RESERVOIR	1,068	45	162	15
		TOTALS	1,542,446	143,365	119,537	8

1.2 Purpose and Need for the Proposed Action

The purpose for the Proposed Action is to provide access across BLM administered lands for livestock crossing and trailing within the KFO following appropriate environmental analysis. The need for the Proposed Action is for the BLM to respond to applications for livestock crossing or trailing across federal land and to make good environmental decisions. In many instances, livestock producers must move their livestock across BLM-administered lands to facilitate proper grazing management of BLM grazing allotments, as well as to facilitate movements of livestock to and from private, state, or other federally administered lands in an economically feasible manner.

Decision to be Made

The decision to be made is for the BLM to decide whether to continue issuing trailing authorizations across BLM administered land, following environmental analysis and in accordance with the Kemmerer Field Office Record of Decision (ROD) and Resource Management Plan (RMP)/Final Environmental Impact Statement (FEIS) approved on May 24, 2010.

1.3 Relationship to Statutes, Regulations, Plans or Other Environmental Analyses

BLM manages allotment resources and issues grazing permits, crossing or trailing authorizations and livestock-related leases in accordance with applicable land use plans, the Taylor Grazing Act of 1934, the Federal Land Policy and Management Act of 1976 (FLPMA), other authorities listed below, and the other authorities listed in 43 CFR Part 4100. On August 12, 1997 the Wyoming Standards for Rangeland

Health and Guidelines for Livestock Grazing Management were approved by the Secretary of the Interior. Subsequent livestock management practices must also conform to approved standards and guidelines.

The Kemmerer RMP, Record of Decision

One of the goals of the Kemmerer RMP, Record of Decision (Goal LR: 4, pg. 2-45) states, “*Maintain and (or) enhance livestock grazing opportunities and rangeland health.*” The associated objective (LR: 4.1) states, “*Manage grazing to fulfill or make significant progress toward conformance with the Wyoming Standards for Healthy Rangelands.*” The decision/management action referring to trailing (Decision #6018, pg. 2-45) states: “*Retain current livestock trails. Livestock trailing use will occur within ½ mile of the mapped centerline.* The RMP ROD Map 15 shows the North and South Livestock Trail systems as identified in 2010.

The Kemmerer RMP, Record of Decision (2.2.1.2 Guidelines for Livestock Trailing, p. 2-59) also states the following:

“Livestock trailing is authorized under 43 CFR 4130.6-3. In order to trail livestock across federal land, an operator must have a valid trailing permit. Livestock trail use will be managed in accordance with the principles of multiple use and sustained yield. The following terms and conditions will apply to all trailing permits on the South Trail system in the Kemmerer Field Office:

- 1. Authorization of livestock trailing shall be at the discretion of the authorized officer.*
- 2. Failure to comply with these terms and conditions may result in denial of further trailing use.*
- 3. Trailing use must be applied for at least three business days prior to trail use. All applicable trailing and grazing bills must be paid in full before trailing will be authorized. Any livestock trailing prior to the date listed on the trailing permit, and prior to full payment of the trailing bill, will be considered unauthorized grazing use and will be dealt with according to the regulations set forth in 43 CFR 4150, including but not limited to an unauthorized use fee.*
- 4. At the time of application, an operator must disclose their starting and ending trailing locations.*
- 5. Trailing will occur at the minimum rate of five miles per day per herd.*
- 6. All garbage and dead sheep will be removed from the trail and disposed of in a landfill or on the applicant’s private land.*
- 7. Movement and timing of trailing of livestock will be coordinated between users prior to herds being present on the trail. This coordination will take place sufficiently in advance of trailing to allow for potential schedule changes between users.*
- 8. The BLM may provide trailing applicants with a map showing where livestock camps will or will not be authorized. Livestock camps typically will not be authorized within ¼ mile of sensitive areas such as (but not limited to): recent fire locations, recent vegetation treatments, sensitive or endangered plant species habitat, riparian and wetland areas, sage-grouse leks during the lekking period, national historic sites and some portions of the national historic trails.*
- 9. Sheep camps will be clearly marked so different bands can be easily distinguished.*
- 10. Trailing permits only authorize trailing on BLM administered land. Livestock operators must obtain permission to cross other public, state or private lands from the appropriate authority.”*

Since the 2010 ROD, subsequent Field Manager decisions added additional terms and conditions to trailing permits, as follows:

- 1. Trailing must occur within ½ mile of the center line of the established trail. Trailing on a BLM grazing allotment outside the designated boundary without permission from the permit holder will be considered unauthorized grazing use and will be dealt with according to the regulations set forth in 43 CFR 4150.*

2. *Any necessary supplemental feeding or watering, such as in drought or other adverse conditions, will require authorization from the BLM if located on federal land or from the private land owner or the state of Wyoming if located on private or state land. All supplemental feed on federal land needs to be certified weed free.*
3. *Trailing permits only authorize trailing on BLM administered federal lands within the designated trail boundaries. Livestock operators must obtain permission to cross private lands from the appropriate authority. The BLM may require proof that permission was given the permittees to cross such lands prior to authorizing a trailing permit.*
4. *Lambing is not allowed on the trail.*

The terms and conditions stated above will be attached to each trailing authorization.

The Taylor Grazing Act, Section 1, *“...Whenever any grazing district is established pursuant to this Act, the Secretary shall grant to owners of land adjacent to such district, upon application of any such owner, such rights-of-way over the lands included in such district for stock driving purposes as may be necessary for the convenient access by any such owner to marketing facilities or to lands not within such district owned by such person or upon which such person has stock grazing rights...”*

The Federal Land Policy and Management Act (FLPMA), Title IV Range Management, Grazing Leases and Permits, does not address trailing specifically but does say, *“...permits and leases for domestic livestock grazing on public lands issued by the Secretary under the Act of June 28, 1934 [Taylor Grazing Act] ...shall be for a term of 10 years subject to the terms and conditions the Secretary deems appropriate and consistent with the governing law...(b) permits or leases may be issued for a period shorter than ten years where the Secretary determines that... (3) It will be in the best interest of sound land management to specify a shorter term.”*

43 Code of Federal Regulations 4130.6-3 Crossing permits. *“A crossing permit may be issued by the authorized officer to any applicant showing a need to cross the public land or other land under Bureau of Land Management control, or both, with livestock for proper and lawful purposes. A temporary use authorization for trailing livestock shall contain terms and conditions for the temporary grazing use that will occur as deemed necessary by the authorized officer to achieve the objectives of this part.”*

Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the State of Wyoming, January 1998 states: *“In general, we will implement standards and guidelines by assessing the health of a number of grazing allotments across the State...if the rangeland meets the standards, no further action is necessary. If one or more of the standards is not being met, due wholly or in part to grazing practices, the corresponding grazing guidelines will be used to develop management actions to improve the rangeland.”* Alan R. Pierson, State Director 1998. (USDI BLM 2010c).

Instruction Memorandum No. 2012-096, April 10, 2012, Assistant Director, Renewable Resources and Planning, III. Section 123 Trailing Livestock Across Public Land states: *“...Temporary trailing or crossing authorizations across public lands shall not be subject to protest and/or appeal under subpart E of part 4 of title 43, Code of Federal Regulations, and subpart 4160 of part 4100 of such title. Policy: The Field Office (FO) must consider the effects of issuing a crossing permit. The degree of detail and analysis is left up to the FO discretion. Typically, this will depend on the resources affected by the livestock crossing, the type of magnitude of the crossing, as well as any resource issues present.”*

1.4 Scoping, Public Involvement and Issues

Scoping is an important part of the NEPA process and determines the scope of key issues related to a proposed action (40 CFR 1500.7). Scoping can involve federal, state, and local government agencies, tribal governments, resource specialists, industry representatives, local interests groups, and other members of the public.

Key issues were defined by an Interdisciplinary Team during several onsite inspections, and follow up meetings which contributed to (1) drive the analysis of environmental effects; (2) prescribe or necessitate the development of mitigation measures; and/or (3) drive the development of additional project alternatives. These issues are carried forward for analysis in Chapter 4.0 of this EA. Key issues are summarized as follows:

Issues

A scoping letter was mailed on December 18, 2012 to state and county governments, interested publics, homeowners along the trail system, and all livestock grazing permittees in Uinta County. Comments were received from ten entities (see Appendix 2). Issues directly related to livestock trailing through external scoping are summarized below.

- How will the Proposed Action impact cultural and paleontological resources in the area?
- How will the Proposed Action cause displacement of fish or wildlife?
- How would the Proposed Action impact vegetation and riparian conditions?
- Is the KFO prepared to add vegetation transects throughout each of the trails to assess utilization?
- How will the Proposed Action affect sedimentation and water quality within ¼ mile perennial stream buffers?
- How will the Proposed Action cause disruption of livestock management under existing permits and how will it be included in allotment management plans?
- Will private, city, county or state land owner permissions be required before trailing occurs?
- Will maintenance responsibilities of trail facilities be defined (i.e., water developments, fences, etc.)?
- Under the Proposed Action how will crossing versus trailing be addressed, authorized and billed?
- Under the Proposed Action how will trail boundaries be identified, and how will crossing and trailing rules be enforced?
- How will trails be added if subsequent to this analysis?
- How will the Proposed Action effect socio-economics of ranchers in Uinta County?
- How will the Proposed Action be affected by severe drought?

2.0 PROPOSED ACTION AND NO TRAILING ALTERNATIVES

The Proposed Action and No Trailing alternatives were developed based upon issues identified through public scoping and involvement. The alternatives were designed to address one or more of the identified issues as well as provide the opportunity for specific comparisons on which the decision maker can base a decision. Most of the livestock trails in the “South Trail” system have been in existence for over 100 years, with a few corrections/changes to the BLM map recently identified by permittees during the scoping process. Map 1 (Appendix 1) depicts the livestock trails being considered in this environmental assessment, although “crossings” may occur anywhere in the field office.

The CFRs do not define “trailing” or “crossing” and seem to use the terms interchangeably. However, for the purposes of this document these terms are defined differently. The term “crossing” is a single use event that generally does not occur on established trails. A crossing is considered an event that occurs within eight hours with no overnight camps. Typically, a crossing is from private ground to private ground crossing a BLM allotment with the permission of the permit holder, to move from one pasture to another. The term “trailing” is an overnight event with established campsites and watering stops on established trails, which occurs over multiple days and crosses one or multiple allotments.

2.1 Alternative 1 - Proposed Action (Issue Livestock Trailing Permits as Applied For)

BLM KFO is proposing to continue to consider applications for livestock trailing and crossings and issue *temporary use authorization* type permits under NEPA to livestock operators who submit seasonal applications. Grazing permittees or other livestock producers needing to trail or cross livestock across BLM-administered lands would be required to submit an application prior to trailing or crossing and according to the rules and regulations set forth herein. This action is consistent with 43 Code of Federal Regulations (CFR) 4130.6-3 regarding crossing permits. “A *crossing permit may be issued by the authorized officer to any applicant showing a need to cross the public land or other land under Bureau of Land Management control, or both, with livestock for proper and lawful purposes. A temporary use authorization for trailing livestock shall contain terms and conditions for the temporary grazing use that will occur as deemed necessary by the authorized officer to achieve the objectives of this part.*”

The Proposed Action will authorize up to the historic maximum annual use levels of 41,682 livestock or 1,149 AUMs annually. Additional trailing above historic use levels would be considered on a case-by-case basis and additional NEPA would be required

The Proposed Action will focus analyses on the importance of protecting sensitive areas within the one mile buffer in sections designated for overnight use. The following guideline #8 from the *Kemmerer Field Office Policy Statement on Livestock Trailing* (ROD, 2.2.1.2 *Guidelines for Livestock Trailing*) is restated here for emphasis:

The BLM may provide trailing applicants with a map showing where livestock camps will or will not be authorized. Livestock camps typically will not be authorized within ¼ mile of sensitive areas such as (but not limited to): recent fire locations, recent vegetation treatments, sensitive or endangered plant species habitat, riparian and wetland areas, sage grouse leks during the lekking period, national historic sites and some portions of the national historic trails.

Overnight use areas are identified on Map 2 (Appendix 1).

The Proposed Action does not include the use of supplemental feeding and watering on federal land, unless otherwise authorized. Any necessary supplemental feeding or watering, such as in drought or other adverse conditions, will require authorization from the BLM if located on federal land or from the private land owner or the state of Wyoming if located on private or state land.

2.2 Alternative 2 - No Trailing

Trailing livestock across BLM-administered lands within the KFO would not be authorized. Applicants would find alternate means to transport their livestock other than trailing across federal land. For the purposes of analysis, the ID Team assumed that most, if not all, applicants would truck their livestock to and from their allotments and thus analyze impacts accordingly.

The No Trailing Alternative would require an amendment to the KFO RMP which authorizes trailing on designated trails (USDI BLM 2010a, ROD Table 2-1 Decision #6018, and ROD Map 15).

2.3 Alternatives Considered but not Analyzed in Detail

An alternative to issue trailing permits based on current use or decreased use levels was considered but eliminated. Use levels from year to year are variable throughout the South Trail system and current use levels would not reach higher historic use levels. All of the use levels are within the maximum historic use levels of the Proposed Action.

An alternative to issue trailing permits based on levels above historic use was considered but eliminated. Any analysis of increased use levels would be speculative because it is not known whether any producers would, or could trail higher numbers of animals. As stated, the Proposed Action would analyze historic maximum annual use levels of 41,682 livestock or 1,149 AUMs. Annual use levels would not exceed this historic use level. Additional trailing above historic use levels would be considered on a case-by-case basis and additional NEPA would be required.

An alternative to issue 10 year trailing permits was originally considered but eliminated because of the lack of flexibility needed to authorize annual use. 43 CFR 4130.6-3 allows the BLM to issue temporary grazing authorizations in order to facilitate the orderly movement of livestock on an as-needed basis and dependent on annual range conditions.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

Uinta County encompasses 2,088 square miles of which 2,082 square miles is land and six square miles is water. The largest town in Uinta County is Evanston, located where the Bear River intersects Interstate 80. The other three incorporated towns are Bear River, Lyman and Mountain View. Lyman and Mountain View are located in the Bridger Valley in the eastern side of the County. The Uinta Mountains run along the southern border of the County from east to west.

Livestock trailing in the springtime is typically from winter/spring grazing allotments or feeding grounds in Uinta County to U.S. Forest Service allotments in the Uinta Mountains or BLM summer allotments. The pattern is reversed in the fall as livestock trail from the summer pastures to the fall and winter pastures. Federal lands in Uinta County are integral to both large and small family ranching businesses. BLM grazing permits allow ranchers to access federal lands, thereby consolidating the livestock operation and contributing to livestock production, which is the main source of income for these ranching families. Federal lands contribute to the receipts of the county in which they are located through "Payment In Lieu of Taxes" by the federal government.

The following are not present or not affected and will not be further analyzed:

Air Quality

Areas of Critical Environmental Concern (ACEC)

Environmental Justice

Floodplains
Fuels/Fire Management
Geology/Mineral Resources
Hazardous or Solid Wastes
Paleontology
Prime or Unique Farmlands
Recreation
Wild and Scenic Rivers
Wilderness

Although recreation occurs throughout the project area there are no impacts within the trail buffer. Because of the short duration of trailing livestock and recreation opportunities typically occur outside the one mile trail buffer (trailing is typically adjacent or within a road right-of-way) any interaction would be minimal.

3.2 Cultural Resources

A full Cultural Resources Data Review (file search) was conducted by BLM KFO Archeologists between October 2011 and June 2013 using data available in the BLM KFO cultural resources files and the State Historic Preservation Office (SHPO) Wyoming Cultural Records Office (WYCRO) online-database.

Approximately 306 previous cultural resource inventories and related projects have been conducted within the sections analyzed for the file search. Previous Class III cultural inventories include 21 pipeline related projects, 51 well pad and access roads, 47 highway/road projects, six projects related to recreation, two radio/microwave tower sites, four communication tower sites, three cell towers, one meteorological tower, one timber sale, one fire related project, one land sale, 16 range management projects, six gravel pits, one gravel sale, three trespass projects, six snow fences, two core holes, 17 mine related projects, three cathodic protection sites, 27 powerlines, 13 fiber optic/buried cables, 19 seismic projects, one lease, one easement, three airport related projects, and 24 miscellaneous projects such as landfills, reservoirs, and hearthstone quarries. Other projects conducted include eight data recoveries, three Class I/Historic Overviews, three Class II surveys, five pipeline and fiber optic monitors, and seven site testing projects. Many of these inventories overlap with the *South Livestock Trail Area of Potential Effect (APE).

As a result of aforementioned projects, 504 sites have been documented within the APE: approximately 63% are prehistoric, 29% are historic, and 8% are multi-component, having both prehistoric and historic elements. Recorded sites include 208 prehistoric camps; 99 prehistoric lithic scatters; nine miscellaneous prehistoric sites such as cairns, quarries, and stone circle sites; 40 prehistoric camps or lithic scatters with overlying historic debris; 11 historic era roads; eight historic era ditches; 33 historic sites related to the railroad; three National Historic Trails (NHT); 12 historic sheepherding camps; 31 historic era debris sites; 49 miscellaneous historic sites such as bridges, homesteads, mines, cairns, ranches, townsites, charcoal kilns, stage stations, and cemeteries; and one unknown site with no records associated.

There are segments of three National Historic Trails that cross through various portions of the South Trail APE including the California-Mormon NHT, the Oregon-California NHT, and the Oregon-California-Mormon-Pony Express NHT. All variants of NHTs within the APE were previously determined to be eligible for the National Register of Historic Places (NRHP) under Criterion A because they are associated with events that made significant contributions to broad patterns of American history. The various segments of NHTs that cross the APE are classified Class 1 through Class 4, based on their condition and degree of historic integrity. (See the 2008 Proposed RMP and Final EIS for the KFO Planning Area for detailed descriptions of NHT classifications). A detailed historic narrative describing

the significance of these NHTs can be found in the 2008 Proposed RMP and Final EIS for the KFO Planning Area.

Of the 504 sites documented in the APE, only 15 are situated in locations identified as rest areas by local trailing permittees, where temporary and overnight camps are set up along the trail to allow livestock and herders to rest. These sites include two prehistoric camps (one of which is determined eligible for the NRHP and one that has yet to be evaluated), three prehistoric lithic scatters (two not eligible and one unevaluated), the historic Lincoln Highway which is eligible for the NRHP, the NRHP eligible historic Union Pacific Transcontinental Railroad and three associated sites (two are not eligible and one is determined eligible), one not eligible historic ditch, one not eligible historic cabin, one not eligible historic era debris scatter, one segment of the California-Mormon NHT, which is eligible for the NRHP, and an undocumented historic stage station with insufficient information to analyze potential impacts.

* The South Livestock Trail refers to the South Trail system.

3.3 Invasive Non-Native Species (INNS)

There are a variety of invasive non-native species within the KFO boundaries. A list of these species can be found in the Kemmerer RMP FEIS (USDI BLM 2008) on pages 3-91 and 3-92. Of these species listed, Mormon crickets (*Anabrus simplex*) and other grasshoppers are probably the largest threat when population levels reach high densities. Of the remaining species listed, the larger concerns within the project area include: black henbane (*Hyoscyamus niger*), saltcedar (*Tamarix ramosissima*), spotted knapweed (*Centaurea stoebe*), Russian knapweed (*Acroptilon repens*), houndstongue (*Cynoglossum officinale*), musk thistle (*Carduus nutans*), Scotch thistle (*Onopordum acanthium*), Canada thistle (*Cirsium arvense*), perennial pepperweed (*Lepidium latifolium*), hoary cress (*Cardaria pubescens*) and leafy spurge (*Euphorbia esula*). Species not listed include halogeton (*Halogeton glomeratus*) and cheatgrass (*Bromus tectorum*).

Control of INNS on Federal land is regulated by Federal and State laws (USDI BLM 2008). BLM coordinates annually with the Uinta County Weed and Pest District. When INNS are located by BLM, the Uinta County Weed and Pest is notified and steps are taken to remedy the issue as quickly as possible, typically through chemical control.

3.4 Livestock Grazing Management

BLM strives to manage livestock grazing according to provisions of the grazing regulations and the *Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming*.

All allotments that overlap the one mile buffer along the South Trail's various segments and the number of acres within that allotment that are potentially affected by trailing are listed in Table 1 (Section 1.1, *KFO South Trail Grazing Allotment Total Acres and Trail Buffer Acres by Allotment*).

The total number of livestock on the South Trail system from 1992-2010 ranged from 0 – 1,062 cattle and 2,462 – 40,620 sheep, or a maximum of 41,682 livestock in any given year. According to the BLM Range Administration System (RAS) database, the billed use for sheep trailing in any given year during the period of 1992 to 2010 ranged from a low of 31 AUMs in 1999 to a high of 1,119 AUMs in 2004. During those years, the numbers of livestock were nearly evenly split between spring and fall use (i.e., March-July and August-November). During the same period, the number of Animal Unit Months (AUMs) ranged from zero to 30 for cattle, for a combined sheep and cattle total of 1,149 AUMs. 30 cattle AUMs equal 1,062 cattle for one day or 230 cattle for four days. 1,119 sheep AUMs equal 40,620

sheep for two days or 12,690 sheep for 13 days. Typically, a livestock trailing event does not exceed 14 days.

Use on the South Trail system occurs within 119,537 acres of private, state, and federal lands that lie within a one mile wide corridor (or buffer) along the trail (Appendix 1, Map 1). This acreage accounts for 7.75% of the 1,542,446 acres (private, federal and state lands) in all of the allotments overlapped by the buffer. According to BLM adjudicated AUMs and estimates, the trail buffer can produce 9,611 AUMs (private, state, and federal lands), assuming equal distribution of forage. This production accounts for 6.7% of the 143,365 AUMs available within those allotments. The maximum historic annual billed trail use is 1,149 AUMs, only 12% of the 9,611 AUM potential forage production. According to data in the BLM Rangeland Administration System (RAS) the 58 grazing allotments that intersect the South Trail system are currently permitted for a total of 143,365 Animal Unit Months (AUMs).

Sheep spring trailing is used to move herds from winter allotments to other areas used for short periods where the herds are sorted for shearing and lambing. The herds are trailed to summer pasture once the lambs are large enough to travel. Sheep shall not be permitted to lamb on the trail. Because new born lambs are unable to travel, lambing while on the BLM portion of the trail is prohibited. Repeated incidents of lambing on the BLM portion of the trail could result in termination of the permit. In the fall, sheep are trailed from their summer range to sorting facilities where culls and market animals are removed and then to fall and winter grazing. With the exception of trailing to and from summer forage, most moves on the South Trail system are short (are completed within one or two days) and occur primarily on private land. Rest areas are used where livestock may be temporarily concentrated for brief lunch stops or overnight camping. There are 17 identified rest areas in the South Trail System (Appendix 1, Map 3).

3.5 Socioeconomics

Sheep and cattle production in Uinta County has been a way of life and has provided a livelihood for many ranch families for many years; some operations were started over 150 years ago. The operations have also provided an economic base for the counties and state in which they are located.

While agriculture tends to be a high risk enterprise to the individual producer, agriculture is a stabilizing influence on the local economy. When agriculture produces, which this industry does each and every year, producers must make purchases, even when the industry is not profitable in the long run. While net returns tend to vary from year to year, production expenses are made each and every year, which adds stability to the local economy. Unlike other industries, agriculture does not stop production if in the short run, returns are negative.

Agriculture has the highest economic impact on a per dollar basis of any industry. Agriculture producers tend to buy their inputs locally, which stimulate the local economy on a higher basis than other industries. Agriculture production tends to be exported out of the local economy, which brings in “new” money to the economy, further stimulating the local economy.

Costs associated with trailing may include herder salaries and living expenses, expense of importing herders from foreign countries, insurance and workers compensation, hauling supplies, and providing occasional feed and water for livestock. These expenses are estimated at: \$500/herder (\$1,000/camp) per month in groceries in addition to \$750.00 (new herder) or \$850 (seasoned herder) per month in salary for each herder (Julian, 2013). The producers pay approximately \$3,000 per herder in expenses to bring them here from South America. If 50% of the herders ‘jump’ (disappear) once they are in the U.S., that raises the costs to the producer to \$4,500 per herder. In addition, the producer pays for all of the herder’s equipment (sleeping bags, insulated overalls, boots, slickers) and \$600/year in worker’s compensation insurance (Julian, 2013)

In dry years or seasons, the producers may have to haul feed or water to the trail. Sheep need four gallons of water per day to maintain health (more if they are nursing their lambs). A 1,400-animal herd would require up to 5,600 gallons per day. A tractor-trailer or straight truck would be able to haul that amount in a single trip (Julian, 2013).

In the event that the producer needs to feed the animals:

- A ewe with lamb needs approximately 10 kg of average hay per week. At the current price of \$200 per ton, that is \$640/day, plus trucking costs.
- A dry ewe needs approximately 7 kg of average hay per week. At the current price of \$200/ton, this amounts to \$320/week/day plus trucking costs. (Dept. of Primary Industries, 2007).

3.6 Soils

According to the Kemmerer Proposed RMP and Final EIS, Chapter 3 pp.3-12 to 3-14, there are four general soil groups in the South Trail system project area:

Soil Group 1: *Overthrust Belt* is found in steep, sloping major ridges with narrow valleys trending north-south, extending south of Evanston at the Utah State line to the western divide of the Muddy Creek drainages. Dominant parent materials include residuum formed over sediments; colluvium, including landslide and earth-flow deposits, and alluvium on footslopes and drainages. Geologic overthrusting and the resulting mixed exposures have produced variable soil textures and complex soil/geomorphic relationships. In the narrow valleys and drainages, very deep and well-drained reddish and brown soils are common. The upland ridges are characterized by soils of varying depths, both red and brown in color. Most red soils along the upland ridges are highly susceptible to water erosion when disturbed. Areas within the Overthrust Belt, especially low areas, are saline (high in soluble salts and sodium), which is a water quality concern in the Colorado River Basin.

Soil Group 2: *Green River Basin Uplands* consists of sedimentary uplands of the Green River Basin. It is bounded by Oyster Ridge on the west, extends beyond the KFO to the east, becomes a narrow band along Fontenelle Creek in the north, and is bounded in the south by the foothill terraces of the Uinta Mountains. Low relief bedrock-controlled ridges, erosional side slopes, and alluvial fans dominate the landscape. Included within this group are badlands, such as those found along Cottonwood Creek. Many soils in this group are formed from shale producing clayey textures with poor surface water infiltration, high runoff potential, and high carbonate levels that create a high potential for water erosion due to a high proportion of fine sands or silts with little binding material or silt-sized carbonates. Many soils in this group are susceptible to excessive wind erosion due to sandy surface textures, low organic matter, and high carbonate content. This soil group has a high proportion of saline soils, especially in low topographic areas, such as drainages and areas below marine shale outcrops.

Soil Group 3: *Mountainous Areas* occur in the extreme southern parts of the project area. Parent materials include sedimentary rock and glacial till, resulting in soils of various textures with various rock sizes with the soil profile. Mass wasting in the form of landslides and slumping occurs on the steeper, moister slopes. Coniferous and aspen trees are often present on these moist, north-facing slopes.

Soil Group 4: *Relict Alluvial Fans and High Outwash Terraces* occur in the extreme south-central part of the project area, and are found on old alluvial terraces, fans, and pediments. These landforms were created as a result of alluvial material flushing out of the canyons of nearby mountains. Glacial till (Bishop Conglomerate) occurs in the southern part of Uinta County and generally is found on high, relatively level outwash terraces, such as Leavitt Bench. Soils in this group generally are deep, with rock and cobbles throughout the profile, which may affect some land uses.

The *Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming* addresses the issue of soils as it relates to livestock grazing. Standard #1 establishes the following goal:

“Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.”

This means that the hydrologic cycle will be supported by providing for water capture, storage, and sustained release. Adequate energy flow and nutrient cycling through the system will be achieved as optimal plant growth occurs. Indicators may include:

- Water infiltration rates
- Soil compaction
- Erosion (rills, gullies, pedestals, capping)
- Soil micro-organisms
- Vegetative cover (gully bottoms and slopes)
- Bare ground and litter

Depending upon parent material, localized topography, moisture/temperature regimes and local plants, the four soil groups listed above can produce a multitude soil types and ecological environments. For detailed soil types and ecological sites, please see Appendix 1, Map 4.

3.7 Vegetation

According to data contained in the BLM KFO GIS database there are 34 different combinations of primary and secondary vegetation communities within the one-mile-wide South Trail buffer (see Table 2 and Appendix 1, Map 5).

Table 2. Vegetation Primary/Secondary Communities

COMMUNITY	TOTAL ACRES	%
Aspen/Spruce-fir	8.39	0.01
Aspen/Lodgepole	841.53	0.59
Aspen/Mtn Big Sage	3,265.80	2.31
Basin exposed/ Desert Shrub	30.66	0.02
Basin exposed/ WY Big Sage	6,787.58	4.79
Clearcut/Lodgepole	394.54	0.28
Desert Shrub/ WY Big Sage	6,127.38	4.33
Forest Riparian/ Spruce-Fir	674.47	0.48
Irrigated/Forest Riparian	441.64	0.31
Irrigated/Mixed Prairie	599.04	0.42
Irrigated/WY Big Sage	2,674.38	1.89
Juniper/Xeric Upland	1,335.85	0.94
Juniper/WY Big Sage	13,840.73	9.78
Lodgepole/Spruce-Fir	239.86	0.17
Lodgepole/Aspen	3,791.08	2.68

COMMUNITY	TOTAL ACRES	%
Lodgepole/ Subalpine	37.86	0.03
Mtn Big Sage/Juniper	247.52	0.17
Mtn Big Sage/Aspen	2,331.61	1.65
Mtn Big Sage/Spruce-Fir	87.68	0.06
Mtn Big Sage	251.83	0.18
Shrub Dom/Juniper	1,623.22	1.15
Shrub/Greasewood	257.84	0.18
Shrub/Forest	1,244.84	0.88
Subalpine/Lodgepole	272.53	0.19
WY Big Sage/Limber Pine	120.13	0.08
WY Big Sage/Mixed Grass Prairie	38,695.29	27.33
WY Big Sage/Desert Shrub	13,414.23	9.47
WY Big Sage/Basin Exposed	1,292.47	0.91
WY Big Sage/Juniper	143.44	0.10
WY Big Sage/Aspen	11,987.46	8.47
WY Big Sage/Xeric Upland	670.32	0.47
WY Big Sage/Juniper	26,766.59	18.91
Xeric Upland/WY Big Sage	654.86	0.46
Xeric Upland/Aspen	429.23	0.30
Totals	141,581.89	100.00

Detailed vegetation monitoring and forage utilization data have not been collected within the trail buffer in the allotments affected by the South Trail. Field observations (based on the Landscape Appearance Method) in the Toms Draw, Radio Tower, Kemmerer Junction, Bridger Airport, Bigelow Bench, Monument and Indian Flats Allotments during the grazing seasons of 2010-2013 grazing seasons suggest heavier forage utilization along those portions of trail segments 1, 2, 3, 5, 6 and 7, particularly around water sources. Lighter utilization levels were observed as distance from water and the trail corridor increased.

