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Grazing Permit Revision and Reissuance – Blacks Gulch and West Shutta allotments (LK Ranch, Livestock LLC)

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1. INTRODUCTION

1.1. Identifying Information

Project Title: Grazing Permit Revision and Reissuance for Blacks Gulch and West Shutta Allotments

Legal Description:

Table 1. Legal Description of the Blacks Gulch and West Shutta Allotments

Legal Description				
Allotment				Section(s)/Lots or Portions Of
Name	No.	Twp.	Range	
Blacks Gulch	06612	3N	96W	23-27, 31-36
		3N	95W	19, 29-33
		2N	97W	1, 12
		2N	96W	1-36
		2N	95W	6, 7, 18, 19
		1N	96W	2-5, 8-10
West Shutta	06604	2N	96W	18-20, 29, 30
		2N	97W	12, 13, 24, 25

Applicant: LK Ranch Livestock

NEPA Document Number: DOI-BLM-CO-N05-2016-0052-EA

Allotment Number: 06612 (Blacks Gulch) and 06604 (West Shutta)

Authorization Number: 0504375 and 0505054

1.2. Background

LK Ranch Livestock currently has livestock grazing permits on the Blacks Gulch allotment and the West Shutta allotment. Colorado Parks and Wildlife (CPW) owns approximately 2,500 acres in the Tschuddi and Scenery pastures that they lease to LK Ranch for livestock grazing. Recently approximately 1,200 acres of private lands in the Homestead and Wray Gulch pastures of the allotment have sold and been fenced. There were approximately 44 AUMs of forage associated with the Homestead private parcels and approximately 64 AUMs of forage associated with the Wray Gulch private parcel. New fences around the Wray Gulch parcel cut off access for livestock to the Oil Well Gulch pasture. The Homestead pasture needs to be eliminated and the Wray Gulch pasture needs to be incorporated into the Oil Well Gulch pasture to reflect the remaining area available for livestock grazing.

Additionally, LK Ranch was issued a one year grazing permit for the West Shutta allotment for the 2015 grazing season based on obtaining the grazing preference to this allotment through the transfer process. The permit issued to LK Ranch was consistent with a permit issued to a previous operator but the grazing rotation does not match well with the use period and rotation on the adjacent Blacks Gulch allotment. The West Shutta grazing permit needs to be modified to allow coordinated use between these two allotments that is consistent with meeting sage-grouse habitat objectives for this area.

The most recent EAs for these allotments are CO-110-2007-030-EA followed by CO-110-2012-0018-EA (Blacks Gulch) and CO-110-2007-0098-EA (West Shutta). These documents are incorporated by reference and summarized throughout this document.

Table 2. Acreage Associated with the Blacks Gulch and West Shutta Allotments

Allotment	BLM Acres	Private Acres	CPW	Total Acres
Blacks Gulch	24,746	1,440	2,500	28,685
West Shutta	2,418	None	None	2,418

1.3. Purpose and Need for Action

The purpose of the action is to revise and reissue the grazing permits on the Blacks Gulch and West Shutta Allotments in accordance with 43 CFR 4130.2(a) which states, “Grazing permits or leases shall be issued to qualified applicants to authorize use on the public lands and other lands under the administration of the Bureau of Land Management that are designated as available for livestock grazing through land use plans.” The need for the action is to address changes in land ownership and new fences that have affected the areas available for livestock grazing and consider sage-grouse habitat objectives identified in the 2015 Northwest Colorado Greater Sage-Grouse Resource Management Plan Amendment.

1.4. Decision to be Made

Based on the analysis contained in this EA, the BLM will decide whether to issue livestock grazing permits for the Blacks Gulch and West Shutta Allotments, and if so, under what terms and conditions. Under the National Environmental Policy Act (NEPA), the BLM must determine if there are any significant environmental impacts associated with the Proposed Action warranting further analysis in an Environmental Impact Statement (EIS). The Field Manager is the responsible officer who will decide one of the following:

- To approve the permittee’s proposed livestock grazing schedules as submitted;
- To approve a modified livestock grazing schedule;
- To analyze the effects of the proposed livestock grazing schedules in an EIS; or
- To deny the proposed livestock grazing schedules and not issue permits for livestock grazing in these allotments.

1.5. Conformance with the Land Use Plan

The Proposed Action is subject to and is in conformance (43 CFR 1610.5) with the following land use plan:

Land Use Plan: White River Record of Decision and Approved Resource Management Plan (ROD/RMP), as amended by the Northwest Colorado Greater Sage-Grouse RMP Amendment

Date Approved: July 1997, amended September 2015

Decision Language: "Maintain or enhance a healthy rangeland vegetative composition and species diversity, capable of supplying forage at a sustained yield to meet the demand for livestock grazing." (RMP page 2-22)

"A minimum rest requirement (period of no livestock grazing) will be developed for each allotment as integrated activity plans are developed. This period of rest is the minimum time required to restore plant vigor, improve watershed conditions, and improve rangeland conditions. Minimum rest periods will be incorporated into grazing systems during activity plan preparation." (RMP page 2-23)

"An average of 50 percent of the annual above ground forage production will be reserved for maintenance of the plant's life cycle requirements, watershed protection, visual resource enhancement, and food and cover requirements of small game and nongame wildlife species. The remaining 50 percent of the forage base will be allocated among predominant grazing users." (RMP page 2-11)

"[Greater sage-grouse (GRSG)] objectives and well-managed livestock operations are compatible because forage availability for livestock and hiding cover for GRSG are both dependent on healthy plant communities. Agreements with partners that promote sustainable GRSG populations concurrent with sustainable ranch operations offer long-term stability. In the context of sustainable range operations, manage the range program to: 1) maintain or enhance vigorous and productive plant communities; 2) maintain residual herbaceous cover to reduce predation during GRSG nesting and early brood-rearing; 3) avoid direct adverse impacts to GRSG-associated range project infrastructure; and 4) employ grazing management strategies that avoid concentrating animals on key GRSG habitats during key seasons." (GRSG RMPA page 2-9)

Within all designated sage-grouse habitat:

