U.S. Department of the Interior
Bureau of Land Management
White River Field Office
220 East Market St
Meeker, CO 81641

ENVIRONMENTAL ASSESSMENT

NUMBER: DOI-BLM-CO-110-2009-0058-EA

CASEFILE/PROJECT NUMBER: Grazing Permit Numbers 051419 and 051486

PROJECT NAME: Black Sulphur and Hatch Gulch Grazing Allotments
Grazing Permit Renewals, Mantle Ranch/Boone and Barbara Vaughn

LEGAL DESCRIPTION: Rio Blanco, County

Allotment			Legal Description		
No.:	**Name:**	**BLM Acres:**	**TWP (S):**	**RGE (W.)**	**Section(s)/Lot(s) \or Portions of**
06029	Black Sulphur	15,684	T 2S,	R 97W	Sec: 19,30,31
			T 2S	R 98W	Sec: 21,22,23,24, 25,26,27,28,32,33,34,35,36
			T 3S	R 98W	Sec: 2,3,4,5,6,7,8,9,10,15,16,17,18,19,20,21,28,30,32
			T 4S	R 98W	Sec: 5,6,7
			T 3S	R 99W	Sec. 13,24,25
06028	Hatch Gulch	9,441	T 1S	R 97W	Sec: 14,15,21,22,23,25,26,27,28,32,33,34,35,36
			T 2S	R 97W	Sec: 1,2,3,4,9,10,11,15,16

APPLICANT: Mantle Ranch/Boone and Barbara Vaughn

ISSUES AND CONCERNS: None

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Background/Introduction: The Black Sulphur grazing allotment is primarily used as a spring-fall allotment to access the deeded summer grazing lands of both the Mantle Ranch and Vaughn Ranch operations. In September 1991, Yankee Gulch was burned under prescription and drill seeded in April 1992. The total treatment area was 477 acres. In the fall of 1995, the Eureka drainage was burned under prescription and drill seeded as part of cooperative range improvement project with Mantle Ranch. (317 acres BLM, 261 acres deeded). Previously both drainages had been dominated by 5-8 foot stands of basin big sagebrush with an understory dominated by cheatgrass (Bromus tectorum). In 2000, the Mantle Ranch applied to change some of their spring and fall grazing use to winter use in order to take advantage of snow conditions to use upland areas of the allotment. These areas were not normally usable due to lack of water. This change in grazing use (wherein livestock use during the critical growing period was reduced

by approximately one half) was analyzed and approved in environmental assessment (EA) CO-WRFO-00-25-EA. Hence, the Mantle Ranch uses approximately 70 % of their grazing preference for winter, non growing season use.

The Hatch Gulch grazing allotment is a winter grazing use allotment, which lies on the west side of Magnolia. Its western boundary is Rio Blanco County (RBC) Road 5 (the Piceance Creek road) right of way fence.

Allotment Categorization- All of the White River Field Office (WRFO) grazing allotments have been placed in one of three management categories that define the intensity of management: (1) improve, (2) custodial and (3) maintain. These categories broadly define rangeland management objectives in response to an analysis of an allotment's resource characteristics, potential, opportunities, and needs. Public Scoping and BLM resource team review as part of the permit renewal process provide the opportunity to update, change, or maintain allotments' categorization. The Black Sulphur allotment has been categorized as a category (I) improve allotment primarily as a function of having the Black Sulphur Creek riparian area. The Hatch Gulch allotment has been classified as an (M) maintain category allotment due to its long term winter grazing regime and an absence of resource conflicts.

Proposed Action: The proposed action is renewal of the Mantle Ranch and the Vaughn Ranch grazing permits on the Black Sulphur and Hatch Gulch allotments for a term of ten years.

The objectives of grazing management on the Black Sulphur/Hatch Gulch allotments are:

- To maintain and enhance the development of the Black Sulphur Creek riparian system with managed grazing in conjunction with the Square S allotment

- To maintain or enhance a healthy rangeland vegetation composition and species diversity, capable of supplying forage at a sustained yield to meet the current forage demands for livestock and wildlife.

- To provide for adequate forage plant growth and/or regrowth opportunity necessary to:
    - Replenish plant food reserves; and
    - Produce sufficient seed to meet the reproduction needs necessary to maintain an ecological presence in the plant community.

- To maintain a grazing system wherein the permittees can use the allotment in his permit as pastures to graze the range with a strategy that provides for plant growth requirements and provides for the most economical use of all forage resources available to the ranch operation.

Grazing Management Plan: The allotment is physically divided into three pastures- North Black Sulphur, Black Sulphur riparian and Yankee/Eureka. The Yankee/Eureka pasture is further divided into three (3) zones of grazing use - Yankee Gulch, Eureka Gulch and Yankee/Eureka Ridge. These are considered zones of use because there is no fence dividing these units.

The grazing management plan will permit short duration spring use (typically 2 weeks, May 1- May15) every third year in the North Black Sulphur pasture. The other 2 years use in the North Black Sulphur pasture will be late fall/winter use (Nov 1- Dec 30). The tables below show the permitted animal unit months (AUMs) for the Black Sulphur and Hatch Gulch allotments.

HATCH GULCH ALLOTMENT GRAZING SCHEDULE						
Mantle Ranch						
Pasture Name	**Livestock Number**	**Kind**	**Date On**	**Date Off**	**% BLM**	**AUMs**
Hatch Gulch	28	Cattle	12/01	1/31	100	56
				Total Hatch Gulch Allotment Permitted AUMs		**56**

BLACK SULPHUR GRAZING SCHEDULES/GRAZING PERMIT						
Mantle Ranch						
Pasture Name	**Livestock Number**	**Kind**	**Date On**	**Date Off**	**% BLM**	**AUMs**
Black Sulphur	200	Cattle	11/01	02/28	86	679
Black Sulphur	50	Cattle	04/01	06/15	86	107
Black Sulphur	118	Cattle	05/01	06/15	86	153
					Mantle Ranch Total Permitted AUMs	**939**
					Suspended AUMs	**359**
					Total	**1,298**

BLACK SULPHUR GRAZING SCHEDULES/GRAZING PERMIT						
Boone and Barbara Vaughn						
Pasture Name	**Livestock Number**	**Kind**	**Date On**	**Date Off**	**% BLM**	**AUMs**
Black Sulphur	100	Cattle	05/01	06/15	100	151
Black Sulphur	100	Cattle	11/01	11/30	100	99
					Vaughn Total Permitted AUMs	**250**
					Total Black Sulphur Allotment Permitted AUMs	**1,189**

The Black Sulphur riparian pasture (not delineated on the map as a separate pasture) will continue to be managed as it has been for the past 25 years. It will receive short duration spring use (three weeks in the window of 5/10- 6/10) following peak runoff in rotation with the Square S allotment (06027). That is, every other year, one of the Black Sulphur permittees will be licensed to use Black Sulphur riparian pasture. In the alternate year, one of the Square S permittees will be permitted to use the Black Sulphur riparian pasture. A term and condition will be added to the grazing permit that any use of the Black Sulphur riparian pasture will be authorized in advance (i.e., the permittee must apply before being authorized to use that pasture for use in advance

In the Yankee/Eureka pasture the strategy will be as follows: The Yankee and Eureka Gulch zones will be used for approximately three weeks beginning May 1 on a yearly basis. The 50

cattle on the Mantle Ranch grazing schedule beginning 4/1 will be primarily located in Eureka Gulch where all the Mantle Ranch deeded land is located. Beginning about May 1 these cattle will be located/split between the Yankee and Eureka Gulch pastures. After the third week of May, cattle will be moved out of both drainages (zones) and located in the Yankee/Eureka ridge zone where they will utilize the Eureka pipeline system as their principal source of water. Thus, each zone in this pasture will receive partial rest during the critical growing period. By June 15 all cattle will be removed from the allotment. Fall/winter use will begin Nov 1 and will occur in the N. Black Sulphur and Yankee/Eureka pastures.

The focus of the grazing management plan is to continue the upward trend of the Black Sulphur riparian area and to provide for partial deferment on the entire allotment during the critical growing period every year with emphasis on good livestock distribution at a moderately light stocking rate.

The Hatch Gulch allotment will continue to be used only in the late fall/winter. Mantle Ranch uses this allotment in common with C.W. Brennan.

Terms and conditions: The following Terms and Conditions as provided for by 43 CFR 4130.3-2 will be incorporated in this grazing permit renewal:

1. Any changes in grazing use must be applied for prior to the grazing period.

2. Each year billing notices are issued which specify, for the current year, the allotment(s), number and kind of livestock, period(s) of use, animal unit months of use, and the grazing fees due. These billing notices when paid become a part of this grazing permit/lease.

3. Grazing fees are due upon issuance of a billing notice and must be paid in full prior to making any grazing use under this grazing permit/lease, unless otherwise provided for in the terms and conditions of this grazing permit/lease.

4. This grazing permit/lease is subject to the terms and conditions of an allotment management plan if such plan has been prepared. If an allotment management plan has not been prepared, it must be incorporated in this permit/lease when completed.

5. No grazing use can be authorized under this grazing permit/lease during any period of delinquency in the payment of amounts due in settlement for unauthorized grazing use.

6. Grazing use authorized under this grazing permit/lessee may be suspended, in whole or in part, for violation by the permittee/lessee of any of the provisions of the rules or regulations now or hereafter approved by the Secretary of the Interior.

7. This grazing permit/lease is subject to cancellation, in whole or in part, at any time because of:
   a. Noncompliance by the permittee/lessee with rules and regulations now or hereafter approved by the Secretary of the Interior.

b. Loss of control by the permittee/lessee of all or a part of the property upon which it is based.
c. A transfer of grazing preference by the permittee/lessee to another party.
d. A decrease in the lands administered by the Bureau of Land Management within the allotment(s) described herein.
e. Repeated willful unauthorized grazing use.

8. This grazing permit/lease is subject to the provisions of executive Order NO. 11246 of September 24, 1965, as amended, which sets forth nondiscrimination clauses. A copy of this order may be obtained from the authorized officer.

9. The permittee/lessee must own or control and be responsible for the management of the livestock authorized to graze under this grazing permit/lease.

10. The authorized officer may require counting and/or additional or special marking or tagging of the livestock authorized to graze under this grazing permit/lease.

11. The permittee/lessee grazing case file is available for public inspection as required by the Freedom of Information Act.

12. No salt/mineral supplement will be placed within 200 meters of the Thirteenmile Tongue of the Green River formation on the Hatch Gulch allotment.

13. In order to improve livestock distribution on the public lands, all salt blocks and/or mineral supplements will not be placed within a 1/4 mile of any riparian area, wet meadow, or any other live water source unless stipulated though a written agreement or decision in accordance with 43 CFR 4130.3-2(c).

14. In Accordance with 43 CFR 4130.8-1(F): Failure to pay grazing bills within 15 days of the due date specified in the bill shall result in a late fee assessment of $25.00 or 10 percent of the grazing bill, whichever is greater, but not to exceed $250.00. Payment made later than 15 days after the due date, shall include the appropriate late fee assessment. Failure to make payment within 30 days may be a violation of 43 CFR Sec. 4140.1(b) (1) and shall result in action by the authorized officer under 43 CFR Secs. 4150.1 and 4160.1-2.

Supplemental feeding authorization: The grazing management plan will include authorization to feed supplemental protein on the Yankee/Eureka Ridge and on the North Black Sulphur pasture during the winter grazing period (11/01- 02/28) in order to obtain the best possible distribution and animal performance during this period. Only certified noxious weed free or processed feed supplements will be authorized on Public Lands. Authorization of supplemental feeding is consistent with 43 CFR 4130.3-2(c) (Other terms and conditions).

No Action Alternative *(No Livestock Grazing):* The no-grazing alternative consists of not issuing a grazing permit for livestock use. There would be no livestock grazing on the Public Lands within the two allotments on which it is currently permitted.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD: ***Continuation of Current Management:*** Because the proposed action is essentially the same as the current management with minor modifications, this alternative will not be considered further.

NEED FOR THE ACTION: The Mantle Ranch and Boone and Barbara Vaughn BLM grazing permits, # 0501419 and #051486 which authorize grazing on the Black Sulphur (06029) and Hatch Gulch (06028) allotments and Black Sulphur allotment respectively, expire on February 28, 2009. These permits are subject to renewal or transfer at the discretion of the Secretary of the Interior for a period of up to ten years.

The Bureau of Land Management has the authority to renew the livestock grazing permit/lease consistent with the provisions of the *Taylor Grazing Act, Public Rangelands Improvement Act, Federal Land Policy and Management Act, and White River Resource Area Resource Management Plan/Environmental Impact Statement*. This Plan/EIS has been amended by the *Standards for Public Land Health in Colorado.*

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: White River Record of Decision and Approved Resource Management Plan (ROD/RMP).

Date Approved: July 1, 1997

Decision Number/Page: pages 2-22 through 2-26

Decision Language: With minor exceptions, livestock grazing will be managed as described in the 1981 Rangeland Program Summary (RPS). That document is the Record of Decision for the 1981 White River Grazing Management Final Environmental Impact Statement (Grazing EIS)

The proposed action implements the Resource Management Plan Livestock Grazing Management objective on page 2-22 to:

- to maintain or enhance a healthy rangeland vegetation composition and species diversity, capable of supplying forage at a sustained yield to meet the demand for livestock grazing, and

- to provide for adequate forage plant growth and/or regrowth opportunity necessary to: 1) replenish the plants food reserves; and 2) produce sufficient seed to meet the reproduction needs necessary to maintain an ecological presence in the plant community. This objective will be accomplished by implementing a grazing system.

Also as stated on page 2-10, the goal of the livestock management program is to improve the rangeland forage resource by managing toward a desired plant community. "In the

future, allotment categorization, levels of management, and permit modifications could be made if additional information suggests that this is warranted in order to achieve or make significant progress toward achieving the Colorado Standards for Rangeland Health" (43 CFR 4180).]

The proposed action has been reviewed for conformance with this plan (43 CFR 1610.5, BLM 1617.3). The action conforms to the decisions and pages listed above.

AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES / MITIGATION MEASURES:

STANDARDS FOR PUBLIC LAND HEALTH: In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, threatened and endangered species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a finding must be made for each of them in an environmental analysis.

The following table is a summary of the assessment of public land health standards for each allotment in this permit renewal. Specific discussion of the assessment of each standard is located in the critical elements section below.

STANDARDS FOR PUBLIC LAND HEALTH							
	Current Situation			With Proposed Action		With No Grazing	
[Standard]	Achieving or Moving Towards Achieving	Not Achieving	Causative Factors	Achieving or Moving Towards Achieving	Not Achieving	Achieving or Moving Towards Achieving	Not Achieving
#1-Upland Soils							
06029	15,684 ac	ac		15,684 ac	ac	15,684 ac	ac
06028	8,885 ac	0 ac		8,885 ac	0 ac	8,885 ac	0 ac
#2-Riparian Systems							
06029	2.65 miles	0 mi		2.65 miles	0 mile	2.65 mile	0 mile
06028	0 miles	0 mi		0 miles	0 miles	0 miles	0 miles
#3-Plant Communities							
06029	15, 684 ac	0 ac		15,684 ac	0 ac	15,684 ac	0 ac
06028	8,885 ac	0 ac		8,885 ac	0 ac	8,885 ac	0 ac
#3-Animal Communities							
06029	15,684 ac	0 ac	See text for aquatic concerns	15,684 ac	0 ac	15,684 ac	0 ac
06028	8,885 ac	0 ac		8,885 ac	0 ac	8,885 ac	0 ac
#4-Special Status, T&E Species							

STANDARDS FOR PUBLIC LAND HEALTH							
	Current Situation			With Proposed Action		With No Grazing	
[Standard]	Achieving or Moving Towards Achieving	Not Achieving	Causative Factors	Achieving or Moving Towards Achieving	Not Achieving	Achieving or Moving Towards Achieving	Not Achieving
06029	15,684 ac	0 ac		15,684 ac	0 ac	15,684 ac	0 ac
06028	8,885 ac	0 ac		8,885 ac	0 ac	8,885 ac	0 ac
#5-Water Quality							
06029	15,684 ac	0 ac		15,684 ac	0 ac	15,684 ac	0 ac
06028	8,885 ac	0 ac		8,885 ac	0 ac	8,885 ac	0 ac

NATURAL, BIOLOGICAL, AND CULTURAL RESOURCES

AIR QUALITY

Affected Environment: This proposed action is located in rural northwest Colorado in the White River Basin, more than ten miles from special designation air sheds or non-attainment areas. Industrial facilities in White River Basin include coal mines, soda ash mines, natural gas processing plants and power plants. Due to these industrial uses, increased population and oil and gas development in this region, emissions of air pollutants in the White River Basin due to exhaust emissions and dust (particulate matter) are likely to occur and increase into the future. Despite increases in emissions, overall air quality conditions in the White River Basin are likely to continue to be good for some time to come due to effective atmospheric dispersion conditions and limited transport of air pollutants from outside the area. The White River Field Office (WRFO) resource area has been classified as either attainment or unclassified for all air pollutants, and most of the area has been designated for the prevention of significant deterioration (PSD) class II.