Of the 58 allotments affected by the South Trail system and its buffer, 38 allotments were meeting all standards. Of the remaining 20 allotments, 14 have not had a Standards of Rangeland Health assessment completed. The remaining six allotments did not meet one or more of the standards (Table 3). Four were not meeting Standard #2 due to degraded riparian conditions, but these riparian areas are far removed from and not affected by the South Trail. The remaining two allotments failed to meet standards for reasons other than impacts from livestock or trailing.

Table 3. KFO South Trail Allotment S&G Compliance

Allotment Number	Allotment Name	S&G Date	Determination	Standard(s) Not Meeting	Corrective Action
11306	CARTER LEASE	10/2010	NOT MTG (not a trail issue)	# 2	EA/2013
11108	CHRISTENSEN	7/2009	NOT MTG/ NOT LVST (not a	#1, #2	none
01442	CROOKED CANYON	9/2001	NOT MTG (not a trail issue)	#2	none
01458	CUMBERLAND FLATS	9/2010	NOT MTG/ NOT LVST	#2	none
01206	CUMBERLAND/UINTA	3/2000	NOT MTG	#2	CMP/2000 EA/2013
11320	LEROY	12/2012	NOT MTG	#2	none

3.8 Water Resources

According to data contained in the BLM KFO GIS database and BLM Wyoming Evanston Surface Management Status Topographic Map 2008, the following rivers, streams, creeks and reservoirs are located within the South Trail system analysis area (see Appendix 1, Map #6):

- Albert Creek
- Aspen Creek
- Austin Reservoir
- Big Dry Creek
- Blacks Fork River
- Byrne Creek
- Clear Creek
- Cottonwood Creek
- East Branch Creek
- East Muddy Creek
- Evans Creek
- Felter Creek
- Fish Creek
- Graham Reservoir
- Hague Creek
- Hill Creek
- Hinshaw Creek
- La Chapelle Creek
- Little Creek
- Little Muddy Creek
- Meeks Cabin Reservoir
- Muddy Creek

Piedmont Creek
Ryckman Creek
Smiths Fork River
Stowe Creek
Sulphur Creek
Vacher Reservoir
Van Tassel Creek
West Muddy Creek
Willow Creek

There are also numerous natural springs/seeps that occur along the trailing route. Two of the waterbodies listed above (located in the Green River Basin) the Blacks Fork River and Smiths Fork River are listed in the State of Wyoming, Department of Environmental Quality, impaired waterbody list, *Water Quality Assessment and Impaired Waters List* (2012 Integrated 305(b) and 303(d) Report, Document #12-0230, Page 127) <http://deq.state.wy.us/wqd/watershed/Downloads/305b/2012/WY2012IR.pdf>.

- 1) The Blacks Fork River, from the confluence with the Smiths Fork upstream to Millburne, 25.4 miles is listed as contaminated. The cause of the Blacks Fork listing is “E. coli” and the source of contamination is under investigation at this time. This river was placed on the list because E. coli levels exceed State and EPA standards. The Blacks Fork crosses the trail buffer in the Monument Allotment at the confluence of the Smiths Fork River.

Under the Safe Drinking Water Act, EPA requires public water systems to monitor for coliform bacteria. Systems analyze first for total coliform, because this test is faster to produce results. Any time that a sample is positive for total coliform, the same sample must be analyzed for either fecal coliform or *E. coli*. Both are indicators of contamination with animal waste or human sewage.

- 2) The Smiths Fork River, from the confluence with Cottonwood Creek upstream to the confluence with East and West Forks Smith Fork and from the confluence with the Blacks Fork upstream to the confluence with Cottonwood Creek, 38.5 miles is listed as contaminated. The cause of the Smiths Fork River listing is “fecal coliform” and the source of the contamination is under investigation at this time. This river was placed on the list because fecal coliform levels exceed State and EPA standards. The Smiths Fork crosses the trail buffer in the Monument, South Monument, Highway and Indian Flat allotments.

The presence of fecal coliform in aquatic environments may indicate that the water has been contaminated with the fecal material of humans or other animals, similar to 1) above:

Fecal coliform bacteria can enter rivers through direct discharge of waste from mammals and birds, from agricultural and storm runoff and from human sewage. Agricultural practices such as allowing livestock to graze near water bodies, spreading manure as fertilizer on fields during dry periods, using sewage sludge biosolids and allowing livestock watering in streams can all contribute to fecal coliform contamination. Untreated organic matter that contains fecal coliform can be harmful to the environment.

(http://en.wikipedia.org/wiki/Fecal_coliform)

Scientific evidence linking livestock grazing on rangelands to impaired water quality is lacking (Nader et al. 1998). The main water quality concerns are from cattle feces and urine deposited directly into the water. When nutrient contaminations do occur, especially phosphorus, they are more likely explained by erosion and sediment processes.

3.9 Wildlife and Wildlife Habitat

The environmental impact statement (EIS) for the Kemmerer Resource Management Plan (RMP) describes in detail the habitats and life cycle requirements for wildlife species in the Kemmerer planning area (USDI 2008, pp. 3-59 to 3-89). The BLM has conducted a field investigation of the project area to determine the potential impacts on identified wildlife species.

Common to all Allotments in this Environmental Assessment:

The following discussion is for species that are either known to occur or the habitat is present for the species to potentially occur within the entire project area.

General Wildlife and Fish

Mammals potentially occurring in the project area include: badgers, red fox (*Vulpes vulpes*), coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), white-tailed jackrabbit (*Lepus townsendii*), ground squirrels, chipmunks, mice, voles, shrews, northern pocket gopher (*Thomomys talpoides*) and big game species. Additional information is provided below on big game species managed by the Wyoming Game and Fish Department (WGFD) and migratory birds that may be present in the study area for brief periods.

Big Game

Moose

Moose (*Alces alces*), largest members of the deer family, are primarily browsers and depend on a diet of shrubs and young deciduous trees for much of the year, but they are often associated with river bottoms, ponds, and lakes with an abundance of shrubby and aquatic vegetation. Herd units 417 and 415 encompass the entire Wyoming portion of the project area. These herd units are approximately 5.7 million acres, of which approximately 115,459 acres (2.02%) lies within the project area.

Herd unit 417 begins where Interstate 80 crosses the Wyoming-Utah state line; northerly to the Wyoming-Idaho state line; northerly to the divide between the Salt River and Bear River; easterly to the divide between the Salt River and the Smiths Fork; southeasterly to the divide between the Greys River and LaBarge Creek; easterly to the Green River; southeasterly to the Fontenelle Reservoir Dam Road (Lincoln County Road 313); easterly to the County Line Road (Sweetwater County Road 52); southerly to the Lower Farson Cutoff Road (Sweetwater County Road 8); easterly to Wyoming Highway 28; easterly to the continuation of the Lower Farson Cutoff Road (Sweetwater County Road 8); southerly to the Blue Rim Road (Sweetwater County Road 5); southerly to I-80; westerly to the Wyoming-Utah state line (WGFD 2012). The current estimated population is 588 individuals which is 63.7% below the population objective of 1,620 (WGFD 2011).

Herd unit 415 begins where Interstate Highway 80 crosses the Wyoming-Utah state line; easterly along said highway to Wyoming Highway 410; southerly along said highway to the Stateline Dam Road (USFS Road 072); southerly along said road to the Wyoming-Utah state line; west then north along said line to Interstate Highway 80. Where Interstate Highway 80 crosses the Green River; southerly along the east bank of said river to Flaming Gorge Reservoir; southerly along the east shore of said reservoir to the Wyoming-Utah state line; westerly along said line to the Stateline Dam Road (USFS Road 072); northerly along said road to Wyoming Highway 410; northerly along said highway to Interstate Highway 80; easterly along said highway to the Green River. Where Interstate Highway 80 crosses the Green River; easterly along said highway to the Bitter Creek Road (Sweetwater County Road 19); southerly along said road to Carson Springs Junction and the Cow Creek-Powder Wash Road; southerly along said road to the Wyoming-Colorado state line; westerly along said line to the Wyoming-Utah state line; westerly along said line to Flaming Gorge Reservoir; northerly along the east shore of said reservoir to the Green River;

northerly up the east bank of said river to Interstate Highway 80 (WGFD 2011). There are no current population estimates for this population but the population objective is 900.

Between both herd units there is approximately 7,912 acres of crucial winter range occurring within the project area.

Mule Deer

Mule Deer (*Odocoileus hemionus*) occur throughout western North America in a wide variety of habitats from deserts, riparian areas, sage-brush grasslands, shrublands, foothills, forests to tundra (Clark and Stromberg 1987). In Wyoming, mule deer provide recreational, aesthetic, and economic values to hunters, wildlife enthusiasts, and local business throughout the state (Olson 1992). More than 100,000 hunters annually pursue this species in Wyoming, spending an average of more than 336,000 days in the field to harvest more than 60,000 animals (Olson 1992). Based on hunter harvest reports, mule deer are the most frequently taken big game animal in Wyoming (Clark and Stromberg 1987).

The project area is located within mule deer herd units 131 and 423. These herd units encompass approximately 5.3 million acres, of which approximately 115,459 acres (2.17%) lie within the project area. Herd unit 131 (Wyoming Range mule deer herd) begins at the junction of US Highway 30 and Interstate 80; westerly along I-80 to Wyoming Highway 412; northwesterly to US Highway 189; southerly to Muddy Creek; westerly to the Amoco Sulfur Haul Road; southwestly along the Sulfur Haul Road to the Whitney Canyon Road; westerly to the Uinta County Road 103; southerly to Wyoming Highway 89; northerly to the Wyoming-Utah state line; northerly to the Wyoming-Idaho state line; northerly to the Snake River; easterly to Bailey Creek; southerly to Dry Wash Draw; easterly to the top of Greyback Ridge; southerly to the head of the South Fork of South Cottonwood Creek; easterly to South Cottonwood Creek; easterly to Cottonwood Creek; easterly to the Green River; southeasterly to Fontenelle Dam and the Fontenelle Dam Road (Lincoln County Road 313); westerly to Lincoln County Road 316; southerly to Wyoming Highway 372; southeasterly to I-80; westerly to the US Highway 30 and I-80 junction (WGFD 2012). The current estimated population for herd unit 131 is 36,700 individuals which is 26.6% below the population objective of 50,000 (WGFD 2010).

Mule deer herd unit 423 (Uinta deer herd) begins at the junction of Interstate 80 and Wyoming highway 412; easterly along I-80 to the Green River; southerly down the east bank of the Green River to Flaming Gorge Reservoir; southerly along the east shore of the reservoir to the Wyoming-Utah state line; westerly then northerly along the state line to the junction of Wyoming highway 89 and the Wyoming-Utah state line; southeasterly to the junction with Uinta County Road 103; northerly to the Whitney Canyon Road; easterly to the Amoco Sulfur Haul Road; easterly then northerly to Muddy Creek; easterly to US highway 189; northerly to Wyoming highway 412 southeasterly back to I-80 (WGFD 2012). Herd unit 423 does not have a population estimate, but the population objective is 20,000 (WGFD 2011). The WGFD (2011) states that, "there is no working population model for the Uinta deer herd. This is an interstate population with extensive interchange across the state boundary with Utah."

Between both herd units, there is approximately 32,014 acres of mule deer crucial winter range, most of which is located in herd unit 423.

Pronghorn Antelope

The pronghorn antelope (*Antilocapra americana*) is the predominant ungulate of the high sagebrush-steppe ecosystems in western North America (Reeve 1984). Pronghorn populations were estimated at 45 million prior to European settlement (Clark and Stromberg 1987). By 1924, the population was approximately 14,000 (Clark and Stromberg 1987). Since then their numbers have increased (Clark and Stromberg 1987), and today there are approximately 500,000 within Wyoming alone (WGFD 2009).

The project area is located within antelope herd units 411 and 419. These herd units encompass approximately 3.1 million acres, of which 115,459 acres (3.72%) lie within the project area. Herd unit 419 is a large area beginning where Interstate 80 crosses the Wyoming-Utah state line; easterly to the junction of I-80 and US Highway 30; north, northwest to US Highway 189; north along US Highway 189 to the Hamsfork River; northerly along the Hamsfork River and Hamsfork Creek to Commissary Ridge; northwesterly along Commissary Ridge to the divide between the Smiths Fork and Greys River; southwesterly along the divide to the divide between the Salt River and Smiths Fork; westerly along the divide to the divide between the Bear River and Salt River along the Wyoming-Idaho state line; southerly along the Wyoming-Idaho state line to the Wyoming-Utah state line; southerly along the Wyoming-Utah state line to Interstate 80 (WGFD 2012).

Antelope herd unit 411 is a large area beginning where the Flaming Gorge Reservoir crosses the Wyoming-Utah state line; west along said line to the Hoop Lake-Hole-in-the-Rock Road (Uinta County Road 295); northerly along said road to Wyoming Highway 414 at the town of Lone Tree; northerly along said highway to Interstate Highway 80; easterly along said highway to the Green River; southerly down said river to Flaming Gorge Reservoir; southerly along the east shore of Flaming Gorge Reservoir to the Wyoming-Utah state line. Where Interstate Highway 80 crosses the Wyoming-Utah state line; easterly along said highway to Wyoming Highway 414; southerly along said highway through the town of Lone Tree to the Hoop Lake-Hole-in-the-Rock Road (Uinta County Road 295); southerly along said road to the Wyoming-Utah state line; westerly then northerly along said line to Interstate Highway 80 (WGFD 2011).

Between both herd units there is approximately 20,307 acres of crucial winter range occurring within the projected area.

Elk

Elk (*Cervus elaphus*) once ranged from northern Canada southward along the California coastline, and throughout much of the United States (Clark and Stromberg 1987). Today, the range has been reduced, however, due to reintroduction efforts, the elk is being restored in many parts of the historical range. In Wyoming, they occur from deserts to timbered areas, and occupy habitats dominated by shrubs and grasses to high mountain meadows of grasses and forbs (Clark and Stromberg 1987).

The project area lies within elk herd units 423 and 428. These herd units encompass approximately four million acres, of which 115,459 acres (2.88%) lie within the project area. Herd unit 428 begins where Interstate 80 crosses the Wyoming-Utah state line; northerly along the state line to the Wyoming-Idaho state line; northerly along said line to the divide between the Salt River and Bear River; easterly along said divide to the divide between the Salt River and Smiths Fork; northeasterly along said divide to the divide between Smiths Fork Creek and Greys River; southeasterly along said divide to Commissary Ridge; southerly along said ridge to the head of LaBarge Creek; southeasterly down said creek to the Green River; southerly down said river to U.S. Highway 28; southwesterly along said highway to Wyoming Highway 372; southerly along said highway to Interstate 80; westerly along said highway to the Wyoming-Utah state line (WGFD 2012).

Elk herd unit 423 begins where Interstate Highway 80 crosses the Wyoming-Utah state line; easterly along said highway to Wyoming Highway 414; southerly along said highway to Wyoming Highway 410 at the town of Mountain View; southerly along said highway to the Stateline Dam Road (USFS Road 072, Uinta County Road 283); southerly along said road to the Wyoming-Utah state line; west then north along said line to Interstate Highway 80. Where the Flaming Gorge Reservoir crosses the Wyoming-Utah state line; west along said line to the Stateline Dam Road (USFS Road 072, Uinta County Road 283); northerly along said road to Wyoming Highway 410; northerly along said highway to Interstate Highway 80; easterly along said highway to the Green River; southerly down said river to Flaming Gorge Reservoir;

southerly along the east shore of said reservoir to the Wyoming-Utah state line (WGFD 2011). Herd unit 423 does not have an estimated population size but has a population objective of 600.

There are approximately 3,384 acres of elk crucial winter range and 7,892 acres of calving area on the proposed project area.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, was implemented for the protection of migratory birds. Unless permitted by regulations, the MBTA makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including feathers or other body parts, nests, eggs, or migratory bird products. In addition, Executive Order 13186 sets forth the responsibilities of federal agencies to implement the provisions of the MBTA by integrating bird conservation principles and practices into agency activities and by ensuring that federal actions evaluate the effects of actions and agency plans on migratory birds. Wyoming BLM non-sensitive migratory birds that could nest in the project area include: vesper sparrow, horned lark, black-billed magpie, common raven and various raptor species.

Raptors are protected under the MBTA and there are 122 known nest locations within the project area. Of the 122 known nests (not including ferruginous hawk [*Buteo regalis*] and burrowing owl [*Athene cunicularia*] nests), five are American kestrel (*Falco sparverius*), one is a Cooper's hawk (*Accipiter cooperii*), 38 are golden eagle (*Haliaeetus leucocephalus*), eight are great-horned owl (*Bubo virginianus*), eight are northern harrier (*Circus cyaneus*), eight are prairie falcon (*Falco mexicanus*), 18 are red-tailed hawk (*Buteo jamaicensis*), one is a sharp-shinned hawk (*Accipiter striatus*) and 29 are undetermined for the species that built the nest. In addition to nesting habitat for these and other raptor species, the project area also provides foraging habitat for migratory raptor species, such as rough-legged hawks (*Buteo lagopus*).

Additional wildlife and fish species are present in the project area but their population sizes are stable on average and do not currently exhibit negative density or distribution trends which would warrant additional protection under the ESA.

Special Status Species

Special Status Species (SSS) include those species federally listed under the Endangered Species Act (ESA) by the US Fish and Wildlife Service (USFWS) and those listed as the Wyoming BLM Sensitive Species (WBSS) designated by the BLM Wyoming State Director.

In accordance with Section 7 of the ESA, as amended, the lead agency in coordination with USFWS must ensure that any federal action to be authorized, funded, or implemented would not adversely affect a federally listed species, or its designated critical habitat. Within the KFO boundaries, the USFWS requires seven threatened or endangered animal species and two plant species to be analyzed for all proposed actions (USFWS 2011a). Of those nine species, Ute ladies'-tresses (*Spiranthes diluvialis*), black-footed ferret (*Mustela nigripes*), Canada lynx (*Lynx Canadensis*) and the Colorado River fishes would potentially be affected by the implementation of the proposed action. The other two species (grizzly bear [*Ursus arctos*] and blowout penstemon [*Penstemon haydenii*]) were not present within the project boundary; therefore, these two species will not be discussed further within this EA.

Special Status Species Management Policy 6840 requires the BLM not only to manage species listed under the ESA, but to also manage WBSS to prevent the need for future listing under the ESA. A total of 40 WBSS animals potentially occur within the KFO, twenty-five (25) are either known to occur or the

habitat is present for the species to potentially occur within the action area (USDI 2010b). The other fifteen (15) species will not be discussed further within this EA.

Table 4. Special Status and ESA Listed Species Potentially Within the Project Area

Species	Scientific name	Status	Habitat	Habitat Type
pygmy rabbit	<i>Brachylagus idahoensis</i>	SSS ²	potential habitat present	basin-prairie and riparian shrub
white-tailed prairie dog	<i>Cynomys leucurus</i>	SSS ²	habitat present	basin-prairie shrub and grasslands
black-footed ferret	<i>Mustela nigripes</i>	Endangered ¹	potential habitat present	grasslands and prairie dog towns
Canada lynx	<i>Lynx canadensis</i>	Threatened ¹	potential habitat present	Forested areas; Lynx Analysis Units (LAUs)
Idaho pocket gopher	<i>Thomomys idahoensis</i>	SSS ²	potential habitat present	shallow stony soils
sage sparrow	<i>Amphispiza belli</i>	SSS ²	habitat present	basin-prairie shrub and mountain-foothill shrub
burrowing owl	<i>Athene cunicularia</i>	SSS ²	habitat present	basin-prairie shrub and grasslands
ferruginous hawk	<i>Buteo regalis</i>	SSS ²	habitat present	basin-prairie shrub, grasslands and rock outcrops
Greater sage-grouse	<i>Centrocercus urophasianus</i>	SSS ² ; Candidate ³	habitat present	basin-prairie shrub and mountain-foothill shrub
mountain plover	<i>Charadrius montanus</i>	SSS ²	potential habitat present	grasslands and prairie dog towns
loggerhead shrike	<i>Lanius ludovicianus</i>	SSS ²	habitat present	basin-prairie shrub and mountain-foothill shrub
long-billed curlew	<i>Numenius americanus</i>	SSS ²	potential habitat present	Grasslands, plains, foothills and wet meadows
sage thrasher	<i>Oreoscoptes montanus</i>	SSS ²	habitat present	basin-prairie shrub and mountain-foothill shrub
white-face ibis	<i>Plegadis chihi</i>	SSS ²	potential habitat present	marshes and wet meadows
trumpeter swan	<i>Cygnus buccinator</i>	SSS ²	potential habitat present	lakes, ponds and rivers
Brewer's sparrow	<i>Spizella breweri</i>	SSS ²	habitat present	basin-prairie shrub
bluehead sucker	<i>Catostomus discobolus</i>	SSS ²	potential habitat present	Bear, Snake and Green River drainages
flannelmouth sucker	<i>Catostomus latipinnis</i>	SSS ²	potential habitat present	Colorado River drainages
humpback chub	<i>Gila cypha</i>	Endangered ¹	None – no habitat present	Colorado River drainages
bonytail chub	<i>Gila elegans</i>	Endangered ¹	None – no habitat present	Colorado River drainages
roundtail chub	<i>Gila robusta</i>	SSS ²	potential habitat present	Colorado River drainages

Colorado pikeminnow	<i>Ptychocheilus lucius</i>	Endangered ¹	None – no habitat present	Colorado River drainages
razorback sucker	<i>Xyrauchen texanus</i>	Endangered ¹	None – no habitat present	Colorado River drainages
northern leopard frog	<i>Rana pipiens</i>	SSS ²	habitat present	Pond margins, wet meadows and riparian areas
Great Basin spadefoot	<i>Spea intermontana</i>	SSS ²	potential habitat present	Spring seeps, permanent and temporary water
Trelease's milkvetch	<i>Astragalus jejunus</i> var. <i>treleasei</i>	SSS ²	potential habitat present	shale or limestone outcrops and barren clay slopes
large-fruited bladderpod	<i>Lesquerella macrocarpa</i>	SSS ²	potential habitat present	gypsum-clay hills and benches
prostrate bladderpod	<i>Lesquerella prostrata</i>	SSS ²	potential habitat present	cushion plant or sparse sage communities on slopes and rims
Beaver Rim phlox	<i>Phlox pungens</i>	SSS ²	potential habitat present	sparsely vegetated sandstone, siltstone or limestone slopes
tufted twinpod	<i>Physaria condensata</i>	SSS ²	potential habitat present	sparsely vegetated shale slopes
Dorn's twinpod	<i>Physaria dornii</i>	SSS ²	potential habitat present	calcareous-shale soils on ridges with mountain mahogany and rabbitbrush
Ute ladies'-tresses	<i>Spiranthes diluvialis</i>	Threatened ¹	potential habitat present	moist streambanks and wet meadows
¹ USFWS ESA-listed species				
² Wyoming BLM Special Status Species				
³ Proposed for listing as threatened under the ESA				

Mountain plover

Mountain plover (*Charadrius montanus*) are small terrestrial shorebirds that inhabit short grass prairie and shrub-steppe landscapes. Unlike other members of the plover family, they are rarely found near bodies of water or riparian areas. 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). Potential mountain plover habitat occurs throughout the project area. At this time there is approximately 8,778 acres (7.6%) of potentially suitable habitat that has been mapped within the project area. In addition, further habitat mapping is currently ongoing throughout the field office.

Greater Sage-grouse

Greater sage-grouse (*Centrocercus urophasianus*) were originally proposed for protection under the endangered species list on July 2, 2002. Most recently, after several 90-day findings, the USFWS issued a proposed rule of, “Warranted, but precluded by higher priority listing actions” (USDI 2010c). Due to this rule, the sage-grouse is not listed at this time; however, precautions should be taken to avoid listing. Several factors could move the species higher on the ranking list and closer to listing.

Currently, Greater sage-grouse distribution and sagebrush habitat encompasses parts of 11 states in the western United States and two Canadian provinces, occupying approximately 56% of their historical range (Schroeder et al. 2004). Sage-grouse distribution is strongly associated with distribution of sagebrush (*Artemisia* spp.), and in particular, big sagebrush (*A. tridentata*) (Schroeder et al. 2004). Sage-grouse show high fidelity to an area. During the breeding season (March–May), male sage-grouse gather together to perform courtship displays at known locations called “leks.” Leks are generally areas of little or no vegetation or cushion plant communities. Leks can be formed opportunistically or near nesting habitat (USDI 2010c). Females have been documented to travel more than 12.5 miles to their nesting site after mating (Connelly et al. 2000), however, studies conducted in Wyoming indicate that 45% of sage-grouse hens nest within 1.86 miles of the lek while 64% nest within 3.11 miles (Holloran and Anderson 2005). Sage-grouse nesting habitat is generally described as sagebrush that has a canopy cover between 15 and 30%, and heights between 11 and 32 inches (USDI 2004c). During the first two-three weeks, hens rear their broods in what is considered early brood-rearing habitat (within 1.2 miles of the nest in Wyoming, on average) (Cagney et al. 2010). Typically this area has sufficient cover and is adjacent to foraging areas containing forbs and insects.

By using information about the sage-grouse core population areas (State of Wyoming, EO 2011-5), there are approximately 25,868 acres (22.4%) of core area and 5,867 acres of winter habitat within the project area (Appendix 1, Map 7). There are six known active sage grouse leks within the project boundary of which two are within the core area. Leks along with 10 year average attendance by males are listed in the following table.

Table 5. Leks with 10 Year Average Attendance

Lek Name	Lek attendance by males 10 year average (1991-2000)	Lek attendance by males 10 year average (2001-2010)
Aspen Creek	N/A	Discovered 2004, 26.13
Bridger Butte	5.66	6
*Cumberland 1	49.4	58.9
Grassy Draw	37.71	39.52
*Little Hogsback	18	24.5
Marsh Hawk	N/A (No Data Collected)	12 (one year, 2009)
Total (average)	27.69	27.87
* indicates lek in sage-grouse core area		

Ferruginous hawk

Ferruginous hawks (*Buteo regalis*) prefer arid and semiarid grassland habitat with open, level or rolling prairies and foothills. The project area is suitable foraging and nesting habitat for ferruginous hawks and there are four (4) known ferruginous hawk nests within the project area.

Sage obligate songbirds

Sage thrasher (*Oreoscoptes montanus*), Brewer’s sparrow (*Spizella breweri*), sage sparrow (*Amphispiza belli*) and loggerhead shrike (*Lanius ludovicianus*) are considered sage-obligate species, meaning they require sagebrush ecosystems for reproduction and survival. Loggerhead shrikes are shrub-nesting sagebrush obligates meaning they require sagebrush for successful reproduction but not necessarily for food or other resources. Slight variation in habitat preference exists among these species. Even with slight variability, all of these species inhabit prairie and foothill shrublands where sagebrush is present, often using tall shrubs with low grass cover and clumped sagebrush in a patchy landscape. This type of habitat occurs throughout the project area.

Pygmy rabbit

Pygmy rabbits (*Brachylagus idahoensis*) depend upon stands of tall, dense sagebrush in conjunction with deep, friable soils, the combination of which provide cover, food, and burrows (Keinath and McGee 2004). Purcell (2006) found that pygmy rabbits occurred within areas mostly comprised of Wyoming big sagebrush (*Artemisia tridentata* Nutt. ssp. *wyomingensis*), however, habitats dominated by mountain big sagebrush (*Artemisia tridentata* Nutt. ssp. *vaseyana*), shrub dominated riparian, black sage (*Artemisia nova*) steppe, or other desert shrubs also had pygmy rabbit occurrences. The distribution of this species is not continuous but is patchy within this range, thus the distribution of pygmy rabbits' likely shifts over time in response to disturbances such as fire, flooding, grazing, and crop production as well as weather patterns (Keinath and McGee 2004).

Idaho pocket gopher

There are several species of pocket gophers in Wyoming and the surrounding states. All look very similar, making it difficult to distinguish specimens to species. Reliable identification has to involve chromosomal analysis (i.e., karyotyping to count chromosome number), with supporting information from geographic location, pelage characters, and overall morphology (Beauvais and Dark-Smiley 2005). Idaho pocket gophers (*Thomomys idahoensis*) are very small, with yellowish to dark brown fur; they lack ear patches and contrasting cheeks, and dorsal regions are uniform in color (Clark and Stromberg 1987). *T. idahoensis*, along with other members of the pocket gopher family are highly adapted to fossorial (underground) living (Beauvais and Dark-Smiley 2005, Griscom et al. 2010).