- "Conduct land health assessments that include (at a minimum) indicators and measurements of vegetation structure/condition/composition specific to achieving GRSG habitat objectives (Doherty et al. 2011). If local/state seasonal habitat objectives are not available, use GRSG habitat recommendations from Connelly et al. 2000 and Hagen et al. 2007." (GRSG RMPA page 2-10)

- “Develop specific objectives—through NEPA analysis conducted in accordance with the permit/lease renewal process—to conserve, enhance, or restore GRSG habitat. Base benchmarks on Ecological Site/Range Site Descriptions. When existing on Ecological Site/Range Site Descriptions have not been developed, or are too general to serve adequately as benchmarks, identify and document local reference sites for areas of similar potential that exemplify achievement of GRSG habitat objectives and use these sites as the benchmark reference. Establish measurable objectives related to GRSG habitat from baseline monitoring data, ecological site descriptions, or land health assessments/evaluations, or other habitat and successional stage objectives.” (GRSG RMPA page 2-10)

- “Manage for vegetation composition and structure consistent with ecological site potential and within the reference state subject to habitat objectives, including successional stages.” (GRSG RMPA page 2-10)“Include terms and conditions on grazing permits and leases that address disruptive activities that affect GRSG and assure plant growth requirements are met and residual forage remains available for GRSG hiding cover.” (GRSG RMPA page 2-10)

1.6. Management Category

Per the RMP, all allotments in the WRFO are placed in one of three management categories (improve, custodial, or maintain) that define the intensity of management. Allotments in the improve category are those where funding for range improvements or on-the-ground management efforts are most needed to improve the resources or to resolve serious resource conflicts. Maintain category allotments in general are where there are no specific resource conflicts. The custodial category allotments receive the lowest priority for public funding of range improvements. The Blacks Gulch Allotment is in the Improve management category and the West Shutta Allotment is in the Maintain management category. These categorizations remain valid.

2. PUBLIC INVOLVEMENT

2.1. Scoping

The BLM uses a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to identify issues, concerns, and potential impacts that require detailed analysis. Scoping is both an internal and external process.

Internal scoping was initiated when the project was presented to the White River Field Office (WRFO) interdisciplinary team on December 8, 2015. External scoping was conducted by posting this project on the WRFO’s on-line National Environmental Policy Act (NEPA) register on January 19, 2016.

3. PROPOSED ACTION AND ALTERNATIVES

The Proposed Action was developed with the cooperation and agreement of CPW, and LK Ranch Livestock and presents an alternative designed to meet the needs of the BLM, CPW, and LK Ranch.

3.1. Alternative A – Proposed Action

3.1.1. Modifications to the Allotment and Pasture Boundaries

Due to changes in land ownership, the BLM proposes to modify the existing allotment and pasture boundaries. The existing fence that separates the Homestead pasture of the Blacks Gulch allotment and the South pasture of the West Shutta allotment would be removed and the new boundary for the South pasture would be moved north to the private property boundary. The Homestead pasture would be eliminated. The BLM-managed lands within the Wray Gulch pasture would be incorporated into the Oil Well Gulch pasture (see Maps 1 and 3 and Section 3.1.4).

3.1.2. Grazing Schedule

The proposed grazing permit for the Blacks Gulch allotment reflects the change in percent public land and the move of 16 AUMs from the Blacks Gulch allotment to the West Shutta allotment as a result of the change in allotment boundary associated with the elimination of the Homestead pasture and reconfiguration of the South pasture of the West Shutta allotment as shown in Table 3.

Table 3. Proposed Grazing Permit for the Blacks Gulch Allotment

Blacks Gulch Allotment	Livestock		Date		% PL*	BLM AUMs	Active AUMs	Suspen-ded AUMs	Total BLM AUMs
	Number	Kind	On	Off					
Blacks Gulch	600	C	3/15	6/15	85	1,559	1,559	0	1,559
Blacks Gulch	112	C	3/15	6/15	85	291	Non-use**	0	291
								Total:	**1,850**

* The percent public land (% PL) is the percentage of forage produced on BLM land (active AUMs) in relation to the overall forage production (BLM and private or in this case CPW lands). The percent public land shown here is the average for the entire allotment whereas in the grazing schedules the percent public land is shown by pasture.
** These non-use AUMs are existing grazing preference that has through agreement with LK Ranch been left unscheduled and will serve as conservation non-use to help make progress toward meeting Greater sage-grouse habitat objectives.

The BLM grazing preference in the West Shutta allotment is being reduced to 327 AUMs to better match the current calculated carrying capacity. The proposed grazing permit for the West Shutta allotment that reflects reduced preference also includes 16 AUMs moved from the Blacks Gulch allotment as a result of the pasture and allotment boundary reconfiguration and is shown in Table 4.

Table 4. Proposed Grazing Permit for the West Shutta Allotment

West Shutta Allotment	Livestock		Date		% PL	Total BLM AUMs
	Number	Kind	On	Off		
W Shutta	131	C	4/1	6/15	100	327
					Total:	**327**

The proposed grazing schedules for these allotments will incorporate a three-year rotation to provide reduced use two out of every three years in the pastures where there is mapped sage-grouse habitat. The grazing schedules for the West Shutta allotment include a use period in the adjacent Oil Well Gulch pasture of the Blacks Gulch allotment. For clarity grazing schedules are shown below as "Year 1" and "Year 2 and 3" with both allotments shown on the same table. Both allotments and pastures are shown on Map 1.

Table 5. Proposed Grazing Schedules for the Year 1 rotation (for both allotments)

Year 1			Livestock		Date		Days Grazed	Total AUMs	% PL*	BLM AUMs	PVT AUMs
Allotment	**Pasture**	**No.**	**Number**	**Kind**	**On**	**Off**					
West Shutta	South	06604	200	C	4/1	4/14	14	92	100	**92**	0
West Shutta	Middle	06604	200	C	4/15	5/7	23	151	100	**151**	0
West Shutta	North	06604	200	C	5/8	5/14	7	46	100	**46**	0
Blacks Gulch	Oil Well Gulch	06612	200	C	5/15	6/13	30	197	100	**197**	0
West Shutta	South	06604	200	C	6/14	6/15	2	13	100	**13**	0
Blacks Gulch	Blacks Gulch	06612	300	C	3/15	4/10	27	266	93	**248**	18
Blacks Gulch	Middle	06612	600	C	4/11	4/25	15	296	97	**287**	9
Blacks Gulch	Tschuddi	06612	300	C	4/26	6/15	51	503	58	**292**	211
Blacks Gulch	Scenery	06621	300	C	4/26	6/15	51	503	75	**377**	126
									AUMs Year 1 West Shutta	**302**	0
									AUMs Year 1 Blacks Gulch	**1401**	364

* The percent public land (% PL) here is the percentage of forage produced on BLM land (active AUMs) in relation to the overall forage production (BLM and private or in this case CPW lands) <u>within each pasture</u> whereas in the grazing permit table the percent public land is the average for the entire allotment so a direct comparison cannot be made between the permit and grazing schedule tables.