Environmental Consequences of the Proposed Action: The environmental consequences to air quality from the proposed action would include the periodic and local production of dust due to cattle trailing to and from forage, water and nutrient sources. The most likely time for increased dust production due to approved activities will be during periods of the day (typically morning and evening) that cattle move to water, forage and/or nutrients, between pastures and onto and off of the allotment. Dust levels may be noticeable locally and especially during drier times. The Colorado Air Pollution Control Division (APCD) estimates the maximum PM_{10} levels (24-hour average) in rural portions of western Colorado to be near 50 micrograms per cubic meter ($\mu g/m^3$). This alternative is not likely to exceed this western Colorado dust standard.

Environmental Consequences of the No Grazing Alternative: Impacts from the no-action alternative would result in no dust production due to grazing activities.

Mitigation: None Identified.

SOILS (includes a finding on Standard 1)

Affected Environment: The Black Sulphur allotment and the Hatch Gulch allotment have had soils inventoried and compiled in the Rio Blanco County Soil Survey (1982) and the Soil Survey of Douglas- Plateau Area, Colorado, Parts of Garfield and Mesa Counties (2003). The soil map unit and its associated ecological site are listed by major pasture below:

North Black Sulphur Pasture BLM Soils/Ecological Sites		
SOIL UNIT NAME	**ECOLOGICAL SITE**	**Acres**
Barcus channery loamy sand,2-8%slopes	Foothills Swale	132
Glendive fine sandy loam	Foothills Swale	3
Hagga loam	Swale Meadow	2
Havre loam,0-4%slopes	Foothill Swale	5
Piceance fine sandy loam,5-15%slopes	Rolling Loam	11
Redcreek-Rentsac complex,5-30%slopes	PJ woodlands/PJ woodlands	202
Rentsac channery loam,5-50%slopes	Pinyon Juniper woodlands	3,135
Torriorthents-Rock Outcrop, complex,15-90%slopes	Stoney Foothills	131
Yamac Loam,2-15%slope	Rolling Loam	23
	Total Acres	**3,644**

Yankee/Eureka Pasture BLM Soils/Ecological Sites		
SOIL UNIT NAME	**ECOLOGICAL SITE**	**Acres**
Barcus channery loamy sand,2-8%slopes	Foothills Swale	578
Forelle loam, 3-8%slopes	Rolling Loam	133
Forelle loam, 8-15%slopes	Rolling Loam	17
Glendive fine sandy loam	Foothills Swale	507
Hagga loam	Swale Meadow	1
Havre loam,0-4%slopes	Foothill Swale	7
Northwater loam,5-50%slopes	Aspen Woodlands	52
Parachute Loam,25-75%sloeps	Brushy Loam	287
Parachute-Rhone loams,5-30%slopes	Mountain Loam	46
Piceance fine sandy loam,5-15%slopes	Rolling Loam	196
Redcreek-Rentsac complex,5-30%slopes	PJ woodlands/PJ woodlands	2,466
Rentsac channery loam,5-50%slopes	Pinyon Juniper woodlands	6,322
Starman-Vandamore complex,5-40%slopes	Dry Exposure/Dry Exposure	438
Torriorthents-Rock Outcrop, complex,15-90%slopes	Stoney Foothills	650
Yamac Loam,2-15%slope	Rolling Loam	340
	Total Acres	**12,040**

Hatch Gulch BLM Soils/Ecological Sites		
SOIL UNIT NAME	**ECOLOGICAL SITE**	**Acres**
Barcus channery loamy sand,2-8%slopes	Foothill Swale	456
Forelle loam, 3-8%slopes	Rolling Loam	130
Glendive fine sandy loam	Foothills Swale	60
Hagga loam	Swale Meadow	12
Havre loam,0-4%slopes	Foothill Swale	8
Piceance fine sandy loam,5-15%slopes	Rolling Loam	70
Redcreek-Rentsac complex,5-30%slopes	PJ woodlands/PJ woodlands	2,362
Rentsac channery loam,5-50%slopes	Pinyon Juniper woodlands	4,130
Rentsac-Piceance complex,2-30%slopes	PJ woodland/Rolling Loam	64
Torriorthents-Rock Outcrop, complex,15-90%slopes	Stoney Foothills	1,298
Veatch channery loam,12-50%slopes	Loamy Slopes	255
Yamac Loam,2-15%slope	Rolling Loam	40
	Total Acres	**8,885**

In general, soils that are occupied by a mid seral, late seral or potential natural community (PNC) plant community (see *Vegetation*, *Ecological Site Similarity Ratings by pasture)*, have sufficient cover of native plant species and produce sufficient litter and ground cover to minimize runoff and provide for site conservation. These soils meet the Colorado Land Health Standards for upland soils. Soils occupied by early seral plant communities, though some have cheatgrass, typically have sufficient diversity of native plant species to provide effective ground cover that preventing overland flow of runoff. However, expression of rills and soil pedestals is minimal on most of these early seral sites. No active gully erosion whose causative factor is livestock grazing is evident on public lands within the affected allotments. These early seral plant communities are not meeting the Colorado Standard for upland soils.

Environmental Consequences of the Proposed Action: Surface litter, canopy cover and ground cover would increase on most of the mid-seral and some of the early-seral rangelands as a result of the critical growing season rest and regrowth opportunities provided by livestock management under the proposed action. The rest and regrowth opportunities are expected to increase the cover of native perennial grass species important in soil protection. On the soils occupied by late seral and PNC plant communities, cover of perennial vegetation is not expected to change from the current situation. The soils with mid-seral, late seral and PNC, as well as, those early seral communities experiencing increases in perennial vegetation cover would meet the Colorado Land Health Standard for upland soils.

Environmental Consequences of the No Grazing Alternative: Under a no grazing scenario most of the sites currently being grazed by cattle in the Black Sulphur and Hatch Gulch permit renewal area would experience an increase in soil surface litter and an increase in perennial vegetation cover in the short term. This increase would be beneficial for soil protection and development. Such an increase in perennial vegetation cover would most likely occur on ecological sites rated as mid seral and on some of the early seral ecological sites. On most late seral and PNC ecological sites, vegetation cover and thus, soils would not be expected to change

appreciably from the current situation. With the exception of the early seral ecological sites, the Colorado Land Health Standard for upland soils would be met under no grazing

Mitigation: Continue monitoring key areas and add additional Daubenmire canopy coverage transects to identify trends and changes in plant community cover and composition.

Finding on the Public Land Health Standard for upland soils: Soils within the Black Sulphur and Hatch Gulch allotments; currently meet the Land Heath Standard and would continue to meet or exceed the Standard under the proposed action.

WASTES, HAZARDOUS OR SOLID

Affected Environment: There are no known hazardous wastes on the subject lands. No hazardous materials are known to have been used, stored or disposed of at sites in the allotments. There are no known solid waste dump sites within the allotments. There are several old sites in the area that may have unknown risks for hazardous wastes. These include an old oil shale development site that is in the midst of cleanup in the private lands for T3S, 99W, Section 6 and 7 in the Black Sulphur drainage. There is also oil and gas activity throughout the allotment. Standard practices would require fencing around pits, sometimes fencing reclaimed area and sometimes fencing production facilities to exclude livestock. However do to the chemicals used there is the potential of contamination for livestock at these facilities.

Environmental Consequences of the Proposed Action: No listed or extremely hazardous materials are proposed for use in this project. All applications of pesticides would be in compliance with BLM requirements.

Environmental Consequences of the No Grazing Alternative: No hazardous or other solid wastes would be generated under the no-action alternative.

Mitigation: Please contact the BLM – WRFO Hazardous Materials Coordinator at (970) 878-3800 and/or the Colorado Department of Public Health and Environment (CDPHE) through the 24-hour spill reporting line at 1 (877) 518-5608, if the permittee suspects the release of any chemical, oil, solid waste, petroleum product, or sewage in the allotment.

WATER QUALITY, SURFACE AND GROUND (includes a finding on Standard 5)

Affected Environment: This allotment is entirely within the Piceance Creek watershed. The upper reaches of Black Sulphur and Fawn Creek have portions that support cold water aquatic systems, the rest of the segments are classified as warm water. The first table below lists the drainages that intersect the boundaries of the allotments with the corresponding number of acres within each of these drainages. Highlighted in bold letters are the major drainages (greater than 1,000 acres) within the allotment boundaries. The second table identifies the water quality classification the Colorado Department of Public Health and Environment (CDPHE) has placed each of the drainages within the allotments.

Basin	Watershed	Named Drainage	Acres
White River	Piceance Creek	**Piceance Creek**	1,688
		Lee Gulch	2,016
		Dudley Gulch	1,150
		McKee Gulch	21
	Cole Gulch	Cole Gulch	14
	Bear Gulch	**Bear Gulch**	1,362
	Hatch Gulch	**Hatch Gulch**	1,682
	Ryan Gulch	Ryan Gulch	12
	Dudley Gulch North	**Dudley Gulch North**	1,022
	Miller Hill Draw	Miller Hill Draw	489
	Hog Lot Draw	Hog Lot Draw	65
	Black Sulphur Creek	**Black Sulphur Creek**	8,758
		Dry Gulch	9
		Fawn Creek	74
		Eureka Gulch	6,507
		Yankee Gulch	4,146
		Swozer Gulch	208
		West Fork Canyon Creek	33
		Approximate Total	**29,256**

SEGMENT #	SEGMENT DESCRIPTION	CLASSIFICATION
15	Mainstem of Piceance Creek from Ryan Gulch to the White River including the Dry Fork of the Piceance.	Aquatic Life Warm 2, Recreation P, Agriculture
16	All Tributaries to Piceance Creek other than segments 15, 17, 18, 19, and 20.	Aquatic Life Warm 2, Recreation P, Agriculture
19	Mainstem of Fawn Creek	Aquatic Life Cold 2, Recreation P, Agriculture
20	Mainstem of Black Sulphur	Aquatic Life Cold 1, Recreation N, Agriculture

Environmental Consequences of the Proposed Action: The allotment is divided into three pastures- North Black Sulphur, Black Sulphur riparian and Yankee/Eureka. The grazing management plan will permit short duration spring use (typically 2 weeks, May 1-May15) every third year in the North Black Sulphur pasture. The other 2 years use in the North Black Sulphur pasture will be late fall/winter use (Nov 1- Dec 30). The focus of the grazing management plan is to continue the upward trend of the Black Sulphur riparian area and to provide for partial deferment on the entire allotment during the critical growing period every year with emphasis on good livestock distribution at a moderately light stocking rate. The Hatch Gulch allotment will continue to be used only in the late fall/winter

The majority of this allotment is on BLM administered lands. Using the Proper Function Condition (PFC) wetland assessment method, reach three on Black Sulphur Creek was rated as Functioning at Risk (FAR) – trend not apparent in 1995 and again, rated the same in 2006, but in 2009, this reach was rated FAR, with an upward trend. Most of the impacts to the channel are occurring where the gradient flattens in a sagebrush park. Going upstream the vegetation increases in density and the terrain gets steeper, therefore livestock use is relatively less on Reach 1 and 2.

Grazing removes vegetation that may help reduce rain splash erosion, lessen surface runoff and livestock often preferentially remove grass and forb species that form root masses that hold together soil matrices better than non-desirable species. This may lead to a vegetation shift to grasses and forbs that are not as beneficial to water quality. Hoof action from trailing to and from water, nutrient and forage sources as well as travel through pastures create preferential flow paths that can concentrate overland flow and intercept subsurface flows. These impacts will be assessed and if impacts are observed and changes may occur during yearly range management modifications to address specific situations. With good grazing management impacts are not expected beyond those typically experience on public lands.

The BLM-WRFO manages grazing on public lands according to the 1997 White River ROD/RMP for the WRFO that outlines Standards and Guidelines for Public Land Health and Colorado Livestock Grazing Management Guidelines. These Standards include guidelines for upland soils, riparian systems, healthy desirable plant species, and water quality (both surface and ground). The Water Quality may improve indirectly from the improved condition of the riparian areas under the Proposed Actions management but should be evaluated for standards to maintain the beneficial functions of healthy riparian areas for water quality.

Environmental Consequences of the No Grazing Alternative: Nonuse of this area for grazing would generally improve water quality as compared to the proposed action.

Mitigation: Stocking rates should be reduced during periods of drought and/or during periods of drought recovery to improve upland health.

Immediate action should be taken to reduce trailing issues when they are identified. If accelerated erosion (rilling, gullying etc.) is occurring due to trailing please contact the authorized officer to determine if a change in management or a rangeland development project should be constructed or the grazing approach altered to reduce impacts.

Finding on the Public Land Health Standard for water quality: This permit change is unlikely to lead to an exceedance of Colorado water quality standards.

WETLANDS AND RIPARIAN ZONES (includes a finding on Standard 2)

Affected Environment: The Black Sulphur allotment has one high priority riparian area associated with it. Black Sulphur Creek is a common boundary between the Square S allotment (06027) and the Black Sulphur allotment (06029). Because there is no fence separating the two allotments along this part of the boundary, the riparian area is managed cooperatively between the two allotments and the two grazing operations permitted to use those allotments. The Black Sulphur riparian area is managed as a single pasture. The Black Sulphur riparian area on BLM lands is a total of 2.65 miles in length and has been classified in 4 reaches. An interdisciplinary (ID) team performs proper functioning condition (PFC) assessments; the most resent PFC assessment was completed on May 20 and June 10, 2009. The four reaches were assessed as either in proper functioning condition or functioning at risk with livestock grazing not a

causative factor. It is important to note the PFC ID team noted on the data sheets that the 2009 assessment year was done without livestock use. The previous assessment year (2006), although the system was rated as non-functional, the causative factor noted on the data sheets was road encroachment and oil and gas activity near the drainage. Below is a table that summarizes all previous PFC assessments completed on Black Sulphur Creek with clarification on why the system may or may not be in PFC.

PROPER FUNCTIONING CONDITION (PFC) ASSESSMENTS					
Reach ID #	**1995**	**2003**	**2006**	**2009**	**Comments**
1	PFC	FAR[1] –Trend not apparent (TNA) FAR - TNA FAR - TNA	NF[2] - road encroachment and oil and gas activity	PFC	For 2009 assessment- System assessed without livestock use. While the three previous assessments did have livestock use.
2	PFC	FAR - TNA PFC	NF - Upstream impacts (weeds/oil and gas activity)	FAR –Trend upward	
3	FAR –Trend not apparent	None	FAR - TNA	FAR –Trend upward	
4	PFC	None	NF - Cattle use deteriorating bank stability in places-	FAR – not apparent	

[1] Functioning at risk
[2] Non-Functioning

Black Sulphur Riparian Grazing History: Up until 1984, the Black Sulphur riparian area above its confluence with Swizer Gulch was used both in the spring and the fall as a corridor for livestock trailing to and from the Square S and Figure 4 (Mobil patented) summer ranges. Cattle grazing use was typically heavy and unmanaged. As a consequence of this grazing use, Black Sulphur Creek was non functional and the associated uplands were in poor condition.