T. idahoensis occurs from southwestern Montana, through eastern Idaho to southwestern Wyoming. Little is known about its habitat but its distribution suggests a preference for mountain foothill shrublands and a higher tolerance for rocky soils (Griscom et al. 2010). In Wyoming, the species occupies shallow, stony soils and has been documented in open sagebrush, grassland plains, and subalpine mountain meadow habitats in Wyoming (Beauvais and Dark-Smiley 2005). The Biotics database maintained by the Wyoming Natural Diversity Database (WYNDD) contains only 33 known occurrences of *T. idahoensis* in Wyoming, all falling within the sagebrush foothills zone of the Wyoming Range, Uinta, and Wind River Mountains (Beauvais and Dark-Smiley 2005, Griscom et al. 2010). Very little is currently known about its biology and ecology (Griscom et al. 2010), but the species is assumed to be rare and has a limited distribution (Beauvais and Dark-Smiley 2005). Even though Idaho pocket gophers have not been observed in the project area, current habitat projections indicate that the species has the potential to occur throughout the project area.

Prostrate bladderpod

Prostrate bladderpod (*Lesquerella prostrata*) was first discovered by Aven Nelson near Piedmont, Wyoming on June 7, 1898 (Fertig 2000a). Fertig (2000a) stated that only seven locations for this species were documented across its range in the early 1970s. Due to its rarity, the BLM Wyoming State Office contracted with the University of Wyoming and WYNDD in 1999 to assemble information on the known distribution, abundance, life history, status, and potential management needs of this species on federal lands in southwest Wyoming (Fertig 2000a).

Prostrate bladderpod is a regional endemic of southwest Wyoming (Uinta and Lincoln counties) and adjacent northeast Utah (Rich County) and southeast and central Idaho (Bear Lake, Blaine and Custer counties) (Fertig 2000a). In Wyoming, *L. prostrata* is restricted to the southern Overthrust Belt from the vicinity of Fossil Butte south to Bridger Butte and the montane foothills near Piedmont and Aspen Mountain (Fertig 2000a). No formal surveys were conducted for *L. prostrata* in Wyoming prior to 1996 (Fertig 2000a). A new population was discovered by Robert Lichvar on Bridger Butte in 1980 (Fertig 2000a). Wyoming populations are most abundant on west to south or southeast-facing slopes and rims of whitish to reddish or gray dry limey clays and soft sandstones with a surface layer of fine gravel at elevations of 7,200-7,700 feet (Fertig 2000a). Most of these sites are dominated by sparse cushion plants,

bunchgrasses, and low shrubs with a total vegetative cover of 10-25% (Fertig 2000a). Currently, all known Wyoming populations of *L. prostrata* are found on federal lands managed by the BLM KFO (Fertig 2000a).

Based on 1999 census data from five of the State's six known occurrences, the total population of *L. prostrata* in Wyoming is currently estimated at 4,700-11,000 plants (Fertig 2000a). Historically, threats to *L. prostrata* have been relatively low in Wyoming due to the plant's rugged habitat (Fertig 2000a). Surface disturbances associated with oil & gas activities, off-road vehicle usage and invasive plant species are currently the largest threats to the species (Fertig 2000a). Impacts from livestock grazing appear low due to the plant's small stature, inedibility, and preference for dry, rocky slopes with low forage and no water (Fertig 2000a).

Tufted twinpod

Prior to 1975, the tufted twinpod (*Physaria condensata*) was known to exist in only two locations, one of which was on the slopes of Bridger Butte in Uinta County, Wyoming (Fertig 2002). This prompted a recommendation of "threatened" under the ESA in 1975 (Fertig 2002). However, surveys conducted by Robert Dorn and Robert Lichvar from 1977-1982 demonstrated that *P. condensata* was more widespread and abundant in southwestern Wyoming than previously suspected, and the species was dropped as a candidate for federal protection (Fertig 2002, USFWS 1985). Due to its limited geographic range and high habitat specificity, *P. condensata* has remained a species of special concern in Wyoming and was listed as "Sensitive" by the BLM Wyoming State Office in 2001 (USDI 2001a, Fertig 2002).

Tufted twinpod occurs primarily on south, west, or east facing, semi-barren, wind-blasted upper slopes and rims of calcareous shale or sandstone desert mesas at elevations of 6000-7760 feet (Fertig 2002). Populations are typically found in cushion plant/bunchgrass communities dominated by shortstem buckwheat (*Eriogonum brevicaulis*), rayless tansyaster (*Machaeranthera grindelioides*), northern Indian parsnip (*Turpentine cymopterus*), hood phlox (*Phlox hoodii*), Sandberg bluegrass (*Poa secunda*) and Indian ricegrass (*Achnatherum hymenoides*) within openings in denser Utah juniper or big sagebrush communities (Fertig 2002). Occasionally, *P. condensata* may also occur in cushion plant communities with scattered black sagebrush (*Artemisia nova*), green rabbitbrush (*Ericameria teretifolia*), Utah serviceberry (*Amelanchier utahensis*), shadscale (*Atriplex confertifolia*), antelope bitterbrush (*Purshia tridentata*), or mountain mahogany (*Cercocarpus*) (Fertig 2002). Tufted twinpod is usually found on convex or concave slopes of 10-15 degrees and becomes rare to absent on summit flats, even in areas with low vegetative cover and shallow, rocky soils (Fertig 2002).

Tufted twinpod is endemic to the southern Overthrust Belt and lower Green River Basin in Lincoln, Uinta, and Sublette counties, Wyoming (Fertig 2002). It is known from 17 occurrences consisting of at least 43 discrete subpopulations and occupying a minimum area of 160-175 acres (Fertig 2002). Based on modeling, 4,012 square kilometers of potential habitat occurs for *P. condensata* in Wyoming (Fertig 2002). Most of this potential habitat is restricted to the desert mountains of the Overthrust Belt in southern Lincoln and western Uinta counties and the Little Colorado Desert of southern Sublette County and coincides with the known distribution of this species (Fertig 2002).

Herbivory of fruits and seeds is relatively common by rodents and ants (Fertig 2002). With the exception of fruits and seeds, the plant's low stature, dense covering of hairs, and presence of inedible mustard oils prevents its foliage from being browsed by most native herbivores or livestock (Fertig 2002).

Trelease's milkvetch

Trelease's milkvetch (*Astragalus racemosus* var. *treleasei*) is a stout, selenium-scented perennial herb (Heidel 2003). Trelease's milkvetch is usually identified by its flowers, but the taxon is also identifiable by the pods, which persist through August (Heidel 2003). Individual colonies of *A. racemosus* var.

treleasei typically number less than 100 plants (less than 20 – 400+) and typically occupy linear bands of habitat totaling less than one acre (Heidel 2003). Based on surveys in 2002, however, in which documented populations are shown to have at least 900 plants, and extrapolations from unsurveyed potential habitat, the current population numbers are conservatively estimated at 1,000-10,000 plants (Heidel 2003).

Trelease's milkvetch occurs mainly on outwash flats and fluted Badlands slopes derived from shale at 6,500-7,500 feet (Heidel 2003). The most common species in its' sparsely-vegetated habitat include thickspike wheatgrass (*Elymus lanceolatus*), rubber rabbitbrush (*Ericameria nauseosa*), green rabbitbrush (*Ericameria teretifolia*), and shadscale (*Atriplex confertifolia*) (Heidel 2003). Most populations are found on pale whitish or somber grey silty loams derived from shales with a vesicular structure (Heidel 2003). Due to its concentration of selenium, it does not appear to be favored for browse by livestock or native herbivores. Predation of flower heads and pods was not observed, nor were leaves browsed or grazed (Heidel 2003).

Large-fruited bladderpod

Large-fruited bladderpod (*Lesquerella macrocarpa*) typically occurs within sparsely-vegetated habitat of Gardner saltbush-squirreltail (*Atriplex gardneri* – *Elymus elymoides*) communities, or at the unvegetated margins of them, on barren, fine-textured soils (Heidel 2009). *L. macrocarpa* populations occur on light-colored, barren substrates on gentle slopes (Fertig 1995). These sites are exposed to high levels of solar radiation and wind, and are likely to be drier and have higher surface temperatures than adjacent, more highly vegetated, sites (Fertig 1995). *L. macrocarpa* flowering occurs from mid-May to late June, depending on spring moisture conditions (Fertig 1995). Fruits are needed for positive identification (Heidel 2009), and Fertig (1995) observed fruiting from late May to July. There is potential habitat throughout the KFO including areas within and surrounding the project area.

Beaver Rim phlox

Beaver Rim phlox (*Phlox Pungens*) is endemic to the Wind River and Green River basins including the East Slope foothills of the Wind River Range and the Beaver Rim, in Fremont, Lincoln, and Sublette counties, Wyoming (Heidel 2009). Beaver Rim phlox occurs on a range of substrates, including relatively barren limestone, weathered conglomerate, redbed, volcanic-rich sandstone, siltstone, or weathered claystone slopes most commonly on a southwest to northwest exposure (Dorn 1990). It is found at elevations from 5,600 to 8,500 feet (Heidel 2009). Flowering occurs from May to early June with fruits maturing several weeks later (Dorn 1990). Seed dispersal is likely to occur over short distances, both down slope and down wind, with the aid of wind and water (Heidel 2009). There is potential habitat throughout the KFO including areas surrounding the Cumberland/Uinta and Byrne Creek allotments.

Dorn's Twinpod

Dorn's twinpod (*Physaria dornii*) is a tufted silvery-pubescent perennial herb which flowers primarily from late May to mid-June, while fruiting may occur from late May to early July (Fertig 2010). At the northern end of its range (Rock Creek Ridge area), Dorn's twinpod occurs primarily in openings within sparsely vegetated communities of alderleaf mountain mahogany (*Cercocarpus montanus*), Indian ricegrass (*Achnatherum hymenoides*) and Sandberg bluegrass (*Poa secunda*) on whitish clay-gravel slopes of the Twin Creek Limestone. Known occurrences of the plant range in elevation from 6,500 to 7,500 feet (Fertig 2010). There is a large amount of potential habitat throughout the project area.

Ute ladies'-tresses

The Ute ladies'-tresses (*Spiranthes diluvialis*) orchid grows on moist sub-irrigated or seasonally flooded soils in valley bottoms, gravel bars, old oxbows, or floodplains bordering springs, lakes, rivers, or perennial streams at elevations between 1,780 and 6,800 feet (USFWS 2010a). Populations have been

documented from alkaline sedge meadows, riverine floodplains, flooded alkaline meadows adjacent to ponderosa pine-Douglas-fir woodlands, sagebrush steppe, and streamside floodplains (USFWS 2010a). The Ute ladies'-tresses is well adapted to disturbances from stream movement and is tolerant of other disturbances, such as light grazing, that are common to grassland riparian habitats and reduce competition between the orchid and other plants (USFWS 1995).

Ute ladies'-tresses, a federally listed threatened species, has not yet been identified in western Wyoming, although potential habitat for the species does exist (USFWS 2010b). In Wyoming, *S. diluvialis* occurs at four locations on the Western Great Plains in Converse, Goshen, Laramie, and Niobrara counties (Fertig 2000b).

Northern leopard frog

On June 5, 2006 the USFWS received a petition to list the northern leopard frog (*Rana pipiens*) as threatened under the ESA (USFWS 2009b). On July 1, 2009 the USFWS published a 90-day finding (USFWS 2009b), in which information for the status review was to be submitted to the USFWS by August 31, 2009. On October 28, 2009, the USFWS again published a 90-day finding extending the information soliciting period to November 27, 2009 (USFWS 2009a). On October 5, 2011 the USFWS publish the 12-month finding for this species which was "not warranted at this time" (USFWS 2011b). It is classified as a sensitive species by the BLM in Wyoming due to recently observed declines in abundance and distribution across its range in the Rocky Mountains (Smith and Keinath 2004, USDI 2010b).

R. pipiens is a formerly abundant frog that has experienced declines across its range and is considered endangered in some parts of the range but still abundant in other parts of the range (Smith and Keinath 2004). The northern leopard frog is basically a species of cooler climates, with a range that encompasses most of the northern states of the United States and far north into Canada (Smith and Keinath 2004). The species ranges southwards only in the western United States, in the higher elevations of the Rocky Mountains (Smith and Keinath 2004).

Northern leopard frogs require a broad range of habitats in close proximity due to their complicated life histories (Smith and Keinath 2004). Northern leopard frogs breed and lay eggs in stock ponds, semi-permanent ponds, in the margin of larger lakes, and beaver ponds (Smith and Keinath 2004). However, when streams are used for reproduction, eggs are deposited in backwaters out of the main flow of the stream (Smith and Keinath 2004). Following reproduction adult northern leopard frogs move into upland habitat in which they may feed for the summer (Smith and Keinath 2004). However, this portion of the life history for the northern leopard frog has been frequently neglected (Smith and Keinath 2004). In the fall, sub-adult and adult frogs migrate to overwintering sites in order to hibernate under water in ponds (Smith and Keinath 2004).

Currently, one known occurrence of northern leopard frogs exists within the project area. However, habitat for the species occurs throughout the area due to the numerous riparian areas and the numerous natural springs/seeps that occur along the trailing route.

Great Basin spadefoot toad

The Great Basin spadefoot toad (*Spea intermontana*) is currently recognized by some State agencies as a sensitive species, often because too little is known about it to provide evaluations on population status and viability throughout its range (Buseck et al. 2005). The Wyoming BLM lists *S. intermontana* as a sensitive species (USDI 2010b).

In Wyoming, *S. intermontana* distribution is patchy, with sightings recorded mostly west of the Continental Divide (Buseck et al. 2005). *S. intermontana* have been documented at 44 sites in

Sweetwater County, six sites in Fremont County, and one site in Uinta, Lincoln, and Natrona Counties over the past 94 years (WYNDD 2005, Buseck et al. 2005). Little to no information exists on the abundance of *S. intermontana* across its range. In part, this lack of information is due to the behavior of *S. intermontana* during non-breeding months (i.e., it is active nocturnally only on humid/rainy evenings and spends inactive periods within inconspicuous burrows; Buseck et al. 2005). Also, the naturally fluctuating populations and sporadic breeding habits of *S. intermontana* make it difficult to monitor populations (Buseck et al. 2005).

S. intermontana are a xeric-adapted amphibian (Buseck et al. 2005). They require a water source for breeding and larvae/tadpole development in the spring and summer months and loose, sandy soil within arid habitats during the non-breeding season with adequate vegetative cover to provide foraging sites and climate protection to retain soil moisture (Buseck et al. 2005). In Wyoming, *S. intermontana* are probably found within the soil orders Aridisols (a soil type with distinct horizons that occurs in desert basins and that has accumulations of clay, calcium carbonate, gypsum, and/or soluble salts) and Entisols (soils that are young and have little or no profile development, such as those that occur on eroding slopes and along ephemeral streams (Knight 1994); based on associated vegetation (Buseck et al. 2005).

S. intermontana use both ephemeral and permanent water sources, which is unique when compared to other spadefoot toads which breed in ephemeral sources (Buseck et al. 2005). For example, Hovingh et al. (1985) reported that *S. intermontana* utilized every type of water source available in the Bonneville Basin (only 8% were entirely natural), as long as the total dissolved solids were less than 5000 mg/L. The most successful breeding sites (i.e., little or no dead tadpoles observed) were at water sources that desiccated during the summer, had large draw-downs of water, or had stream beds scoured by flash floods (i.e., lacked littoral vegetative growth).

At this time there are no known observations within the project area. However, habitat does occur due to the riparian areas and the numerous natural springs/seeps that occur along the trailing route. In addition, there are numerous areas (playas) that collect rain water and moisture from runoff events that could provide habitat for this species.

Colorado River fishes

Four federally endangered fish species, the bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), and razorback sucker (*Xyrauchen texanus*) occur downstream in the Green River. These fish were once abundant in the upper and lower Colorado River Basins (CRBs) but their distributions are currently limited to a small portion of their historic range. Habitat for these species include backwaters, sloughs, oxbow lakes, seasonally inundated flood plains, and reservoirs. The nearest habitat for the endangered Colorado River fishes occurs downstream of the project below Flaming Gorge Reservoir, Utah in the Green River and its associated 100-year floodplain; this area has been designated by the USFWS as critical habitat (USFWS 1994). Even though these species do not occur within the project area, they are sensitive to water depletions and upstream degradation.

Of the eight big-river species once found in the CRB, Colorado pikeminnow, bonytail, humpback chub, and razorback sucker are rare and federally listed as endangered. Ongoing recovery efforts to restore populations of Colorado pikeminnow, razorback sucker, humpback chub, and bonytail seek to identify and correct factors limiting critical life-history stages.

The other four big-river species (roundtail chub [*Gila robusta*], flannelmouth sucker [*Catostomus latipinnis*], bluehead sucker [*Catostomus discobolus*], and speckled dace [*Rhinichthys osculus*]) occupy a greater proportion of historical habitat than the endangered fishes, but are also declining in many areas (Bezzlerides and Bestgen 2002). Unfortunately, status and ecology of the roundtail chub, flannelmouth

sucker, and bluehead sucker remain comparatively unstudied, so limiting factors are poorly understood (Bezzerrides and Bestgen 2002).

Bluehead sucker

Bluehead suckers (*Catostomus discobolus*) are usually found in the main current of streams, although its streamlined body form indicates adaptation to living in the strong currents of larger rivers (Baxter and Stone 1995). Bluehead suckers prefer turbid to muddy streams often with high alkalinity and are rarely found in clear water (WGFD 2005b). The BLM in Wyoming considers the bluehead sucker a sensitive species. The WGFD have assigned this species a state rank of NSS1 (Native Species Status 1 • Populations are greatly restricted or declining, extirpation appears possible; or ongoing significant loss of habitat), suggesting that its presence is extremely isolated and its habitats are declining or vulnerable (Ptacek et al. 2005). According to Bezzerrides and Bestgen (2002), bluehead suckers historically occurred in the CRB above the mouth of the Grand Canyon in mainstem and tributary habitats of Wyoming, Colorado, Utah, portions of New Mexico and Arizona. Bluehead suckers are now uncommon in Wyoming, with extant populations in Muddy Creek, tributary to the Little Snake River, the Ham's Fork River, tributary to the Blacks Fork River flowing into Flaming Gorge Reservoir, and several small tributary streams and lakes of the upper Green River drainage (Bezzerrides and Bestgen 2002). To date this species has not been documented within any of the allotments along the trailing route.

Flannelmouth sucker

The flannelmouth sucker (*Catostomus latipinnis*) is usually found in slower, warmer medium to large streams in the upper Colorado River Basin (Rees et al. 2005a). Flannelmouth suckers in Wyoming are known from the Green River and associated tributaries as well as streams within the Little Snake River drainage (Rees et al. 2005a, Weitzel 2002). The WGFD has regulations regarding flannelmouth sucker habitat loss. This agency's objective is to permit projects in a manner that avoids alteration and degradation of functioning flannelmouth sucker habitat (Rees et al. 2005a, Weitzel 2002). In addition, the BLM considers the flannelmouth sucker a sensitive species in Wyoming.

Roundtail chub

Historically, roundtail chub (*Gila robusta*) were known to commonly occur in most medium to large tributaries of the Upper Colorado River Basin (Rees et al. 2005b). In Wyoming, it is common in the Green River and Little Snake River drainages (Baxter and Stone 1995). Currently, roundtail chub are found in the Blacks Fork River and the Green River drainage as well as the Big Sandy River, the Hams Fork River, Fontenelle Creek and Reservoir, and Halfmoon, Burnt, Boulder, Little Halfmoon, Willow and Fremont lakes (Rees et al. 2005b). The BLM also considers the roundtail chub a sensitive species in Wyoming.

White-tailed prairie dog

A formal petition was filed on July 11, 2002 by a collaborative group to list the white-tailed prairie dog (*Cynomys leucurus*) under the ESA. On November 9, 2004 the USFWS released a 90-day finding (USFWS 2004) and a 12-month finding on Tuesday, June 1, 2010 (USDI 2010b) indicating that current information did not warrant listing of this species at this time.

White-tailed prairie dogs generally occur in shrub-steppe and grassland environments in cool intermountain basins at altitudes ranging between 5,000 and 10,000 feet. While they inhabit western Colorado, eastern Utah, and southern Montana, the largest remaining complexes (occupying more than 5,000 acres each) are found in western Wyoming. A prairie dog complex consists of two or more neighboring prairie dog towns less than seven km from one another. These highly social, colonial rodents dig their own burrows which contain extensive underground tunneling and multiple entrances. Many species reside in prairie dog burrows including black-footed ferrets, burrowing owls, snakes, lizards, mice and a variety of insects. At this time, approximately 4,697 acres (4.1%) of suitable habitat, for white-

tailed prairie dogs, is contained within the 143,365 acre project area (Appendix 1, Map 8). Mapping of all prairie dog towns within the BLM KFO is not complete at this time. Therefore, more prairie dog towns may be present than what is currently known at this time.

Black-footed ferret

The black-footed ferret (*Mustela nigripes*) inhabits short grass and mid-grass prairie ranging from the mid-west to the western United States as well as semi-desert shrublands where prairie dogs are present. They only exist within high-density prairie dog complexes because they use prairie dog burrows to live in and rear their young, and more than 90 percent of the ferrets' diet is made up of prairie dogs. As of 2013 black-footed ferret do not currently occur in the KFO and have been block cleared by the USFWS so no surveys are now required, however habitat is present as long as white-tailed prairie dog complexes are still present.

Canada lynx

The Canada lynx (*Lynx canadensis*) inhabits northern coniferous forests made up of a majority of aspen stands in the project area. They exist mainly in area with high densities of snowshoe hare (*Lepus americanus*) which is the main prey species for the Canada lynx. The Canada lynx is commonly mistaken with the much more abundant bobcat (*Lynx rufus*) whose range is most of the continental United States. The Canada lynx differs in that it has long ear tufts; larger feet and a bobbed tail that is entirely black tipped (Reid 2006). Currently the southern portion of the trail route goes through Wasatch-Cache Lynx Analysis Units (LAU) 34 and 35. Currently this area is considered unoccupied habitat but the BLM strives to keep connectivity habitat by maintaining multi-story canopy cover.

Burrowing owl

Burrowing owl (*Athene cunicularia*) habitat consists of open, dry, treeless areas on grasslands, shrublands, and desert floors. Burrowing owls prefer gentle slopes, short vegetation, high percentages of bare ground, and close proximity to other nesting burrowing owls. Although they are capable of digging their own burrows, they often use burrows dug by other mammals such as prairie dogs and are therefore often found in areas that exhibit current burrowing mammal activity which contain a high density of burrows. These burrows can be several meters long, with numerous twists and turns, and may be lined with manure in order to attract insects. The project area contains suitable habitat for burrowing owls and there are two currently known nest burrows within the project area.

Long-billed curlew

Historically, the breeding range of the long-billed curlew (*Numenius americanus*) was the western U.S. and the southern Canadian Prairie Provinces from California north to British Columbia and east to southern Manitoba and Wisconsin, northern Iowa and eastern Kansas (Fellows and Jones 2009). However, this breeding distribution has contracted and long-billed curlews have lost about 30% of their historical range (Fellows and Jones 2009). Today, the species is considered vulnerable throughout its range, and continued habitat loss is thought to be the greatest threat to population stability (Dark-Smiley and Keinath 2004). Long-billed curlew numbers in Wyoming have also decreased over the last century (Dark-Smiley and Keinath 2004). The long-billed curlew has been documented as breeding in only a few locations in Wyoming (less than 10) within the last 15 years (Dark-Smiley and Keinath 2004). It now only breeds regularly on the irrigated meadows of the upper Green River Basin near Pinedale, and has recently been extirpated from habitat converted to housing developments near Sheridan and Casper (Dark-Smiley and Keinath 2004).

The long-billed curlew inhabits a variety of grassland types ranging from moist meadow grasslands to agricultural areas to dry prairie uplands, usually near water (WGFD 2005a). It prefers a complex of short grass prairies, agricultural fields, wet and dry meadows and prairies, and grazed mixed-grass and scrub communities (WGFD 2005a). It nests on the ground in habitat that usually includes grass less than 30 cm

(12 in) high (WGFD 2005a). Breeding locations are thinly scattered across the state in suitable habitat (Dark-Smiley and Keinath 2004). It appears that higher concentrations of long-billed curlews (breeding and non-breeding) can be found in the far western portion of the state, and this is probably related to habitat availability (Dark-Smiley and Keinath 2004, WYNDD 2003). The best long-billed curlew population in the state at this time can be found in the upper Green River basin, from Merna to Pinedale (on the Horse Creek and New Fork Rivers) (Dark-Smiley and Keinath 2004, WYNDD 2003).

Recent populations have also been documented at Chapman Bench near Cody (on the south fork of the Shoshone River), on the Hams Fork River drainage north of Kemmerer, at the Bear River marshes near Cokeville, and in Grand Teton National Park (hayfields) (Dark-Smiley and Keinath 2004, WYNDD 2003).

White-faced ibis

The white-faced ibis (*Plegadis chihi*) is a medium-sized wading bird. It is about two feet tall and has a three foot wingspan (National Audubon Society 2012). It has a rich brown plumage which has metallic purple highlights on the back and shoulders and bronze and green tints on the wings and tail (Smithsonian 2012). The white-faced ibis is distinguished from the very similar glossy ibis by a thin band of white feathers bordering the bare skin around the eyes and bill (Smithsonian 2012). This white band of feathers is most distinguishable during the breeding season (Smithsonian 2012). The breeding range of white-faced ibis ranges from Mississippi to western Minnesota westward to California, Nevada, and southeastern Oregon (Smithsonian 2012), with the most common occurrences occurring in Utah (National Audubon Society 2012).

The white-faced ibis inhabits marshes, wet-moist meadows, lakes, and irrigated meadows (WGFD 2010). It nests on the ground in bulrushes, cattails, or reeds; on a floating mat; or in a low tree (WGFD 2010). It usually forages close to emergent vegetation (WGFD 2010), often feeding in large flocks (National Audubon Society 2012, Smithsonian 2012). White-faced ibis feed on insects, small crustaceans, worms, fish and snails (National Audubon Society 2012).

White-faced ibis prefer to breed in shallow freshwater marshes with islands of emergent vegetation such as cattails, bulrushes (Smithsonian 2012), low in shrubs or small trees (National Audubon Society 2012). Nesting typically occurs in large colonies within these habitat types (National Audubon Society 2012, Smithsonian 2012). Nest building and egg laying typically occurs within weeks of the birds' arrival on their breeding grounds (Smithsonian 2012). Three to four pale blue-green eggs are typically laid, and both adults participate in incubation (Smithsonian 2012). Chicks hatch one to two days apart and are able to wander short distances from the nest by the time they are nine to ten days old (Smithsonian 2012). By four weeks of age the nestlings make their first flight attempts and are totally independent by eight weeks old (Smithsonian 2012).

Trumpeter swan

Trumpeter swans (*Cygnus buccinators*) are larger than other species with all-black bills and black lores (beak area) embracing the eyes and lacking a yellow basal spot. The species occurs in lakes, ponds and large rivers in northwest Wyoming (Peterson 1990). The species has not been identified in this project area but potential habitat is present.

4.0 ENVIRONMENTAL EFFECTS

Impacts to the individual allotments will vary depending on the size of the allotment and how many acres of trail impact that allotment (the higher the percentage of trail acres/allotment, the higher the potential impact). However, many parts of the trail are fenced (most rights-of-way) or are limited in some way such as by geographic features (rivers, cliffs, etc.) that would keep the livestock on less than the one mile buffer. These limitations have not been mapped or documented. For the purposes of this environmental assessment, the BLM will analyze impacts to the full mile buffer. According to data in the BLM Rangeland Administration System (RAS) the 58 grazing allotments that intersect the South Trail system are currently permitted for a total of 143,365 AUMs. 9,611 AUMs within those allotments overlap the trail buffer assuming equal distribution, which is 6.7% of the total allotment AUMs (see Table 1).

4.1 Direct and Indirect Effects

4.1.1 Cultural Resources

The *Programmatic Agreement among the Bureau of Land Management, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in which BLM will Meet its Responsibilities Under The National Preservation Act: State Protocol*, (State Protocol), was ratified in 2006 as a supplement to the National Programmatic Agreement. The State Protocol establishes alternative agency procedures through which the BLM will meet its responsibilities under Sections 106, 110 (f) and 111 (a) of the National Historic Preservation Act (NHPA) and the 36CFR800 regulations.

Specifically, State Protocol Section IV.A.1 describes that undertakings with no potential to affect historic properties are exempt from case-by-case review, and Appendix B defines the types of exempt undertakings. Appendix B.2 defines one type of exempt undertaking as “Issuing leases, easements, rights-of-way, and permits that do not authorize or promote surface disturbance.” By precedent, “surface disturbance” has been understood to refer specifically to substantial modification or actual intrusion into the soil created by mechanized equipment or vehicles. This definition does not include any activity that occurs solely on very top of the ground surface. Appendix B.27 specifically addresses exemptions for livestock grazing permit renewals as “Renewal of grazing leases/permits where type of animals and seasons of use do not change.” However, authorization of livestock trailing permits does not qualify as an exemption under Appendix B.27 and therefore, a detailed cultural data review was conducted in order to specifically analyze potential effects on historic properties due to this distinctive type of undertaking.

Because of the Appendix B.2 exemption in the State Protocol, grazing activities such as those associated with livestock trailing could be determined to have no potential to affect historic properties for the purpose of complying with Section 106 of the NHPA. However, the BLM does recognize that under the terms of the National Environmental Policy Act (NEPA), cultural resources found on the surface have the potential to be impacted to a certain extent by livestock trailing. Furthermore, the BLM has ascertained that locations where livestock are concentrated (even temporarily), such as for lunch stops or overnight camps, have a potential to be impacted to a greater degree than the rest of the designated livestock trailing corridor.