Table 6. Proposed Grazing Schedules for Year 2 and 3 Rotations (for both allotments)

Year 2 and 3			Livestock		Date		Days Grazed	Total AUMs	% PL	BLM AUMs	PVT AUMs
Allotment	**Pasture**	**No.**	**Number**	**Kind**	**On**	**Off**					
West Shutta	South	06604	200	C	4/1	4/2	2	13	100%	**13**	0
West Shutta	Middle	06604	200	C	4/3	4/17	15	99	100%	**99**	0
West Shutta	North	06604	200	C	4/18	4/23	6	39	100%	**39**	0
Blacks Gulch	Oil Well Gulch	06612	200	C	4/24	6/13	51	335	100%	**335**	0
West Shutta	South	06604	200	C	6/14	6/15	2	13	100%	**13**	0
Blacks Gulch	Blacks Gulch	06612	300	C	3/15	4/5	22	217	93%	**202**	15
Blacks Gulch	Middle	06612	600	C	4/6	4/25	20	395	97%	**383**	12
Blacks Gulch	Tschuddi	06612	300	C	4/26	6/15	51	503	58%	**292**	211
Blacks Gulch	Scenery	06621	300	C	4/26	6/15	51	503	75%	**377**	126
AUMs Years 2/3 West Shutta										**164**	**0**
AUMs Years 2/3 Blacks Gulch										**1589**	**364**

* The percent public land (% PL) here is the percentage of forage produced on BLM land (active AUMs) in relation to the overall forage production (BLM and private or in this case CPW lands) within each pasture whereas in the grazing permit table the percent public land is the average for the entire allotment so a direct comparison cannot be made between the permit and grazing schedule tables.

3.1.3. Non-Use for Sage-Grouse Benefit

The grazing schedules incorporate non-use of potentially available forage (AUMs) to promote improvements in sage-grouse habitat conditions. These unscheduled AUMs include 342 total AUMS associated with grazing 600 cattle instead of 712 cattle from 3/15-6/15 within the Blacks Gulch allotment as a whole (Table 3) as well as an additional 217 total AUMs associated with grazing only 300 cattle instead of 600 cattle in the Blacks Gulch pasture from 3/15-4/5 (Tables 5 and 6). In the future, if monitoring shows that sage-grouse habitat conditions are meeting objectives, then additional AUMs may be incrementally scheduled for grazing use after additional NEPA analysis. Conversely, should monitoring indicate a downward trend or unsuitable rating in vegetative conditions important to sage-grouse (based on Habitat Assessment Framework monitoring data), modifications to the grazing schedule (reduced AUMs, changes in season of use) may be required.

3.1.4. Range Improvement Projects Necessary to Implement the Proposed Grazing Schedule

The new owner of the Homestead parcel is aware that he needs to construct a fence along his south property line adjacent to BLM lands. LK Ranch will remove the existing fence which will

increase the acreage in the South pasture of the West Shutta allotment by approximately 150 acres and completely eliminate the Homestead pasture from the Blacks Gulch allotment (see Map 2).

The new owner of private land in the previous Wray Gulch pasture has constructed a fence that blocks the primary access route into Oil Well Gulch pasture. To provide access into Oil Well Gulch, LK Ranch has proposed to construct a short drift fence to help direct cattle around a corner of the fenced private land. The drift fence would also serve to keep livestock from trampling fossil resources at this site. The location and best construction material of this fence will be determined during a site visit with LK Ranch and BLM staff in the spring of 2016 (see Map 2).

If herding proves to be too labor intensive or is ineffective at focusing livestock use in the upper or lower halves of the Scenery pasture a drift fence may need to be constructed at an appropriate point. The location of a drift fence would likely be on CPW property.

3.2. Alternative B – Continuation of Current Management (No Action Alternative)

3.2.1. Grazing Permits and Schedules

Table 7. Current Grazing Permit for the Blacks Gulch Allotment

Allotment Number	Allotment Name	Livestock Number	Kind	Use Type*	Date On	Date Off	% PL	BLM AUMs
06612	Blacks Gulch	600	Cattle	A	3/15	6/15	76	1,394
06612	Blacks Gulch	200	Cattle	N	3/15	6/15	76	465
							Total	**1,859**

**A=Active, N=Non-use*

Table 8. Current Grazing Schedule for the Blacks Gulch Allotment - Even Years

Allotment 06612	Livestock		Date		Use Type*	Total AUMs	% PL	BLM AUMs	PVT AUMs
Pasture Name	**Number**	**Kind**	**On**	**Off**					
Blacks Gulch	600	C	3/15	4/1	A	355	93%	**330**	25
Middle	600	C	4/2	4/19	A	355	97%	**344**	11
Homestead Wray	600	C	4/20	4/26	A	138	41%	**57**	81
Oil Well Gulch	600	C	4/27	5/07	A	217	90%	**195**	22
Tschuddi Gulch	600	C	5/08	5/25	A	355	58%	**206**	149
Scenery Gulch	600	C	5/26	6/15	A	414	75%	**311**	103
				Totals:		**1,834**		**1,443**	**391**