In 1985, BLM, in conjunction with the two grazing permittees, initiated a system of managed grazing in which the Black Sulphur riparian area was used as a pasture at moderate intensity for short duration, typically in the spring. In 1992, BLM prescribed burned the drainage and drill seeded it to improve forage production on the uplands. Prior to that time the herbaceous component of the plant community was dominated by the invasive annual cheatgrass. While cheatgrass is still present in the plant community, it has been markedly reduced. The results of that burn and seeding are still evident today in terms of perennial grass cover and production. This past year (2008) Mantle Ranch used Black Sulphur with 65 Cow-calf pairs form May 12 to June 5. In the spring of 2009, Boone Vaughn did not use the Black Sulphur pasture

Environmental Consequences of the Proposed Action: The proposed action is a continuation of the current system of grazing management for the Black Sulphur riparian pasture. Typically spring cattle use is scheduled so that grazing occurs after peak spring flows and for a duration of no more than 20-25 days. The stocking rate is moderate or lighter. The timing and intensity of grazing allows for maintenance of plant vigor on the uplands and limited cattle impact on the riparian area itself.

Environmental Consequences of the No Grazing Alternative: This past year (2008) Mantle Ranch used Black Sulphur with 65 Cow-calf pairs form May 12 to June 5. In the spring

of 2009, Boone Vaughn did not use the Black Sulphur pasture. The ID team assessed the PFC condition of Black Sulphur as PFC or FAR with an upward trend, which indicates if livestock were not present in the allotment the riparian system could continue to improve.

Mitigation: None identified

Finding on the Public Land Health Standard for riparian systems: The Black Sulphur riparian area is meeting or exceeding the Standard and will continue to do so with the implementation of the proposed managed livestock grazing.

VEGETATION (includes a finding on Standard 3)

Affected Environment: The following table lists the plant community appearance for each of the ecological sites or woodland types on the two allotments along with the predominant plant species comprising the composition of each community.

Forb species, though important to the diversity of a community and comprising up to 25 to 30% of the composition of several of the plant communities listed, are not presented in the following table because they generally are not significant contributors to the general appearance of the community.

Ecological Site/ Woodland Type	Plant Community Appearance	Predominant Plant Species in Plant Community
Brushy Loam	Deciduous Shrub/grass Shrubland	Utah serviceberry, oakbrush, snowberry, nodding brome, sedge, slender wheatgrass, western wheatgrass, Letterman and Columbia needle grasses
Swale Meadow	Grass/Open Shrub Shrubland	Western wheatgrass, slender wheatgrass, mutton grass, squirreltail, junegrass, Letterman and Columbia needle grasses, mountain big sagebrush
Dry Exposure	Grassland	Beardless bluebunch wheatgrass, needle and thread, june grass, indian rice grass, fringed sage, buckwheat
Foothill Swale	Grass/Open Shrub Shrubland	Basin wildrye, western wheatgrass, slender wheatgrass, streambank wheatgrass, indian rice grass, Nevada bluegrass, basin big sagebrush, fourwing saltbush, rubber rabbitbrush
Loamy Slopes	Mix Shrub/grass Shrubland	Mountain mahogany, bitterbrush, Utah serviceberry, mountain big sagebrush, Letterman needlegrass, beardless bluebunch wheatgrass, sedge, western wheatgrass, junegrass, indian rice grass
Mountain Loam	Grass/Open Shrub Shrubland	Polyanthus brome, nodding brome, slender wheatgrass, bearded wheatgrass, Letterman and Columbia needle grasses, mountain big sagebrush, low rabbitbrush, snowberry, serviceberry
Mountain Swale	Grass/Open Shrub Shrubland	Basin wildrye, polyanthus brome, nodding brome, slender wheatgrass, bearded wheatgrass, Letterman and Columbia needle grasses, sedges, rushes, mountain big sagebrush, rubber rabbitbrush, snowberry,
Rolling Loam	Sagebrush/grass Shrubland	Wyoming big sagebrush, winterfat, low rabbitbrush, spineless horsebrush, bitterbrush, western wheatgrass, indian rice grass, needle and thread, junegrass, Nevada and mutton bluegrass

Ecological Site/ Woodland Type	Plant Community Appearance	Predominant Plant Species in Plant Community
Stony Foothills	Grass/Open Shrub Shrubland	Beardless bluebunch wheatgrass, western wheatgrass, needle-and-thread, junegrass, indian ricegrass, fringed sage, Wyoming big sagebrush, black sagebrush, serviceberry, pinyon and juniper
Pinyon- Juniper	Woodland , Pinyon- Juniper	Pinyon pine, Utah juniper, mountain mahogany, bitterbrush, Utah serviceberry, Wyoming big sagebrush, beardless bluebunch wheatgrass, western wheatgrass, junegrass, indian rice grass, mutton grass

The following table shows the seral rating system used by BLM to rate rangeland plant communities in comparison to the potential natural plant community for a particular rangeland site.

ECOLOGICAL SITE SIMILARITY RATINGS	
Seral Rating	**% Similarity to the Potential Natural Plant Community (PNC)**
Potential Natural community (PNC)	76-100% composition of species in the PNC
Late-Seral	51-75% composition of species in the PNC
Mid-Seral	26-50% composition of species in the PNC
Early-Seral	0-25% composition of species in the PNC

The following tables show an estimate of the public land acreage falling within one of the seral ratings for ecological site on each allotment. These estimates are based upon professional judgments of the Rangeland Management Specialist trained in the use of the rating system. Nearly all ecological sites were visited during the field season of 2008 for a plant community assessment of the Colorado Public Land Health Standards for each allotment.

Black Sulphur Allotment		
North Black Sulphur Pasture BLM Soils/Ecological Sites		
SOIL UNIT NAME	**ECOLOGICAL SITE**	**Acres**
Barcus channery loamy sand,2-8%slopes	Foothills Swale	132
Glendive fine sandy loam	Foothills Swale	3
Hagga loam	Swale Meadow	2
Havre loam,0-4%slopes	Foothill Swale	5
Piceance fine sandy loam,5-15%slopes	Rolling Loam	11
Redcreek-Rentsac complex,5-30%slopes	PJ woodlands/PJ woodlands	202
Rentsac channery loam,5-50%slopes	Pinyon Juniper woodlands	3,135
Torriorthents-Rock Outcrop, complex,15-90%slopes	Stoney Foothills	131
Yamac Loam,2-15%slope	Rolling Loam	23
	Total Acres	**3,644**

Black Sulphur Allotment		
Yankee/Eureka Pasture BLM Soils/Ecological Sites		
SOIL UNIT NAME	**ECOLOGICAL SITE**	**Acres**
Barcus channery loamy sand,2-8%slopes	Foothills Swale	578
Forelle loam, 3-8%slopes	Rolling Loam	133
Forelle loam, 8-15%slopes	Rolling Loam	17
Glendive fine sandy loam	Foothills Swale	507
Hagga loam	Swale Meadow	1
Havre loam,0-4%slopes	Foothill Swale	7
Northwater loam,5-50%slopes	Aspen Woodlands	52
Parachute Loam,25-75%sloeps	Brushy Loam	287
Parachute-Rhone loams,5-30%slopes	Mountain Loam	46
Piceance fine sandy loam,5-15%slopes	Rolling Loam	196
Redcreek-Rentsac complex,5-30%slopes	PJ woodlands/PJ woodlands	2,466
Rentsac channery loam,5-50%slopes	Pinyon Juniper woodlands	6,322
Starman-Vandamore complex,5-40%slopes	Dry Exposure/Dry Exposure	438
Torriorthents-Rock Outcrop, complex,15-90%slopes	Stoney Foothills	650
Yamac Loam,2-15%slope	Rolling Loam	340
	Total Acres	**12,040**

Hatch Gulch Allotment BLM Soils/Ecological Sites		
SOIL UNIT NAME	**ECOLOGICAL SITE**	**Acres**
Barcus channery loamy sand,2-8%slopes	Foothill Swale	456
Forelle loam, 3-8%slopes	Rolling Loam	130
Hagga loam	Swale Meadow	12
Redcreek-Rentsac complex,5-30%slopes	PJ woodlands/PJ woodlands	2,362
Rentsac channery loam,5-50%slopes	Pinyon Juniper woodlands	4,130
Rentsac-Piceance complex,2-30%slopes	PJ woodland/Rolling Loam	64
Torriorthents-Rock Outcrop, complex,15-90%slopes	Stoney Foothills	1,298
Veatch channery loam,12-50%slopes	Loamy Slopes	255
	Total Acres	**8,707**

Black Sulphur Allotment, N. Black Sulphur Pasture Ecological Site Similarity Ratings						
ECOLOGICAL SITE	**Total BLM Site Ac. In Pasture**	**PNC**	**Late-Seral**	**Mid-Seral**	**Early-Seral**	**BLM Ac. Classified**
Swale Meadow	2	0	0	2	0	2
Foothill Swale	140	0	0	0	140	140

Black Sulphur Allotment, N. Black Sulphur Pasture Ecological Site Similarity Ratings						
ECOLOGICAL SITE	**Total BLM Site Ac. In Pasture**	**PNC**	**Late-Seral**	**Mid-Seral**	**Early-Seral**	**BLM Ac. Classified**
Rolling Loam	34	0	34	0	0	34
PJ woodlands/PJ woodlands	202	0	0	0	0	0
Pinyon Juniper woodlands	3135	0	0	0	0	0
Stoney Foothills	131	0	0	131	0	131
Total	**3644**	**0**	**34**	**133**	**140**	**307**
% BLM Ac Classified	**8**	**0**	**11**	**43**	**46**	

Black Sulphur Allotment, Yankee/Eureka Pasture Ecological Site Similarity Ratings						
ECOLOGICAL SITE	**Total BLM Site Ac. In Pasture**	**PNC**	**Late-Seral**	**Mid-Seral**	**Early-Seral**	**BLM Ac. Classified**
Swale Meadow	1	0	0	1	0	1
Foothill Swale	1092	0	0	238	854	1,092
Aspen Woodlands	52	0	0	52	0	52
Brushy Loam	287	0	287	0	0	287
Mountain Loam	46	0	0	46	0	46
Rolling Loam	686	0	0	374	312	686
PJ woodlands/PJ woodlands	2466	0	0	0	0	0
Pinyon Juniper woodlands	6322	0	0	0	0	0
Dry Exposure/Dry Exposure	438	0	438	0	0	438
Stoney Foothills	650	0	0	650	0	650
Total	**12,040**	**0**	**725**	**1,361**	**1,166**	**3,252**
% BLM Ac Classified	**27**	**0**	**22**	**42**	**36**	

Hatch Gulch Allotment Ecological Site Similarity Ratings						
ECOLOGICAL SITE	**Total BLM Site Ac. In Pasture**	**PNC**	**Late-Seral**	**Mid-Seral**	**Early-Seral**	**BLM Ac. Classified**
Foothill Swale	456	0	0	456	0	456
Rolling Loam	130	0	0	130	0	130
Swale Meadow	12	0	12	0	0	12
PJ woodlands/PJ woodlands	2,362	0	0	0	0	0
Pinyon Juniper woodlands	4,130	0	0	0	0	0
PJ woodland/Rolling Loam	64	0	0	0	0	0
Stoney Foothills	1,298	0	1298	0	0	1,298
Loamy Slopes	255	0	255	0	0	255
Total	**8,885**	**0**	**1,565**	**586**	**0**	**2,151**
% BLM Ac Classified	**24**	**0**	**73**	**27**	**0**	

Environmental Consequences of the Proposed Action: Surface litter, canopy cover and ground cover would increase on most of the mid-seral and some of the late seral rangelands on

both the Black Sulphur and Hatch Gulch allotments as a result of the critical growing season rest and regrowth opportunities provided by livestock management under the proposed action. The rest and regrowth opportunities are expected to increase the cover of native perennial grass species important for soil protection and development. On the soils occupied by late seral and PNC plant communities, cover of perennial vegetation is not expected to change from the current situation.

Environmental Consequences of the No Grazing Alternative: Under a no livestock grazing scenario it is expected that there would be minimal changes in the allotment's late seral and PNC rangelands. Mid seral rangelands would be expected to improve in cover, production and diversity with no livestock grazing unless elk populations continue to grow unchecked. Under a no livestock grazing scenario there would also be an increased risk for stand altering large wildfires due to the resulting accumulation of fine fuels (grass).

Mitigation: Black Sulphur and Hatch Gulch allotment rangeland monitoring studies.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial)*:* Plant communities in both the Black Sulphur and Hatch Gulch allotments currently meet the Standard and would meet or exceed the Standard in the future under the proposed action.

INVASIVE, NON-NATIVE SPECIES

Affected Environment: Noxious weeds on the Black Sulphur allotment are relatively few and the infestations are localized in nature to where oil and gas activity has occurred. They are: 1) Russian knapweed (*Acroptilon repens*)- there is one less than 0.10 acre patch on Yankee/Eureka Ridge, the origin of which was a load of gravel hauled in an on area of heavy clay by the gas operator on the access road to service their gas well(s) up the ridge. These wells are now owned by Williams Energy. 2) Houndstongue (*Cynoglossum officinale*) - this species occurs as scattered light to heavy infestations in the Black Sulphur Creek drainage above its confluence with Swizer Gulch.

The invasive alien annual cheatgrass (*Bromus tectorum*) occurs in all the major drainages of the allotment (Yankee, Eureka, and Black Sulphur Creek primarily as a result of fire and historical grazing practices.

Environmental Consequences of the Proposed Action: In reference to the existing noxious weeds and invasive species, (houndstongue, Russian knapweed and cheatgrass), the proposed action, through its emphasis on managed livestock grazing has the best potential to maximize vigor of the grass component of the various ecological sites involved and thereby making those sites more resistant to invasion by noxious weeds and cheatgrass. While noxious weed species readily invade rangelands at all seral stages, the rate and extent of invasion would be much less for late seral rangelands with a vigorous, competitive compliment of perennial grasses and forbs. It is likely that the only difference between alternatives would be in their capacity to influence the rate and extent of noxious weed invasion, not the process of invasion

itself. For the allotments considered in this permit renewal, the more managed grazing scheme offered by the proposed action, through its effect in enhancing the vigor of the perennial grass component of the rangeland sites, would make those pastures' plant communities relatively more resilient and more resistant to noxious weed invasion than would be the case for other alternatives

Environmental Consequences of the No Grazing Alternative: The impacts of adopting this alternative would generally be similar to those of the proposed action; however, with no grazing we would lose the substantial permittee commitment to aggressive noxious weed management, an effort which has enabled us to check and eradicate new infestations and limit the spread of existing infestations.

Mitigation: Continue aggressive noxious weed management as planned in the Piceance Noxious Weed Management Plan.

THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES (includes a finding on Standard 4)

Affected Environment: The Hatch Gulch allotment contains two federally listed plant species, the Dudley Bluffs bladderpod (*Physaria congesta*) and the Dudley Bluffs twinpod (*Physaria obcordata*). The allotment also encompasses the Dudley Bluffs Area of Critical Environmental Concern (ACEC), as outlined below. The allotment is the type locality (the place or source where a holotype or type species was first found and recognized) for both narrowly endemic mustard species. Both plant species' and their habitats occur within and outside of the ACEC within the Hatch Gulch allotment primarily on open shale barren habitats derived from the Thirteen-mile tongue member of the Green River geological formation. The twinpod is found on often steep drainage side slopes where the formation is visible between the darker Uinta substrates. The bladderpod is found on more gentle terrain that occurs, and is found in the allotment above the twinpod habitat where the formation extends onto rounded ridge points although it can extend into the pinyon/juniper woodlands independent of twinpod habitats.

The bladderpod known population range is approximately 10 miles in diameter and the twinpod known population range is approximately 15-20 miles in diameter. Therefore, the species are considered narrowly endemic and do not occur outside of the WRFO's Piceance Basin. The Hatch Gulch allotment is found in the southwestern portion of the range and is one of three primary population centers for the Dudley Bluffs twinpod. The allotment contains one large and several smaller populations of the Dudley Bluffs twinpod, whose primary population centers occur approximately 10 miles to the northwest. The total BLM occupied habitat acreage for the twinpod is approximately 281 acres. Of this total, 52 acres are found in the Hatch Gulch allotment with 37 acres in the Dudley Bluffs ACEC. The total BLM acreage for the bladderpod is approximately 775 acres, with 65 acres occurring in the Hatch Gulch allotment (47 acres in the Dudley Bluffs ACEC).