The effects of livestock grazing/trailing on cultural resources generally consist of artifact breakage or abrasion, horizontal displacement, and vertical migration (Osborn and Hartley, no date; Osborn et al. 1987; Nielson, 1991). While materials such as bone, shell, and ceramic artifacts tend to suffer the most significant damage, experimental studies have shown that lithic artifacts, the most common material found on the surface of sites located in the KFO, can exhibit micro-chipping and flake scars along their edges. Archaeologists unfamiliar with the effects of grazing have incorrectly interpreted this breakage as evidence of human modification. Another effect of trampling is horizontal displacement, which can alter

the spatial distribution of surface artifacts. Bulkier materials tend to move towards the margins of the trampled area while smaller items tend to remain in their original location. A third potential consequence of trampling is vertical migration of artifacts, which means that materials can move downward within the uppermost portion on the stratigraphic layer. However, according to Nielson's experimental results (1991), the maximum vertical migration was 1.5cm, which is insignificant for archaeological interpretation.

It is important to note that most studies that have documented impacts due to trampling have tended to focus primarily on disturbances that occurred where groups of animals were concentrated rather than dispersed. Furthermore, no formal studies have been reported in southwest Wyoming that document effects on historic properties as attributable to authorized grazing activities such as livestock trailing. However, observations by BLM KFO Archaeologists over the years, including those made during the Spring/Summer 2013 field season, have noted that only the top one to two inches of the ground surface are typically impacted by livestock trailing. These impacts are obliterated after a relatively short period of time, generally after the next significant precipitation.

Though the potential minor impacts of livestock trailing are acknowledged, those impacts must be considered in comparison to other disturbance causing activities. Natural taphonomic processes such as bioturbation, weathering, cryoturbation, and animal gnawing have altered the original distribution of the artifacts and the environmental context in which they are found, particularly those artifacts found on or near the surface. Furthermore, herds of wild ungulates such as bison, elk, deer, and pronghorn antelope have undoubtedly trampled archaeological remains for thousands of years. Sites are affected by these forces from the time they are created, producing the scientific record that archaeologists routinely interpret.

There are a total of 117 historic properties (sites determined eligible to the NRHP) and 78 sites that remain unevaluated for the NRHP located within the South Livestock Trail APE. Of these, eight are located in rest areas where livestock may be temporarily concentrated for brief lunch stops or overnight camping (Appendix 1, Map 2). Because of the greater potential for impacts due to concentrated use, these eight sites were analyzed to a greater degree and all but one were visited by BLM KFO Archaeologists to document potential impacts that may result from livestock trailing.

Of the eight sites documented within the designated rest areas, two are prehistoric camps and one is a prehistoric lithic scatter. One of the prehistoric camps has been determined eligible to the NRHP under Criterion D because the site contains, or may contain, scientific information important in prehistory or history. The other two prehistoric sites remain unevaluated until further studies can be conducted to determine their eligibility to the NRHP. Unevaluated sites are managed as though they are actual historic properties. Therefore, field visits of all three sites were carried out during the Spring/Summer 2013 trailing season to document potential impacts of this activity. In all three cases, no evidence of disturbance due to livestock trailing was observed; it appeared that livestock were not moved through the area that season. It is important to point out that the scientific data which makes this site type eligible is primarily found and best preserved in buried contexts, whereas the surface expression of these sites generally does not represent information vital to the archaeological record. While archaeologists certainly document what is found on the surface when recording, testing, or evaluating a site, the significant scientific values of most prehistoric resources are below the ground surface, where they are preserved and protected from natural environmental effects and where they are not impacted by livestock trampling. (For a more detailed description of historic properties and how they are evaluated for NRHP eligibility, refer to pages 3-94 and 3-95 of the 2008 Proposed RMP and Final EIS for the KFO Planning Area.)

Four other historic properties documented within the designated rest areas along the South Livestock Trail APE included the historic Union Pacific Transcontinental Railroad (UPRR) and an associated historic

railroad culvert, the historic Lincoln Highway, and a segment of the California-Mormon NHT (discussed in detail below). Field visits were conducted for all of these sites where they occur within the rest areas to document potential impacts as a result of livestock trailing during the Spring/Summer 2013 trailing season. The segment of the UPRR grade which crosses through the southeast corner of Rest Area 15 has been completely upgraded into Uinta County Road 173. Similarly, the Lincoln Highway has also been maintained as Uinta County Road 170. Because they are maintained as modern county roads, these two historic properties will not be impacted by livestock trailing. The historic railroad culvert is located at the base of the same UPRR segment superseded by Uinta County Road 173 in Rest Area 15. The culvert is collapsed on the south side of the grade but is intact on the north side. Evidence of sheep trailing was observed on both sides of the railroad grade in this area; however, this activity has no potential to impact the actual stone culvert. One other historic property, the Barrel Springs Stage Station, was not visited because no specific locational information exists for this site. The property was assigned a site number and was assumed to be eligible for the NRHP based on a brief reference to its existence in a historical overview written for Uinta County. However, the site has never actually been located and identified on the ground, or formally evaluated for NRHP eligibility. Furthermore, the general locational information that does exist places the stage station outside of Rest Area 13, even though Barrel Springs itself is located within Rest Area 13.

Historic properties that derive their significance all, or in part, from their surface manifestations or the natural context and setting of the property require special consideration. These site types include, but are not limited to, segments of the National Historic Trails system, prehistoric or historic structures or structural remnants, prehistoric rock alignments, rock shelters, areas with known pictographs and/or petroglyphs, or sites or areas of known traditional significance to Native American or other recognized groups. In most cases, a dispersed grazing pattern, such as that associated with livestock trailing, in the vicinity of these cultural property types will have no effect on these resources. However, additional protection of these resources can be accomplished by requiring stipulations such as restricting supplemental feed, salt/mineral blocks, or other measures that would artificially concentrate livestock in one place from these areas. The 2010 Record of Decision and Approved Kemmerer Resource Management Plan (Decision 5011) requires that historic trails' integrity of setting be maintained and that the trail traces be protected from visual intrusion and surface disturbance within a protective corridor that is a quarter mile from either side of the trail, where significant values are present.

A Class 2 segment of the California-Mormon NHT crosses through the southeast corner of Rest Area 15. Under the Class 2 category, the trail traces and associated sites retain good integrity of location and association because they are physically intact. The historic settings generally retain the existing character of the landscape and though there may be some modern developments, they do not attract the attention of the casual observer and they do not dominate the setting sufficiently to detract from the feeling or sense of the period of the trail's significant use. The segment of the California-Mormon NHT that crosses through Rest Area 15 was visited during the Spring/Summer 2013 trailing season by BLM Archaeologists. Surficial evidence of trampling due to recent livestock trailing was observed in the vicinity of the trail, although no evidence of concentrated use was noted. Hoof prints impacting the top one to two inches of soil deposition were visible, but this is a temporary minor impact that has not affected the NHT. To comply with NHT management decisions in the 2010 Record of Decision and Approved Kemmerer Resource Management Plan, it is recommended that the Rest Area 15 boundaries be modified so that they are at least 500 feet from the Class 2 NHT.

Domestic livestock trailing has occurred for over 100 years in southwestern Wyoming. No significant impacts to cultural resources have been reported or observed in the area by BLM Archaeologists as a result of authorized, livestock trailing within the South Livestock Trail APE. The greatest potential for range and livestock grazing practices to impact historic properties in this area comes from unauthorized construction associated with range improvement and/or range management projects (e.g. bladed fence line

routes, waterlines, spring & reservoir construction projects, redirecting natural drainage channels, etc.). Any such unauthorized development on Federal lands is a violation of applicable federal regulations and will be dealt with accordingly.

Alternative 1 – Proposed Action [Historic Use Levels]

The BLM has determined that annual authorization of livestock trailing under Alternative 1, as described in this document, is a type of activity that has no potential to affect historic properties. Pursuant to the Wyoming State Protocol IV.A.1 and Appendix B.2, the BLM has determined that the undertaking has no potential to affect historic properties because issuing trailing permits does not authorize or promote surface disturbance and therefore, this undertaking is exempt from Class III cultural resource inventory and further cultural review.

The following stipulations are required as conditions of approval to prevent inadvertent impacts to cultural resources within the South Trails corridor, particularly within the designated rest areas which BLM has determined to have the greatest potential for unanticipated impacts because livestock will be temporarily concentrated in these locations.

- In order to protect the Class 2 segment of the California-Mormon NHT, Rest Area 15 should be reconfigured so that it is greater than 500 feet from the trail. Any additional temporary and overnight stockherder camps, or rest areas, proposed near the NHT corridors would require site specific analysis prior to authorization.
- Authorization is for standard livestock trailing only. Any related projects (e.g. fence lines, water pipelines and troughs, spring developments, reservoirs, etc.) and locations for feed supplements (e.g. “crystalx” & other mineral feed supplements, etc.) will require separate authorizations.
- In order to ensure that historic properties are not being impacted by livestock trailing, periodic inspections of known historic properties will be required. In addition, Rangeland Management Specialists will keep the Cultural Resources staff fully informed concerning areas of livestock congregation and all areas subject to impacts. This information will be disclosed to the Cultural Resources staff members as these areas become known.
- If future trailing activity within the South Livestock Trail APE should expose previously undetected cultural resources or if BLM determines that significant historic properties are being damaged by livestock trailing activities within the allotment boundaries, the terms and conditions will be amended to protect any such historic properties until such time as protective barriers and/or mitigation of these adverse impacts can be conducted.

Alternative 2– No Livestock Trailing

Under the No Livestock Trailing Alternative impacts to cultural resources located within the South Livestock Trail APE, such as trampling, would not occur. Portions of the APE that may have been previously impacted from concentrations of livestock, such as the designated temporary and overnight rest areas, would improve and surface artifacts associated with cultural sites would not be further disturbed by domestic livestock trailing.

4.1.2 Invasive Non Native Species (INNS)

Alternative 1 – Proposed Action

Under this alternative, any INNS sites on existing livestock trails have the potential to spread their seed by utilizing the hair, wool or digestive systems of passing livestock as a vector. Conversely, passing

livestock may act to control the spread of certain INNS by consuming or trampling INNS plants that happen to be present in their path.

Exotic plant species establish more readily as disturbance to soils increases. Roads and trails act as dispersal agents for noxious and invasive plants, and the amount and extent of conveyance is directly related to the degree of road improvement (Gelbard & Belnap, 2003). Trails that are limited in duration and recurrence would be less likely to contribute to establishment and expansion than those trails that are high recurring events.

Alternative 2 – No Livestock Trailing

Under this alternative, there would no longer be the potential for livestock to act as vectors for the spread of INNS along the trail corridors. Conversely, there would no longer be the potential for trailing livestock to act as incidental control agents in the same regions.

A factor that requires consideration is that trucking livestock requires the construction of either permanent or temporary corrals to hold animals before loading/after unloading at each grazing site. Regardless of corral type, the animals will cause considerable disturbance of the existing vegetation and surface soils due to hoof action and consumption. Permanent corrals will cause additional one-time disturbance due to digging postholes and other construction activities. These disturbances will open potential sites for invasion by INNS.

If the animals are loaded/unloaded off improved (paved or graveled) roads, the passage of the cattle trucks will each cause an impact equal to 40-50 passenger vehicles to the soil and vegetation in the area they travel through (Moline-Larson, 2014). An average trail herd of 1,442 ewes (plus lambs) requires five to seven trucks in the spring and eight to eleven in the fall. Therefore the trucks needed to move one herd will cause impacts equal to between 200 and 350 passenger vehicles in the spring and 320 to 550 in the fall, creating numerous potential niches for INNS to exploit and become established.

4.1.3 Livestock Grazing Management

Alternative 1 – Proposed Action

This alternative would have no discernible impact to current livestock grazing management practices as it represents the existing/historic trailing practices. All parties who present a valid reason to cross federal lands with livestock may submit an application along with written permission from any affected private landowners and receive a permit in accordance with the provisions of 43CFR 4130.6-3.

The use of horses as an aid to trailing on federal land may require supplemental feeding of hay or other feed. Any necessary supplemental feeding or watering, such as in drought or other adverse conditions, will require authorizations from the BLM if located on federal land or the private land owner or the State of Wyoming if located on private or state land. Livestock grazing permits require authorization for supplemental feeding under 43 CFR 4140.1(a)(3). Livestock trailing is subject to this regulation including horses used for the purposes of herding:

Subpart 4140—Prohibited Acts, Sec. 4140.1 “*The following acts are prohibited on public lands and other lands administered by the Bureau of Land Management: (a)(3) Placing supplemental feed on these lands without authorization.*”

All trailing activities must be confined to the one-mile-wide trail buffer at all times. Repeated or gross violations of the buffer may result in current trailing permits being revoked and/or future permits being denied at the discretion of the Authorized Officer.

In allotments that are not meeting the Rangeland Health Standards, where livestock grazing is a factor, the likelihood of livestock trailing contributing toward impacts and preventing these allotments from meeting those standards is negligible. No known livestock trails in the KFO have contributed to an allotment not meeting the health standards. Any decline in range condition that may be associated with livestock trailing will be investigated and appropriate adjustments made to grazing and/or trailing practices on a case-by-case basis.

Alternative 2 – No Livestock Trailing

This alternative would require the KFO RMP to be amended, as it currently authorizes retaining current livestock trails.

This alternative would have considerable impact on the livestock management practices of all operators who utilize the ability to trail livestock across federal lands along the South Trail and its associated allotments. If the decision is made to end trailing, producers will need to find short-term pasture or other sources to provide for their animals during the time when they would have been on the trail or trail their animals along existing highway corridors. If a given producer cannot obtain permission from the Wyoming Department of Transportation (WYDOT), to trail their livestock along a road right-of-way, that producer will need to truck their livestock and bear that financial burden in addition to their existing operating costs.

Because livestock operations' profit margins vary widely from year to year (see Section 4.1.4) the additional expenses associated with trucking may be insupportable. In some cases, a prohibition on trailing would alter an operator's grazing regime, as the only way to graze isolated portions of private, State or Federal lands is to trail livestock to them because either no roads are present or the roads that may exist are not passable in a semi-truck.

Additional impacts may include:

1. In order to change travel/grazing routes for the sheep herds to accommodate truck-accessible loading locations, producers would have to deal with the complications and complexity of having to arrange for multiple herds (sometimes belonging to multiple owners) to load or unload from a single location and avoid mixing herds or losing animals,
2. Lambs can be separated from their mothers in the chaos of loading/unloading a herd of sheep. If the two are not reunited quickly, the mother could abandon the lamb. During the spring trailing season, this will likely lead to the death of the lamb unless the lamb is bottle-fed or 'grafted' onto another ewe. Both of these options require additional labor and time on the part of the producer and their employees during a very busy time of the year.
3. Because every sheep producer on the South Trail has to trail at roughly the same time, it is very possible that local truckers may run out of trucks, causing delays in moving livestock. This would cause additional issues related to potential trespass, feed/water shortages and so on.
4. Due to the timing of trailing, it is very possible that inclement weather could shut down the trucking whereas sheep or cattle could still be trailed.
5. Additional people (two or three at minimum) will need to be available when loading/unloading the trucks ((Moline-Larson, 2014). This will either necessitate hiring additional hands at additional costs to the operator, or pulling existing hands from other tasks, causing delays in those areas of the operation.

4.1.4 Socioeconomics

Alternative 1 – Proposed Action

Under this Alternative, the socio economic status quo of all livestock operations that currently utilize the South Trail system will not be altered.

Alternative 2 – No Livestock Trailing

Under this Alternative, all livestock operators that currently utilize the South Trail system will no longer be able to trail their animals and will be required to move their livestock with trucks or otherwise trail their animals while avoiding all BLM-administered federal lands.

Trucking Costs:

Two local trucking companies (S Bar S Trucking and Wall Trucking) provided estimates of the fees they would charge to truck a load of livestock from the Bridger Valley area to mountain allotments. Additional estimates (based on prices they have paid) were provided by local producers. The estimates provided indicate that each load of animals transported would cost a producer roughly:

- \$250/load (South, 2013, Moline-Larson, 2014)
- \$100-125 per hour (Sims, 2013)
- \$4.50-\$5.00 per loaded mile (Wall, 2013, Julian, 2013).

Each load would move 45 head of cattle or up to 225 (if a cattle trailer is used) to 300 (if sheep trailer is used) sheep (Wall, 2013).

If the producer happens to own trucks and trailers, they can count on paying \$4.00 to \$5.00 per gallon (or more) for diesel fuel. Semis typically get about 4-5 miles per gallon (Wall, 2013). In addition to fuel costs, the producer would need to pay for vehicle maintenance, wages for the driver, insurance and other costs associated with owning and operating a tractor-trailer in Wyoming.

Trucks per Herd:

The average number of sheep per trailing permit between the years of 2001 and 2010 is 1,442. Based on these numbers, it is possible to calculate the costs to the affected producers. If no allowance for lambs is made, the average sheep band will require between five ($1442/300=4.81$) and seven trucks ($1442/225=6.4$) to transport. To allow for the lambs in the spring requires an increase in the number of trucks by a factor of 1.25 (Wall, 2013). The return trip requires an increase by a factor of 1.5 (Wall, 2013) due to the increased size of the lambs, increasing the number of trucks to between eight and eleven.

To transport from the Bridger Valley area to the producer's summer forage in the Uinta Mountain an average band of sheep would cost:

- \$1,503 to \$2,188 (at the flat rate);
- \$1,062 to \$1,750 by the loaded mile
- \$3,000 to \$4,200 (at the hourly rate)

Because of the lambs' increased physical size, returning from the Uinta Mountains to the Bridger Valley would cost:

- \$1,803 to \$2,625 (at the flat rate)
- \$1,274 to \$2,100 (by the loaded mile)
- \$3,600 to \$5,040 (at the hourly rate).

The average number for cattle per trailing permit is 285 head between 2001 and 2010. Each 285-head cattle herd would require seven trucks ($285/45 = 6.33$) which would cost the producer \$1,750 if calculated at \$250/load and \$3,600 at the hourly rate. Adding the calves to the calculation would double the number of trucks and associated costs to 14 trucks and between \$5,500 and \$7,200 respectively.

Additional Labor:

An additional two to three laborers would be required to assist with loading and unloading the animals. These people can come from the producer's existing labor force or be hired as day labor. At going day labor rates, this will cost approximately \$100 per day (Moline-Larson, 2014). These hands will be needed

at least four times per year. This will add \$800 to \$1,200 to each producer's operating costs (assuming that all the loading, travel and unloading) can be done in one day.

Trucking costs will be encountered each time any producer needs to cross federal land that they do not hold a permit for active use at the specific time that the crossing or trailing occurs. At the minimum, that would involve trailing (1) from winter forage to lambing grounds; (2) lambing grounds to summer forage; (3) summer forage to sorting (4) sorting to winter forage. Each trailing instance means a cost per ewe between \$1.00 at the minimum (flat rate, young lambs) and \$1.90 (hourly, large lambs) for a total additional operating cost of between \$4.00 and \$7.60 per ewe.

Additionally, to load and unload the animals will require appropriate facilities. While unloading requires only a ramp, to load the animals requires a corral with a ramp suited to loading a semi. Due to grazing rotation plans on BLM and Forest Service lands, the same facility cannot be used at both the beginning and end of each grazing season or from one grazing season to the next so a minimum of two corrals would be needed for each producer. If permanent facilities are desired, a producer can expect to invest at least \$10,000 per facility (Moline-Larson, 2014). While a permanent facility can be reasonably expected to last 20 years, it must be paid for in the year it was built and maintained each year after that.

An alternative to multiple permanent facilities would be to use a portable corral/ramp system. A portable corral system by Powder River Ranch, Cattle, and Livestock Equipment that is capable of holding one herd (1,450 sheep) with a loading ramp currently costs \$10,494 (Murdochs, 2014) and has an expected life of 20+ years. Like the permanent facility, it needs to be paid for in the year it is purchased.

The advantage of the permanent facility is that no additional man-hours are needed to construct the facility prior to the arrival of the trucks. The advantage of the portable system is that only one system is used and it can be placed wherever it is needed for the rotation of that year and no in-field maintenance is required. The disadvantage is that additional man-hours need to be devoted to constructing the facility prior to the arrival of the trucks to be loaded.

When the costs calculated above are added into the sheep budget costs the positive income above operating costs for each year is reduced by 20-50% and the deficits are deepened.

4.1.5 Soils

Alternative 1 – Proposed Action

Under this alternative, the current impacts from livestock trailing compaction and hoof-action displacement would continue to occur particularly at overnight stops where livestock are gathered until the next morning. However, most of the overnight stops are along roads or around troughs or other range improvements where soil compaction has already occurred. On established trails, soil compaction has probably reached the maximum density potential due to historic trailing and will not increase further. The same level of compaction is expected to be maintained by future trailing.

Likewise, surface disturbance/displacement of soil by livestock hooves will continue to occur. As stated in section 4.1.1 above, observations by BLM KFO Archaeologists over the years, including those made during the Spring/Summer of 2013, only the top one to two inches of the ground surface are typically impacted by livestock trailing. These impacts are diminished after a relatively short amount of time, generally after the next significant precipitation.

Many of the proposed trailing routes occur along main transportation routes. Where trailing occurs along a main transportation route, livestock may be forced away from the route by traffic or may have to pass through an adjacent gate when the trailing event intersects a cattle guard. Given that trailing has been occurring on these trails for over a century, it is unlikely that new erosion features will develop.

Alternative 2 – No Livestock Trailing

Under this alternative, no livestock trailing permits would be issued in the future for the South Trail. The soils within the South Trail system would no longer experience the surface disturbance or compaction caused by current trailing practices. Long-term compaction and associated increases in soil density would gradually decrease through natural processes. Likewise, any paths worn by trailing livestock will eventually re-vegetate (Castellano and Valone, 2007, Abdel-Magid, et al., 1987).

The loading/unloading sites and truck routes will experience high impact levels due to truck traffic. Because of the timing of spring and fall moves and normal snowmelt and seasonal precipitation, it is likely that the soil surface will be wet during these operations, particularly in the spring. Heavy trucks on wet soil will result in deep ruts being developed. Even in dry conditions, the truck routes and loading sites will develop ruts. These ruts will likely act as channels and/or micro-ponds for local rain/snowmelt runoff, resulting in increased soil erosion on any slopes. Depending upon local topography and runoff volume, the eroded soil may degrade water quality in sensitive creeks and rivers.

To avoid excessive rutting and degradation, improved crown-and-ditch roads and (un)loading areas may be required. This will produce additional environmental impacts beyond the scope of this document.

Because loading and unloading livestock requires concentration of animals over time, the areas in the vicinity of the loading sites will be subject to disproportionate livestock impact. This will result in increased soil surface density due to hoof impacts which will lead to increased runoff and soil erosion in the impacted area (Castellano and Valone, 2007, Abdel-Magid, et al., 1987). Due to the limited number of truck-accessible areas where either permanent or temporary corrals can be constructed, it will be necessary to trail and hold animal herds in the same areas over many years, concentrating and magnifying these impacts (Moline and Larson, 2014).

4.1.6 Vegetation

Alternative 1 – Proposed Action

Under the Proposed Action, the trampling/breakage caused by physical trampling and vegetation lost to herbivory would continue to occur. During livestock trailing events, it is typical for utilization of grasses or forbs to be negligible. During livestock “crossing” (one day or shorter trailing events), vegetation is more likely to be trampled, not overly consumed, since the animals should be moving fairly constantly. The exception is during “trailing” (two days or longer trailing events), when overnighting of livestock occurs and the animals stop to eat, drink, and sleep. Historically only 12% of the 9,611 AUM potential forage production has been billed to trailing so the impact of trailing on vegetation is minimal.

Current vegetative communities and conditions are the result of over 100 years of sheep and cattle using the paths that are now the South Trail system. It is likely that continuing existing trailing practices will serve to perpetuate existing on-the-ground conditions that were observed along the trail segments. During wetter years, trailing impacts appear to be mitigated by improved vegetative production. During drought years, trailing impacts can appear to be more severe due to reduced vegetative production. During drought years, producers may haul water and supplemental feed to their livestock without BLM approval, provided that the water and supplements are placed on private land (assuming landowner approval). Placement on federal land requires approval by the Authorized Officer.

Alternative 2 – No Livestock Trailing

Under this alternative, no livestock trailing permits would be issued in the future. The vegetation within the South Trail system would not experience the trampling or consumption caused by current trailing practices. Herbaceous and shrubby vegetation would not be grazed or trampled in the early spring (allowing plants to put on their first growth without impacts) or late fall (allowing for greater stubble

height to catch snow and protect the root crowns) (Castellano and Valone, 2007, Abdel-Magid, et al., 1987).

Assuming livestock would be trucked using existing routes to loading/unloading areas, the truck routes could experience high impact levels due to truck traffic. Because of the timing of spring and fall moves and normal snowmelt and seasonal precipitation, it is likely that the soil surface will be wet during these operations, particularly in the spring (Moline and Larson, 2014). Heavy trucks on wet soil may result in serious localized soil movement (rutting), localized compaction/crushing of plants and growing sites. In dry conditions, the truck routes and loading sites will result in damage to any plants the trucks run over. If the damage is serious enough, it will result in the death of the plant. In addition, soil displacement caused by vehicle tires can expose plant roots, potentially resulting in plant mortality.

Because loading and unloading livestock requires concentration of animals over time, the areas in the vicinity of the loading sites will be subject to disproportionate livestock impact. This will result in increased soil surface density due to hoof impacts which will lead to increased runoff and reduced production in the impacted area (Castellano and Valone, 2007, Abdel-Magid, et al., 1987). Due to the limited number of truck-accessible areas where either permanent or temporary corrals can be constructed, it will be necessary to trail and hold animal herds in the same areas over many years, concentrating and magnifying these impacts (Moline and Larson, 2014)

4.1.7 Water Resources

Alternative 1 – Proposed Action

Under the Proposed Action alternative the impacts to water quality caused by livestock trailing would continue and would be greater than in Alternative 2. Direct impacts to surface water quality would result from livestock entering the water, drinking and defecating. Indirect impacts include disturbing the soil, especially highly erodible soil, through hoof action and streambank alterations.

Healthy wetlands and riparian areas filter sediments and some pollutants contained in runoff before they enter the stream system. Actions that minimize, reduce, or prevent offsite erosion would diminish adverse impacts to surface water quality. Activities that decrease vegetative cover in floodplains, riparian and wetland areas, all considered to be local groundwater recharge areas, or that increase runoff away from these areas would reduce the infiltration of precipitation and, thus, reduce groundwater recharge. Changes to ground water quality and quantity in aquifers that are connected to the surface could substantially affect surface water quality and quantity as well.

Livestock usually create less overall disturbance than other developments, but the tendency for livestock to concentrate in riparian areas and in the proximity of open water while simultaneously impacting riparian vegetation may increase the extent of the influence for this type of disturbance. (USDI 2008, pg. 4-18, 19). In addition, the Blacks Fork River and Smiths Fork River are listed in the State of Wyoming, Department of Environmental Quality, impaired waterbody list, *Water Quality Assessment and Impaired Waters List* (2012 Integrated 305(b) and 303(d) Report, Document #12-0230, Page 127) <http://deq.state.wy.us/wqd/watershed/Downloads/305b/2012/WY2012IR.pdf>.

The RMP ROD states the following decisions related to water, wetland and riparian communities:

Incorporate requirements and methodology for achieving watershed improvement into activity plans, as necessary. Priority areas include all streams listed on the updated Clean Water Act 303(d) list and areas that have failed to meet Standard #2 of the Standards and Guidelines the BLM will coordinate with state agencies and local governments (e.g., watershed planning committees) on all 303(d) listed stream segments. (Decision #1028)

Riparian areas would be maintained, improved, or restored to enhance habitat forage conditions for wildlife and livestock and improve stream water quality. Manage all riparian areas with sensitive wildlife and plant species concerns to a successional stage appropriate for the benefit of those species, including vertical as well as horizontal vegetative structure and composition. (Decision #4023).

Locate livestock salt or mineral supplements a minimum of ¼ mile away from water sources, riparian areas, and aspen stands. Buffers are based on resource concerns on a case-by-case basis. (Decision #4024).

Alternative 2 – No Livestock Trailing

Under Alternative 2, no livestock trailing permits would be issued in the future on the South Trail. The surface waters and riparian and wetland areas within the South Trail system would not experience the impacts caused by current trailing practices. Lack of livestock trailing/grazing would likely improve the soil and vegetative conditions along the trail any may improve the 303(d) or 305(b) listing. Scientific evidence linking livestock grazing on rangelands to impaired water quality is lacking (Nader et al. 1998). The main water quality concerns are from cattle feces and urine deposited directly into the water. When nutrient contaminations do occur, especially phosphorus, they are more likely explained by erosion and sediment processes.

The impacts of heavy truck traffic in confined areas may result in increased sediment loads as the tire tracks/wheel ruts erode in high runoff events. The loading areas will have reduced stubble height due to heavy grazing and reduced infiltration (Castellano and Valone, 2007, Abdel-Magid, et al., 1987) and increased level of animal manure on the soil surface. This may result in increased levels of nutrients, sediment and bacteria reaching surface waters if the loading areas are near water sources.

Many of the roads accessing upper reaches of the Uinta Mountains have followed the alluvial plains at the bottom of river/creek valleys rather than cut through the rock formations. By the same token, the areas where producers are likely to put corrals will need to be near water so that the animals have immediate access prior to being loaded or immediately after unloading to reduce animal stress.