**A=Active, N=Non-use*

Table 9. Current Grazing Schedule for the Blacks Gulch Allotment - Odd Years

Allotment 06612	Livestock		Date		Use Type*	Total AUMs	% PL	BLM AUMs	PVT AUMs
Pasture Name	**Number**	**Kind**	**On**	**Off**					
Blacks Gulch	600	C	3/15	4/1	A	355	93%	**330**	25
Homestead Wray	600	C	4/2	4/8	A	138	41%	**57**	81
Oil Well Gulch	600	C	4/9	4/19	A	217	90%	**195**	22
Middle	600	C	4/20	5/07	A	355	97%	**344**	11
Scenery Gulch	600	C	5/08	5/25	A	355	75%	**266**	89
Tschuddi Gulch	600	C	5/26	6/15	A	414	58%	**240**	174
				Totals:		**1,834**		**1,432**	**402**

**A=Active, N=Non-use*

Table 10. Current Grazing Permit for the West Shutta Allotment

Temporary (2015) Grazing Permit (LK Ranch) for West Shutta Allotment								
	Livestock		Date		% PL	BLM AUMs scheduled	Suspended AUMs	Total AUMs
Allotment No. 06604	**#**	**Kind**	**On**	**Off**				
West Shutta (spring)	200	C	04/20	5/25	100	237	0	237
West Shutta (fall)	150	C	11/10	12/15	100	178	0	178

Table 11. Current Grazing Schedule for the West Shutta Allotment

Grazing Schedule for Temporary (2015) Grazing Permit West Shutta Allotment 06604							
	Livestock		Date		Days Grazed	% PL	BLM AUMs scheduled
Pasture Name	**#**	**Kind**	**On**	**Off**			
South	200	C	4/20	4/30	11	100	72
Middle	200	C	5/1	5/19	19	100	125
North	200	C	5/20	5/25	6	100	39
North	150	C	11/10	11/15	6	100	30
Middle	150	C	11/16	12/5	20	100	99
South	150	C	12/6	12/15	10	100	49
						Total	415

3.2.2. Existing Range Improvements

All existing range improvement projects (RIPs) that are under a Cooperative Maintenance Agreement will be maintained by the permittee(s). Existing RIPs that have maintenance responsibilities assigned through Cooperative Maintenance Agreements are listed in the Rangeland Improvement Program system. Some examples of maintenance actions include

annual fence work to keep fences clear of brush, functional and cattle tight; equipment use to remove sediment from ponds; equipment use to re-develop spring sources, replace water lines, troughs, and storage tanks. Disturbance associated with maintenance actions will be kept within existing disturbance areas. Where herbaceous vegetation is heavily disturbed by maintenance actions a BLM recommended seed mix will be applied at the appropriate time of year and noxious weeds will be controlled. Prior to maintaining existing range improvement projects the permittee(s) must notify the BLM of their intent so the BLM can verify or complete adequate cultural surveys.

Since the previous permit revision and renewal analysis two additional water developments have been implemented in the Blacks Gulch allotment. These range improvement projects were analyzed in CO-N05-2015-003-EA. In the Tschuddi Gulch pasture a spring was redeveloped and a waterline installed to pump water to a tank placed near the upper end of this pasture. In the Scenery Gulch pasture a well was drilled and tank installed in a draw approximately half a mile east of the main gulch. The new water sources reduce the distance cattle need to trail for water, allow them to utilize areas that were previously only marginally useful due to the distance to water, and increase the area available to them for grazing. The proposed permit for the Blacks Gulch allotment reflects the additional AUMs now available as a result of these new range improvement projects.

3.3. Terms and Conditions Applicable to Alternatives A and B

Livestock grazing permits and leases must specify terms and conditions pursuant to 43 CFR 4130.3, 4130.3-1, and 4130.3-2. The Standard Terms and Conditions that are applied to every permit in Colorado are listed in Appendix A.

3.3.1. Other Grazing Lease Terms and Conditions

Livestock grazing permits may also contain site-specific terms and conditions “determined by the authorized officer to be appropriate to achieve management and resource conditions objectives”, to ensure conformance with Colorado Public Land Health Standards and Fundamentals of Rangeland Health, and to “assist in the orderly administration of the public rangelands” (43 CFR 4130.3, 4130.3-2). With the exception of #1 which would only apply to Alternative A, the following terms and conditions would apply to both Alternatives A and B. Additional terms and conditions may be identified through the impacts analysis in this EA as mitigation measures necessary to meet resource objectives and may be added to the grazing permit in the final decision.

1. Livestock grazing use will occur as outlined in the grazing schedules (Allotment Management Plan) for the selected alternative in the EA (DOI-BLM-CO-110-2016-0052-EA) that analyzes grazing on the Blacks Gulch and West Shutta Allotments.

2. In order to improve livestock distribution on the public lands, no salt blocks and/or mineral supplements will be placed within ¼ mile of any riparian area, wet meadow, or

watering facility (either permanent or temporary) unless stipulated through a written agreement or decision. (43 CFR 4130.3-2(c))

3. The permittee/lessee shall provide reasonable administrative access across private and leased lands to the BLM for the orderly management and protection of public lands. (43 CFR 4130.3-2(h)).

4. Thirty days prior to turnout, the permittee/lessee will submit a grazing application and plan of operation for the grazing year to the BLM for approval. The plan of operation will include the anticipated turnout dates, numbers of animals, and the sequence that the allotments and/or pastures will be used, consistent with the approved grazing schedules.

5. The permittee/lessee will be required to submit actual grazing use records within two weeks after the end of grazing. (43 CFR 4130.3-2(d)).

6. As a term of the Cooperative Maintenance Agreement for range improvement #3564, an existing pond (T2N R96W Sec 35 SWNW) within the Black Mountain Wilderness Study Area (WSA), the permittee will contact the WRFO prior to performing any maintenance activities to coordinate and obtain prior approval.

7. Livestock grazing on these allotments will be managed to achieve the Colorado Public Land Health Standards and sage-grouse habitat management objectives. If the proposed livestock grazing results in undesirable impacts the grazing schedules or other modifications will be made to allow progress toward meeting these standards/objectives.

8. The permittee/lessee is responsible for informing all persons who are associated with any project that they will be subject to prosecution for knowingly disturbing archaeological sites or for collecting artifacts.