No other listed, candidate or BLM sensitive plant species are known from, or are likely to occur in the Hatch Gulch allotment, although historic map records (both BLM (local) and Colorado

Native Heritage Program (state-wide) of the Rollin's cryptanth (*Cryptantha rollinsii*) do exist from the area. These records are currently treated as erroneous, as the species has not been rediscovered after numerous special status plant surveys conducted in the allotment for ongoing energy development in potential cryptanth habitat (similar to those for the bladderpod and twinpod) by recognized botanists of the local area. Several vouchered populations of the Rollin's cryptanth do exist on the WRFO in the Raven Ridge area, approximately 50 miles west of the allotment. Therefore, the species is eliminated from further analysis under this assessment.

Environmental Consequences of the Proposed Action: The WRFO BLM entered into informal consultation with the United States Fish and Wildlife Service (USFWS) in March, 2009 for the Hatch Gulch portion of the term grazing permit renewals of Mantle Ranch and C.W. Brennan at the request of the USFWS. Consultation with the USFWS had not been previously completed for livestock grazing on the White River Field Office. The WRFO provided a Biological Assessment (BA) for Dudley Bluffs bladderpod (*Physaria congesta*) and Dudley Bluffs twinpod (*Physaria obcordata*) in the Hatch Gulch Allotment to the USFWS on July 13, 2009. The BA requested concurrence the BLM's determination that term grazing renewals for the Hatch Gulch grazing allotment *"may affect but is not likely to adversely affect"* the Dudley Bluffs bladderpod and twinpod. The BLM was subsequently granted concurrence on August 14, 2009 based on six conservation measures outlined in the BA. These conservation measures are outlined in the environmental consequences section below and the mitigation to be carried forward as Terms and Conditions in the Mitigation section below.

Direct Effects and Indirect Effects

1) *Livestock Trailing, Trampling, and Bedding***:** A pedestrian survey and field review of 90% of the potential, suitable and occupied habitats in the Hatch Gulch allotment was conducted in May 2009, by BLM specialists (botanist Maggie Marston, and Rangeland Management specialist Mark Hafkenschiel) on May 7, 2009 and May 13, 2009. No livestock trailing was evident on the Green River formations. Occasional cattle droppings were noted where rock outcrop shelving may contain sparse Pinyon/Juniper for cover on the formations. Some faint deer trails do exist, especially on the south-facing slopes. Based upon observations of cattle trails and droppings at a Dudley Bluffs bladderpod study site near Federal ExxonMobil #197-133 near an oil and gas activity protective fence, cattle occasionally meander upslope for shelter at the tree line if it is cold and snowy during the winter period. This is adjacent to an existing long-term monitoring study site and population of Dudley Bluffs bladderpod. Cattle shelter trees are located approximately 100 meters west of the central part of the population and approximately 50 meters north of small drainage branch of the population. Photo A shows a light-colored area central in the photograph where the central part of the population is found. This was the only area of the allotment where sign of cattle seeking tree line shelter was adjacent to bladderpod and twinpod habitats.

2) *Watering:* There is no live water and no developed water improvements on the Hatch Gulch allotment. Livestock use small snowmelt depressions or ingest snow for water consumption. During mid-winter the cattle are non-lactating, and are able to consume enough snow to meet hydration needs. Therefore, no trailing or trampling, or loitering near water sources are found in the allotment.

3) *Salting:* Current salting occurs in the drainages of the allotment. Salting has not been used to draw cattle up out of the drainages during the season of use.

4) *Palatability:* Livestock selection and consumption of the special status plant species is thought to be relatively insignificant because of the size of the plant and/or the barrenness of the habitats on which they occur. Secondary herbivory on less-palatable herbaceous vegetation such as these dormant, low-growing mustard species is unlikely under stable range conditions, and during the dormant season of use. This has been confirmed by on-going monitoring and the lack of selective herbivory observed. Long term monitoring indicates that annual precipitation may preface fluctuations in the population boundaries and number of individuals of both of the Dudley Bluff's threatened species. Long-term monitoring was initiated in 1985 and annual population surveys were completed in 1987-89, 1990-95, 1998-2000, 2002 and 2007 for both plant species' populations within the ACEC. Livestock threats were noted as "none" in the 2007 monitoring results and the plants were noted as vigorous and healthy.

5) *Intensity of herbivory:* V. J. Tepedino 2009 report prepared for the Colorado Natural Areas Program regarding pollination biology of *Physaria obcordata* states that grazing can be potentially devastating on fruit and seed production. Excessive grazing can modify morphological characteristics of rare plants (in fact, most plants) and Tepedino has cited Gomez (2003) for validating relaxed selection for flower number, inflorescence height and other characteristics in a related wild mustard species. Tepedino noted livestock herbivory in the Ryan Gulch ACEC in his study area during his field investigation; however the area of the ACEC receiving the herbivory was subsequently fenced to preclude livestock. Wild horse and ungulate use, at very low intensities is still visible within the exclosure. Several dynamics of this particular area differ from the Hatch Gulch allotment and the Dudley Bluffs ACEC which show differences in livestock grazing and use. One key factor is access to trespass cattle is far more likely in the Ryan Gulch ACEC due to fencing in common behind an active ranch headquarters and watering area.

   The Hatch allotment is currently stocked at 663 AUM's. The allotment was rated for 917 total forage production analyses AUM's in 1990 and February 2009. Cattle must be actively moved into the allotment for the grazing season across Rio Blanco County (RBC) Road 5. Available winter forage for cattle preference includes cheatgrass, which has not been included in the forage estimates, and cured native grass species found in the allotment uplands that include western wheatgrass, Indian ricegrass, beardless bluebunch wheatgrasses, needle and thread, winterfat, and mutton bluegrass.

   Intensity of the herbivory on the upland range site types varies somewhat by the amount of winter snowfall received in the drainages. As the winter season progresses, with increased snowfall, cattle may shift from the drainages and utilize uplands and grassy sideslopes. However, Dudley Bluffs bladderpod and Dudley Bluffs twinpod are usually found in open shale barren habitats that often contain less than 1-5% total percent cover of palatable species such as beardless bluebunch wheatgrass or Indian ricegrass, and therefore utilization by livestock on the Hatch Gulch allotment occurs at very low intensities, if at all.

6) *Timing of Herbivory:* Livestock grazing, as proposed, will occur exclusively from November through January each year. This timing of livestock herbivory assures that both the Dudley Bluffs bladderpod and Dudley Bluffs twinpod species' are dormant. The siliques open and dehisce in the fall, and the remaining leaves become semi-dried and leathery, with varying quantities of above-ground vegetation losses occurring on the twinpod. Although there is a possibility that animals may browse plants if available forage becomes scarce, this has not been documented in the Hatch Gulch allotment. Late winter twinpod herbivory by deer and wild horses has been observed in the Ryan Gulch allotment and is likely from the sign found in the Hatch Gulch allotment. Cattle use of twinpod has been observed in very isolated instances and was observed once in 2009 when two head of trespass cattle were accidently trapped in a corner of the Ryan Gulch ACEC. This small area contained a large population of twinpod plants near base of the sideslopes, which was also near the available grass sources, and was observed in February by BLM botanist Maggie Marston. The cattle were removed promptly and although the central, leafy portions of the plants were removed, the plants recovered and were vigorous, flowering and setting fruit as observed by the same botanist during a field trip to the same small area on June 12, 2009. It should be noted, however, that the 2009 growing season for Dudley Bluffs bladderpod and twinpod received record-setting precipitation and that these observations are anecdotal and would not address breeding depression or other long-term morphological changes under more wide-spread grazing use.

7) *Soil Crust Impacts:* Soil crust components have been observed in abundance at several of the Duck Creek ACEC Dudley Bluff's bladderpod sites. They have not been observed to be common in the Hatch Gulch twinpod populations. They have been casually observed to concur with Dudley Bluffs bladderpod sites in Hatch Gulch and these may be affected by livestock grazing. At this time, however, areas of trailing and trampling and/or bedding that may affect soil biological crusts has not been observed in the Hatch Gulch allotment.

8) *Habitat Fragmentation from Livestock Use:* No water or fence improvements for livestock exist in the allotment; therefore no fragmentation of existing habitats has or is occurring for improvement maintenance. No trailing has been observed in the allotment on Thirteen-mile tongue formations, therefore no fragmentation of suitable, occupied or potential habitats, or erosion have been noted as a result of livestock use in the allotment.

9) *Noxious weeds adjacent to threatened species populations:* Annual brome grasses do occur on the allotment, especially in the drainages and along more recent or unsuccessful energy reclamation corridors. These winter annuals, however, do not germinate in abundance on Dudley Bluffs bladderpod or twinpod habitats in the allotment. Their presence is pervasive in the Piceance Basin and with or without cattle grazing; they will remain present in most range site types at various levels. Halogeton is observed in the allotment at the toe of some of the Thirteen-mile tongue sideslopes. It tends to occupy the zone between the alluvial bottomlands and the true sideslope open shale barrens. It also occurs along RBCR #5, and along some of the energy disturbance corridors in the allotment. Cattle grazing may slightly contribute to Halogeton seed dispersal, however, this impact is thought to be minor when compared with the effects of creating new disturbance corridors and heavy county road use

by vehicles. Halogeton and other noxious weed removal from potential, suitable and occasionally occupied Dudley Bluffs twinpod and bladderpod habitats is addressed via a separate NEPA action, a Pesticide Use Proposal, which would include an application by the grazing permittee. Specific effects and mitigative measures would be analyzed at that time and consultation would occur.

10) *Fire/Fuels Related to Grazing:* Due to the winter season of use, wildfire effects on cattle dispersal and grazing use changes due to vegetation changes in the Hatch Gulch allotment have not been documented. The shale barren habitats, in which both species are found, are unlikely to actively carry fire. Under the proposed action, grazing is likely to decrease fine ground-fuels and will decrease fuel loading and the ability of fire to spread between shrubland or tree canopies. Grazing could however, serve to decrease fire intervals, which could increase fire intensities in Dudley Bluffs bladderpod habitats that occur between Pinyon and Juniper trees. Given the allotment's proximate location to the Magnolia energy field and the many wellpads, roads and production personnel spread throughout the allotment outside of the Dudley Bluffs ACEC, full fire suppression in this area is likely to continue. One June 2009 fire start adjacent to occupied habitat was suppressed by the BLM fire crew in the Hatch Gulch allotment. The crew was accompanied by a Hayden-Wing botanist and the pedestrian access to the fire was routed to avoid threatened plants.

11) *Wild Horses/Wild Ungulate Herbivory on Dudley Bluffs Species:* Although wild horses and other wild ungulates such as mule deer and elk do compete with domestic livestock for available forage in BLM grazing allotments, available forage measurements and allotment grazing preference AUM's are adjusted to provide adequate forage for current forage use.

12) *Pollinators/ Pollinator Habitats:* Tepedino, 2009, does state that excessive cattle grazing can remove early-blooming herbaceous species that provide food sources for ground nesting bees, the primary pollinators of the Dudley Bluffs twinpod and bladderpod species. The Hatch Gulch allotment utilizes a winter grazing schedule, however that would preclude most selective early-blooming herbaceous species grazing. Invasive species, such as annual brome invasion in drainage shrubland communities is likely to be displacing pollinator habitat plant species to a much greater degree in the Hatch Gulch allotment. Moderate winter grazing levels would not be proliferating annual brome conversion unless soil disturbance and hoof action exceeded *Rangeland Health Standards in Colorado* guidelines. This would be more likely around water developments and along improvement corridors or near heavily-used bedding sites. Without water developments and range improvements found in the allotment, and without observance of heavily-used bedding sites near the Dudley Bluff's bladderpod or twinpod sites, grazing is unlikely to affect pollinators or their habitats with off-season use.

13) *Conservation Measures:* The above mentioned impacts could result from livestock grazing on this allotment. In order to minimize these impacts, the following measures have been accepted by the USFWS and BLM as conservation measures/mitigation for the allotment. These measures are expected to render the impacts insignificant (cannot meaningfully measure, detect or evaluate effects). The conservation measures are listed below and mitigation for the allotment is listed in the Mitigation section below.

- If Land Health Standards show a decline in ecological site similarity ratings or seral ratings on Torriorthents-Rock Outcrop, complex, 15-90% slopes, or on Rentsac channery loam, 5-50% slopes, the cattle will be removed from the allotment until further NEPA analysis, consultation and protective and/or corrective actions have been determined.

- Monitoring of individual Dudley Bluffs bladderpod and twinpod sites will continue on an annual or semi-annual basis via the Colorado Natural Areas Program. Three study sites are monitored, two in the SW ¼ of Section 4 and one at the south end of Section 33 of Township 2S, 97W. Two sites have been developed for the Dudley Bluffs bladderpod and one for the Dudley Bluffs twinpod. The monitoring includes annual /semi-annual reports of population size, density and ocular estimates of grazing impacts and is provided to the BLM each year when monitored.

- Grazing is monitored and will continue to be monitored on the allotment at the following approximate intervals: Land Health Assessments and Ecological Site Indexing – every 10 years, Vegetation seral trend and riparian analysis – every 5 years, and utilization – annual monitoring.

Environmental Consequences of the No Action Alternative: The no grazing alternative may create additional fuel loading, which in turn, could enhance fire intensity threats to listed threatened plant species in the Hatch Gulch allotment. Shale barren habitats on which both Dudley Bluffs species' are found, however, do not actively carry fire in most circumstances. In addition, because of the allotment's proximate location to the Magnolia energy field, full fire suppression in this area is likely to continue. Overall vegetative changes to pollinator habitats within the allotment under the no grazing alternative could be mixed, with an increase or decrease of cheatgrass in the drainages, depending on several ecological processes, of which livestock grazing is a single variable. Plant community changes in the ACEC due to winter grazing are highly unlikely in most late seral areas, therefore bladderpod and twinpod pollinator habitat changes are unlikely. The potential for cattle trampling, trailing, bedding or herbivory to affect allotment's threatened plant habitats and overall vegetation could be reduced by this alternative if deleterious effects were present. Given the USFWS concurrence that these effects are currently insignificant, the no grazing alternative would have no effect on *Physaria congesta* or *Physaria obcordata* populations and habitats within the Hatch Gulch allotment.

Mitigation: The following should be added to the Terms and Conditions section of the grazing permit:

Trailing, Trampling, Bedding: If monitoring indicates that livestock grazing use shows any short or long term effects on either Dudley Bluff's bladderpod or Dudley Bluff's twinpod populations or suitable and potential habitats, the cattle will be removed from the allotment until further consultation and protective and/or corrective actions have been determined. No concentrating of livestock, including trailing, trampling, or bedding will be allowed within 200 meters of listed plant occupied habitats.

Salt: Salt will continue to be placed in drainages and away from side slopes containing Dudley Bluffs twinpod occupied and suitable habitats to keep livestock from concentrating in plant

habitats. No salting will be allowed within 200 meters of listed plant populations. A salt plan map will be developed showing no salt zones (200 meter buffers around occupied habitat).

Timing of Herbivory: If Hatch Gulch grazing regimens are changed as to season of use, numbers, and other permit changes that would result in on-the-ground changes to allotment vegetation use, further allotment analysis will be required and consultation will be re-initiated.

Finding on the Public Land Health Standard for Threatened & Endangered species: The concurrence letter (August 14, 2009) lists the following Summary of Effects for the Hatch Gulch Allotment.

1. Measurements of grazing use suggest that livestock grazing may have minimal impacts on Dudley Bluffs bladderpod and twinpod in the Hatch Gulch allotment, but BLM has determined these effects are currently insignificant.

2. Animals may browse plants when available forage is scarce. However, BLM has not witnessed this in the Hatch Gulch allotment and the Dudley Bluffs ACEC; and BLM believes the proposed winter grazing period minimizes the likelihood of livestock browsing because plants are less palatable in the winter. The plants are also unlikely to be browsed because livestock are unlikely to frequent their shale barren habitats due to the lack of abundant adjacent palatable forage.