4.1.8 Wildlife and Wildlife Habitat

Alternative 1 – Proposed Action

Mammals

Understanding the influence of domestic livestock upon native ecosystems is a problematic process. Ascertaining the potential natural vegetation of most Western ecosystems is difficult because ungrazed land is extremely rare (Fleischner 1994). Continuation of current trailing management would allow all species currently using the allotments to sustain current population levels. For example, prairie dogs tend to prefer areas with short grass, or create these areas when establishing a colony. Areas with short grasses allow prairie dogs to observe and avoid potential predators. Livestock trailing in the area could reduce the overhead cover allowing more prairie dogs to observe and consequently avoid predators. This would be beneficial by allowing more prairie dogs to survive. Renewal of the trailing permits with the proposed terms and conditions would allow white-tailed prairie dog colonies to fluctuate in size based on normal population dynamics. Thus, the potential for black-footed ferrets and other prairie dog colony species (i.e., badger) would still persist along with habitat for burrowing owls and other small mammals. Trailing livestock could have beneficial impacts to plover, prairie dogs, potential black-footed ferret habitat, burrowing owls and other wildlife species that live in and near prairie dog towns and short grass/cushion plant communities. These areas of short grass could also be beneficial to breeding sage-grouse. Within these areas of short grass, the proposed action is not expected to have any impacts greater than what are currently observed within the allotments.

Impacts to Canada lynx from trailing are expected to be minimal. Trailing doesn't have a major impact on lynx priority habitat which consists of an old growth aspen stands with thick understory to provide ideal habitat for snowshoe hare which are the Canada lynx main prey species. Livestock being required to move a minimum of five miles a day will reduce the chance of impacting the thick understory in lynx LAU's.

Idaho pocket gophers are typically located within the sagebrush foothills zone of the Wyoming Range, Uinta, and Wind River Mountains (Beauvais and Dark-Smiley 2005, Griscom et al. 2010). It is also known to have a higher tolerance for rocky soils (Griscom et al. 2010). These habitat characteristics are located within the project area. Impacts from trailing could include tunnel/burrow collapsing from hoof action of grazing livestock or removal of vegetation and seeds that the pocket gopher feeds upon and stores for the winter months. However, requiring a minimum distance of five miles per day to be trailed would help minimize those impacts by forcing livestock to move constantly within the project area. At this time, Idaho pocket gophers have not been documented within the project area. Therefore, impacts to the habitat are not expected to increase above current conditions and the potential habitat would persist at the current rate.

Impacts to pygmy rabbit would be similar to those described for Idaho pocket gopher.

Sage-grouse and Migratory Birds

According to recent studies the top three threats to sage-grouse are oil and gas, infrastructure, followed by invasive species. A total of 19 different aspects are analyzed and of these predation ranks in the middle while grazing is in the top five. Many of these rankings are uncontrollable including weather and wildfire. From these ranking the Southwest Wyoming Local Sage-grouse Working Group (SWLWG) has developed three major conservation goals, numerous issue-oriented sub-goals and RMPs and specific actions designed to meet the purpose and mission of the SWLWG (SWLWG 2007). The one issue that these all have in common is that of habitat conversion. This is the overall largest issue that is the direct result of many of the threats that are being analyzed. This is also why the main goal of the SWLWG is to maintain, enhance and/or restore quality habitat for sage-grouse.

Monitoring results suggest sage-grouse populations in Wyoming were at their lowest levels ever recorded in the mid-1990s (WGFD 2007b). Grouse numbers then increased during the late 1990's with some individual leks seeing three-fold increases in the number of males counted between 1997 and 1999 (WGFD 2007b). This increase was synchronous with increased spring precipitation over the period (WGFD 2007b). The return of drought conditions in the early 2000's appeared to have led to decreases in chick production and survival and therefore population declines, although the population did not decline to mid-1990s levels (WGFD 2007b). Improved habitat conditions due to timely precipitation in 2004 are believed to have led to high chick production and survival (WGFD 2007b). This resulted in 2006's counts and surveys having the highest recorded average males per lek since 1978. A return to dry spring and summer conditions in 2006 and 2007 reduced recruitment and the average males per lek declined in 2007 and 2008 (WGFD 2007b).

Average number of grouse within the area is hard to predict due to normal fluctuations in the population. Average male attendance for all leks within the project area is listed in Chapter 3 (Section 3.9). By identifying only these numbers it would appear that the grouse population is increasing. However, not all leks were observed each year. Thus, in any given year that a lek was not surveyed, a zero is entered as the default. Adding a zero would skew the numbers and lower the average; therefore those years were removed from the average. Conversely, a lek that was first located in 2001 could skew the results to artificially increase the averages. Therefore, none of these averages can be accurately compared. In addition, lek data must be interpreted with caution for several reasons: 1) the survey effort and the number of leks surveyed/counted has varied over time, 2) not all leks have been located, 3) sage-grouse

populations often cycle over approximately a 10 year period, 4) the effects of unlocated or unmonitored leks that have become inactive cannot be quantified or qualified, and 5) lek locations may change over time (WGFD 2007b).

Impacts to sage-grouse from livestock trailing could include a reduction in grass species through grazing. Removal of grasses could negatively impact grouse populations through reduced grass heights and potential litter on the ground. This could reduce the amount of nesting cover needed to hatch a brood. In addition, the reduction in grass height and litter could cause insect populations to decline, thus impacting the food source that sage-grouse nestlings rely upon. The reduced heights and potential for a reduction in insects and forbs also could occur in the riparian areas. From mid- to- late summer, wet meadows, springs and streams are the primary sites that produce the forbs and insects necessary for juvenile birds (SWLWG 2007). Although trailing occurs over a relatively short time period it also has large numbers and more impact occurs when the livestock are camped overnight. This can be mitigated through a minimum five mile trailing distance per day and restrictions to certain areas where camps can be placed.

An impact that could occur among all of the trailing allotments is the potential for nest trampling by livestock. This impact would be minimal due to the fact that most of the livestock trails on the South Trail are on county, state or two-track roads where the sage-grouse are unlikely to nest. Most of the trailing in sage-grouse core area occurs in the late Fall when nest trampling will not be a concern. Of the trailing that occurs during the nesting season it occurs early enough in the nesting season where if trampling does occur there would be time for females to re-establish a new nest. Due to trailing occurring over a very short time period over a short distance it is not expected to have a major impact on nesting sage-grouse. In the Uinta core area trailing only occurs for one day during the nesting season from 4/29 to 4/30. In 2013 around 4,207 sheep trailed through a segment of approximately seven miles with only two of those being within two miles of an active lek boundary where the majority of nesting occurs. This was the only trailing event that took place and though there is likelihood that nest trampling could occur there is also still opportunity for females to re-establish a nest before the end of the mating season. In the Sage core area there are approximately 21.5 miles of trailing that occurs in core area. Of these 21.5 miles, around 11.5 miles are within two miles of an active lek. Only one trailing event takes place in the Sage core area during nesting season. This trailing occurs around the time period of 4/29-5/2 and has consisted of up to 1,000 sheep in the past. Due to the minimal amount of trailing during nesting season it is unlikely that trailing will have a major impact on nesting sage-grouse.

Impacts to migratory birds (i.e., vesper sparrow, song sparrow, etc.) and sagebrush obligate bird species (i.e. sage thrasher, sage sparrow, Brewer's sparrow and loggerhead shrike) would be similar to those discussed for sage-grouse. However, impacts to other migratory bird species (e.g., grasshopper sparrow) would be similar to those discussed for mountain plover.

Trailing occurs over such a short time period and short distance that no impacts are expected to occur to the prey base of raptors. If any impact would occur it would likely be positive resulting from trailing clearing taller forage and allowing for raptors to attain prey species easier. Of the 122 known nests (not including ferruginous hawk and burrowing owl nests), five are American kestrel, one is a Cooper's hawk, 38 are golden eagle, eight are great-horned owl, eight are northern harrier, eight are prairie falcon, 18 are red-tailed hawk, one is a sharp-shinned hawk and 29 are undetermined for the species that built the nest. Issuing the trailing permits with the proposed terms and conditions is not expected to impact raptors or their prey base any more than what is currently observed.

Amphibians

Habitat for northern leopard frogs and Great Basin spadefoot toads could be impacted from loss of vegetative cover along stream banks and other riparian areas (for the frogs) or from soil compaction within playas or other low lying areas that collect water (for the toads). Removal of vegetative cover

could reduce the amount of hiding cover and could lower the number of available insects that the frogs use as a food source. However, due to the standing vegetation that is left after trailing, this impact would be minimized to the point that it could be negligible or even beneficial. By allowing the vegetation a chance to recover, the insect populations would also be allowed to recover; thus, providing a food source for the frogs during different life stages. In addition, allowing the riparian vegetation a chance to recover would also allow riparian areas a chance to maintain the root structure needed to protect it for other natural events (e.g. high water flow events). Vegetation would persist without any major impacts due to the restriction of livestock trailing and camping away from riparian areas. Spadefoot toads are a little harder to understand due to the behavior of the species during the non-breeding months. The protected vegetation would provide the spadefoot with the adequate vegetative cover to provide foraging sites and climate protection to retain soil moisture during the non-breeding season (Buseck et al. 2005). This would be the case in areas where loose, sandy soils are available in arid environments. The soils throughout the project area vary, but these soil types are located within the project area, even if relatively small in size. Overall, impacts to frogs and toads within the project area are expected to be minimal and not increase above current conditions.

Shorebirds

Habitats for long-billed curlew, as well as documented sightings, occur within the project area. Impacts to curlew could include a reduction in foraging and/or nesting habitat. Livestock could remove the vegetation within wet meadow/riparian areas to the point that vegetative recovery would be minimized. Minimal vegetative recover, could result in a reduced insect population which could negatively impact foraging curlew. Also, upland trailing of livestock could reduce nesting vegetative cover to the point that when curlew attempt to nest, the nest fails due to increased visibility from predators. However, restricting camping and trailing away from riparian areas will minimize removal of vegetation and requiring a minimum of five miles a day to be trailed will reduce loss in overall vegetation in upland areas. Though there is potential habitat for long-billed curlew in the project area no sightings have been documented and impacts are not expected to have a negative effect.

Impacts to white-faced ibis would be similar to those described for long-billed curlew.

Fish

Livestock trailing could indirectly impact fish species. When livestock trail, they will eventually need water. As livestock move into riparian areas to obtain water, they could impact the streambanks. When streambanks are impacted through bank trample several things could occur. First, hoof impact could cause soil compaction. By increasing soil compaction, there is typically a reduction in moisture infiltration from rain and/or snow melt. A reduction in soil moisture could reduce the amount and diversity of plant species, which, over time, could cause streambanks to lose stability and increase sedimentation. Second, when livestock are actually drinking or crossing streams there is the potential to cause hoof impacts. These types of hoof impacts can cause streambank shearing. Shearing of the streambanks have the potential to heal, however, it typically will not heal (revegetate) during the same growing season in which it was sheared. Therefore, shearing of the streambanks could also increase sediment loads into the streams. Sediment in the water column of streams and rivers will eventually settle. As these sediments settle, there is a possibility that the sediment could silt in and cover spawning areas. If spawning areas are covered in sediment, the sediment could suffocate fish eggs, thus reducing productivity and potentially cause a reduction in population size. Many of the streams within the project area are headwater tributary streams for the Colorado and Bear Rivers. Impacts to Colorado River fish species are expected to be minimal, mainly due to the Flaming Gorge Reservoir Dam. This reservoir would allow the majority of the sediment to settle out before the water passes through the dam and downstream to endangered Colorado River fish species habitat. These types of impacts could still be observed upstream of Flaming Gorge Reservoir, which could impact bluehead and flannelmouth suckers and roundtail chub spawning habitats. These same impacts would also be observed in the Bear River

Divide watershed, which could impact northern leatherside chub spawning habitat. However, by requiring trailing and camping away from riparian areas, all of these impacts would be reduced.

Plants

Impact from trailing to Trelease's milkvetch, prostrate bladderpod, tufted twinpod, large-fruited bladderpod and Beaver Rim phlox or their habitats are expected to be negligible due to the inedible compounds within the plant or due to the slopes and soils that the plants typically inhabit. Impacts to Dorn's twinpod are also expected to be minimal. Dorn's twinpod is typically located on whitish clay-gravel slopes of the Twin Creek Limestone. Vegetation associated with Dorn's twinpod include: alder leaf mountain mahogany, Indian ricegrass and Sandberg bluegrass. The slopes that these plant communities are located on are typically sparsely vegetated. This provides livestock the ability to potentially trample the Dorn's twinpod plants as the livestock search for the preferred grasses to forage upon (e.g. Indian ricegrass). However, due to the sparsely vegetated area located on slopes, impacts to Dorn's twinpod are not expected to increase above current levels. Even though Ute ladies'-tresses are not currently found within the project area, potential habitat would still exist within the project area.

Renewal of the existing trailing permits, with the proposed terms and conditions, would maintain habitats that are capable of sustaining viable and diverse populations of native plant and wildlife species. Renewal of the existing trailing permits, within the 58 allotments analyzed in this EA, would produce no additional negative impacts to the plant or wildlife species utilizing the allotments.

Alternative 2 – No Livestock Trailing

Under Alternative 2, no livestock trailing permits would be issued in the future on the South Trail. The impacts to wildlife would not change, due to grazing still occurring throughout the allotments which contain the trailing corridors. An impact that could occur would be an increase in vehicle traffic due to required trucking of livestock. This could increase the possibility of removal of wildlife species due to vehicle collisions. Sage-grouse populations could also be negatively affected due to the increase of traffic on less improved roads where nesting and brood rearing take place as well as near active leks causing nest and lek abandonment. These impacts could be minimized through stipulations on when trucking can occur throughout the year.

4.2 Cumulative Effects

The geographic scope of this analysis, referred to as the Cumulative Impact Analysis Area (CIAA), is the BLM's planning area, except as otherwise stated in the individual resource sections. The selected CIAA allows for the most appropriate and quantitative analysis of impacts that exist and would be affected cumulatively across the defined region.

4.2.1 Cumulative Effects – Cultural Resources

4.2.1.1 Impacts from Past and Present Actions

Domestic livestock trailing has occurred for over 100 years in southwestern Wyoming. Undoubtedly, cultural resources have been affected by trampling over time in areas where groups of animals were concentrated, such as near overnight camps. However, these camps are only in use for short periods of time (unlike areas such as where salt licks and troughs are located) and therefore tend to recover in between trailing events. No significant impacts to historic properties have been documented by or reported to BLM archaeologists within the South Livestock Trail APE as a result of authorized livestock trailing. The most detrimental impacts to historic properties documented within the KFO related to range improvement have resulted from unauthorized construction projects. In some cases, cultural resources have been irrevocably damaged and valuable scientific data has been lost. However, these types of situations are rare.

Projects associated with industrial development and recreational activities have also occurred within the area over the years. Projects that occurred prior to the passage of the National Historic Preservation Act (NHPA) were likely conducted without much regard to cultural resources. It is not known how great of an impact these early developments had on the archaeological record. Since the passage of NHPA, all ground disturbing activities, including those related to range management, recreation, and other activities common in the allotment, have had to comply with Section 106 of the NHPA and all adverse impacts have thus been avoided or mitigated prior to construction. Therefore, the loss of important scientific data, which is considered one of the most substantial potential impacts to cultural sites, has been circumvented in most cases.

4.2.1.2 Impacts/Effects from Reasonably Foreseeable Future Actions

The greatest potential for range and livestock grazing/trailing practices to impact historic properties comes from unauthorized construction associated with range improvement and/or range management projects such as bladed fence line routes, waterlines, spring and reservoir construction. Any other unauthorized developments, such as the creation of new roads by recreational users, would also be of concern. However, any such unauthorized development on Federal lands within the APE is a violation of applicable federal regulations.

All authorized future ground disturbing activities in the APE must comply with Section 106 of the NHPA and are subject to appropriate cultural investigations prior to permit issuance, and will be analyzed under a separate and site specific NEPA document. The construction of new facilities, including fences or roads, would require a Class III cultural inventory. All adverse impacts would be mitigated prior to construction.

4.2.2.3 Cumulative Impacts

Alternative 1 – Proposed Action

Because direct and indirect impacts have not been identified as a result of livestock trailing in southwest Wyoming, there would be no cumulative effects on cultural resources as a result of this undertaking. Any future ground disturbing activities in the APE will comply with Section 106 of the NHPA and any adverse impacts will be mitigated prior to construction.

Alternative 2 – No Livestock Trailing

Since livestock trailing would not be authorized, impacts to cultural resources, such as trampling, would not occur. Areas that were once impacted from concentrations of livestock would improve and surface artifacts associated with cultural sites would not be further disturbed by domestic livestock trailing.

4.2.2 Cumulative Effects - Invasive Non Native Species (INNS)

4.2.2.1 Impacts from Past and Present Actions

As livestock trailing on the South Trail system has been occurring for over 100 years, impacts are expected to remain stable. Impacts from control of INNS on Federal land is regulated by Federal and State laws (USDI BLM 2008). BLM coordinates annually with the Uinta County Weed and Pest District. When INNS are located by BLM, the Uinta County Weed and Pest is notified and steps are taken to remedy the issue as quickly as possible, typically through chemical control.

4.2.2.2 Impacts/Effects from Reasonably Foreseeable Future Actions

The greatest potential for range and livestock grazing/trailing practices to impact INNS comes from unauthorized construction associated with range improvement and/or range management projects such as bladed fence line routes, waterlines, spring and reservoir construction. Any other unauthorized developments, such as the creation of new roads by recreational users, could potentially spread INNS.

4.2.2.3 Cumulative Impacts

Alternative 1 – Proposed Action

As livestock trailing on the South Trail system has been occurring for over 100 years, impacts are expected to remain stable. Any future ground disturbing activities such as range improvements would be coordinated with the BLM and the permittees, and would be analyzed under separate analysis.

Alternative 2 – No Livestock Trailing

If trucking occurs, new roads may need to be built; existing roads may need repair or improvements, which may increase the occurrence of INNS.

4.2.3 Cumulative Effects - Livestock Grazing Management

4.2.3.1 Impacts from Past and Present Actions

Historically, livestock trailing on the South Trail system has been occurring for over 100 years. Past and present livestock trailing is not negatively impacting the natural resources in the 58 allotments that intersect the South Trail system, since the affected allotments either met the Standards for Rangeland Health or livestock trailing was not identified as the cause for not meeting the Standards.

4.2.3.2 Impacts/Effects from Reasonably Foreseeable Future Actions

Reasonably foreseeable actions would likely continue to be livestock trailing, therefore, impacts from trailing would likely continue as they have in the past.

4.2.3.3 Cumulative Impacts

Alternative 1 – Proposed Action

Cumulative impacts from trailing would likely continue as they have in the past. Livestock trailing would continue according to the goals and objectives set forth in the KFO RMP and the Standards for Rangeland Health.

Alternative 2 – No Livestock Trailing

Those livestock producers that currently utilize the South Trail network will need to either contract with existing livestock haulers or purchase a sufficient number of trucks and corrals/loading facilities to load and haul the animals that they currently trail (if they do not already own them).

The producers will need to locate suitable loading/unloading sites wherever they need to haul to or from (if there is not one known to be there). The producers will also need to coordinate with the BLM and Forest Service if those sites will require modification of their current grazing plans. Staffing schedules and/or numbers may need to change to accommodate the need to have their herds somewhere (not on the trail) and the need for truck drivers and laborers to load and move the livestock and the sheep camp at the same time.

4.2.4 Cumulative Effects - Socioeconomics

4.2.4.1 Impacts from Past and Present Actions

Historically, livestock trailing on the South Trail system has been occurring for over 100 years. Past and present livestock trailing (as a component of the existing producers' practices) has contributed to the economic condition of the individual producers and the communities where they live and do business.

4.2.4.2 Impacts/Effects from Reasonably Foreseeable Future Actions

Reasonably foreseeable actions would likely continue to include livestock trailing, therefore, impacts to the producers' economic health will likely continue as they have in the past.

4.2.4.3 Cumulative Impacts

Alternative 1 – Proposed Action

Cumulative impacts from trailing would likely continue as they have in the past. Livestock trailing would continue as an integral component of the producers' operations and the producers would continue their contributions to their communities' economies.

Alternative 2 – No Livestock Trailing

Cumulative impacts from requiring trucking may be far-reaching. The additional costs from trucking costs alone are estimated to be equal to \$4.00 and \$7.60 per ewe, per year (based on four instances of trucking). The producer would also have to support the costs of any additional labor, hauling water and/or feed or other miscellaneous costs. These expenses may add up to be enough to drive one or more of the producers out of business. The loss of one or more operators will likely mean more than a change in ownership. If an operator goes out of business, the community would lose all of the business that producer did with multiple vendors, including the "import" dollars from the sale of lambs, wool, calves and steers, creating a ripple effect throughout the community.

4.2.5 Cumulative Effects - Soils

4.2.5.1 Impacts from Past and Present Actions

Historically, livestock trailing on the South Trail system has been occurring for over 100 years. Past and present livestock trailing is not negatively impacting the soils resources in the 58 allotments that intersect the South Trail system, since they either meet the Standards for Rangeland Health or if they do not, it was not caused by trailing.

4.2.5.2 Impacts/Effects from Reasonably Foreseeable Future Actions

Reasonably foreseeable actions would likely continue to include livestock trailing, therefore, impacts to the soils resource will likely continue as they have in the past.

4.2.5.3 Cumulative Impacts

Alternative 1 – Proposed Action

Cumulative impacts from trailing would likely continue as they have in the past. Livestock trailing would continue according to the goals and objectives set forth in the KFO RMP and the Standards for Rangeland Health.

Alternative 2 – No Livestock Trailing

By forcing the producers to truck their livestock may reduce the impacts to the soils in some portions of the trails. However, this improvement comes at the expense of dramatic impacts to the soils resource at the loading and unloading sites. The soils will be heavily impacted by the weight of the tractor-trailer rigs carrying the animals, especially if the soil is wet.

Ruts, potentially very deep, will develop where the trucks drive (even on improved roads away from the allotments). These ruts will capture and either hold or channel water (depending upon site topography), resulting in acceleration runoff/erosion or ponding/sedimentation; both of which change local plant potential. In addition, trucking requires corrals, which create concentration areas. Concentration areas result in reduced plant stubble height and density along with increased soil compaction/increased runoff and animal waste accumulation. Increased runoff in an area with high animal waste accumulation can

result in waste-laden runoff. Depending upon site location, there is a real potential for waste-laden runoff accessing the wheel ruts and the combined sediment/waste load reaching any of the numerous streams leading to the Blacks Fork or Green Rivers.

4.2.6 Cumulative Effects - Vegetation

The current routes have been in use by sheep and cattle probably since the 1930s. Some areas of the South Trail network on federal land show localized reductions in plant productivity and alterations in the plant community composition. It is not known whether the impacts are from trailing livestock, inappropriate distribution of permitted cattle, or a combination of both.

4.2.6.1 Impacts from Past and Present Actions

Historically, livestock trailing on the South Trail system has been occurring for over 100 years. Past and present livestock trailing is not negatively impacting the vegetation resources in the 58 allotments that intersect the South Trail system, since they either meet the Standards for Rangeland Health or if they do not, it was not caused by livestock trailing.

4.2.6.2 Impacts/Effects from Reasonably Foreseeable Future Actions

Reasonably foreseeable actions would likely continue to include livestock trailing, therefore, impacts to the vegetation resource will likely continue as they have in the past

4.2.6.3 Cumulative Impacts

Alternative 1 – Proposed Action

Cumulative impacts from trailing would likely continue as they have in the past. Livestock trailing would continue according to the goals and objectives set forth in the KFO RMP and the Standards for Rangeland Health.

Alternative 2 – No Livestock Trailing

If producers truck their livestock, it may reduce the impacts to the soils in some portions of the trails. However, this improvement may come at the expense of dramatic impacts to the vegetation resource at the loading and unloading sites. The plants will be heavily impacted by the weight of the tractor-trailer rigs carrying the animals. The weight of the truck can kill woody species such as sage and rabbitbrush. Bunchgrass root crowns can be broken or crushed by the weight of a tractor-trailer. If the soil is damp, wet or unstable, displacement is very likely and can result in some plant mortality.

The concentration areas in and around the corrals, and routes leading to them, will experience short-term extreme impact levels when animals are loaded and unloaded there. The long term impacts are likely to result in reduced plant vigor and density as well as a community shift to species that are more grazing tolerant. If the same site is used every year, the corral site may eventually become so nutrient laden and dense that no plants grow there at all.

4.2.7 Cumulative Effects - Water Resources

4.2.7.1 Impacts from Past and Present Actions

Historically, livestock trailing on the South Trail system has been occurring for over 100 years. Past and present livestock trailing is not negatively impacting the water resources in the 58 allotments that intersect the South Trail system, since they either meet the Standards for Rangeland Health or if they do not, it was not caused by trailing.

4.2.7.2 Impacts/Effects from Reasonably Foreseeable Future Actions

Reasonably foreseeable actions would likely continue to include livestock trailing, therefore, impacts to the vegetation resource will likely continue as they have in the past

4.2.7.3 Cumulative Impacts

Alternative 1 – Proposed Action

Cumulative impacts from trailing would likely continue as they have in the past. Livestock trailing would continue according to the goals and objectives set forth in the KFO RMP and the Standards for Rangeland Health.

Alternative 2 – No Livestock Trailing

If producers truck their livestock, this action may reduce the impacts to the water resources in some portions of the trails. However, this improvement comes at the expense of potential impacts to the water resource on the roads and at the loading/ unloading sites.

This action would require that the livestock be hauled to their final grazing destination. This would mean that tractor-trailer semis would be hauling livestock at certain times, regardless of the weather as long as the roads were passable. Heavy trucks cause degradation of roads or grasslands when they are driven on them, even when the roads are dry. This degradation includes soil compaction, tearing and crushing plants (especially when turning) and displacement of soil (kicking up dust (dry soil) or digging ruts (wet soil)). The displacement of soils, regardless of placement opens up sites that can collect or channel runoff precipitation.

Due to the reduced vegetative cover and increased soil density there, the concentration areas in and around the corrals, and routes leading to them will produce increased runoff. Because of the site's use, there is a high potential that animal waste nutrients, bacteria and soil particles will be carried by the runoff and potentially reach surface streams, impairing their function and safety.

4.2.8 Cumulative Effects - Wildlife and Wildlife Habitat

4.2.8.1 Impacts from Past and Present Actions

Past and present actions that have occurred within the project area include oil and gas exploration and production activity with associated infrastructure, fossil quarries, interstate gas pipelines, coal mining, recreational opportunities and livestock grazing/trailing. Another effect for wildlife habitat is the creation of small ranches that have led to segmenting of wildlife habitat and is cutting off access for wildlife and their migration routes. Recreational opportunities (i.e. recreational hunting), along with livestock grazing, have typically occurred throughout the project area. Presumably the largest impact to wildlife species in the past has been from energy production (i.e., oil and gas, mining). This impact is due to the disturbance to wildlife that typically used those areas. Wildlife typically avoids areas of high activity, but will return to the area after drilling and mining activity decreases. Wildlife species have been observed in the recent past using these areas that are currently under oil and gas production.

4.2.8.2 Impacts/Effects from Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions include the continuation of oil and gas exploration and production, continuation of coal mining with the possibility of mine expansion, continuation of fossil quarries and recreational opportunities, livestock grazing/trailing, future interstate natural gas pipelines and the creation of small ranches. Impacts from all of these potential activities were previously discussed.

4.2.8.3 Cumulative Impacts

Alternative 1 – Proposed Action

Cumulative impacts to big game would be directly impacted through competition by foraging livestock during trailing. This would impact big game in different ways. Pronghorn numbers are above or meeting WGFD population levels therefore the cumulative impact due to trailing is expected to be minimal.

The largest impact to other species beyond big game includes habitat loss and displacement. The addition of livestock trailing could also contribute to nest trampling or abandonment, burrow collapse impacting fossorial wildlife, forage competition between livestock and small mammals, a reduction in insect populations and reduced vigor in plant species. By implementing the proposed terms and conditions, the chances of nest loss through trampling or abandonment would be reduced.

Reducing the impacts to the water sources or riparian areas by requiring rest areas ¼ mile away, would allow the vegetation the ability to retain the vigor needed to withstand high flow precipitation events. In addition, there would be less grazing pressure on the vegetation which would allow insect populations to remain viable. Viable insect populations would help nourish young birds until they are able to forage themselves. These insect populations would also be valuable for amphibians during different life stages of their life cycle and would provide a food source for fish populations. By reducing the impacts through the proposed terms and conditions, overall impacts are not expected to increase beyond current conditions.

Alternative 2 – No Livestock Trailing

If Alternative 2 were chosen, impacts from all activities would be similar to those described under Alternative 1 due to allotment related grazing still occurring throughout the trailing corridor. The main difference is that there could potentially be slightly lower impacts in riparian areas and groves of aspen trees. This would be due to the decrease of concentrated grazing in these areas during trailing activities. Due to less grazing pressure along the riparian areas, there would be an increase in grass, forb and woody species both in quantity and diversity. Increasing the amount or number of riparian species present could increase the use of riparian areas by wildlife and could potentially increase overall wildlife population numbers and distribution. For example, increasing a majority of the riparian vegetation would improve insect production. An increase in insect populations could positively impact sage-grouse brood rearing and northern leopard frogs. A decrease in soil compaction could result in fewer run-offs from the uplands into streams. This could decrease the amount of sediment being supplied to the streams which could improve spawning habitat for fish and amphibians.

Similar impacts could be observed in aspen stands. Livestock normally use these areas for shade. The less livestock that are in these areas, the more saplings will be produced. Sapling production would be increased by less grazing/browsing on the new saplings and lower soil compaction. Less soil compaction would encourage water infiltration. Both impacts could eventually cause stands of aspen trees to be improved in the landscape.

An impact that could also occur would be an increase in vehicle traffic due to potential trucking of livestock. This could increase the possibility of removal of wildlife species due to vehicle collisions and by increased access if roads are improved or new roads are constructed. Sage-grouse populations could also be negatively affected due to the increase of traffic on less improved roads where nesting and brood rearing take place as well as near active leks. These impacts could be minimized through stipulations on when trucking can occur throughout the year and where roads are improved.