9. If any archaeological materials are discovered as a result of operations under this authorization, activity in the vicinity of the discovery will cease, and the BLM WRFO Archaeologist will be notified immediately. Work may not resume at that location until approved by the authorized officer (AO). The permittee/lessee will make every effort to protect the site from further impacts including looting, erosion, or other human or natural damage until BLM determines a treatment approach, and the treatment is completed. Unless previously determined in treatment plans or agreements, BLM will evaluate the cultural resources and, in consultation with the State Historic Preservation Office (SHPO), select the appropriate mitigation option within 48 hours of the discovery. The permittee/lessee, under guidance of the BLM, will implement the mitigation in a timely manner. The process will be fully documented in reports, site forms, maps, drawings, and photographs. The BLM will forward documentation to the SHPO for review and concurrence.

10. Pursuant to 43 CFR 10.4(g), the permittee/lessee must notify the AO, by telephone and written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and

(d), the operator/holder/applicant must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the AO.

11. The permittee/lessee is responsible for informing all persons who are associated with allotment operations that they will be subject to prosecution for disturbing or collecting vertebrate or other scientifically-important fossils, collecting large amounts of petrified wood (over 25lbs./day, up to 250lbs./year), or collecting fossils for commercial purposes on public lands. If any paleontological resources are discovered as a result of operations under this authorization, the permittee/lessee must immediately contact the appropriate BLM representative.

3.3.2. Limits of Flexibility

Permits may be provided minor flexibility during the grazing year from the approved grazing application that does not require prior approval by the authorized officer, however prior notification of the change(s) is required. This flexibility will be limited to on and off dates and the number of animals to adjust for changing climatic conditions, forage variability, and operational needs. For this permit, flexibility will be limited to 10 days either side of the on or off dates provided total days of use do not exceed 10 days from the schedule approved in the permit/lease. The number of animals may also be adjusted (+/-) from the approved grazing application provided the total AUMs used does not exceed the AUMs scheduled. Annual flexibilities will be reflected in Actual Use forms submitted within two weeks from the end of the permitted grazing period.

Flexibilities that require approval by the BLM are adjustments made beyond the above criteria. BLM-approved flexibilities and/or changes to this plan may be required due to such factors as forage influences from grazing, drought, fire, and/or water availability.

3.3.3. Monitoring and Evaluation

Refer to CO-110-2007-30-EA and CO-110-2007-0098-EA for a detailed discussion on monitoring in these allotments. Long term trend monitoring, utilization studies, riparian assessments, Grazing Response Index (GRI), and Habitat Assessment Framework (HAF) will occur as determined necessary to assess rangeland and sage-grouse habitat conditions. Based on future monitoring additional changes to grazing schedules combined with implementation of identified projects such as additional water sources, pasture division fences or, vegetation treatments may need to be implemented in to ensure progress is being made toward meeting sage-grouse habitat objectives.

3.4. Alternative C – No Livestock Grazing

No livestock grazing would be authorized on the Blacks Gulch or the West Shutta allotment where it is currently permitted. The grazing permits held by LK Ranch Livestock LLC would not be reissued. This alternative would not be in compliance with the White River Field Office RMP decision to provide for livestock grazing as one of the acceptable multiple uses. For comparison

purposes this alternative will be analyzed through this document though may be incorporated by reference to CO-110-2007-30-EA (Blacks Gulch) and CO-110-2007-098-EA (West Shutta).

3.5. Alternatives Considered but Eliminated from Detailed Analysis

The option of scheduling the full grazing preference in both the Blacks Gulch was discussed with the permittee. It was agreed that grazing at the proposed reduced level would allow progress toward meeting sage-grouse habitat objectives. No other alternative grazing schedules were identified that would result in less impacts to other resources and be compatible with the applicant's operations.

4. ISSUES

The CEQ Regulations state that NEPA documents "must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. The following sections list the resources considered and the determination as to whether they require additional analysis.

4.1. Issues Analyzed

The following issues were identified during internal scoping as potential issues of concern for the Proposed Action. These issues will be addressed in this EA.

- **Soil Resources**: Grazing as proposed under both the Proposed Action and Alternative B during the early spring when soils are soft and muddy has potential cause negative impacts such as compaction, reduced infiltration and damage to plant roots, especially in the Blacks Gulch and Middle pastures of the Blacks Gulch allotment where soils are fine-textured and clayey. The degree of these impacts and the amount of recovery during the non-grazed period is not yet known.

- **Vegetation**: Grazing as proposed under the Proposed Action and Alternative B will impact the vegetation resources in the allotment on public lands principally by selectively removing biomass of preferred herbaceous forage species.

- **Invasive, Non-Native Species**: There are several noxious and invasive weed species present in these allotments that would continue to have opportunity for spread under both alternatives because livestock grazing use focuses on palatable native forage species.

- **Livestock Grazing:** Proposed grazing in these allotments would result in fairly short duration grazing, early in the growth period, at alternating intensity, with some opportunity for regrowth after livestock rotate out of each pasture.

- **Surface and Ground Water Quality**: Based on the proposed grazing schedule overlapping periods of ephemeral/intermittent stream flow from the allotments, high soil moisture content, and critical vegetation growth period the potential exist for impacts to the surface water quality draining from the Blacks Gulch and West Shutta allotments into a 303(d) impaired segment (COLCWH07) of the White River.

- **Floodplains, Hydrology, and Water Rights**: Based on aerial imagery data analysis (Google Earth – October, 2015) and BLM lotic (flowing water) hydrologic reviews in 2006, substantial sediment and alluvium are transported from E. Blacks Gulch and E. Tschuddi Gulch to the White River. Under Alternatives A and B, grazing will occur during periods of ephemeral stream flow, high soil moisture content, and critical riparian and upland vegetation growth. Based NRCS Soil Data Viewer data (2012), 2,061 acres of E. Blacks Gulch and E. Tschuddi Gulch floodplains are classified as saline indicating these soils are high in gypsum and alkaline salts. Given that grazing will occur during periods of streamflow, it is expected that livestock impacts would be concentrated in the floodplain potentially resulting in stream bank destabilization, surface soil disturbances, and riparian vegetation consumption. These impacts could contribute to the degradation of the stream hydrology in the Blacks Gulch allotment including active down cutting, sediment laden runoff during late-summer monsoonal rains, and suspension/transport of salts to the perennial White River.