3. Long-term monitoring was initiated in 1985 and annual population surveys were completed in 1987-89, 1990-95, 1998-2000, 2002 and 2007 for both plant species' population with the Dudley Bluffs ACEC. Livestock threats were noted as "none" in the 2007 monitoring results by the Colorado Natural Heritage and Colorado Natural Areas program personnel, and the plants were noted as vigorous and healthy.

4. The concurrence summary was based on the following USFWS Determinations.
   a. Implementation of the proposed conservation measures.
   b. Monitoring of grazing utilization and plant populations.
   c. The 2009 on-site field evaluations.
   d. Adherence to the Terms and Conditions of the Grazing permits.
   e. The proposed winter grazing period minimized the likelihood of livestock browsing because plants are less palatable in winter.

Measurements of grazing use, such as ongoing Land Health Standards application and forage analysis by BLM Rangeland Management Specialist Mark Hafkenschiel, and BLM botanist Maggie Marston 2009 field observations, suggests that livestock grazing may have minimal impacts on Dudley Bluffs bladderpod and Dudley Bluffs twinpod in the Square S allotment, but that these effects are currently insignificant.

Based on the application of the proposed conservation measures, on-going monitoring, new monitoring, 2009 on-site field evaluation, adherence to the Terms and Conditions of the grazing permit, adherence and on-going monitoring for the applicable Land Health Standards, the BLM concludes that effects to the Dudley Bluffs twinpod (*Physaria obcordata*) and the Dudley Bluffs

bladderpod (*Lesquerella congesta)* as a result of the Square S Grazing term permit renewal, as proposed, are insignificant. Therefore, the Square S Grazing permit renewal *may affect but is not likely to adversely affect* the Dudley Bluffs twinpod (*Physaria obcordata*) and the Dudley Bluffs bladderpod (*Lesquerella congesta).*

THREATENED, ENDANGERED, AND SENSITIVE ANIMAL SPECIES (includes a finding on Standard 4)

Affected Environment: There are no threatened, endangered or candidate animal species that are known to inhabit or make important use of either allotment. There are several BLM-sensitive species that may inhabit the permit area including northern goshawk, Townsend's big-eared bat, fringed and Yuma myotis, and the greater sage-grouse. See Aquatic Wildlife section for discussion on mountain sucker and Colorado River cutthroat trout, two BLM-sensitive fish species.

The northern goshawk is an uncommon resident in the White River Resource Area. In general, this species prefers to nest in mature, contiguous stands of aspen or aspen/spruce/fir mix. Over the past several decades, a small number of nests (~half a dozen) have been found in mature pinyon-juniper stands throughout the Piceance Basin. Aspen communities (~50 acres) within the Yankee/Eureka pasture and mature components of the approximately 18,600 acres of piñon-juniper woodlands with the permit area may provide nesting habitat for this species however, no known nests have been documented within the permit area.

Similarly, mature piñon-juniper woodlands may provide roosting substrate for the three BLM-sensitive bat species. Fringed myotis and Townsend's big-eared bats do not make long distance migrations and may be present in the general area year-round if suitable hibernacula are available. Yuma myotis is typically found in Colorado from April through September. These bats tend to congregate in large groups either during winter or as females and offspring in nursery colonies in the summer. Most large colonies are typically found in roosts such as caves, mines, tunnels, crevices, etc. In the project area, the most likely roost substrates available are trees which are typically used by solitary males during the summer months.

The extreme southwest portion of the Yankee/Eureka Gulch pasture involves mountain big sagebrush habitats that currently provide habitat for the greater sage-grouse, a species of high management concern in northwest Colorado. Sage-grouse historically occupied the broad sagebrush ridgeline between Eureka and Yankee Gulch. Progressive encroachment of piñon pine regeneration on this former sagebrush disclimax has precluded grouse occupation on this portion of the ridge for 30+ years. Approximately 1400 acres of the Yankee/Eureka Ridge was burned in 2005 and 2006 to restore its sagebrush steppe character. Currently the early-seral grassland type provides little utility for sage-grouse; however over the next one to two decades, changes in successional state, from grassland to sagebrush, will expand habitats available for grouse use.

There are several active leks located within approximately 1-2 miles from the permit boundary, but no known leks (active or historic) occur within the allotment. Based on telemetry data from

the Colorado Division of Wildlife, there is limited use along the ridgeline in the extreme southwest portion of the Yankee/Eureka Gulch pasture with considerable use concentrated on the neighboring ridges just outside the permit area. The fragmented nature of ridgeline sagebrush communities, compounded with encroaching serviceberry and piñon pine tends to limit bird abundance.

Environmental Consequences of the Proposed Action: As proposed, livestock use would have the greatest potential to influence sage-grouse habitats associated with nesting and early brood-rearing activities along the ridgelines in the extreme southwest of the Yankee/Eureka pasture. Presently, sage-grouse use along these ridgelines is limited which is likely a function of impaired nest habitat utility due to serviceberry and piñon pine encroachment. Based on allotment inspections conducted in June, livestock use appears to be compatible with the maintenance of native bunchgrasses which provide an important component for nesting habitat. Under the proposed grazing system, changes in vegetation are not expected to occur during the life of the permit, however within the next two decades shifts from a more dominate grassland community to a sagebrush community are anticipated within the burned area along the Yankee/Eureka ridge. This would considerably increase the amount of habitat available to sage-grouse for nesting, brood-rearing and winter functions. It is suspected that livestock use, particularly within the burned area along the Yankee/Eureka ridge, may promote the establishment of sagebrush by reducing competition between native grasses and sagebrush seedlings.

Mature aspen and piñon-juniper within the Yankee/Eureka pasture hold the highest potential for nesting goshawk. These stands would be subject to livestock use within the early portion of the breeding season. It is unlikely livestock use would have any potential to directly disrupt nesting activities as most use tends to be concentrated in open, gentler terrain with only incidental use in steeper, wooded areas. Livestock use under the proposed grazing system would have very little effect on herbaceous ground cover expression and its related influence on avian and mammalian prey populations through the majority of the nestling phase.

Environmental Consequences of the No Grazing Alternative: While livestock removal would generally improve the composition and vigor of herbaceous ground cover across the allotment as a whole, it is unlikely this would increase sage-grouse numbers in potentially suitable habitats within the Yankee/Eureka pasture. Much of the sagebrush communities are fragmented and altered by encroaching piñon pine and Utah serviceberry and as such likely are incapable of supporting significant grouse numbers.

With regards to northern goshawk, vegetation response from livestock removal would be most pronounced in those areas that currently experience concentrated use. Increases in herbaceous cover height and density would likely result in a similar response in small mammal populations associated with these habitat types in the short term. However, it is unlikely this would prompt a measurable response in goshawk numbers.

Mitigation: None

Finding on the Public Land Health Standard for Threatened & Endangered species: Overall, the allotment generally meets the land health standards for special status species. There is no reasonable likelihood that the proposed action or no action alternative would have an influence on the condition or function of Threatened, Endangered, or Sensitive animal species habitat. BLM parcels within this allotment currently meet the Public Land Health standard for special status species. Livestock use, as proposed, appears fully consistent with the maintenance and continued development of those habitat features important to greater sage-grouse and northern goshawk.

MIGRATORY BIRDS

Affected Environment: The Black Sulphur and Hatch Gulch allotments span a wide range of elevations and vegetation types which provide nesting habitat for a variety of migratory bird species during the breeding season (mid-May through mid-July).

The Hatch Gulch allotment, which spans elevational ranges between approximately 6000 and 7000 feet, is heavily dominated by piñon-juniper woodlands (~6556 acres). The remainder of this allotment is comprised of grassland/shrubland (~1900 acres) and mixed deciduous shrubland (~255 acres) communities. Wheatgrass (beardless bluebunch and western), needle and thread, Junegrass and Indian ricegrass are common perennial species within the Hatch Gulch allotment. Shrub species include Wyoming and mountain big sagebrush, serviceberry, snowberry, mountain mahogany and bitterbrush. Approximately 600 acres of the grassland communities within this allotment are in a mid-seral state.

Nearly all of the North Black Sulphur pasture mid-elevational (6400 -7000 feet) slopes are comprised of piñon-juniper woodlands (3337 acres or ~90%). The remaining 10% (307 acres) are largely grass and shrubland communities, similar in composition to that of the Hatch Gulch allotment. Approximately 46% of the grassland communities in this pasture are in an early-seral state. The remaining 43% of grasslands are a mid-seral community. Cheatgrass is scattered and discontinuous throughout the grasslands.

The Yankee/Eureka Gulch pasture ranges in elevation from ~6300 feet in the northeast corner to ~8100 feet in the southwest corner. Piñon-juniper woodlands are the dominant vegetation community with approximately ~8800 acres. Grasslands and open shrublands (basin big sagebrush, rabbitbrush component) comprise approximately 2100 acres with the remainder of the pasture being a mix of Wyoming big sagebrush (~700 acres) and grassland (~440 acres) vegetation types. Small, isolated stands of aspen (~50 acres) are present throughout this pasture mainly in the higher elevations. There is a strong cheatgrass component, particularly on the ridge that separates Yankee Gulch and Black Sulphur Creek. Similarly, cheatgrass is common in Yankee Gulch and Eureka Creek. Approximately 1100 acres of the grassland communities are in an early-seral state.

The Black Sulphur Riparian pasture has a large box elder component. Younger willows are common in areas along the banks but few mature trees are present. Basin big sagebrush and

greasewood are the predominant vegetation on the terraces immediately adjacent to the creek. Houndstongue is common along this system.

Birds of higher conservation interest (i.e., Partners in Flight program) associated with these habitats include: Brewer's sparrow (sagebrush communities), green-tailed towhee (mountain shrub communities), black-throated gray warbler, juniper titmouse, gray flycatcher, pinyon jay, and black-chinned hummingbird (piñon-juniper woodlands). Species associated with these habitats are well represented in the permit area. There are no specialized or narrowly endemic species known to inhabit the allotment.

Environmental Consequences of the Proposed Action: Proposed grazing periods would not coincide with and would have no potential to directly influence migratory bird nesting activities in the Hatch Gulch allotment. Although dormant season use may reduce the amount of residual component remaining for the early portions of the following breeding season in general, livestock removal by late January allows for essentially unaffected development of herbaceous growth prior to and during the nesting season.

Proposed spring use (May 1 – May 15 every third year) of the North Black Sulphur pasture would occur prior to and/or coincide with the early portions of the breeding season. Removal of herbaceous understory by livestock early in the breeding season may account for a slight reduction in the amount of cover and nesting material available, particularly for ground nesting species during those years of spring use, but overall, removal of livestock by mid-May would allow for sufficient regrowth for the remainder of the nesting season. Use of this pasture during November and December (years 2 and 3) may reduce the amount of residual ground cover available for the following breeding season but overall is not expected to negatively influence nesting activities. The most noticeable reductions (albeit minimally) in herbaceous ground cover, and subsequent potential to influence nesting activities would likely be in those years when this pasture is grazed in late fall followed by early spring. Approximately 90% of this pasture is comprised of piñon-juniper woodlands. Livestock generally tend to make limited use of this vegetation type due to either topographical constraints or limited forage availability. As such, piñon-juniper associates often times are minimally impacted by grazing practices. It is likely that much of the livestock use is concentrated in the remaining 10% of grass and shrublands located throughout the allotment (in the flatter, more open areas). Overall, spring use every third year should provide for sustained improvements in the composition (promotion of native perennial species), vigor, and density of herbaceous ground cover—particularly in those early-seral communities that have the prevalence of some annual forms. Dormant season use in the remaining two years may reduce the residual component available for supplemental cover into the early weeks of the following nesting season but any effects to nesting success or forage and cover availability are likely discountable.

Within the Yankee/Eureka pasture, livestock turnout begins April 1 and continues through mid-June. Livestock use this pasture again during the winter months (November 1 – February 28) with heaviest concentration on the Yankee/Eureka Ridge. Because there is no fenced division between pastures, the grazing schedule for this pasture is the best estimation by the BLM Range Conservation Specialist. Spring livestock use of this pasture would coincide with the early portions of the breeding season in the Yankee and Eureka Gulch zone and the mid portions along

the Yankee/ Eureka Ridge. Livestock use during this time may reduce the density and height of herbaceous ground cover but likely not below a functional level. Removal of livestock by late May to early June likely allows for 3 – 4 weeks of regrowth. Use during the dormant season has little influence on plant vigor. With the exception of open, more windswept areas, snow cover likely protects vegetation enough to retain a residual component for the following breeding season.

Overall, it is believed that the current management is predominantly compatible with the nesting activity of migratory birds associated with habitats available in each pasture. The herbaceous component did not exhibit any signs of prolonged use by livestock (i.e., strong perennial component, high vigor) during allotment inspections conducted in early June. Current timing of spring/summer use allows for sufficient regrowth opportunities and while dormant season use may reduce the amount of residual component remaining for the subsequent breeding season; it likely has little impact on nesting success in relation to cover availability.

Environmental Consequences of the No Grazing Alternative: Removal of cattle would be expected to have little effect on breeding bird abundance or reproductive/recruitment success in the permit area's ~18,700 acres of woodland types. Low forage availability and more rugged terrain limit livestock use of these habitats. Similarly, the relative effect of livestock grazing would not differ markedly from no cattle grazing in the Hatch Gulch pasture where use is generally asynchronous with the migratory bird nesting season and growing season. The grazing regimen for the Hatch Gulch pasture would not have an influence on live ground cover expression nor would it be expected to have substantive influence on nest site selection or the density of nesting pairs. Any grazing-related effects would be confined to those more generalized species that use residual herbaceous cover during the earlier portion of the breeding season (e.g., western meadowlark, vesper sparrow).

Benefits associated with livestock removal would be most expected in those areas that currently experience concentrated livestock use (bottoms and areas in close proximity to a water source) and in the approximately 1300 acres of early-seral and 1500 acres of mid-seral communities. Increased density, height, and horizontal cover attributable to bunchgrasses that are fully expressed (during and after the breeding seasons) would be expected to yield measurable positive responses in nongame bird and small mammal populations across these pastures within a 10-year period.

Mitigation: None

WILDLIFE, AQUATIC (includes a finding on Standard 3)

Affected Environment: Black Sulphur Creek provides habitat for at least two fish species. Fish sampling by BLM and CDOW biologists in August 2006 and September 2007 confirmed occupation of BLM reaches by mountain sucker, a native nongame fish recognized by BLM as sensitive. These fish are generally found in smaller systems that have gravel, sand or mud substrate. Adult suckers are typically found in areas with undercut banks, small pools, or eddies. Trout populations in BLM-administered reaches of Black Sulphur Creek fluctuate dramatically

in response to the availability of functional beaver ponds. Stream conditions alone are not conducive to the support of robust fish populations. Formerly occupied by Colorado River cutthroat, a BLM sensitive species and one petitioned for listing under the Endangered Species Act, the trout in Black Sulphur have hybridized with various forms of cutthroat and perhaps rainbow trout that were introduced in past State and private stockings. Important habitat components for this species include systems with consistently cool water temperatures, channels with an appropriate mix of riffles and pools, and diverse forms of channel cover, including undercut banks.

For reasons not obvious at this time, the most important deficiency of these BLM reaches located within the allotment is the notable lack of obligate forms of herbaceous riparian vegetation along the stream banks (i.e., sedges and rushes). A small and apparently early seral form of rush was colonizing incipient point bars in June 2009, but there was no indication that these features were holding fast and providing substrate for continued vegetation development. Late seral forms of sedge and rush have colonized off-channel seeps and old beaver pond terraces within the channel incise, but fail to appear on the channel banks. These obligate forms of vegetation possess massive and deep root systems that are superior in armoring the banks from water erosion and providing tenacious sites for sediment retention that support channel functions that promote channel deepening and narrowing (low width:depth ratios). These traits are fundamental to the development of the most important elements of quality trout habitat in this area: the formation of stable undercut banks as cover, and channels with width: depth ratios that buffer water temperatures and increase the incidence of flooding (prey input). Currently, in those reaches where bank vegetation is dominated by facultative wheatgrasses and bluegrasses, high or sustained streamflow events undercut their shallow, low-density root structure and the bank simply caves off. This perpetuates a process that increases sediment contributed to the system, aggravates channel widening (wide, shallow channels that warm, cool, and ice rapidly), and provides an ephemeral and damage-prone substrate that is not conducive to the establishment of erosion-resistant herbaceous forms.