4.3 Mitigation Measures Considered

The Proposed Action will focus analyses on the importance of protecting sensitive areas within the one mile buffer in sections designated for overnight use. The following guideline #8 from the *Kemmerer Field Office Policy Statement on Livestock Trailing* (ROD, 2.2.1.2 *Guidelines for Livestock Trailing*) will be provided to anyone issued a trailing permit:

The BLM may provide trailing applicants with a map showing where livestock camps will or will not be authorized. Livestock camps typically will not be authorized within ¼ mile of sensitive areas such as (but not limited to): recent fire locations, recent vegetation treatments,

sensitive or endangered plant species habitat, riparian and wetland areas, sage grouse leks during the lekking period, national historic sites and some portions of the national historic trails.

BLM will consider marking the BLM property boundary on a three mile section of trail every ¼ mile on both sides of the trail in the Altamont and the Boilers Draw allotments, as in these areas the corridor is not obvious.

All authorized future ground disturbing activities in the Area of Potential Effect (APE) must comply with Section 106 of the National Historic Preservation Act (NHPA) and are subject to appropriate cultural investigations prior to permit issuance, and will be analyzed under a separate and site specific NEPA document. The construction of new facilities, including fences or roads, would require a Class III cultural inventory. All adverse impacts would be mitigated prior to construction. The following stipulations are required to prevent inadvertent adverse impacts to cultural resources within the analysis area:

- Authorization is for standard livestock grazing only. Any related projects (e.g. fence lines, water pipelines and troughs, spring developments, reservoirs, etc.) and locations for feed supplements (e.g. “crystalyx” & other mineral feed supplements, etc.) within the allotment boundaries require separate authorizations.
- In order to protect the remaining trail corridors in the southern portion of the Carter Lease Allotment, all supplemental feed, salt/mineral blocks, or any other measures that would artificially concentrate livestock in one place should be kept to a minimum of ¼ mile from the Oregon-California Trail and related NHT variants, as shown on the attached map. This stipulation applies specifically to federal surface as listed in Tables 2 and 3 [documents available upon request]. In addition, adherence to this ¼ mile buffer zone is recommended along those segments of NHT located on non-federal surface. Alternatively, a Class III inventory could be conducted of any proposed salt lick site located within ¼ of the trail in order to minimize new impacts to the trail setting.
- In order to ensure that historic properties are not being impacted by livestock grazing and that the permittees are complying with this no impact agreement, periodic inspections of known historic properties will be required. In addition, Rangeland Management Specialists will keep the Cultural Resources staff fully informed concerning areas of livestock congregation and all areas subject to impacts. This information will be disclosed to the Cultural Resources staff members as these areas become known.
- If future grazing activity within the allotment boundaries should expose previously undetected cultural resources or if BLM determines that significant historic properties are being damaged by grazing activities within the allotment boundaries, the terms and conditions will be amended to protect any such historic properties until such time as protective barriers and/or mitigation of these adverse impacts can be conducted.

These measures will be considered for incorporation into the Terms and Conditions of the permit.

5.0 TRIBES, INDIVIDUALS, ORGANIZATIONS, or AGENCIES CONSULTED

The tribes that were historically present in the area of the Proposed Action include the Eastern Shoshone, Shoshone-Bannocks, Northern Arapahoe, and Northern Ute. The types of cultural sites that may have traditional, religious, or cultural values to the tribes include rock art, plant gathering locations, burials, and stone cairns, circles and alignments. Native American consultation was not conducted because BLM’s analysis demonstrated that livestock trailing has no potential to affect historic properties and the types of cultural resources that may have traditional, religious, or cultural values to the tribes.

Individuals, organizations, or agencies consulted are as follows:

BLM Shoshone Field Office, Idaho
BLM Rawlins Field Office, Wyoming
BLM Rock Springs Field Office, Wyoming
Broadbent, Vance (JR Broadbent Grazing Association LLC)
Fearneyhough, Jason (Wyoming Department of Agriculture)
Feeley, Ed
Fuez, Bridger (University of Wyoming Cooperative Extension: referred BLM to University of Idaho information)
Goertel, Mark (BLM State Range Lead)
Hewlett, John
Julian, Truman (Julian Land and Livestock)
Kreutzer, Lee (Archeologist, National Park Service)
Larson, Carl (Larson Livestock Inc.)
Moline, Brett
Netherly, Pat
Oaks, Mike and Tara (High Point Ranches)
Powers, Mick (Uinta County Commission Chairman)
Ratner, Jonathan (Western Watersheds Project)
Sims, Mike & Shaun (Sims Sheep Co. LLC)
South, Erik, S Bar S Trucking
Taylor, David T. (Tex) (University of Wyoming)
Thornock, Brady (Kay Thornock & Sons Ranch)
University of Idaho Extension
U.S. Fish and Wildlife Service, Wyoming
Wall, Dan and Freda, Wall Trucking
Welling, Gary (Uinta County Planning Office – GIS Coordinator)
Western Wyoming Range Limited Partnership
Wichmann, Chris (Wyoming Department of Agriculture)
Williams, Justin (Wyoming Department of Agriculture)
Williams, Kent (Uinta County Planning Office)
Wyoming Department of Transportation
Wyoming Game and Fish Department
Wyoming State Historic Preservation Office

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6.1 List of Reviewers

Basia Trout, Assistant Field Manager
Scott Whitesides, Planning and Environmental Coordinator (2012)
Kimberlee Foster, High Desert District Resource Advisor

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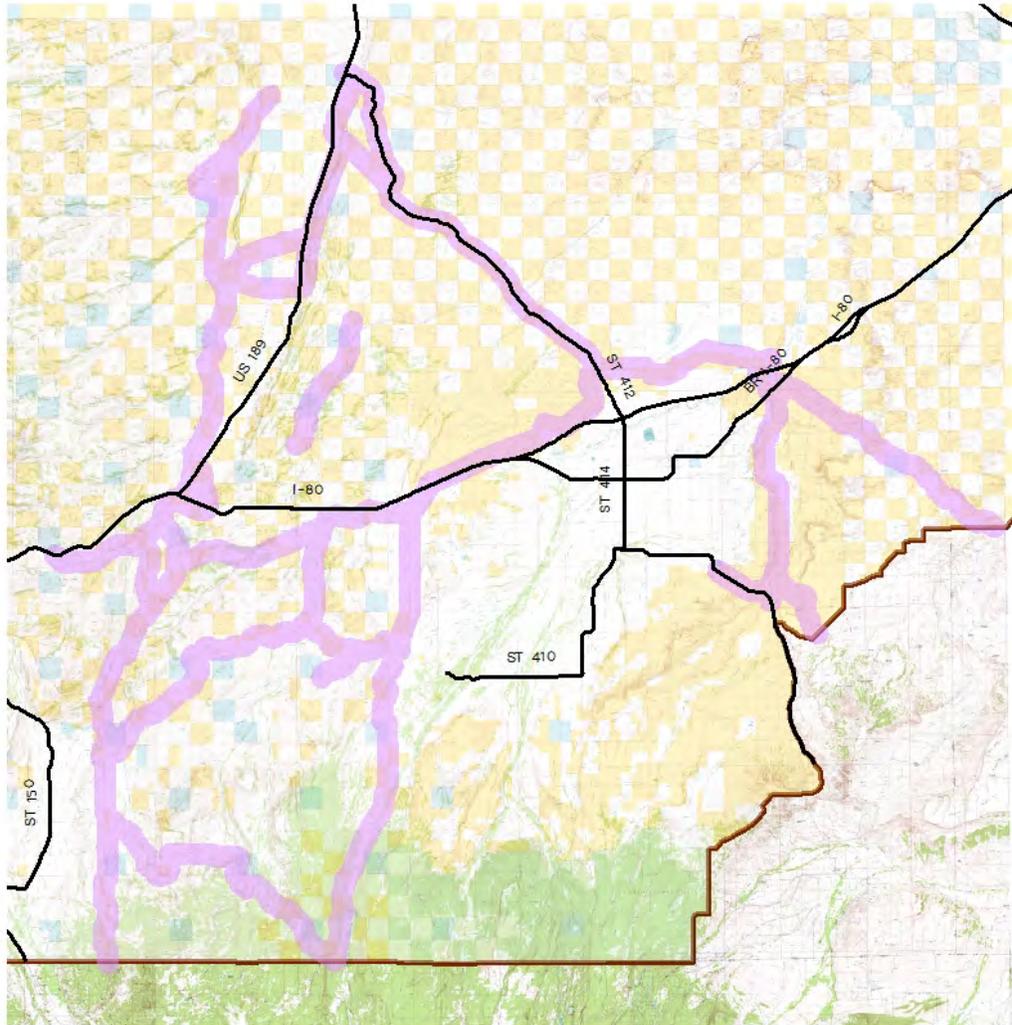
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8.0 APPENDICES

8.1 APPENDIX 1 – MAPS

Map 1, Land Ownership, South Trail System and Trail Buffer



- Major Roads
- Trail 1 Mile Buffer
- Kemmerer Field Office Boundary
- Bureau of Land Management
- Forest Service
- Private
- State

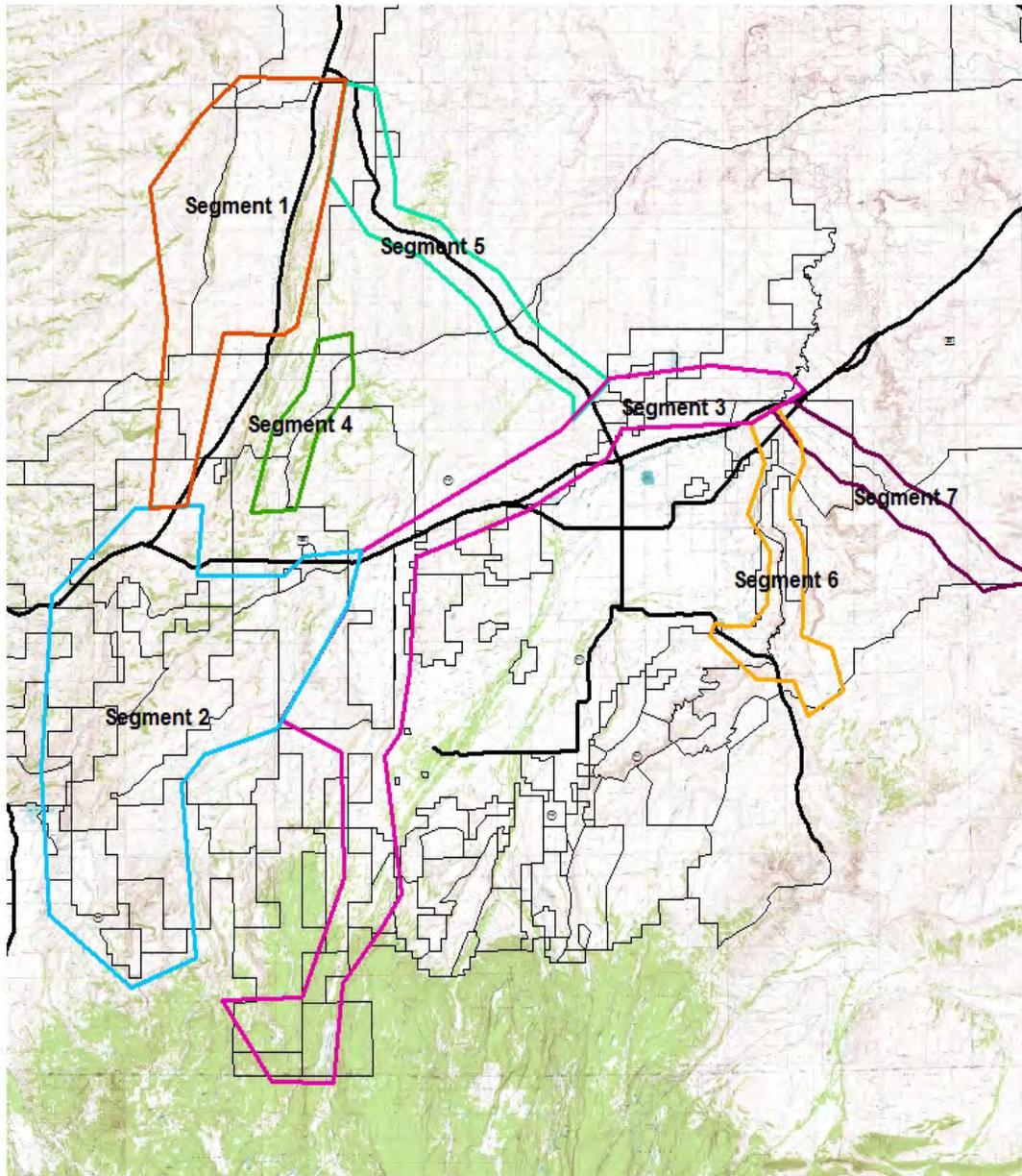


South Trail Network

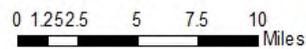
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Map 2, South Trail Segments

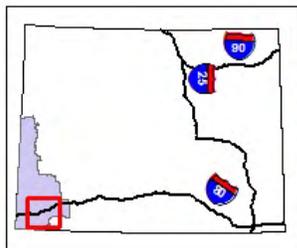
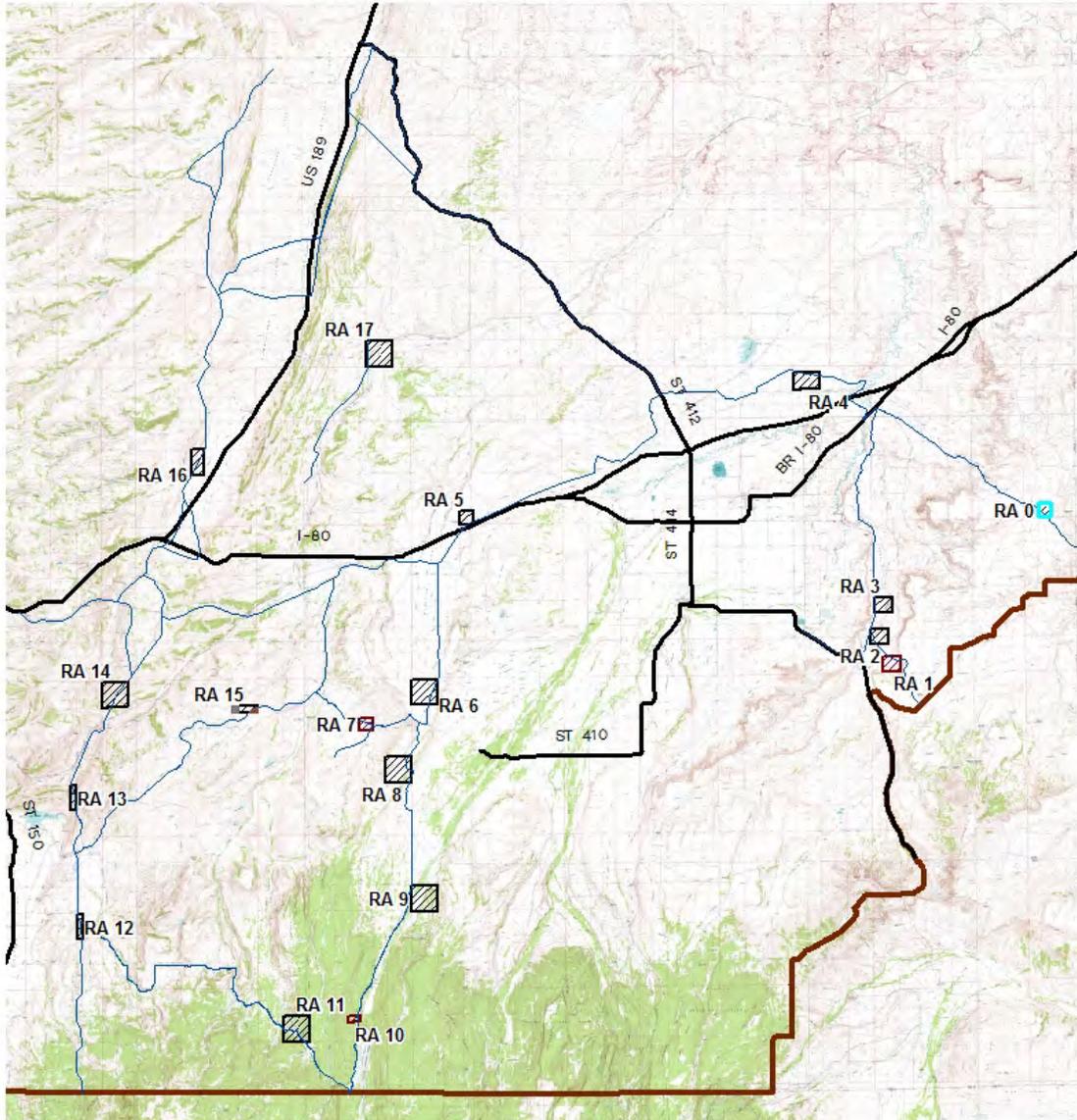


South Trail Segments



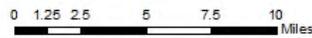
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Map 3, Rest Areas, No Camp Areas



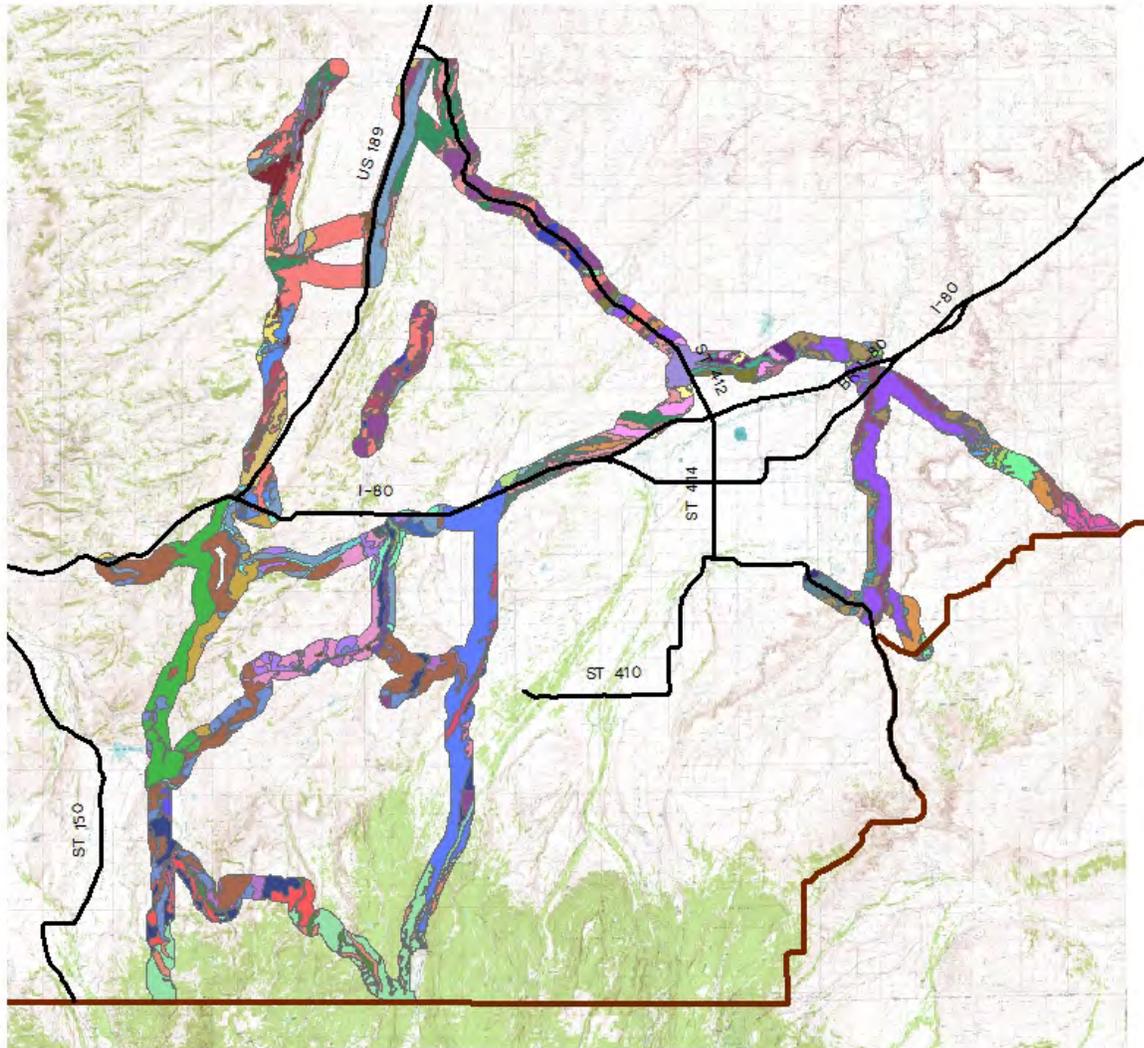
- Major Roads
- Kemmerer Field Office Boundary
- Resting Stations**
- Rest_Stops**
- ▨ Noon Stop
- ▨ Overnight
- S_Trail_1_ft

South Trail Network Rest Areas



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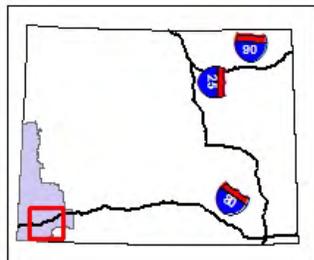
Map 4, South Trail Soils



**South Trail Network
Soil Types**

0 1.25 2.5 5 7.5 10
Miles

— Major Roads
 Kemmerer Field Office Boundary



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

MUSYM	134	200	217	39	69
1	135	201	218	49	6
10	136	202	221	5	60
100	137	203	222	80	61
103	138	204	223	51	62
106	14	205	225	512	63
108	140	208	226	52	64
125	141	209	27	520	65
126	142	210	28	53	67
127	144	211	29	54	68
128	146	214	3	55	98
131	160	215	32	56	99
133	199	216	38	57	

See Following Page For Soil Type Descriptions

SOILS DESCRIPTIONS

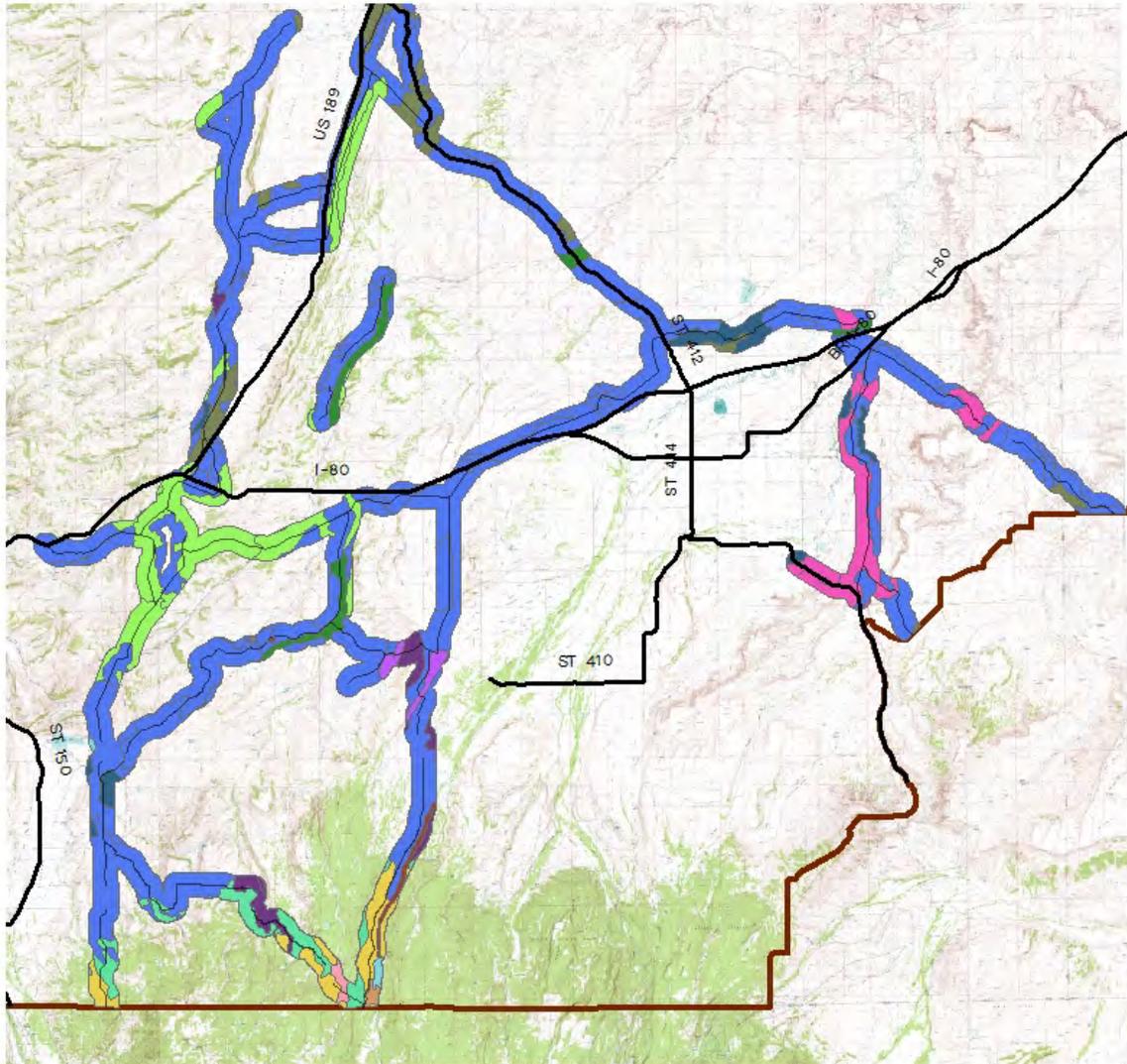
- **1—Millburne sandy loam, 0 to 2 percent slopes--**Shallow Loamy (foothills And Basins West)
- **3—Millburne-Millburne taxadjunct sandy loams, 0 to 2 percent slopes--**Subirrigated (foothills And Basins West)
- **5—Groshon sandy loam, 0 to 2 percent slopes--**Upland Loam (mountain Big Sagebrush)
- **6—Millburne-Poposhia complex, 2 to 10 percent slopes--**Loamy (foothills And Basins West)
- **10—Lassel-Tisworth complex, 0 to 2 percent slopes--**Subirrigated (foothills And Basins West)
Saline Subirrigated (foothills And Basins West)
- **14—Feltner-Badland-Cragosen complex, 3 to 60 percent slopes--**Shallow Loamy (green River - Great Divide Basins)-(Badland)-Shallow Loamy, Calcareous (green River - Great Divide Basins)
- **27—Tisworth fine sandy loam, 0 to 6 percent slopes--**Saline Lowland, Drained (foothills And Basins West)
- **28—Garsid-Haterton complex, 3 to 20 percent slopes--**Loamy (Green River, Great Divide Basin)-
Shallow Ly (Green River, Great Divide Basin)
- **29—Garsid-Haterrmus loams, 3 to 20 percent slopes--** Loamy (Green River, Great Divide Basin)-
Shallow Ly (Green River, Great Divide Basin)
- **32—Blacksfork complex, 0 to 2 percent slopes--** Subirrigated (green River - Great Divide Basins)
- **38—Badland, 3 to 30 percent slopes--**Badland
- **39—Badland, 30 to 100 percent slopes--**Badland
- **49--Feltner-Piezon complex, 0 to 3 percent slopes--** Shallow Loamy (foothills And Basins West)-
Loamy (foothills And Basins West)
- **50—Feltner-Piezon loams, 3 to 6 percent slopes--** Shallow Loamy (foothills And Basins West)
Loamy (foothills And Basins West)
- **51—Feltner-Piezon loams, 6 to 15 percent slopes-** Shallow Loamy (foothills And Basins West)-
Loamy (foothills And Basins West)
- **52—Feltner-Piezon loams, 0 to 6 percent slopes—**Undescribed-Undescribed
- **53—Polaris-Brynie fine sandy loams, 3 to 20 percent slopes--** Shallow Loamy (foothills And Basins West)-
Shallow Loamy (foothills And Basins West)
- **54—Polaris-Badland complex, junipers, 10 to 60 percent slopes--** Shallow Breaks (foothills And Basins West)
- **55—Langspring-Piezon loams, 0 to 10 percent slopes--** Undescribed-Undescribed
- **57—Lardell-Shellcreek-Yamo complex, saline, 0 to 3 percent slopes--** Saline Subirrigated (green River - Great Divide Basins)-
Saline Lowland, Drained (green River - Great Divide Basins)-Saline Lowland, Drained (green River - Great Divide Basins)
- **59—Kandaly-Teagulf-Pepal complex, 3 to 25 percent slopes 60--** Sands (Green River/Great Divide Basin)-
Sandy (Green River/Great Divide Basin)-Sandy (Green River/Great Divide Basin)
- **60—Lachapella-Lassel complex, occ. flooded, 0 to 4 percent slopes--** Lowland (foothills And Basins West)-
Subirrigated (foothills And Basins West)
- **61—Lachapella-Lassel loams, 0 to 2 percent slopes, rarely flooded--** Lowland (foothills And Basins West)-
Subirrigated (foothills And Basins West)