- **Wetlands and Riparian Zones**: The early use periods in the Blacks Gulch allotment would result in livestock trampling related disturbance in the channels early in the growing season and during the spring run-off period. Ephemeral channels would be expected to have surface flow during the early use periods. Soft wet soils would be more vulnerable to the impacts of livestock hoof action, which could increase sediment loads entering these channels. Effects would be similar around ponds in the West Shutta allotment though would occur slightly later in the growth period.

- **Aquatic Wildlife:** Neither the Scenery Gulch and Tschuddi Gulch channels support fisheries populations. There are dozens of small ponds and reservoirs scattered throughout the Blacks Gulch and West Shutta allotments that likely support populations of tiger salamander, chorus frog, and possibly northern leopard frog, a BLM sensitive species. Reductions in or modifications (trampling) to bank cover may result in increased sediment loads which may influence these aquatic species.

- **Migratory Birds:** Reductions in herbaceous ground cover associated with livestock grazing can make certain bird species (e.g., ground nesting birds) more susceptible to predation, as well as reduce forage availability. Livestock use during the nesting season

may also result in nest disruption and possible mortality of nestlings, particularly for ground nesting species.

- **Terrestrial Wildlife**: Reductions in herbaceous understory may lead to reduced density and diversity of nongame species. Livestock and big game use would be concurrent during the early spring period.

- **Special Status Animal Species**: Reductions in herbaceous ground cover associated with livestock grazing and prevalence of annual, invasive grasses (cheatgrass) likely influence habitat suitability and reproductive success for greater sage-grouse. Issues for Brewer's sparrow and northern leopard frog would be similar to those addressed above in Migratory Birds and Aquatic Wildlife sections, respectively.

- **Cultural Resources**: Although livestock use is generally dispersed, livestock may congregate near springs, water sources and other facilities (e.g., wells, tanks, troughs, and corrals) where cultural resources are known to occur. Potential impacts to cultural resources (e.g., artifact damage, artifact displacement, loss of site integrity and soil erosion) will be highest in these congregation areas. A total of 23 "needs data" or "eligible" cultural resources have the potential to be adversely affected by the Proposed Action. The proposed range improvement projects were survey at the Class III inventory level by the WRFO archaeologist on 8/24/2015, BLM report number 15-10-36. The results of the inventory did not yield any National Register eligible properties.

- **Paleontological Resources**: Paleontological materials (fossils) are not considered to be endangered by normal grazing activities. However, the proposed access trailing corridor into Oil Well Gulch has the potential to cause permanent, irreversible, and irretrievable damage to a regionally significant vertebrate fossil locality: 5RB 8588.

- **Recreation:** There is some potential for the Proposed Action and Alternative B to have minor impacts to recreational settings and opportunities within the project area.

- **Access and Transportation**: Motorized vehicle travel off of existing or designated BLM travel routes could impact the BLM travel and transportation system.

- **Wilderness Study Areas**: There is potential for impacts to the Black Mountain Wilderness Study Area where there is an overlap of approximately 1,200 acres with the Proposed Action and Alternative B.

4.2. Issues Considered but not Analyzed

- **Air Quality**: Air quality within the project area meets the established primary and secondary national ambient air quality standards (NAAQS) for criteria pollutants. Neither Alternative A nor B is expected to result in an exceedance of the NAAQS. Eolian (wind) generated fugitive dust is the primary concern with livestock grazing on rangelands. The disturbance of soil surfaces by trailing, hoof-action, and/or consumption of vegetation

can expose soils to eolian (wind) driven process of rolling, saltation (short-leaps or bounces), and/or suspension. Once suspended, soil particles can travel long distances contributing to particulate matter less than ten micrometers in diameter (PM_{10}) presence. In a typical precipitation year, the late-spring to early summer and late-winter grazing occurs during periods of higher soil moisture contents, minimizing eolian driven fugitive dust concerns. With Alternative C, the elimination of grazing would reduce the year-round generation of eolian driven fugitive dust created by trailing livestock, soil disturbances by hoof-action, and grazing of soil stabilizing vegetation.

- **Geology and Minerals**: The Proposed Action's grazing allotments are outside of areas identified in the RMP as available for oil shale leasing, sodium leasing, and coal leasing consideration. There are no active mining claims located within the allotments. Approximately 33 percent of the grazing allotments are leased for oil and gas and have 42 producing oil and gas wells, 2 shut in oil and gas wells, and 1 water disposal well. Past and current grazing practice have little to no impacts the geology or mineral resource development within the allotments and the Proposed Action would continue to have little to no impacts on the geologic and mineral resources

- **Hazardous or Solid Wastes**: There are no known hazardous materials, wastes, or dump sites known within the allotments. No listed or extremely hazardous materials are proposed for use in any of the alternatives. Applications of pesticides would be in compliance with BLM requirements and allowed under a separate authorization. If the permittee suspects the release of any chemical, oil, solid waste, petroleum product, or sewage within the allotment, contact the BLM WRFO Hazardous Materials Coordinator at (970) 878-3800 and/or the Colorado Department of Public Health and Environment (CDPHE) at 1(877)518-5608.

- **Native American Religious Concerns**: No Native American religious concerns are known in the area, and none have been noted by 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.

- **Social and Economic Conditions**: There would not be any substantial changes to local social or economic conditions.

- **Environmental Justice**: According to the most recent Census Bureau statistics (2010) and guidelines provided in WO-IM-2002-164, there are no minority or low income populations within the WRFO.

- **Prime and Unique Farmlands**: There are no prime and unique farmlands within the project area.

- **Realty Authorizations:** There are right-of-ways present; however, no impacts would be expected.

- **Special Status Plant Species**: There are no special status plants or suitable plant habitat in the Blacks Gulch or West Shutta allotments. There is some potential habitat identified for sensitive plants (Duchesne milkvetch and Debris milkvetch) within the Blacks Gulch allotment near the proposed drift fence and trailing corridor. Once the exact location of the fence and trailing has been identified, surveys will be completed to ensure no sensitive plants exist in the area; however the Proposed Action is expected to have no direct or indirect impacts to special status plants.

- **Wild and Scenic Rivers**: There are no Wild and Scenic Rivers within the WRFO.