Reaches that are characterized by box elder gallery forests have little herbaceous expression on the banks (probably from shading), and although their channels are typically entrenched to some degree, associated root masses, debris dams, and large rock in the channel perform effectively in providing channel stability and channel structure capable of being negotiated (i.e., habitat continuity) and occupied by trout.

Heavy multi-species willow stands have developed along portions of the BLM-administered reaches. Beaver are actively working these reaches and their dam building would normally provide a series of deepwater pools complementing appropriate trout habitat. However, within at least the last decade, the capacity and longevity of these ponds in Black Sulphur Creek is sharply abbreviated by rapid accumulations of sediment that fill these impoundments (e.g., 2-3 years) and prompt lateral channel movements that typically circumvent the dams and erosion-resistant channel vegetation and initiate channel downcutting events. In these situations, pond filling and degradation occurs at a rate that not only exceeds the capacity of beaver to repair dam breaches, but exceeds the growth potential of willow to provide material of sufficient quantity and size to rebuild or construct new dam structures. Presently, beaver activity represents an inherent source of channel instability rather than supporting appropriate channel evolution. The sources of these

sediments has not been determined, but they likely originate from extensive upstream watersheds that are privately owned, or small lateral channels that drain steeply-sloped ridges adjacent to the narrow Black Sulphur valley.

Environmental Consequences of the Proposed Action: The proposed grazing schedule is the same as current management and would allow for approximately three weeks use of the Black Sulphur valley from mid-May to early June in alternate years. However, because this pasture is used in the same manner by the adjacent permittee in intervening years, there is no functional year of rest and the Black Sulphur valley receives comparable levels of livestock use every spring. Short term livestock effects could not be assessed because use of the Black Sulphur valley had been bypassed this spring, but herbaceous growth in the valley suggests that removal of livestock by early June affords streamside vegetation adequate time for regrowth and recovery.

The proper functioning condition (PFC) of this system was assessed in May and June of 2009. With the exception of the upper 1/3 mile, this system was considered to be functional-at-risk with concerns expressed for the discontinuous distribution and extremely low densities of obligate forms of herbaceous streambank vegetation (e.g., sedge, rush), excessively widened channels (high width:depth ratios), sloughing banks dominated by facultative forms of vegetation, and frequent mild to moderate channel entrenchment. These characteristics do not favor channel processes that form important components of aquatic habitat for vertebrate forms (especially trout), such as stable undercut banks, narrow, deep baseflows, diverse channel bed structure, and bank vegetation that provides shade and channel insulation.

The fact that small, well-developed sedge/rush dominated locales exist within the Black Sulphur channel incise indicate that defoliation from ungulate grazing is compatible with the long-term persistence and proliferation of this riparian vegetation. The incongruous absence of herbaceous riparian-obligate vegetation on certain BLM-administered reaches suggests that streamside vegetation is subject to more frequent and intensive animal use (i.e., defoliation or trampling) that can be explained by permitted livestock use and bears closer scrutiny. These effects may be attributable to mechanical bank and channel disturbances made during the spring and fall by livestock or big game trampling and trailing, including concentrated spring and fall use by elk. It would be instructive to develop small corridor exclosures in representative channel segments to 1) remove the potential for ungulate disturbance of bank and channel features, and 2) provide a protected site where native forms of sedge and rush can be transplanted in order to evaluate their ability to colonize and persist on these sites.

Environmental Consequences of the No Grazing Alternative: Livestock removal would allow for full vegetation expression with the exception of continued grazing and browsing by elk. It is suspected that, over time, obligate forms of riparian vegetation (sedges and rushes) would begin to colonize and eventually dominate bank and floodplain features on those non-wooded reaches of Black Sulphur Creek. As erosion-resistant forms of vegetation became more prevalent in these areas, it is expected that substantial changes in channel morphology would occur that benefit the quality and stability of aquatic habitat conditions, including channel narrowing (reduced width:depth ratios) , development of undercut banks, and in conjunction with continued beaver activity, increased channel sinuosity within the incise. It is acknowledged that

excessive sediment would continue to shorten the lifespan of beaver ponds and prompt occasional channel perturbations, but system resilience would be equal to or greater than what currently exists.

Mitigation: Develop 1 or more narrow corridor exclosures (e.g., totaling 1 acre or less) within the Black Sulphur channel incise in a representative segment(s) of herbaceous riparian to: 1) remove the potential for ungulate disturbance of bank and channel features, and 2) temporarily provide a protected site where native forms of sedge and rush can be transplanted in order to determine their ability to colonize and persist on these sites. The WRFO wildlife staff would be responsible for constructing and maintaining these exclosures, and establishing vegetation on these sites. The WRFO wildlife staff will remain principally responsible for monitoring vegetation response within these exclosures; periodic interdisciplinary participation of the WRFO staff will be encouraged.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Terrestrial): In terms of providing aquatic habitat that is occupied by cutthroat trout and mountain sucker, BLM-administered reaches of Black Sulphur Creek generally meet the Land Health Standards, although the system operates in a functional state far below its potential. The system's instabilities (e.g., excessive sediment input) and deficiencies (e.g., lack of obligate herbaceous bank and floodplain vegetation) manifest marked and frequent fluctuations in aquatic habitat conditions and fish abundance—important considerations of the Land Health Standards that are not being achieved. Sporadic and infrequent monitoring has not provided sufficient information to determine whether the system's traits are caused by off-site influences, persist from historic management practices, or continue to be aggravated by livestock and big game use.

WILDLIFE, TERRESTRIAL (includes a finding on Standard 3)

Affected Environment: The lower elevation (6000 – 7000 feet) shrubland and piñon-juniper slopes (particularly south facing) of the Hatch Gulch allotment are categorized as big game severe winter range. These lower elevation severe winter ranges, by definition, support 90% of the herd during the worst three winters of 10 and are classified by the Colorado Division of Wildlife as critical habitat (i.e., ranges that involves limited resources, the loss of which prompt reductions in population). These areas generally experience the most use from January through April.

The remaining three pastures (N. Black Sulphur, Black Sulphur riparian and Yankee/Eureka) are classified as big game winter range and/or summer range depending on elevation gradient. Big game use throughout the winter ranges is primarily during fall and early winter months (October through January) with transitions to the higher elevational summer ranges (southwest portion of Yankee/Eureka) during the spring months of April/May. In general, big game will remain in these higher elevation summer ranges until October/November. Herbaceous vegetation forms the primary forage base for big game in the spring through early fall months, with woody forages used increasingly through the fall and winter months.

Breeding raptor use of the project area is represented largely by woodland accipitrine species. Mature components of the allotment's 18,700 acres of piñon-juniper woodlands and small stands of aspen likely support a small number of breeding sharp-shinned and Coopers hawk, red-tailed hawk, long-eared, great-horned, saw-whet and pygmy owl. Rock outcrops, particularly along Black Sulphur Creek, may provide potential nest substrate for golden eagle and red-tailed hawk. A small number of known raptor nests are located within the allotment.

Limited information exists on small mammal use and distribution within the allotment; however it is suspected that nongame species using the allotment's habitats are typical and widely distributed in extensive like habitats across the Resource Area and northwest Colorado. There are no narrowly endemic or highly specialized species known to inhabit those lands potentially influenced by this action. Non-game bird and small mammal communities generally respond positively to increasing vegetation diversity, volume, and structural complexity. Particularly in the case of small mammals and shrub and ground-nesting passerine birds, increasing height and density of persistent herbaceous ground cover as a source of cover, forage (e.g., herbage, seed), and forage substrate (e.g., invertebrates) can be expected to allow for more continuously and extensively occupied habitat, increased density of breeding pairs, improved reproductive performance, and enhanced over winter survival (mammals). Non-game populations associated with the upland communities, particularly dense mountain shrub basins that retain more fully developed understories, likely occur at densities that approach habitat potential. Community diversity and breeding densities, especially in early-seral (cheatgrass dominated) communities and degraded riparian habitats, are likely strongly suppressed and considerably below their potential. The abundance of non-game animals associated with gentle gradient upland shrub types where the ecological status of herbaceous ground cover is classified as mid-seral are likely suppressed to some degree, but population viability probably remains relatively intact.

Environmental Consequences of the Proposed Action: Proposed livestock use in the Hatch Gulch allotment is concurrent with big game use during the early winter months. Based on ground cover conditions, the timing and intensity of livestock use in conjunction with ongoing big game use would have no adverse influence on the composition, vigor, or regeneration of herbaceous vegetation. Collective use by livestock and big game likely reduces residual cover to some degree however; it is suspect that sufficient residual and basal cover should remain widely available on BLM-administered lands during the winter and into the spring to provide adequate ground cover and/or forage for non-hibernating small mammals and early nesting attempts by ground-nesting birds. Livestock use of heavy bunchgrass residual in the late fall/early winter likely operates to increase accessibility of fall regrowth or emergent spring growth for big game. Allotment inspections conducted in June show current livestock use has no apparent influence on the availability or production of woody forage for big game winter use. Similarly, livestock use in the remaining three pastures occurs during periods of both winter and summer use by big game. During allotment inspections conducted in June and July, there were no extensive or chronic big game-livestock forage (herbaceous) competition issues that were observed. Additionally, there were no indications of widespread use by big game or cattle of woody forages that influence or interrupt the abundance or continued development of deciduous shrubs as woody forage or cover.

The proposed grazing schedule is not anticipated to directly influence nest success/outcome of woodland raptors. Livestock use tends to be concentrated in open, gentler terrain with only incidental use in steeper, wooded areas. As proposed, the grazing schedule allows for sufficient regrowth opportunities to maintain adequate perennial grass and forb cover, diversity and complexity, allowing for an abundant and well distributed prey base (both small mammals and nongame birds).

There was a noticeable lack of herbaceous riparian obligates (sedge/rush), particularly in the open areas along Black Sulphur Creek. While the full complement of small mammal species associated with herbaceous, riparian habitats are likely represented; it is suspected that they may be suppressed (to some degree) and less continuous then what would be expected in a well-developed riparian community.

Environmental Consequences of the No Grazing Alternative: It is suspected that removal of livestock would increase seasonal herbaceous expression across much of the permit areas approximately 2,800 acres of early and mid-seral communities. Although improvements in perennial composition and vigor would be anticipated, this is not expected to have any effective influence on the continued support of big game. Livestock removal would also be expected to reduce use of heavy bunchgrass top growth, which would tend to slightly reduce big game access to grass growth in the spring, particularly by deer.

The most noticeable response would be for non-game mammals and bird populations, who would benefit with increasing vegetative cover, forage and litter cover. However, based on allotment inspections conducted in June and July, herbaceous cover appeared satisfactory and it is suspected that small mammal and bird populations are currently near potential across much of the allotment. Increases would be most prominent in those areas favored by livestock (bottomlands, mildly-sloped terrain and areas in close proximity to water) that are grazed synchronous with the nesting season. Rosenstock (1996) showed a positive response (abundance and species richness) for most small mammal species on ungrazed vs. grazed sites (>100 ha) in south-central Utah.

Mitigation: None

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Aquatic): The allotment generally meets the Land Health Standard for terrestrial wildlife at the landscape level. The proposed grazing schedule would not impede continued maintenance of these standards. There is no evidence to suggest that current grazing practices are aggravating deficiencies in the utility or available extent of wildlife habitat.

CULTURAL RESOURCES

Affected Environment: Range permit renewals are undertakings under Section 106 of the National Historic Preservation Act (NHPA). Range improvements associated with the allotment (e.g., fences, spring improvements) are subject to compliance requirements under Section 106 and will undergo standard cultural resources inventory and evaluation procedures. During

Section 106 review, a cultural resource assessment (#09-058) was completed for each allotment on (5/11/2009) following the procedures and guidance outlined in the 1980 National Programmatic Agreement Regarding the Livestock Grazing and Range Improvement Program, IM-WO-99-039, IM-CO-99-007, IM-CO-99-019, and IM-CO-01-026. The results of the assessment are summarized in the table below. Copies of the cultural resource assessments are in the White River Field Office archaeology files.

Allotment Number	Acres Inventoried at a Class III level	Acres NOT Inventoried at a Class III Level*	Allotment Inventoried at a Class III level	Cultural Resources known in allotment	High Potential of Historic Properties (yes/no)
06028	3,044	6,396	32%	26	yes
Management Recommendations Additional inventory required and historic properties to be visited		No additional inventory required, as all known cattle concentrations are on non-BLM surface. 5RB.5789 will be monitored for impacts as livestock were noted as a potential threat during the original recordation, though the site lies outside concentration areas.			
Allotment Number	**Acres Inventoried at a Class III level**	**Acres NOT Inventoried at a Class III Level***	**Allotment Inventoried at a Class III level**	**Cultural Resources known in allotment**	**High Potential of Historic Properties (yes/no)**
06029	16,165	3,641	82%	143	yes
Management Recommendations Additional inventory required and historic properties to be visited		No additional inventory required, as all known cattle concentrations are on non-BLM surface. 5RB.4543 will be monitored for impacts as livestock were noted as a potential threat during the original recordation, though the site lies outside concentration areas			

Numerous cultural resource inventories have been previously conducted within the Allotments resulting in the complete coverage inventory of 28,649 acres and the recording of 169 cultural resources. The types of cultural resources include 34 prehistoric open-air lithic scatters, 18 prehistoric open-air campsites, 7 prehistoric architectural sites, 1 prehistoric rock art site, 95 prehistoric isolated finds, and others.

They represent an identified time frame from the Archaic time period (c.6400 BC – 0 AD) through the 1950's. The eligibility status of these cultural resources for listing in the National Register of Historic Places (NRHP) is: 137 not eligible, 23 potentially eligible and 9 eligible.

Based on available data, a moderate to high potential for historic properties occurs in both Allotments. As all livestock concentration areas known to WRFO Range staff on the Allotments are on non-BLM surface, no further inventory will be required.

If historic properties are located during the subsequent field visits or projects, and BLM determines that grazing activities will adversely impact the properties, mitigation will be identified and implemented in consultation with the Colorado State Historic Preservation Office (SHPO).

No Native American Religious Concerns are known in the area, and none have been noted by Northern Ute tribal authorities. Should recommended inventories or future consultations with Tribal authorities reveal the existence of such sensitive properties, appropriate mitigation and/or protection measures may be undertaken.

Environmental Consequences of the Proposed Action: The direct impacts that occur where livestock concentrate include trampling, chiseling, and churning of site soils, cultural features, and cultural artifacts, artifact breakage, and impacts from standing, leaning, and rubbing against historic structures, above-ground cultural features, and rock art. *Indirect impacts include soil erosion, gullying*, and increased potential for unlawful collection and vandalism. Continued grazing may cause substantial ground disturbance and cause cumulative, long term, irreversible adverse effects to historic properties.

No known historic properties are located in areas where livestock concentrate. Two known NRHP-Eligible historic properties situated outside known livestock concentration areas have been identified as being under threat from grazing activities, and will be field visited to assess livestock grazing impacts. The historic properties include Ute wickiup village 5RB.4543 and historic ranching/logging camp 5RB.5789. The livestock impacts will be assessed within the ten-year period of the permit.

If historic properties are located during the subsequent field inventory, BLM will field visit these properties and assess the livestock grazing impacts. The livestock impacts will be assessed within the ten-year period of the permit.

Environmental Consequences of the No Grazing Alternative: Under the No Grazing Alternative, the abovementioned direct impacts to cultural resources would cease.

Mitigation: Sites 5RB4543 and 5RB5789 will be field visited within the 10-year term of the permit and the impact of grazing on these sites will be assessed. If grazing is found to have significant, negative effect on either site, then such impacted sites will be fenced with funding from the Range program.

PALEONTOLOGY

Affected Environment: Allotments 06028 and 06029 encompass areas generally mapped as the following fossil-bearing formations (Tweto 1979, Armstrong and Wolny 1989):

- Uinta Formation—potential fossil yield classification (PFYC) 4—Eocene mammals (titanotheres, uintatheres, myacid carnivores, possibly others), reptiles (turtles and crocodilians), fish (vertebrae, spines, and scales, likely including Lepisosteidae), gastropods (high-spired and turitellid snails), insect larvae, and plants (leaves, wood, algae, etc.). Known to produce fossil plants and turtle remains within the Allotments (see: 5RB.5341 and 5RB.5342).