- **62—Lachapella loam, saline, 0 to 3 percent slopes--** Saline Lowland (foothills And Basins West)
- **63- Feltner-Byrnie,Mollic-Spearpoint complex, 3 to 35 percent slopes--** Mtn Stoney Loam-Mtn Browse-populus tremuloides/SYOR
- **64—Feltner-Byrnie,Mollic-Spearpoint complex, 3 to 35 percent slopes-** Shallow Loamy (foothills And Basins West)-Shallow Loamy (foothills And Basins West)
- **65—Langspring-Langspring, saline-Obadia complex, 0 to 6 percent slopes--** Loamy (Foothills/Basins West)-Saline Upland (Foothills/Basins West)-Saline Lowland, drained (Foothills/Basins West)
- **67—Pepal fine sandy loam, 1 to 8 percent slopes --** Sandy (green River - Great Divide Basins)
- **68--Teagulf-Conpeak fine sandy loams, 1 to 15 percent slopes—**Shallow Sandy (green River - Great Divide Basins)- Sandy (green River - Great Divide Basins)
- **98--Denied Access--**Undescribed
- **99—Pits-Dumps complex—**Undescribed
- **100—Water--**Undescribed
- **102—Polaris-Megonot-Tabyago complex, 6 to 60 percent slopes--** Shallow Breaks (foothills And Basins West)- Upland Loam (mountain Big Sagebrush-Shallow Breaks (foothills And Basins West)
- **103—Tridell-Emlin gravelly loams, 3-20 percent slopes--** Shallow Loamy (foothills And Basins West)- Loamy (foothills And Basins West)
- **106—Woodpass-Tisworth complex, 0 to 10 percent slopes--** Loamy (foothills And Basins West)- Saline Lowland, Drained (green River - Great Divide Basins)
- **125—Sandbranch-Kandaly-Westvaco, 0 to 20 percent slopes--** Saline Upland (green River - Great Divide Basins)-Sands (green River - Great Divide Basins)
- **126—Rock River-Piezon complex, 0 to 6 percent slopes--** Loamy (green River - Great Divide Basins)- Shallow Loamy (green River - Great Divide Basins)
- **127—Piezon-Tieside loams, 1 to 3 percent slopes--** Shallow Loamy (green River - Great Divide Basins)- Shallow Loamy (green River - Great Divide Basins)
- **128—Pepal-Elk Mountain complex, 1 to 6 percent slopes** Sandy (green River - Great Divide Basins)- Loamy (green River - Great Divide Basins)
- **131—Sandbranch-Westvaco-Kandaly, loamy substratum complex, 0 to 15 percent slopes--** Saline Upland (green River - Great Divide Basins)-Saline Upland (green River - Great Divide Basins)-Sandy (green River - Great Divide Basins)
- **133—Tisworth-Kandaly, loamy substratum-Havermom complex, 0 to 30 percent slopes--** Saline Lowland, Drained (green River - Great Divide Basins)- Sandy (green River - Great Divide Basins)- Shallow Clayey (green River - Great Divide Basins)
- **134—Mishak-Sandbranch-Crestvale complex, 0 to 3 percent slopes--** Saline Subirrigated (green River - Great Divide Basins)- Saline Lowland (green River - Great Divide Basins)- Saline Subirrigated (green River - Great Divide Basins)
- **135—Tisworth-Quealman complex, 0 to 8 percent slopes--** Saline Lowland, Drained (green River - Great Divide Basins)-Overflow (green River - Great Divide Basins)

- **136—Sandbranch-Westvaco-Blazon complex, 0 to 25 percent slopes--** Saline Upland (green River - Great Divide Basins)-Shale (green River - Great Divide Basins)-Shallow Loamy (green River - Great Divide Basins)
- **137—Polaris-Tisworth-Rockinchair complex, 0 to 60 percent slopes--** Shallow Loamy (green River - Great Divide Basins)-Saline Lowland, Drained (green River - Great Divide Basins)- Shallow Loamy (green River - Great Divide Basins)
- **138—Rickman-Tisworth loams, 0 to 6 percent slopes--** Shallow Loamy (green River - Great Divide Basins)-Saline Upland (green River - Great Divide Basins)
- **140—Scully-Langspring silt loams, 1 to 20 percent slopes--** Saline Upland (green River - Great Divide Basins)-Loamy (green River - Great Divide Basins)
- **141—Langspring, clayey substratum-Luhon complex, 0 to 20 percent slopes--** Loamy (green River - Great Divide Basins)-Shallow Loamy, Calcareous (green River - Great Divide Basins)
- **142—Blazon-Byrnie-Chaperton complex, 0 to 40 percent slopes, Utah juniper --** Shallow Loamy (foothills And Basins West)- Shallow Breaks (foothills And Basins West)-Sandy (foothills And Basins West)
- **144—Ustic Haplocambids-Ustic Natrargids complex, G-Salt-Winterfat areas, 0 to 6 percent slopes--**Saline Upland (green River - Great Divide Basins)-Limy Cold Desert
- **146—Fiveoh-Rockinchair association, Sandy Hills, 0 to 8 percent slopes--** Sandy (green River - Great Divide Basins)- Loamy (green River - Great Divide Basins)
- **150 Brownsto-Fonce complex, 0 to 6 percent slopes—**Coarse Uplands (Foothills and Basin West)-Loamy (Foothills and Basin West)
- **199—Crooked Creek-Kiev complex, 0 to 6 percent slopes--** Subirrigated (foothills And Mountains West)- Mountain Loam (mountain Big Sagebrush)
- **200—Polaris-Kiev-High loams, 3 to 30 percent slopes--** Dense Clay (foothills And Mountains West)-Mountain Loam (mountain Big Sagebrush- Mountain Loam (shrub)
- **201—Dast-Kiev loams, 3 to 30 percent slopes--** Upland Loamy Shale (low Sagebrush)-Upland Loam (mountain Big Sagebrush)
- **202—Polaris-Badland complex, 10 to 60 percent slopes --**Upland Loamy Shale (low Sagebrush)-Badland
- **203—Meagher-Hilger sandy loams, 0 to 6 percent slopes--** Mountain Loam (mountain Big Sagebrush)-Mountain Shallow Loam (mountain Big Sagebrush)
- **204—Meagher-Beeno-Hilger complex, 3 to 30 percent slopes--** Mountain Loam (mountain Big Sagebrush)-Mountain Loam (mountain Big Sagebrush)-Mountain Loam (mountain Big Sagebrush)
- **205—Dast-Helper-Gladlow complex, 3 to 40 percent slopes--**Mountain Shallow Loam (mountain Big Sagebrush)- Mountain Loam (mountain Big Sagebrush)-Dense Clay (foothills And Mountains West)
- **208—Polaris-Roundor-Badland complex, 3 to 60 percent slopes--** Mountain Shallow Loam (low Sagebrush)-Mountain Loam (mountain Big Sagebrush)-Badland
- **209—Uinta-Sessions-Leavitt complex, 2 to 15 percent slopes--** High Mountain Stony Loam (mixed Conifer)- High Mountain Loam (aspen)- Mountain Loam (mountain Big Sagebrush)

- **210—Uinta-Sessions-Leavitt complex, 15 to 50 percent slopes—** High Mtn Stoney Loam-High Mtn Loam-Mtn Loam-
- **211—Dastrup-Fewkes complex, 10 to 50 percent slopes--** Mountain Loam (mountain Big Sagebrush)- Mountain Loam (shrub)
- **214—Bigbench--** Shallow Loamy Calcareous(FH/B)
- **215—Morset-Teeler-Typic Calciustolls complex, 0 to 6 percent slopes-** Mountain Loam (mountain Big Sagebrush)- Mountain Stony Loam (mountain Big Sagebrush)- Upland Stony Loam (mountain Big Sagebrush)
- **216—Teeler-Morset-Delridge complex, 10 to 60 percent slopes--** Mountain Loam (mountain Big Sagebrush)- Shallow Clayey (foothills And Mountains West)- Gravelly (foothills And Basins West)
- **217—Decross-Auzqui-Youga complex, 15 to 50 percent slopes--** Mountain Loam (mountain Big Sagebrush)-Mountain Loam (mountain Big Sagebrush)- Mountain Stony Loam (browse)
- **218—Anchutz-Brownsto complex, 1 to 6 percent slopes--** Loamy (foothills And Basins West)- Shallow Loamy, Calcareous (foothills And Basins West)
- **221—Yamo-Pricecreek consociation, 1 to 6 percent slopes--** Shallow Clayey (foothills And Basins West)
- **222—Doohin-Kiev complex, 1 to 20 percent slopes-** Shallow Clayey (foothills And Mountains West)- Mountain Loam (mountain Big Sagebrush)
- **223—Boxwell-Shurtleff complex, 1 to 20 percent slopes--** Mountain Loam (mountain Big Sagebrush)-Shallow Clayey (swcy) 15-19" Foothills And Mountains
- **225—Shurtleff-Woodruff complex, 6 to 40 percent slopes—** Mountain Shallow Loam (low Sagebrush)-Mountain Loam (shrub)
- **226—Riptup-Pantsleff complex, 1 to 6 percent slopes--**Mountain Loam (shrub)-Mountain Shallow Loam (low Sagebrush)
- **512-Hovarka-Millcreek loams, 0 to 4 percent slopes--** Interzonal Wet Fresh Meadow-High Mtn Loam
- **520—Snyderville cobbly loam, 1 to 5 percent slopes--** Mountain Gravelly Loam (mountain Big Sagebrush)

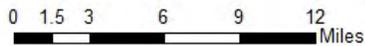
Map 5, South Trail Vegetation



**South Trail Network
Vegetation Communities**



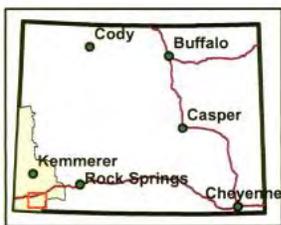
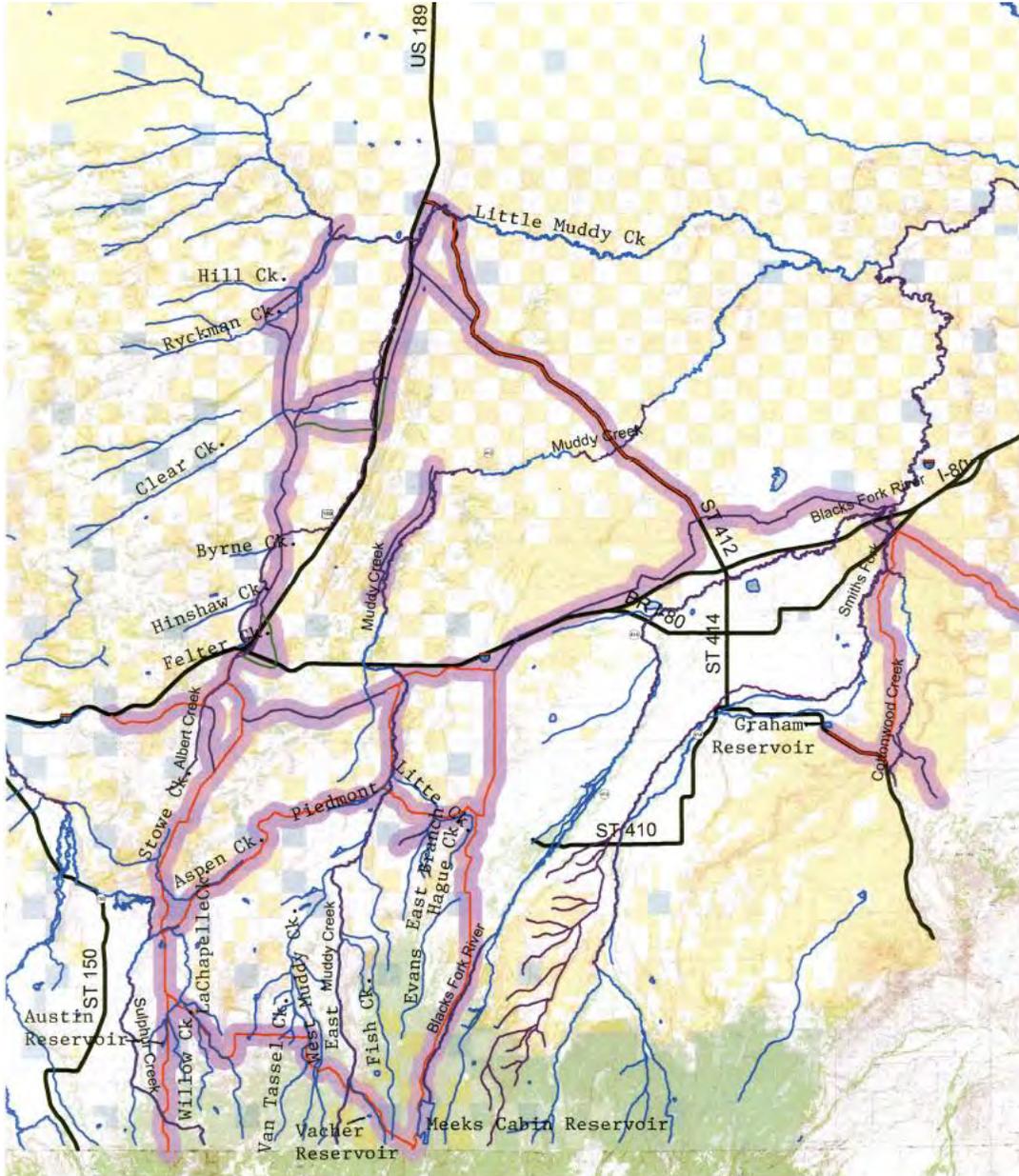
- | | |
|----------------------------------|----------------------------|
| — Major Roads | ■ Irrigated crops |
| ▭ Kemmerer Field Office Boundary | ■ Juniper woodland |
| S_Trail_Veg_clip | ■ Lodgepole pine |
| DESCRIPT1 | ■ Mountain big sagebrush |
| ■ Aspen forest | ■ Open water |
| ■ Basin exposed rock/s oil | ■ Shrub-dominated riparian |
| ■ Clearcut conifer | ■ Subalpine meadow |
| ■ Desert shrub | ■ Wyoming big sagebrush |
| ■ Forest-dominated riparian | ■ Xeric upland shrub |



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

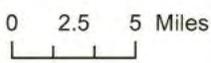


Map 6, South Trail Water



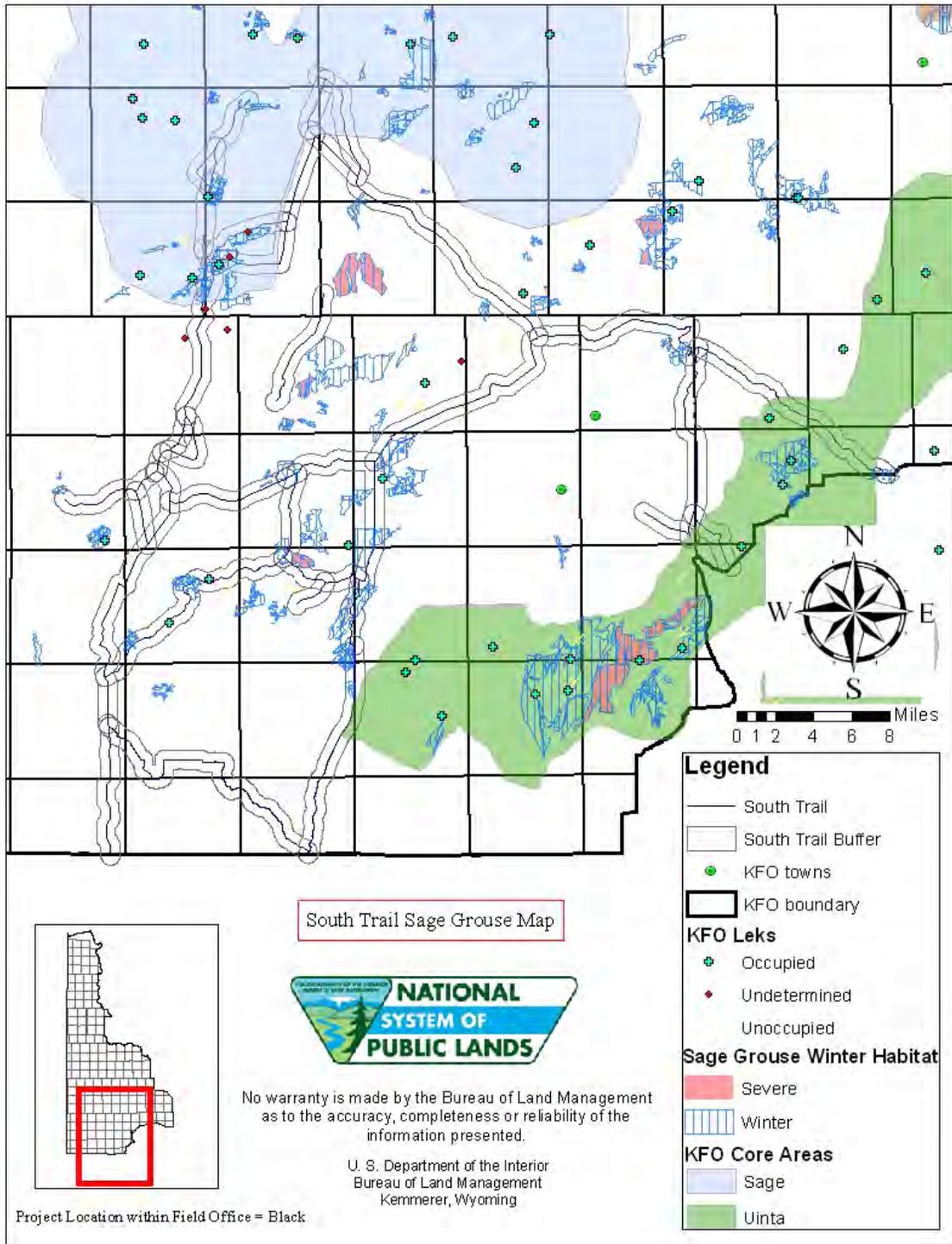
- Water Bodies Labeled
- 303d_2008_wy
- perennialia arc
- my_streams arc
- Livestock Trails
- Off-Road Trail
- Road Right-of-way
- Traditional Trail
- Major Roads
- Trail 1 Mile Buffer
- Bureau of Land Management
- Forest Service
- Private
- State

South Trail 2014 Water

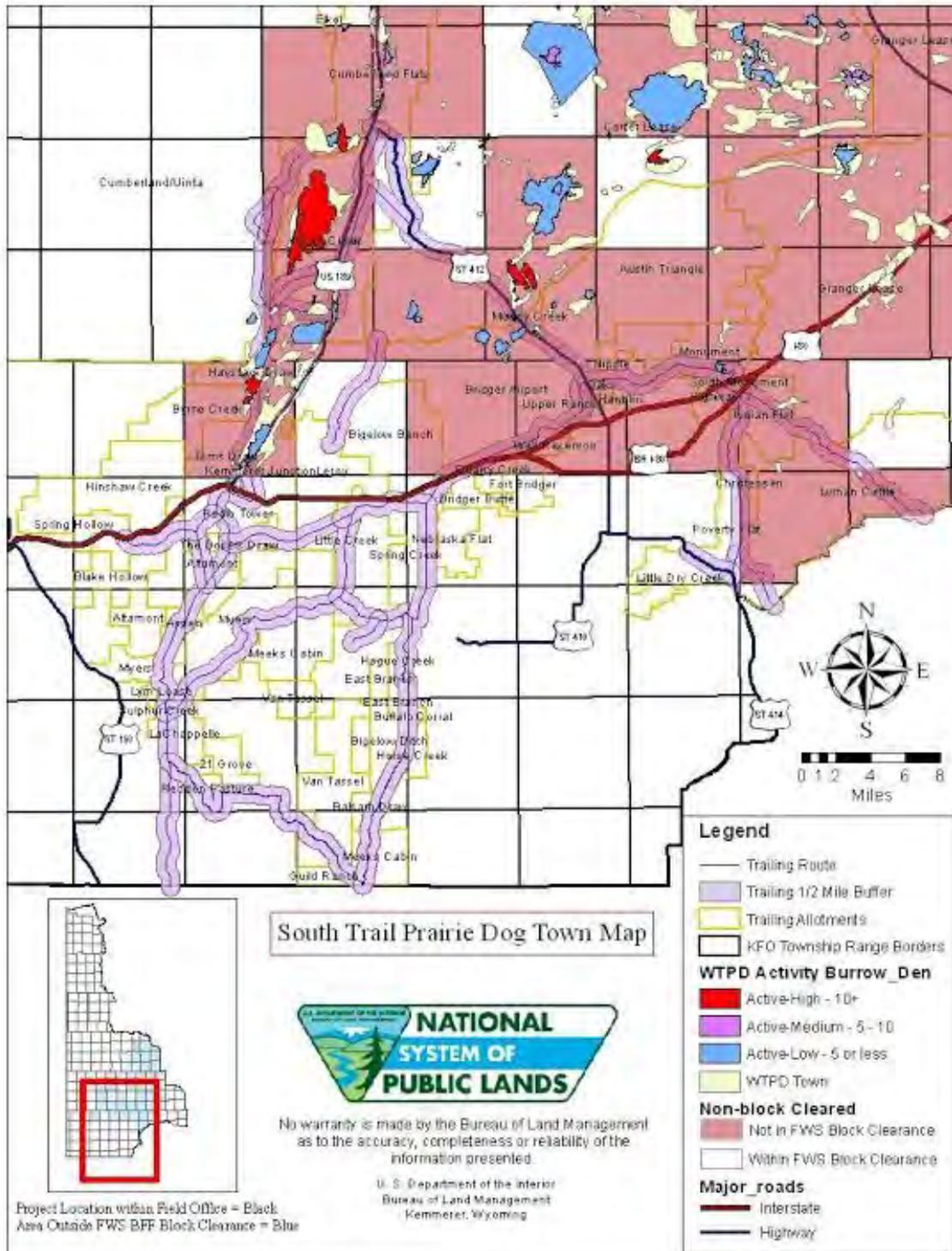


NO WARRANTY IS MADE BY THE BUREAU OF LAND MANAGEMENT FOR USE OF THE DATA FOR PURPOSES NOT INTENDED BY BLM.

Map 7, Sage Grouse Core



Map 8, Prairie Dog Towns



8.2 APPENDIX 2 - Public Scoping Comments

	Commentor	Comment	Response
1	Ed Feeley, UD Co./ALC	Where the trail follows an unfenced road or right-of-way: Where these trails cross private lands, do you propose obtaining private land owner permission prior to issuing trailing permits?	The Kemmerer RMP, Record of Decision (2.2.1.2 Guidelines for Livestock Trailing, p. 2-59) states: <i>Trailing permits only authorize trailing on BLM administered Federal land. Livestock operators must obtain permission to cross other public, state or private lands from the appropriate authority.</i>
2	Ed Feeley, UD Co./ALC	Where the trail follows an unfenced road or right-of-way, how do you propose to authorize trailing across the Uinta Development Company lands in the Lyman Cattle and Spring Creek Allotments?	The Kemmerer RMP, Record of Decision (2.2.1.2 Guidelines for Livestock Trailing, p. 2-59) states: <i>Trailing permits only authorize trailing on BLM administered Federal land. Livestock operators must obtain permission to cross other public, state or private lands from the appropriate authority.</i>
3	Ed Feeley, UD Co./ALC	Will the trails in the Albert Creek Allotment be incorporated into this planning effort and made a part of any planning document issued on the allotment?	Albert Creek Allotment is included in this EA and will be part of any future plans for this allotment.

	Commentor	Comment	Response
4	Ed Feeley, UD Co./ALC	Painter and Company trails sheep across BLM from north of Evanston to the Haystack Draw Allotment. Will this trail be added to the map?	Trailing from the Spring Hollow allotment to Haystack Draw would follow the existing trail through Segment 2 and Segment 1 (Appendix 1, Map 3). Trailing events that last less than eight hours with no overnight stops are defined as “crossings” and were not added to the historic trails. Crossing may occur anywhere in the field office.
5	Brady Thornock	There is a three mile portion of the south trail located south of I80 and west of “The Boilers Draw” categorized in the map legend as “off-road trail”. The trail is mostly surrounded by private lands and there is a very acceptable alternate route to the east depicted as “road right-of-way” trail. I would appreciate the consideration of the BLM to decommission the three mile portion of “off-road trail” as most of the livestock trailing through the region follow the “road right-of-way”. This is prompted by the absolute abuse that occurs year after year on private lands...and will help mitigate damage caused to riparian zones by overgrazing.	<p>This section of “off-road trail” follows federal land, and was set aside specifically for trailing, and has water available for livestock on BLM. The 1 mile trail buffer overlaps onto private land. If the trailing livestock use the full mile buffer and cross onto private land, the owner of said livestock should obtain private property owner permission before trailing on private land.</p> <p>Trailing has occurred along this section of trail for over 100 years. The “alternate route” has not been used because water is not available.</p>

	Commentor	Comment	Response
6	Brady Thornock	If the BLM were to find the request to decommission the three mile portion of off-road trail unreasonable I would further encourage the agency to clearly mark the off-road trail every quarter mile on both the west and east sides of the trail so that persons trailing livestock will have a clear understanding of where the trail is at all times.	BLM will consider marking the BLM property boundary on this three mile section of trail every ¼ mile on both sides of the trail in the Altamont and The Boilers Draw allotments.
7	Brady Thornock	I would further ask the agency to make sure the trailing rules are complied with.	Reported issues of non-compliance with BLM authorizations will be dealt with according to CFR 4150 <i>Unauthorized Grazing Use</i> , and at the discretion of the Authorized Officer.
8	Mike and Tara Oaks, High Point Ranches	Acknowledge that private tracts of land along the trails will be used for: 1) rearing, feeding, grazing or management of livestock, 2) land is not part of a platted subdivision pursuant to 39-13-103(b)(x)(B) (11), and that 3) land is not being used for personal purposes currently, and we are allowing a marketing delay for economic advantage.	Authority to trail livestock is addressed in Section 1.3 <i>Relationship to Statutes, Regulations, Plans or Other Environmental Analyses</i> . Trailing permits only authorize trailing on BLM administered Federal lands within the designated trail boundaries. Livestock operators must obtain permission to cross other public, state or private lands and along highway rights-of-way from the appropriate authority. The BLM may require proof that permission was given the permittees to cross such lands prior to authorizing a trailing permit.

	Commentor	Comment	Response
9	Lee Kreutzer, Cultural Resources Specialist, Archaeologist, National Trails Intermountain Region, National Park Service	There is a concern of existing and potential impacts of livestock trailing to contributing segments and sites of the California, Oregon, Mormon Pioneer and Pony Express National Historic Trails. Is the segment identified on the map as “traditional trail” part of a designated NHT?	We are avoiding the term "historic trails" so that we will not confuse the old livestock trails with the National Historic Trails (NHTs). Therefore, we are using the term "traditional trails" to refer specifically to the old livestock trails, and using the term "historic trails" only for the NHTs.
10	Lee Kreutzer, Cultural Resources Specialist, Archaeologist, National Trails Intermountain Region, National Park Service	NHTs are not specifically identified among your preliminary issues. Are they subsumed under the category of Historic Properties, or has BLM identified no existing or potential impacts of livestock trailing on the national historic trails? In your analysis, please consider any potential impacts to the NHTs.	Analysis of potential effects of livestock trailing on NHTs is a primary focus, and NHTs is given individual consideration among the other historic properties.
11	Truman Julian, President, Western Wyoming Operating, Inc., General Partner for Western Wyoming Range LP	Trailing sheep and cattle in southwestern Wyoming from ranches to summer allotments and return, from winter pastures (allotments) to spring-fall ranges to summer ranges and return, from one pasture or allotment to another, from private lands to state leased lands to federal lands, and all combinations in-between has been a historical use for well over one hundred and fifty years.	The BLM recognizes the traditional cultural significance of livestock trailing's enduring history in this area and emphasizes this important heritage in our analysis. We acknowledge the fact that cultural sites located on the surface have been trailed over for 150 years and affected similarly by natural forces, producing the archeological record that is interpreted routinely. These aspects are an integral part of our analysis of potential impacts on cultural resources.

	Commentor	Comment	Response
12	Truman Julian, President, Western Wyoming Operating, Inc., General Partner for Western Wyoming Range LP	Much of this trailing of livestock is the act of moving livestock by riders on horses, motorized vehicles or on foot from one location to another. This, in many cases, involves moving the livestock down state highways or county roads. In other cases it involves crossing federal, state and private lands.	No response necessary.
13	Truman Julian, President, Western Wyoming Operating, Inc., General Partner for Western Wyoming Range LP	In most cases the purpose of trailing livestock is to move the livestock from one location to another and does not involve grazing the livestock as they are unable to eat as they are walking at a rapid pace. They normally travel a few miles to as high as ten to fifteen miles per day. In cases such as these, where the livestock leave one allotment or pasture and arrive at the next allotment or pasture in the same day, there should be no charge as there is no forage consumed.	Where “crossings” occur as a one day event with no overnight stops, authorizations will still be required and payment due three days prior to crossing. This “service charge” will apply according to CFR 4130.8-3. According to the Wyoming Rangeland Management Handbook, grazing is defined as “The eating of any kind of growing vegetation by livestock or wildlife.”
14	Truman Julian, President, Western Wyoming Operating, Inc., General Partner for Western Wyoming Range LP	In cases where the livestock require more than one day to go from one allotment or pasture to another and are trailing for the most part of each day, they are not grazing as they are moving the several miles they need to cover each day before arriving at the next allotment or pasture. In these cases, the flexibility needs to be available to pro-rate any AUMs consumed near the end of the day.	Trailing AUMs will be applied to those allotments where overnight camps are located.

	Commentor	Comment	Response
15	Truman Julian, President, Western Wyoming Operating, Inc., General Partner for Western Wyoming Range LP	The small amount of AUMs used are insignificant in trailing livestock from one pasture to another in most cases, especially in one or two day trailing requests. The forage availability varies from year to year depending upon the climatic conditions. Therefore a trailing permit form should be available whereby the BLM authorized officer could authorize livestock trailing at no charge, based on a telephone call or application in writing. (This was the BLM process during the 1960s.)	Where “crossings” occur from one pasture to another within a grazing allotment or between adjacent grazing allotments (or between their private or state leased property) where the permittee has grazing permits, additional trailing fees are not required. However, where the operator trails across an allotment authorized by another user, an application must be made. Authorizations to “cross” federal land are required by current regulations according to CFR 4130.8-1(b): <i>"Fees shall be charged for livestock grazing upon or crossing the public lands and other lands administered by the Bureau of Land Management at a specified rate per animal unit month."</i>
16	Truman Julian, President, Western Wyoming Operating, Inc., General Partner for Western Wyoming Range LP	Setting up “ten year” permits for each livestock operation will be an effort in futility, as livestock operations change from year to year. This depends upon a variety of considerations such as weather, numbers of livestock, changes in livestock operations on an annual basis, other options that may be available to access different allotments or pastures, etc.	An alternative to issue 10 year trailing permits was considered but eliminated from further consideration.