- **Wild Horses:** The proposed grazing permit revision for the Blacks Gulch and West Shutta allotments are more than ten miles from the Piceance-East Douglas Herd Management Area (PEDHMA). There are several barriers (allotment boundary fences, highway frontage fences, and State Highway 64) between the project area and the PEDHMA. There would be no related impacts to the wild horses in the PEDHMA from this project.

- **Scenic Byways**: There are no Scenic Byways within the project area.

- **Fire Management**: Grazing reduces light flashy fuels, which reduces the chance of large and/or catastrophic wildfires. No negative impacts are expected with this action.

- **Forestry and Woodland Products:** The Blacks Gulch allotment is composed of some pinyon-juniper woodlands with some small inclusions of Douglas-fir and spruce fir forests at higher elevations. The Proposed Action is expected to have no measurable direct or indirect impacts to forestry or woodland products.

- **Lands with Wilderness Characteristics:** There is an approximately 200 acre overlap with the project area and lands with wilderness characteristics unit 19-North Colorow (10,300 acres). The grazing schedule and intensity discussed under each alternative would not impact wilderness characteristics.

- **Visual Resources**: The majority of the area where the Proposed Action is located has a Visual Resource Management (VRM) management objective of Class III. The objective of VRM Class III is to partially retain the existing character of the landscape where management activities may attract attention but should not dominate the view of the casual observer. The Proposed Action as designed would meet this VRM objective. The southeast portion of the Blacks Gulch allotment has approximately 1,200 acres located within Black Mountain Wilderness Study Area (WSA) has a VRM Class I objective. The objective of VRM Class I is to preserve the existing character of the landscape and provide for natural ecological changes. However, it does not preclude very limited management activity with very low level of change to the characteristic landscape that does not attract attention. By following management direction found in BLM 6330 Manual-Management of Wilderness Study Areas for grazing management, the Proposed

Action would meet the VRM Class I objective. A more detailed discussion of grazing management and potential impacts in WSAs is found in Section 5.19 of this document.

- **Areas of Critical Environmental Concern:** The Blacks Gulch ACEC is 800 acres and is located in the Blacks Gulch and Middle pastures of the Blacks Gulch allotment. This ACEC was designated for paleontological values. No congregated use is proposed within the ACEC, and normal grazing practices generally have no measurable impacts to paleontological values. The Proposed Action is not expected to impact the values of the Blacks Gulch ACEC for which the ACEC was designated.

5. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

5.1. General Setting

The Blacks Gulch allotment (06612) and the West Shutta allotment (06604) are located approximately 20 miles west of Meeker on the north side of State Highway (SH) 64. The Blacks Gulch allotment extends from SH 64, northward to the ridge line of Colorow Mountain. The much smaller West Shutta allotment lies along the southwest side of the Blacks Gulch allotment. In the Blacks Gulch allotment elevations range from 5,786 feet along SH 64 up to 8,097 feet at the northernmost point of the Scenery Gulch pasture. Elevations in the West Shutta allotment range from 6,000 to 6,400 feet. Topography throughout the allotments is variable. The West Shutta allotment is generally moderate with only 4 percent of the allotment having slopes steeper than 30 percent. Nearly half of the Blacks Gulch allotment is made up of slopes steeper than 30 percent.

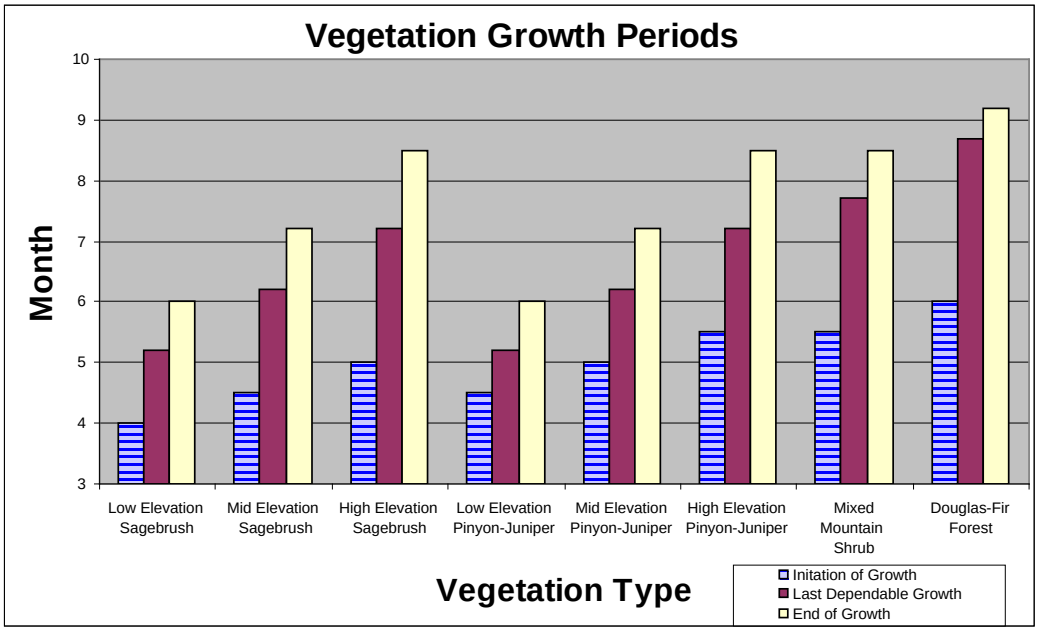
Vegetation in the lower pastures (Blacks Gulch, South, and Middle pastures of both allotments) is dominated by basin big sagebrush and greasewood bottoms with pinyon juniper dominated slopes. The upper elevation pastures (North, Oil Well Gulch, Tschuddi and Scenery) are primarily brushy slopes between grass/sagebrush dominated bottoms.

5.2. Assumptions for Analysis

Growing Season: Table 12 shows plant growth periods for various vegetation types in northwest Colorado. The growth periods are considered an average growing season, however the growing season may vary from year to year depending on climatic conditions. The date of initial growth to the last date of dependable growth is considered the growing season, which averages from April 1 – June 10 in the low to mid elevations areas of the allotment. In the upper elevation areas, the average growing season is May 1- July 20. These growing seasons are partially dependent upon yearly precipitation levels and temperature that both vary on a yearly basis. Growing season precipitation in this general area has been below average for most of the past 10-

15 years resulting in reduced forage production and varying levels of drought conditions in plant communities throughout the area.