- Modern Alluvium—PFYC 3a—Holocene animals, including Bison and horses.

A large portion of Allotment 06028 (Hatch Gulch) has been inventoried for surface occurrences of paleontological resources. According to this inventory, bedrock exposures are found primarily in “deeply weathered Uinta Formation cliffs and ledges” and “rugged terrain.”

Elsewhere, bedrock is "covered with soil or talus" (Winterfeld 2008, compliance dated 1/15/2009). That is, bedrock exposures of the Uinta Formation in Hatch Gulch Allotment generally occur in areas unsuitable for heavy livestock use.

Environmental Consequences of the Proposed Action: In general, paleontological materials (fossils) are not considered to be endangered by normal grazing activities. Some damage to fossil materials may occur in areas of livestock concentration (identified during cultural resource investigation—none present on BLM surface). Since in situ fossils are seldom encountered in alluvial areas where cattle tend to concentrate, the potential for damage to undisturbed fossil remains is low.

Direct impacts that may occur where livestock concentrate include trampling, chiseling and churning of site soils. There may be impacts from standing, leaning and rubbing against above ground features. Indirect impacts may include soil erosion, gullying and increased potential for unlawful collection and vandalism. In areas where fossil bed presence coincides with areas of livestock concentration, continued grazing may contribute to substantial ground disturbance and cause cumulative, long term, irreversible adverse effects to paleontological resources.

Environmental Consequences of the No Action Alternative: Direct and indirect impacts to paleontological resources from grazing activities would cease.

Mitigation: The permittees are responsible for informing all persons who are associated with the allotment activities that they will be subject to prosecution for knowingly disturbing paleontological localities or for collecting vertebrate fossils on public lands. If paleontological materials (fossils) are discovered during Allotment activities, the operator is to immediately stop activities that might further disturb such materials, and contact the authorized officer (AO). The operator and the authorized officer will consult and determine the best option for avoiding or mitigating paleontological locality damage.

ELEMENTS NOT PRESENT OR NOT AFFECTED:

No flood plains, prime and unique farmlands, exist within the area affected by the proposed action. There are also no Native American religious or environmental justice concerns associated with the proposed action.

OTHER ELEMENTS: For the following elements, only those brought forward for analysis will be addressed further.

Element	NA or Not Present	Applicable or Present, No Impact	Applicable & Present and Brought Forward for Analysis
Visual Resources	X		
Fire Management		X	
Forest Management		X	

Element	NA or Not Present	Applicable or Present, No Impact	Applicable & Present and Brought Forward for Analysis
Hydrology/Water Rights			X
Rangeland Management			X
Realty Authorizations		X	
Recreation		X	
Access and Transportation		X	
Geology and Minerals	X		
Areas of Environmental Concern			X
Wilderness	X		
Wild and Scenic Rivers	X		
Cadastral	X		
Socio-Economics	X		
Law Enforcement	X		

HYDROLOGY AND WATER RIGHTS

Affected Environment: The BLM has applied and received an instream flow water right for Black Sulphur Creek to protect the aquatic ecosystem in this creek and for livestock watering. There is at least one range improvement that includes a water line in the Black Sulphur Allotment. There are also numerous springs in the area that can be important water sources for livestock

Environmental Consequences of the Proposed Action: Cattle can decrease the vegetation around springs and other water source, and in some cases, can actually reduce the quality of the water sources due to creating direct physical disturbance and reducing storage of water in vegetation and soil near the source.

Environmental Consequences of the No Grazing Alternative: Impacts to water resources would not occur under this alternative.

Mitigation: None Identified

RANGELAND MANAGEMENT

Affected Environment: The grazing strategy on the allotment is to manage for continuous seasonal use at a moderately light stocking rate. This strategy will employ zones of grazing use in the Yankee/Eureka pasture due to a lack of interior fencing in that, the largest pasture of the allotment (12,000 acres). By using the Eureka and Yankee Gulch drainages beginning May 1 and ending after three weeks, these zones will have some deferment during the critical growing period every year. The Eureka and Yankee drainages are well suited to early spring grazing use

because they have been seeded with crested and pubescent wheatgrasses. These introduced species typically begin rapid growth three weeks before native species on the uplands and also make rapid regrowth following defoliation with adequate soil moisture. By May 21 cattle will be moved out of both Yankee and Eureka Gulches and located on the Eureka pipeline system on the ridge. By that time, the uplands (Yankee/Eureka ridge) will have had a three week deferment during the critical growing period (May 1- May 20). Thus, the zones of use, in combination with movement and location of cattle on the Eureka water system on the ridge, will result in all three key areas having some, non simultaneous, deferment during the critical growing period. The Black Sulphur riparian area/pasture would continue to be used in the spring following peak runoff for a duration of three weeks or less in conjunction/rotation with the Square S allotment. The North Black Sulphur pasture would be used in November or December in two out of three years and will receive limited, short duration use in May every third year.

Hatch Gulch would continue to be managed as it has been in the past. Grazing is deferred until after plant dormancy every year.

North Black Sulphur Pasture Forage Production Analysis				
SOIL UNIT NAME	**ECOLOGICAL SITE**	**Acres**	**Acres/AUM**	**AUMs**
Barcus channery loamy sand,2-8%slopes	Foothills Swale	132	5	26
Glendive fine sandy loam	Foothills Swale	3	5	0
Hagga loam	Swale Meadow	2	4	0
Havre loam,0-4%slopes	Foothill Swale	5	5	1
Piceance fine sandy loam,5-15%slopes	Rolling Loam	11	5	2
Redcreek-Rentsac complex,5-30%slopes	PJ woodlands/PJ woodlands	202	14	4
Rentsac channery loam,5-50%slopes	Pinyon Juniper woodlands	3135	50% Suitable/18	87
Torriorthents-Rock Outcrop, complex,15-90%slopes	Stoney Foothills	131	14	9
Yamac Loam,2-15%slope	Rolling Loam	23	4	5
	Total	**3,644**		**144**

Yankee/Eureka Pasture Forage Production Analysis				
SOIL UNIT NAME	**ECOLOGICAL SITE**	**Acres**	**Acres/AUM**	**AUMs**
Barcus channery loamy sand,2-8%slopes	Foothills Swale/Seeded	422	3	140
Barcus channery loamy sand,2-8%slopes	Foothills Swale	156	5	31
Forelle loam, 3-8%slopes	Rolling Loam	133	5	26
Forelle loam, 8-15%slopes	Rolling Loam	17	6	3
Glendive fine sandy loam	Foothills Swale/Seeded	390	2	195
Glendive fine sandy loam	Foothills Swale	117	5	23
Hagga loam	Swale Meadow	1	3	0
Havre loam,0-4%slopes	Foothill Swale	7	5	1
Northwater loam,5-50%slopes	Aspen Woodlands	52	5	10
Parachute Loam,25-75%sloeps	Brushy Loam	287	8	35

Yankee/Eureka Pasture Forage Production Analysis				
SOIL UNIT NAME	**ECOLOGICAL SITE**	**Acres**	**Acres/AUM**	**AUMs**
Parachute-Rhone loams,5-30%slopes	Mountain Loam	46	3	15
Piceance fine sandy loam,5-15%slopes	Rolling Loam	196	5	39
Redcreek-Rentsac complex,5-30%slopes	PJ woodlands/PJ woodlands/Burned	1505	7	215
Redcreek-Rentsac complex,5-30%slopes	PJ woodlands/PJ woodlands	961	12	80
Rentsac channery loam,5-50%slopes	Pinyon Juniper woodlands	6322	20	316
Starman-Vandamore complex,5-40%slopes	Dry Exposure/Dry Exposure	438	12	37
Torriorthents-Rock Outcrop, complex,15-90%slopes	Stoney Foothills	650	60% Suitable/10	39
Yamac Loam,2-15%slope	Rolling Loam	340	5	68
	Total	**12,040**		**1,273**
Black Sulphur Allotment Total				**1,417**

Hatch Gulch Allotment Forage Production Analysis				
SOIL UNIT NAME	**ECOLOGICAL SITE**	**Acres**	**Acres/AUM**	**AUMs**
Barcus channery loamy sand,2-8%slopes	Foothills Swale	456	3	152
Forelle loam, 3-8%slopes	Rolling Loam	130	3	43
Glendive fine sandy loam	Foothills Swale	60	3	20
Hagga loam	Swale Meadow	12	2	6
Havre loam,0-4%slopes	Foothill Swale	8	2	4
Piceance fine sandy loam,5-15%slopes	Rolling Loam	70	4	17
Redcreek-Rentsac complex,5-30%slopes	PJ woodlands/ PJ woodlands	2,362	12	197
Rentsac channery loam,5-50%slopes	Pinyon Juniper woodlands	4,130	16	258
Rentsac-Piceance complex,2-30%slopes	PJ woodland/ Rolling Loam	64	10	6
Torriorthents-Rock Outcrop, complex,15-90%slopes	Stoney Foothills	1,298	8	162
Veatch channery loam,12-50%slopes	Loamy Slopes	255	6	42
Yamac Loam,2-15%slope	Rolling Loam	40	4	10
	Total BLM	**8,885**		**917**
			Hatch Gulch Allotment Total	**917**

HATCH GULCH							
Pasture	**Number**	**Date on**	**Date off**	**# Days**	**% BLM**	**AUMs**	**Year**
Hatch Gulch	28	1-Dec	31-Jan	62	100	56	all

BLACK SULPHUR							
Pasture	**Number**	**Date on**	**Date off**	**# Days**	**% BLM**	**AUMs**	**Year**
North Black Sulphur	100 C	1-May	15-May	15	100	50	1
	50 C	1-Nov	30-Dec	60	100	100	2

BLACK SULPHUR							
Pasture	**Number**	**Date on**	**Date off**	**# Days**	**% BLM**	**AUMs**	**Year**
	50 C	1-Nov	30-Dec	60	100	100	3
Black Sulphur Riparian	75 C	10-May	10-Jun	21	100	53	1 - Black Sulphur[1]

[1] Black Sulphur Riparian - 21 days of use during the window May 10- June 10, will be used by Black Sulphur permittee every other year; In the year when Black Sulphur Riparian is used the Yankee/Eureka Pasture use will be reduced by75 C during that period.

YANKEE/EUREKA[2]							
Pasture	**Number**	**Date on**	**Date off**	**# Days**	**% BLM**	**AUMs**	**Year**
Yankee Gulch Zone	59 C	1-May	21-May	21	86	36	all
	50C	1-Nov	28-Feb	60	86	169	[3]-
Eureka Gulch Zone	50 C	1-Apr	30-Apr	30	86	43	
	109 C	1-May	21-May	21	86	66	all
	50C	1-Nov	28-Feb	60	86	169	[3]-
Yankee/Eureka Ridge	168 C	22-May	15-Jun	25	86	120	all
	100 C	1-Nov	28-Feb	60	86	338	[3]-

[2] NB: This table is an approximation of grazing use in order to get an idea of forage use in each area / pasture. Because there are no fenced divisions between the pastures on the South Side of Black Sulphur it has not been included as a grazing schedule.
[3] During the winter use period cattle will be scattered in all pastures with principal emphasis in using Yankee/Eureka Ridge

Environmental Consequences of the Proposed Action: The proposed grazing system with its zones of use in combination with a moderately light stocking rate is based upon the principle that well distributed grazing use of relatively short duration during the critical growing period will maintain or improve the health and function of rangeland vegetation on the allotment. By deferring use of the upland native grass species, they will be at or near peak productivity at the start of grazing.

Historically, Yankee/Eureka Ridge has received virtually no growing season use due to lack of water. Typically the only grazing use on the ridge has occurred during periods of snow cover which coincide with plant dormancy. The completion of the Eureka water system in 2008 has markedly improved the capability for managed grazing and has substantially improved livestock distribution in the Yankee/Eureka pasture.

On the Hatch Gulch allotment no grazing use is made until well after plant dormancy so forage production is maximized.

Environmental Consequences of the No Grazing Alternative: Under the no grazing alternative, 1,417 AUMs of forage allocated for livestock on the Black Sulphur allotment and 917 AUMs of forage allocated for livestock on the Hatch gulch allotment would not be utilized.

Mitigation: Black Sulphur allotment rangeland and riparian monitoring studies

REALTY AUTHORIZATIONS

Affected Environment: The project is located in areas with some concentrated O&G development, with associated access roads, pipelines, and utility lines. Pending applications include power lines and increased infrastructure (compressor sites, etc.).

Environmental Consequences of the Proposed Action: The densely developed Black Sulphur Creek Road corridor is fenced. Additional development often includes multi-well pads, especially east of RBC Rd 5, which decreases the new disturbance from well pads and small gathering lines. Infrastructure growth tends to be toward larger capacity but within existing corridors, resulting in less new disturbance and loss of vegetation. There are no new range improvements proposed that would impact existing facilities.

Environmental Consequences of the No Action Alternative: Same as the Proposed Action

Mitigation: None

AREAS OF CRITICAL ENVIRONMENTAL CONCERN:

Affected Environment: The northern two-thirds of the Dudley Bluffs Areas of Critical Environmental Concern (ACEC) is contained within the Hatch Gulch Grazing allotment and contains several habitat locations for Dudley Bluffs bladderpod and Dudley Bluff's twinpod populations, both federally listed threatened plant species. The ACEC encompasses approximately 1630 total acres, with 1120 acres found in the allotment. The ACEC is not fenced or excluded from the allotment; however, a fence does separate habitat and populations from the Piceance Creek Road (Rio Blanco County Road #5) on the shared western boundary of both the ACEC and the Hatch Gulch Grazing allotment. The ACEC was established in 1997 under the WRFO RMP to provide off-road and NSO protection to these two narrowly endemic mustard species described from this type locality (the place or source where a holotype or type species was first found and recognized), in 1982.

Both the twinpod and bladderpod were listed as threatened species in 1990 due to several factors that included a narrowly endemic range, energy development, and limited population sizes. Grazing was mentioned briefly in the listing, but not as a primary threat. Winter grazing in the Hatch Gulch allotment predated the discovery of the two species, and establishment of the ACEC. A few drift fences were installed to prevent cattle from drifting onto key habitats, however, the grazing season of use and BLM winter use permitting has changed little in the past 50 -60 years. (M. Hafkenschiel pers. comment, 6/2009)

Long term monitoring by the Colorado Natural Heritage Program (CNHP) and BLM indicates that annual precipitation may preface fluctuations in the population boundaries and number of individuals of both of the Dudley Bluff's threatened species in the ACEC. Long-term monitoring was initiated in 1985 and annual population surveys were completed in 1987-89, 1990-95, 1998-2000, 2002 and 2007 for both plant species' populations within the ACEC.

Livestock threats were noted as "none" in the 2007 monitoring results and the plants were noted as vigorous and healthy.

Environmental Consequences of the Proposed Action: The winter grazing season of use and permitted numbers would remain consistent with past use of the allotment, which includes the ACEC. Light trailing from winter ungulate use, including deer, elk and wild horses is faintly visible on some shale barren habitats in and outside of the ACEC in the allotment. Cattle use of shelter trees adjacent to shale barren habitats is visible in isolated areas of the ACEC, without trailing or trampling noted. Habitat use is further described in the Biological Assessment for Dudley Bluffs bladderpod (*Physaria congesta*) and Dudley Bluffs twinpod (*Physaria obcordata*) in the Hatch Gulch Allotment. Much of the winter grazing occurs in Hatch Gulch proper, north and west of the ACEC.

There is a possibility that animals may browse plants when available forage is scarce. This was incidentally witnessed during the winter of 2009 in the Ryan Gulch ACEC in an area where cattle were confined, however, it is almost entirely minimized by grazing palatability, shale barren steep slope access in some areas, and a lack of abundant palatable forage on shale slopes in mature Pinyon/Juniper Dudley Bluffs bladderpod areas if cattle are not trapped.