	Commentor	Comment	Response
17	Truman Julian, President, Western Wyoming Operating, Inc., General Partner for Western Wyoming Range LP	Livestock trailing permits are to move livestock from point A to point B, and not graze a trail. Lambing or calving on the trail should be prohibited.	Because new born lambs are unable to travel, lambing while on the BLM portion of the trail is prohibited. Repeated incidents of lambing on the BLM portion of the trail could result in termination of the permit.
18	Truman Julian, President, Western Wyoming Operating, Inc., General Partner for Western Wyoming Range LP	The maintenance of any trailing use facilities such as corrals, water developments, etc. should be defined in the trailing EA.	Trailing facilities on the South Trail system have not been identified at this time, however if projects are identified the BLM will follow standard procedures for project development with associated agreements.
19	John Emmerich, Deputy Director, Wyoming Game and Fish Dept.	We support the BLM's analysis of these trailing permits to disclose any potential impacts to crucial habitats for big game and sage grouse. We have no aquatic concerns pertaining to these permits.	No response necessary.
20	Pat Netherly	I see that there appears to be an issue with Native American Religious Concerns. Is this real or perceived? Has an analysis been completed to see whether or not there is actually an issue, or is this a general statement to cover the cultural program?	Our analysis of the potential effects of livestock trailing on cultural resources addresses site types that may be of Native American traditional, cultural or religious concern. The analysis determines possible issues that may require tribal consultation, or if the proposed activity has no potential to affect these site types.

	Commentor	Comment	Response
21	Pat Netherly	Historic Properties – is this really an issue, or a perceived issue by the cultural program? Have actual camping locations along the various livestock trails been identified? I think that we need some documentation as to the actual occurrence of these activities as it relates to impacts to historic properties and Native American Concerns.	Our analysis considers potential effects on cultural resources for all of the trailing corridors and focuses on actual camping locations identified by operators on the livestock trails. We have investigated individual historic properties within these areas and documented any evident effects during trailing seasons, in order to determine if historic properties and sites sensitive to Native Americans are actually impacted.
22	Pat Netherly	Under the “Decision to be Made” heading on page 4, it states that the Kemmerer Field Manager will decide whether to issue crossing permits authorizing the trailing of livestock across BLM administered lands with the KFO. Since this was a planning decision in the KFO Land Use Plan, the RMP would need to be amended if livestock trailing were not allowed to occur in the KFO. Under current policy, the Kemmerer Field Manager does not really have the authority to not authorize trailing as long as the RMP, which has gone through the public input process, currently allows livestock trailing on BLM lands.	A No Trailing alternative will require a RMP amendment.

	Commentor	Comment	Response
23	Jason Fearneyhough, Director, Wyoming Dept. of Agriculture	<p>The WDA does not support the proposed direction or the list of four preliminary alternatives the KFO has developed. We believe the KFO should only analyze two alternatives:</p> <ol style="list-style-type: none"> 1) Alternative 1 – No Trailing 2) Alternative 2 – Trailing <p>Alternative 1 would allow the KFO to analyze the effect to producers and other resources with no trailing, while Alternative 2 would analyze trailing, and include the identification of the existing routes and numbers. This would provide the BLM the ability to authorize trailing/crossing on a case-by-case basis. The analysis of a decrease or increase alternative is arbitrary without knowing the exact numbers to analyze, nor does it cover those requests arising from grazing permittees in areas not identified with the designated routes.</p>	This comment was implemented in the final EA.
24	Jason Fearneyhough, Director, Wyoming Dept. of Agriculture	BLM should tier livestock trailing authorizations to the EA and not issue 10-year permits. The 10-year permit creates an avenue for litigation every time a permit is renewed.	An alternative to issue 10 year trailing permits was considered but eliminated from further consideration.

	Commentor	Comment	Response
25	Jason Fearneyhough, Director, Wyoming Dept. of Agriculture	The analysis of two alternatives (trailing/no-trailing) should include identification of areas of importance, such as sage-grouse leks, crucial winter ranges, big game parturition areas, Native American Religious Concerns or Historic Properties. The identification of trailing routes, timing of route use, including possible short-term crossing, and the areas of importance could determine if trailing and crossing would cause negative impacts. In areas where a negative impact is predicted, BLM would work cooperatively on a case-by-case basis with the livestock grazing permittees to find solutions to reduce impacts by avoiding the areas if possible.	This comment was implemented in the final EA.
26	Jason Fearneyhough, Director, Wyoming Dept. of Agriculture	The alternatives the KFO identified look to analyze utilization of forage. The scoping includes “terms and conditions” specific to each trailing event. Is the KFO prepared to add vegetation transects throughout each of the trails to assess utilization?	The alternatives no longer analyze utilization of forage. The KFO will continue to monitor allotments according to BLM protocol. Upland vegetation transects may be added where the need is identified.

	Commentor	Comment	Response
27	Jason Fearneyhough, Director, Wyoming Dept. of Agriculture	Much of the trailing systems utilize rights-of-ways on county roads, where the BLM has no jurisdiction. The WDA encourages the KFO to seek State BLM general guidance for developing the trailing protocol across the state. Trailing is complicated with many livestock operators crossing private and public lands, county boundaries, state lines, and BLM field office boundaries.	The KFO has been working closely with BLM district and state resource managers to develop an EA that will allow consistent trailing protocol between adjacent field offices.
28	Jason Fearneyhough, Director, Wyoming Dept. of Agriculture	The WDA insists the KFO include flexibility into their decision to allow for unforeseen circumstances such as change of permit holders, change of private lands ownership, change of historical use of trails, development of new routes, and for yearly requests of crossings across an allotment outside of the designated trails. We believe the two-alternative approach would allow more flexibility to the authorizing officer to make the best decision on a case-by-case basis, and reduce impacts on the livestock grazing permittees and the environment.	This comment was implemented in the final EA.

	Commentor	Comment	Response
29	Jason Fearneyhough, Director, Wyoming Dept. of Agriculture	We urge the KFO to specifically analyze the socio-economic impacts of eliminating trailing. The elimination of trailing would, without question, cause extreme economic hardships to grazing permittees. Specifically, we find it important to consider the vast expense of loading and trucking livestock from location to location, instead of trailing. Additional socio-economic impacts the KFO should analyze is the historical and cultural significance and value of trailing livestock in these areas. Many people place value in seeing herds of cattle and sheep trailed through their communities or seeing traditional herding camps throughout the area.	This comment was implemented in the final EA.
30	Jason Fearneyhough, Director, Wyoming Dept. of Agriculture	We emphasize the importance of working very closely and cooperatively with local livestock grazing permittees and neighboring BLM offices to understand the historic significance of trails, where current routes are located, where each permittee holds public grazing permits and owns private lands. We urge KFO to allow flexibility to accommodate weather, increases or decreases in forage, turn-out dates on Forest Service allotments, changes in grazing rotations, conversions of livestock, or other unique scenarios.	This comment was implemented in the final EA. BLM only has authority on BLM administered lands.

	Commentor	Comment	Response
31	Jason Fearneyhough, Director, Wyoming Dept. of Agriculture	We believe the KFO's proposal interchanges the use of the terms "trailing" and "crossing." We ask KFO to develop and include a glossary of terms inclusive of both "trailing" and "crossing" for clarification.	This comment was implemented in the final EA. A Glossary of Terms will be included in EA.
32	Mike Sims, Sims Sheep Co. LLC	I request that Alternative 3 be the action taken by the BLM. Trailing should be available to anyone that has a legitimate need. The alternative should allow for current trailing and be flexible enough to allow for changes in operations and new entrants into grazing areas and allotments. The alternative needs to be flexible.	Alternative 3 described in the scoping letter became the Proposed Alternative (Alternative 1) in the final EA. The Proposed Alternative allows for flexibility but not beyond the historic use levels.
33	Mike Sims, Sims Sheep Co. LLC	All the recent research on sage grouse has led to the conclusion that predation is the primary cause of the sage grouse decline. Predation has increased due to invasive species such as ravens, raccoons, and increases in other predatory species. There is a strong correlation between the decline in sage grouse and the decline in trailing in the South Trail area. Sage grouse thrived under much heavier trailing.	Wildlife analysis includes effects on sage grouse, including the effects from predation.
34	Mike Sims, Sims Sheep Co. LLC	Potential effects on big game. None!!!	Wildlife analysis includes effects on big game.

	Commentor	Comment	Response
35	Mike Sims, Sims Sheep Co. LLC	No effects on vegetation have been shown in any allotment analysis in this area. Noxious weeds and invasive plants: a weed control program already exists in this area and should more than address any existing problems.	Analysis includes effects on vegetation and allotment monitoring data available, as well as noxious weeds and invasive plants.
36	Mike Sims, Sims Sheep Co. LLC	Riparian areas and wetlands: I do not believe that any of these trails cross a wetland area. Damage to any riparian area will be minimal because of the short amount of time spent in these areas.	No response necessary.
37	Mike Sims, Sims Sheep Co. LLC	Grazing: any conflicts between trailing and grazing can be resolved by the parties involved on a case-by-case basis.	No response necessary.
38	Mike Sims, Sims Sheep Co. LLC	Native American concerns: unknown.	Our analysis addresses site types that may be of Native American traditional, cultural or religious concern, and determines if there are any possible issues that may require tribal consultation, or if livestock trailing simply has no potential to affect these site types.

	Commentor	Comment	Response
39	Mike Sims, Sims Sheep Co. LLC	Historic properties: trailing has been established in this area for over 150 years and is more historic than almost any other use.	The BLM recognizes the traditional cultural significance of livestock trailing's enduring history in this area and emphasizes this important heritage in our analysis. We acknowledge the fact that cultural sites located on the surface have been trailed over for 150 years and are affected similarly by natural forces, producing the archeological record that is interpreted routinely. These aspects are an integral part of our analysis of potential impacts on cultural resources.
40	Mike Sims, Sims Sheep Co. LLC	You have failed to include the cultural and historic significance of transhumance agriculture in the trail area. This cultural resource is perhaps greater than any other in the area. Every effort should be made to protect the last remnants of our Western Heritage.	The BLM recognizes the traditional cultural significance of livestock trailing's enduring history in this area and emphasizes this important heritage in our analysis. We acknowledge the fact that cultural sites located on the surface have been trailed over for 150 years and are affected similarly by natural forces, producing the archeological record that is interpreted routinely. These aspects are an integral part of our analysis of potential impacts on cultural resources.

	Commentor	Comment	Response
41	Mike Sims, Sims Sheep Co. LLC	Reducing or eliminating trailing would devastate the economic viability of many ranchers in the area. Resulting in the loss of jobs and economic wealth for all the communities in the area. I estimate the direct job loss would be over 65 people. This does not take into account the losses to other businesses. The BLM is obligated to take into account economic effects in its analysis.	Projected costs to ranchers from potential trucking requirements have been identified and potential impacts from those costs have been addressed in the socio-economic analysis in the EA. Estimates of job loss due to ranch operation failure are beyond the scope of this document.
42	Mike Sims, Sims Sheep Co. LLC	Address the effects of pollution and fuel use caused by the use of trucks to move livestock.	Effects of pollution from trucking is beyond the scope of this analysis. Fuel costs of trucking are addressed in the Socio-economic Section 4.1.2. Alternative 2.
43	Mike Sims, Sims Sheep Co. LLC	The wear and tear on rural roads and BLM roads caused by heavy trucks.	Socio-economic issues have been identified in the EA.
44	Mike Sims, Sims Sheep Co. LLC	The use of corrals to load and unload livestock will need to be analyzed.	Socio-economic issues have been identified in the EA.
45	Mike Sims, Sims Sheep Co. LLC	The stress of trucking on livestock and especially young lambs and calves needs to be addressed.	This is beyond the scope of this analysis.
46	Mike Sims, Sims Sheep Co. LLC	If trailing is reduced or eliminated, many operators would be forced to trail on public roads and highways. This brings many problems with safety of livestock, personnel, and vehicle traffic.	This is beyond the scope of this analysis.

	Commentor	Comment	Response
47	Mike Sims, Sims Sheep Co. LLC	Many areas of BLM sections were set aside for trailing; I am able to identify some of these areas and would be glad to share them with you. I also have pictures of old signs that designate trail areas. I have several pieces of correspondence concerning trails. Many trail areas were designated even before the BLM was created. There are some homesteads where the BLM trailing areas were withheld and the homesteads are only three quarters of a section.	No response necessary.
48	Mike Sims, Sims Sheep Co. LLC	The transhumance sheep industry uses mostly renewable resources and very little non-renewable resources. In other areas where regulations have made range agriculture unfeasible, many private lands have been subdivided. This is an outcome that neither the BLM, ranchers, wildlife agencies, hunters, and others that have a real stake in the ground would like.	No response necessary.
49	Jonathan Ratner, Western Watersheds Project	My basic concern with trailing is the impacts on nesting sage grouse (or anything for that matter)... Picture yourself as a nesting bird and here comes a few thousand proverbial hooved locusts, what are the chances of your nests (and eggs) not being physically damaged? What is the likelihood of abandonment from this massive disturbance?	Wildlife issues were analyzed in this EA.

	Commentor	Comment	Response
50	Jonathan Ratner, Western Watersheds Project	From both a bird and resource perspective, the best thing is for permittees to truck.	The No Trailing alternative was analyzed in this EA.

9.0 Glossary

Allotment: An area of land designated and managed for grazing of livestock. Allotments are Bureau of Land Management (BLM) lands, but may also include other federally managed, state-owned, and private lands. An allotment may include one or more separate pastures. Livestock numbers and periods of use are specified for each allotment. Allotments are classified by the following:

Category I – Improve Existing Resource Conditions

Category M – Maintain Existing Resource Conditions

Category C – Custodial Management.

Analysis Area: Any lands, regardless of jurisdiction, for which the BLM synthesizes, analyzes, and interprets data for information that relates to planning for BLM-administered lands.

Animal Unit Month (AUM): A standardized measurement of the amount of forage necessary for the sustenance of one cow unit or its equivalent for 1 month (approximately 800 pounds of forage).

Area of Potential Effect (APE): The SHPO uses the federal definition of "Area of Potential Effects" (APE) to describe the maximum area that may be affected by a project. Both direct and indirect effects to historic resources must be considered when determining the APE. *"The geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."* [36 CFR 800.16(d)].

Big Game Crucial Winter Range: Winter habitats on which wildlife species depend for survival. Because of severe weather conditions or other limiting factors, no alternative habitats would be available.

Bioturbation: The disruption of sediment by organisms, seen either as a complete churning of the sediment that has destroyed depositional sedimentary structures, or in the form of discrete and clearly recognizable burrows, trails, and traces.

Commodity: An economic good, such as a product of agriculture or mining.

Crossing: A single use trailing event that generally does not occur on established trails. A crossing is considered an event that occurs within eight hours with no overnight camps. Typically, a crossing is from private ground to private ground crossing a BLM allotment with the permission of the permit holder, to move from one pasture to another.

Cryoturbation: (frost churning) refers to the mixing of materials from various horizons of the soil down to the bedrock due to freezing and thawing.

Cultural Resource Inventory Levels: A three-tiered process for discovering, recording, and evaluating cultural resources.

(a) **Class I** - A compilation and analysis of all reasonably available cultural resource information, and a management-focused, interpretive, narrative overview, and synthesis of the data.

(b) **Class II** - A sampling survey usually aimed at developing and testing a predictive model of cultural resource distribution.

(c) **Class III** - An intensive on-the-ground survey to discover, record, and evaluate cultural resources within a specific geographic area.

Ecological Site: Land with a specific potential natural community and specific physical site characteristics, differing from other kinds of land in that the site has the ability to produce distinctive kinds and amounts of vegetation and to respond to management. Ecological sites are defined and described in terms related to soil, species composition, and annual production.

Endemic: Peculiar to a particular area or region; not found in other places.

Ephemeral Stream: A stream that flows only in direct response to precipitation and whose channel is at all times above the water table. Confusion over the distinction between intermittent and ephemeral streams may be minimized by applying Meinzer's suggestion that the term "ephemeral" be arbitrarily restricted to streams that do not flow continuously for at least 30 days

(Prichard et al. 1998). Ephemeral streams support riparian areas when streamside vegetation reflects the presence of permanent subsurface water.

Existing Roads and Trails: Routes existing prior to the date the off-highway vehicle designation is announced in the *Federal Register*. These regularly used routes may have been constructed and maintained or may be two-track routes created and maintained by the passage of motor vehicles.

Federal land: Bureau of Land Management administered land.

Grazing: The eating of any kind of growing vegetation by livestock or wildlife.

Extant: Still existing, not destroyed or lost.

Herbivory: The consumption of plants without killing them.

Historic Property: Any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places.

Intermittent Stream: A stream that flows only at certain times of the year due to receiving water from springs or a surface source, such as melting snow in mountainous areas. Confusion over the distinction between intermittent and ephemeral streams may be minimized by applying Meinzer's suggestion that the term "intermittent" be arbitrarily restricted to streams that flow continuously for periods of at least 30 days (Prichard et al. 1998).

Karyotyping: A laboratory test used to study an individual's chromosome make-up. Chromosomes are separated from cells, stained, and arranged in order from largest to smallest so that their number and structure can be studied under a microscope.

KFO: Kemmerer Field Office, 312 Highway 189 North, Kemmerer WY, Lincoln County.

LAU: Lync Analysis Unit.

Lek: A traditional courtship display area attended by male sage-grouse in or adjacent to sagebrush dominated habitat. Designation of the site as a lek requires observation of two or more male sage-grouse engaged in courtship displays. In addition new leks must be confirmed by a survey conducted during the appropriate time of day and during the strutting season. Observation of sign of strutting activity can also be used to confirm a suspected lek.

Littoral: The littoral zone is the part of a sea, lake or river that is close to the shore.

Mitigation: (a) Avoiding the impact altogether by not taking a certain action or parts of an action. (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment. (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action. (e) Compensating for the impact by replacing or providing substitute resources or environments.

National Historic Trail (NHT) Class: The BLM NHT classification system takes into consideration all aspects of NHTs as historic properties, including settings and the other relevant qualities of integrity, and provides overall evaluations of relatively long segments of trail. NHT variants in the planning area are composed of the physical traces left by wagons and draft animals, the scenery visible from the trails, associated sites such as emigrant camps and graves, locations where important events were documented, and landmarks used by emigrants to navigate along the trails. Defined segments are classified Class 1 through Class 4, based on their condition and degree of integrity.

Class 1 Trail: Undiminished Trail Trace and Setting. Under this category, the trail traces and associated sites all retain integrity of location, setting, feeling, and association. Class 1 segments are the best examples of trail in the planning area because they readily convey the historic sense of the period of the trail's significant use. Class 1 segments retain excellent integrity of location, because the physical traces and sites remain in their historically documented locations. The form, structure, and style of wagon ruts reflect integrity of association, because they are sufficiently intact to convey a direct link to historic events. The overall settings contribute to the eligibility of the site so they impart a sense of their historic period of use, and contribute to the integrity of feeling that allows an observer to imagine the emigrant experience on the trail. There may be

developments on the landscape, within a Class 1 segment, but they do not detract from overall the feeling or sense of the historic period.

Class 2 Trail: Good Trail and Setting. Trail traces and related sites in this category retain good integrity of location and association because they are physically intact. The historic settings generally retain the existing character of the landscape. Although Class 2 segments may contain some developments, they do not attract the attention of the casual observer and they do not dominate the setting sufficiently to detract from the feeling or sense of the period of the trail's significant use. Trail segments may be assessed as contributing to the trail's overall National Register eligibility because of their integrity of location and association, but the integrity of setting may be considered contributing or non-contributing depending on the degree of visibility of existing developments. If important historical events occurred within a particular trail segment, they are considered as supplemental values.

Class 3 Trail: Compromised Historic Setting. Class 3 trail traces and related sites retain some integrity of location and association, but the historic setting contains developments that detract from the feeling or sense of the period of the trail's significant use. Generally, the setting is not an important aspect of integrity that contributes to the segment's National Register eligibility.

Class 4 Trail: No Trail Trace or Sites. Under this category, the trail's physical trace no longer exists because of its destruction by natural forces or human developments. Regardless of the condition of the surrounding landscape, the historic setting is no longer relevant to these segments in terms of management actions. However, because the trail did exist in these segments at one time, there is a probability for the presence of trail related sites which could require management of settings, if identified. Where trail traces are destroyed and no sites are documented, none of the qualities of integrity are retained in these segments that do not contribute to the trail's eligibility and no special management actions are proposed for destroyed trail segments.

Native Species Status: Native Species Status (NSS) refers to the population status of species native to the area in which their habitats occur. The NSSs are divided into the following categories:

NSS1 Native Species Status 1 • Populations are greatly restricted or declining, extirpation appears possible; or ongoing significant loss of habitat.

NSS2 Native Species Status 2 • Populations are declining, extirpation appears possible; habitat is restricted or vulnerable, but no recent or ongoing significant loss; species may be sensitive to human disturbance OR • Populations are declining or restricted in numbers and (or) distribution, extirpation is not imminent; ongoing significant loss of habitat.

NSS3 Native Species Status 3 • Populations are greatly restricted or declining, extirpation appears possible; habitat is not restricted, vulnerable, but no loss; species is not sensitive to human disturbance OR • Populations are declining or restricted in numbers and (or) distribution, extirpation is not imminent; habitat is restricted or vulnerable, but no recent or ongoing significant loss species may be sensitive to human disturbance. OR • Species is widely distributed; population status or trends are unknown, but are suspected to be stable; ongoing significant loss of habitat.

NSS4 Native Species Status 4 • Populations are greatly restricted or declining, extirpation appears possible; habitat is stable and not restricted. OR • Populations are declining or restricted in numbers and (or) distribution, extirpation is not imminent; habitat is not restricted, vulnerable, but no loss; species is not sensitive to human disturbance OR • Species is widely distributed, population status or trends are unknown, but are suspected to be stable; habitat is restricted or vulnerable, but no recent or ongoing significant loss; species may be sensitive to human disturbance OR • Populations that are stable or increasing and not restricted in numbers and (or) distribution; ongoing significant loss of habitat.

NEPA: National Environmental Policy Act of 1969. The National Environmental Policy Act is a United States environmental law that established a U.S. national policy promoting the enhancement of the environment and also established the President's Council on Environmental Quality.

North Trail: KFO livestock trail system in Lincoln County

Off-Road Travel: Off-road travel means travel off of existing roads and trails, or driving cross-country.

Overgrazing: Continued heavy grazing that exceeds the recovery capacity of the forage plants and creates deterioration of the grazing lands (Valentine 1990).

Perennial Stream: A stream that flows continuously. Perennial streams generally are associated with a water table in the localities through which they flow (Prichard et al. 1998).

Pest: With the exception of vascular plants classified as invasive nonnative plant species, a pest can be any biological life form that poses a threat to human or ecological health and welfare. For the purposes of this planning effort, an “animal pest” is any vertebrate or invertebrate animal subject to control by the Animal and Plant Health Inspection Service (APHIS). APHIS is currently BLM’s authorized agent for controlling “animal pests.” For this reason, “animal pests” will be considered a subset of Pest.

Planning Area: A geographic area for which land use and resource management plans are developed and maintained.

Pediment: A pediment is a very gently sloping (.5°-7°) inclined bedrock surface. It typically slopes down from the base of a steeper retreating desert cliff, or escarpment, but may continue to exist after the mountain has eroded away.

Pelage: The coat of a mammal, consisting of hair, fur, wool, or other soft covering, as distinct from bare skin.

Prairie Dog Complex: A cluster of two or more prairie dog towns within three km of each other (Clark and Stromberg 1987, Luce 2003) and bounded by either natural or artificial barriers (Whicker and Detling 1988) that effectively isolate one cluster of colonies from interacting/interchanging with another. Prairie dogs may commonly move among colonies of a cluster, and thereby foster reproductive/genetic viability, but exhibit little emigration/immigration between clusters. A cluster may include some currently unoccupied, though physically suitable (i.e., vegetation, soils, topography etc.), lands immediately adjacent to occupied colonies that support other prairie dog-associated (ecosystem function) obligate or facultative species (e.g., swift fox, mountain plover, burrowing owl, etc.).

Project Area: The area where the project is taking place.

Rangeland: Land on which the native vegetation is predominantly grasses, grass-like plants, forbs, or shrubs suitable for grazing or browsing. This includes lands revegetated naturally or artificially when routine management of that vegetation is accomplished mainly through manipulation of grazing. Rangelands include natural grasslands, savannas, shrublands, most deserts, tundra, alpine communities, coastal marshes, and wet meadows.

Rangeland Health: The degree to which the integrity of the soil and ecological processes of rangeland ecosystems are sustained. Rangeland health exists when ecological processes are functioning properly to maintain the structure, organization and activity of the system over time.

Range Improvement Project: A structural improvement requiring placement or construction to facilitate management or control distribution and movement of grazing or browsing animals. Such improvements may include, but are not limited to, fences, wells, troughs, reservoirs, water catchments, pipelines, and cattleguards. The project also may include a practice or treatment that improves rangeland condition and or resource production for multiple use. Nonstructural types of projects may include, but are not limited to, seeding and plant control through chemical, mechanical, and biological means or through prescribed burning.

Raptor: A bird of prey with sharp talons and a strongly curved beak, such as hawks, falcons, owls, vultures, and eagles.

Resource Damage: This type of damage is defined as leaving signs of vehicle use, such as wheel ruts in wet meadows, visual scars on hillsides, or soil erosion. Additional examples include surface disturbance that causes the loss of vegetative cover, degradation of wildlife habitats, the creation of new roads, and the introduction of noxious weeds. Damage to vegetation also includes crushing or uprooting trees and shrubs. The determination of whether resource damage has occurred is at the discretion of Field Managers and law enforcement personnel.

Right-of-Way: legally granted access. For BLM purposes, BLM grants rights-of-way across federal land and pursues easements across private or State land.

Section 106 of National Historic Preservation Act: “The head of any Federal agency having direct or indirect jurisdiction over a proposed federal or federally assisted undertaking in any state and the head of any federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such federal agency shall afford the Advisory Council on Historic Preservation established under Title II of this Act a reasonable opportunity to comment with regard to such undertaking” (16 United States Code 47 df).

Sensitive Species: Species designated as sensitive by the BLM State Director include species that are under status review, have small or declining populations, live in unique habitats, or require special management (BLM 2001). BLM Manual 6840 provides policy and guidance for special status species management. The BLM Wyoming Sensitive Species Policy and List are provided in a memorandum updated annually. Primary goals of the BLM Wyoming policy include maintaining vulnerable species and habitat components in functional BLM ecosystems and preventing a need for species listing under the Endangered Species Act.

Setting: Setting is the physical environment of a historic property and how the property evokes a sense of feeling and association with past events. Accordingly, setting refers to the character of the place in which the property played its historic role. It involves how, not just where, the property is situated and its relationship to surrounding features and open space. These features and their relationships should be considered not only within the exact boundaries of the property, but also between the property and its surroundings.

SHPO- State Historic Preservation Office. BLM Field Managers have the responsibility to provide written notification to the SHPO about upcoming projects likely to adversely affect known historic properties, or known resources that are unevaluated but are likely to be eligible for inclusion in the National Register of Historic Places.

Significant Cultural Sites: The planning area contains sites that are identified for special management objectives because of their unusual historical, cultural, scientific, or traditional values among the many other sites in the planning area that are evaluated eligible to the National Register of Historic Places. The significant cultural sites currently identified are the Bridger Antelope Trap, Emigrant Spring/Slate Creek, Emigrant Spring/Dempsey, Johnston Scout Rock, Alfred Corum and Nancy Hill Graves, Pine Grove Emigrant Camp, Rocky Gap Trail Interpretive Site, Bear River Divide Trail Interpretive Site, and Gateway Petroglyphs viewshed. As other sites meeting these criteria or values are identified, BLM may elect to include them as significant cultural sites.

South Trail: The livestock trailing area in the KFO, Uinta County.

Special Status Species: Special status species are species proposed for listing, officially listed as threatened or endangered, or are candidates for listing as threatened or endangered under the provisions of the Endangered Species Act; those listed by a state in a category, such as threatened or endangered, implying potential endangerment or extinction; and those designated by the State Director as sensitive (BLM 2001a).

Standard Practices: These practices are applied to surface-disturbing activities and are statements of guidelines and techniques for establishing statewide (or national) consistency in avoiding and mitigating environmental impacts and resource conflicts. These practices have been developed through field experience, planning analyses, and legal or regulatory directives. They emphasize the responsibility of the Bureau of Land Management (BLM) to ensure that good construction practices are used on federal lands, and that they apply to all surface-disturbing activities (BLM 2007a).

Stipulation: The least restrictive condition or requirement attached to a lease or contract that meets a resource protection objective.

Surface Disturbance: Substantial modification or actual intrusion into the soil created by mechanized equipment or vehicles.

Trailing: The term “trailing” is an overnight event with established campsites and watering stops on established trails, which occurs over multiple days and crosses multiple allotments.

Transhumance: The movement of livestock and herders to different grazing grounds with the changing of the seasons.

Viewshed: A viewshed is used in Visual Resource Management to describe “...landscape that can be seen under favorable atmospheric conditions from a viewpoint (key observation point) or along a transportation corridor” (BLM 1984).

Visual Resources: The visible physical features of a landscape (topography, water, vegetation, animals, structures, and other features) that constitute the scenery of an area.

Wildfire: Any natural fire ignition occurring on wildland that neither meets management objectives nor occurs within a prescribed fire area, thus requiring a suppression response.