Environmental Consequences of the No Grazing Alternative: The no grazing alternative may create additional fuel loading, which in turn, could enhance fire intensity threats to listed threatened plant species in the ACEC. Shale barren habitats on which both Dudley Bluffs species' are found, however, do not actively carry fire in most circumstances. In addition, because of the ACEC's proximate location to the Magnolia energy field, full fire suppression in this area is likely to continue. Overall vegetative changes to pollinator habitats within the ACEC under the no grazing alternative could be mixed, with an increase or decrease of cheatgrass in the drainages, depending on several ecological processes, of which livestock grazing is a single variable. Plant community changes in the ACEC due to winter grazing are highly unlikely in most late seral areas, therefore bladderpod and twinpod pollinator habitat changes are unlikely. The potential for cattle trampling, trailing, bedding or herbivory to affect ACEC threatened plant habitats and overall vegetation could be reduced by this alternative if deleterious effects were present. Given the USFWS concurrence that these effects are currently insignificant, the no grazing alternative would have no effect on *Physaria congesta* or *Physaria obcordata* populations and habitats within the ACEC.

Mitigation: No additional mitigation than what is included in the Threatened, Endangered and Sensitive Plant Species section above is recommended.

CUMULATIVE IMPACTS SUMMARY: Cumulative impacts will not exceed those that were analyzed in the 1997 White River ROD/RMP and/or the 1981 White River Resource Area Grazing Management Environmental Impact Statement (EIS).

REFERENCES CITED:

Armstrong, Harley J. and David G. Wolny
1989 *Paleontological Resources of Northwest Colorado: A Regional Analysis*. Museum of Western Colorado, Grand Junction, Colorado.

Biological Assessment for Dudley Bluffs bladderpod (*Physaria congesta*) and Dudley Bluffs twinpod (*Physaria obcordata*) in the Hatch Gulch Allotment. WRFO BLM July 13, 2009. USFWS Concurrence Memorandum August 14, 2009.

Rosenstock, S.R. 1996. Shrub-grassland small mammal and vegetation responses to rest from grazing. J. Range Manage. 49:199-203.

Tweto, Ogden
1979 Geologic Map of Colorado. United States Geologic Survey, Department of the Interior, Reston, Virginia.

Winterfeld, Gustav
2008 Paleontologic Resources Letter Report (submitted 13 November 2008, compliance dated 1/15/2009): Paleontological evaluation of the proposed Exxon-Mobil Piceance 3-D Seismic Survey Project. Erathem-Vanir Geological, Pocatello, Idaho.

PERSONS / AGENCIES CONSULTED: Mantle Ranch; Boone and Barbara Vaughn; Colorado Division of Wildlife, Rio Blanco County, United States Fish and Wildlife Service

INTERDISCIPLINARY REVIEW:

Name	Title	Area of Responsibility
Bob Lange	Hydrologist	Air Quality, Wastes (Hazardous or Solids), Water Quality (Surface and Ground), and Hydrology and Water Rights.
Maggie Marston	Botanist	Areas of Critical Environmental Concern, Threatened and Endangered Plant Species
Michael Selle	Archeologist	Cultural Resources, Paleontological Resources
Mark Hafkenschiel	Rangeland Management Specialist	Invasive, Non-Native Species, Vegetation , Rangeland Management, Wetlands and Riparian Zones
Lisa Belmonte/Ed Hollowed	Wildlife Biologist	Migratory Birds, Threatened, Endangered and Sensitive Animal Species, Terrestrial and Aquatic Wildlife,
Andrew Burrows	Outdoor Recreation Planner	Wilderness, Access and Transportation, Recreation,
Jim Michels	Fire / Fuels Technician	Fire Management , Forest Management
Paul Daggett	Mining Engineer	Geology and Minerals
Linda Jones	Realty Specialist	Realty Authorizations
Andrew Burrows	Natural Resource Specialist	Visual Resources

Finding of No Significant Impact/Decision Record (FONSI/DR)

DIO-BLM-CO-110-2009-0058-EA

FINDING OF NO SIGNIFICANT IMPACT (FONSI)/RATIONALE: The environmental assessment and analyzing the environmental effects of the proposed action have been reviewed. The approved mitigation measures (listed below) result in a Finding of No Significant Impact on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the proposed action.

DECISION/RATIONALE: It is my decision to issue a proposed decision in accordance with 43 CFR 4160.1 offering to renew grazing permits #051419 and #051486 and to approve an allotment management plan for the Black Sulphur allotment as described in the proposed action.

The allotment management plan and grazing system would provide for continued proper function and improvement of the Black Sulphur riparian area and for rest during the critical growing period for all areas of the allotment. The grazing rest/deferment for the zones of use are consistent with the rest period developed in the White River ROD/RMP and with the Livestock Grazing Guidelines developed for the Public Lands in Colorado.

Adjustments will be made in the grazing plan to insure that the land use plan resource objectives are met or exceeded. The proposed action offers the best option for maintaining the Colorado Public Land Health Standards and achieving the vegetation management objectives presented in the RMP.

MITIGATION MEASURES:

1. Continue monitoring key areas and add additional Daubenmire canopy coverage transects to identify trends and changes in plant community cover and composition

2. Please contact the BLM – WRFO Hazardous Materials Coordinator at (970) 878-3800 and/or the Colorado Department of Public Health and Environment (CDPHE) through the 24-hour spill reporting line at 1 (877) 518-5608, if the permittee suspects the release of any chemical, oil, solid waste, petroleum product, or sewage in the allotment.

3. Stocking rates should be reduced during periods of drought and/or during periods of drought recovery to improve upland health.

4. Immediate action should be taken to reduce trailing issues when they are identified. If accelerated erosion (rilling, gullying etc.) is occurring due to trailing please contact the

authorized officer to determine if a change in management or a rangeland development project should be constructed or the grazing approach altered to reduce impacts.

5. If monitoring indicates that livestock grazing use shows any short or long term effects on either Dudley Bluff's bladderpod or Dudley Bluff's twinpod populations or suitable and potential habitats, the cattle will be removed from the allotment until further consultation and protective and/or corrective actions have been determined. No concentrating of livestock, including trailing, trampling, or bedding will be allowed within 200 meters of listed plant occupied habitats.

6. Salt will continue to be placed in drainages and away from side slopes containing Dudley Bluffs twinpod occupied and suitable habitats to keep livestock from concentrating in plant habitats. No salting will be allowed within 200 meters of listed plant populations. A salt plan map will be developed showing no salt zones (200 meter buffers around occupied habitat).

7. If Hatch Gulch grazing regimens are changed as to season of use, numbers, and other permit changes that would result in on-the-ground changes to allotment vegetation use, further allotment analysis will be required and consultation will be re-initiated.

8. Continue aggressive noxious weed management as planned in the Piceance Noxious Weed Management Plan.

9. Develop one or more narrow corridor exclosures (e.g., totaling 1 acre or less) within the Black Sulphur channel incise in a representative segment(s) of herbaceous riparian to: 1) remove the potential for ungulate disturbance of bank and channel features, and 2) temporarily provide a protected site where native forms of sedge and rush can be transplanted in order to determine their ability to colonize and persist on these sites. The WRFO wildlife staff would be responsible for constructing and maintaining these exclosures, and establishing vegetation on these sites. The WRFO wildlife staff will remain principally responsible for monitoring vegetation response within these exclosures; periodic interdisciplinary participation of the WRFO staff will be encouraged.

10. Sites 5RB4543 and 5RB5789 will be field visited within the 10-year term of the permit and the impact of grazing on these sites will be assessed. If grazing is found to have significant, negative effect on either site, then such impacted sites will be fenced with funding from the Range program.

11. The permittees are responsible for informing all persons who are associated with the allotment activities that they will be subject to prosecution for knowingly disturbing paleontological localities or for collecting vertebrate fossils on public lands. If paleontological materials (fossils) are discovered during Allotment activities, the operator is to immediately stop activities that might further disturb such materials, and contact the authorized officer (AO). The operator and the authorized officer will consult and determine the best option for avoiding or mitigating paleontological locality damage.

COMPLIANCE/MONITORING: Black Sulphur/Hatch Gulch allotment rangeland and riparian monitoring studies.

NAME OF PREPARER: Mark Hafkenschiel

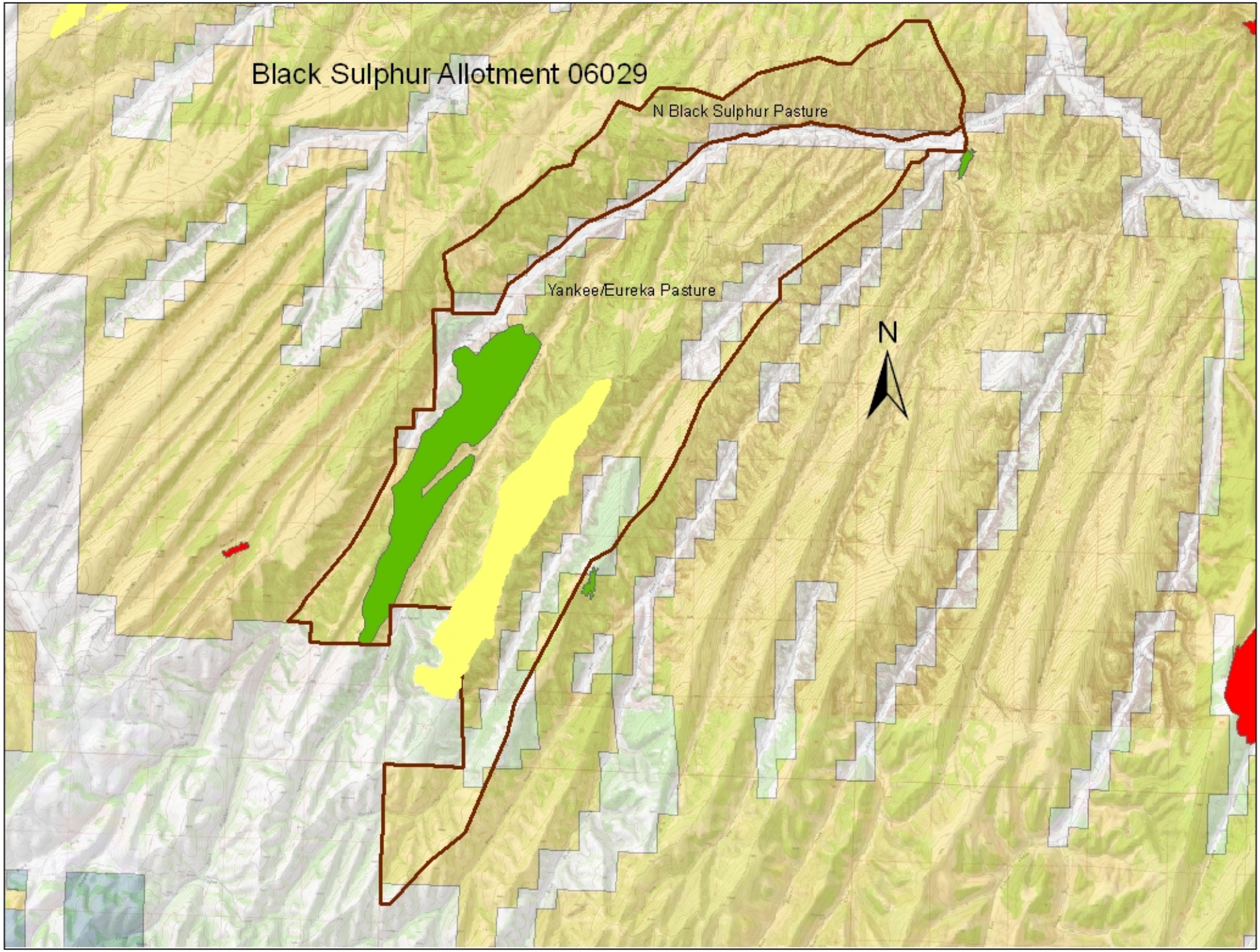
SIGNATURE OF AUTHORIZED OFFICIAL: _____
Field Manager

DATE SIGNED: 09/22/09

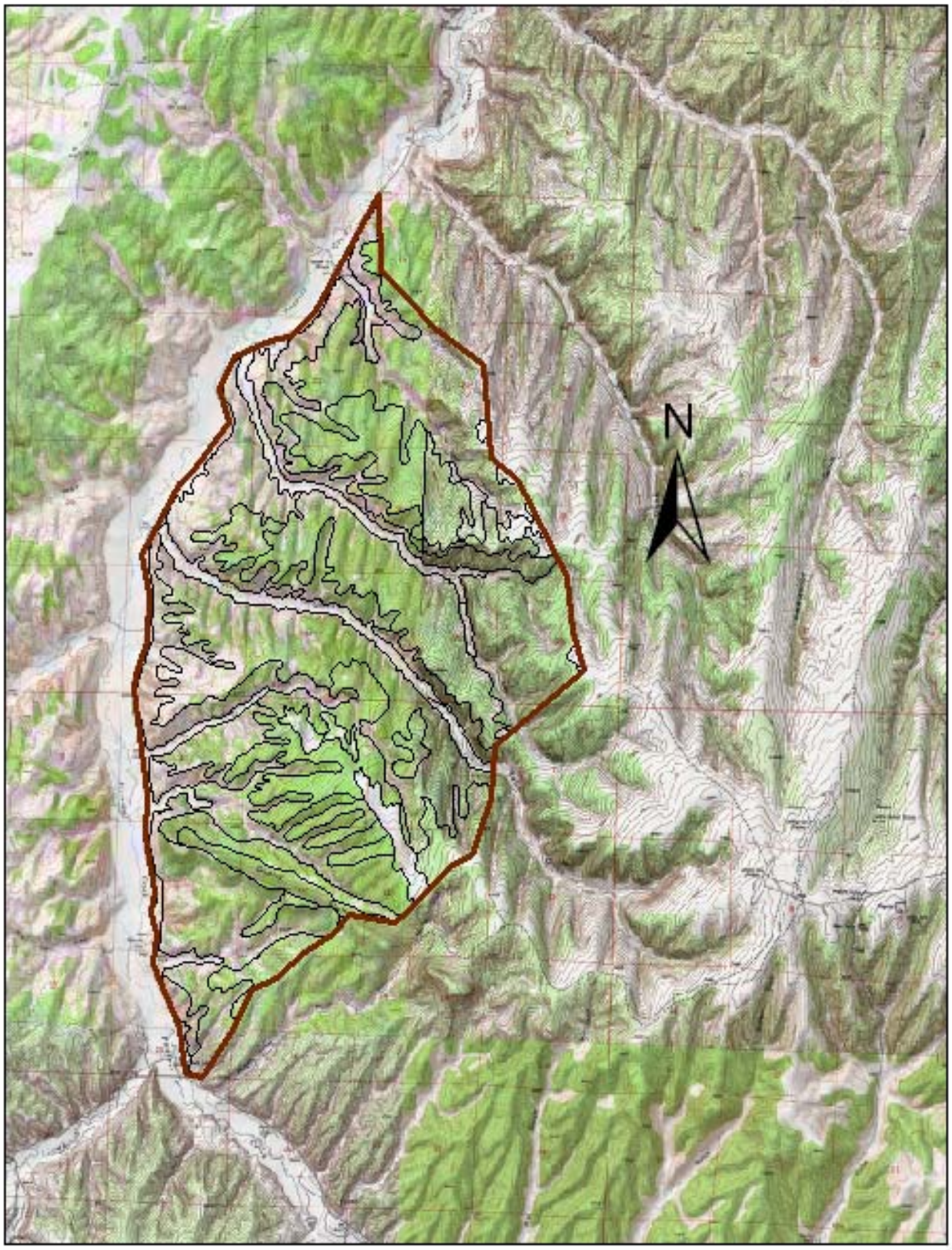
NAME OF ENVIRONMENTAL COORDINATOR: Caroline Hollowed

ATTACHMENTS:

Map of Black Sulphur Allotment
Map of Hatch Gulch Allotment
Black Sulphur Creek Riparian PFC Reaches


Black Sulphur Allotment 06029
N Black Sulphur Pasture
Yankee/Eureka Pasture
N

Hatch Gulch allotment (06028)



Black Sulphur Creek T3S, R99W Sec 13, 23, 24, 26