Table 12. Average Vegetation Growth Periods



Under the No Action Alternative the proposed drift fence to facilitate livestock trailing into the lower portion of the Oil Well Gulch pasture would not be built. Livestock could still trail through this area with no means of preventing trampling damage to the exposed fossil bearing formation at this crossing point.

5.3. Cumulative Impacts Analysis

5.3.1. Analysis Areas

The geographic extent of cumulative impacts varies by the type of resource and impact. The timeframes, or temporal boundaries, for those impacts may also vary by resource. Different spatial and temporal cumulative impact analysis areas (CIAAs) have been developed and are listed with their total acreage in Table 13. Cumulative Impact Analysis Areas by Resource

Table 13. Cumulative Impact Analysis Areas by Resource

Resource	CIAA	Total CIAA Acreage	Temporal Boundary
Vegetation, Invasive and Noxious Weeds, Soil Resources, Livestock Grazing, Surface and Ground Water Quality,	Total Acreage of Blacks Gulch and West Shutta Allotments	31,103 acres (includes BLM and CPW lands in both allotments)	Impacts to lands within the allotments would be cyclic (grazing – no grazing cycles) and influenced by precipitation

Floodplains			amount and timing. Vegetative cover and composition, soil compaction, surface runoff, sediment deposition/transport and water quality would be influenced throughout the ten-year term of the grazing permit with potential for effects into the future. Livestock grazing management in these allotments would be affected for the term of the grazing permits.
Cultural Resources	Total Acreage of Blacks Gulch and West Shutta Allotments	31,103 acres (includes both allotments)	Impacts to the regional cultural resource database from this action would be permanent, irreversible, and irretrievable, resulting in an ongoing cumulative loss of scientific data.
Paleontological Resources (Wasatch Formation)	Site 5RB 8588	Approximately 1 acre of the 191,458 acre Wasatch Formation that occurs in the White River Field Office	Effects to 5RB 8588 has the potential to be permanent.
Wetlands, Aquatic Wildlife	Riparian areas, including ponds and adjacent uplands associated with the Blacks Gulch and West Shutta Allotment	Approximately 14 miles of mostly ephemeral channel (~34 acres) on BLM lands and approximately 7 miles (~100 acres) on CPW lands	Past and present impacts from grazing in the riparian areas can impact riparian function. Early spring use in the allotments optimizes water availability throughout the allotments but also

			coincides with wetter soil conditions.
Migratory Birds, Terrestrial Wildlife	Total acres within the Blacks Gulch and West Shutta allotments with emphasis on severe winter range	31,103 acres (includes both allotments)	Historic livestock related influences as well as livestock related influences throughout the life of the permit renewal and several decades beyond.
Special Status Animals	Sagebrush communities within the Blacks Gulch and West Shutta allotments	31,103 acres (includes both allotments) 5,240 acres of mapped GHMA (1,740 in West Shutta, 3,500 in Blacks Gulch)	Historic livestock related influences as well as livestock related influences throughout the life of the permit renewal and several decades beyond.
Recreation, Access	Total acres within the Blacks Gulch and West Shutta allotments	31,103 acres (includes both allotments)	Effects of livestock grazing on forage resources impacts big game use and presence in the allotments. This has the potential to indirectly affect hunting experiences.
Wilderness Study Areas	That portion of the Black Mountain WSA that coincides with the Blacks Gulch allotment	Approximately 1,200 acres	Recreational vehicle use on routes specific to range improvements within the WSA directly affects the opportunities for solitude and primitive types of recreation as well as the naturalness associated with this designation.

5.3.2. Past, Present, and Reasonably Foreseeable Future Actions

Cumulative effects are defined in the CEQ regulations (40 CFR 1508.7) as "...the impact on the environment that results from the incremental impact of the action when added to other past,

present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."

Oil and Gas Development

The West Shutta and the southwest portion of the Blacks Gulch allotment are located within the boundary of the Mesaverde Play Area, where it was assumed that full-field development would require two to three pads per section. This area has generally been developed over the last fifteen to twenty years. There are approximately 25 active well pads (and 28 producing wells) in the West Shutta allotment and approximately 12 active pads (and 12 producing wells) in the Blacks Gulch allotment, all with associated access roads and some with pipelines. This general area is not expected to be an area of additional intensive energy development in the future but some additional energy development could still occur here.

Other Actions

Other past, present, and reasonably foreseeable actions in the project area include vegetation treatments and both wildfires and prescribed burns. Recreation use is characterized by dispersed camping, OHV use, and hunting. Big game hunting occurs in the fall primarily in the northern end of the allotments.

5.4. Soil Resources

5.4.1. Affected Environment

Refer to CO-110-2007-30-EA page 51, CO-110-2012-0018-EA page 15, and CO-110-2007-098-EA page 19 for detailed descriptions of soils present in these allotments. Approximately 40 percent of the Blacks Gulch allotment has slopes greater than 35 percent. The West Shutta allotment is mostly gentle topography and has less than four percent of the allotment with slopes greater than 35 percent. Slopes greater than 35 percent are generally considered marginally accessible to livestock and therefore less suitable for grazing (Holechek, 1998). In the Blacks Gulch allotment (Blacks Gulch and Middle pastures) previous analysis noted fine textured clayey soils. Intermittent spring thawing results in soft saturated soils in these areas. Soils in the upper elevation pastures (North, Oil Well Gulch, Tschuddi, and Scenery) are more variable with fewer clayey sites. Steeper slopes and fine textured soils are at higher risk of impacts from hoof disturbance, especially when wet.

Previous Land Health Assessments from 2006 in the Blacks Gulch allotment identified areas especially in the Blacks Gulch and Middle pastures that lacked sufficient vegetative cover to protect soil surface and plant community composition included invasive annual species (such as cheatgrass). Land Health Assessments from 2007 in the West Shutta allotment did not identify any specific concerns other than especially in the South pasture the plant community composition included approximately 12 percent cheatgrass. Land Health Assessments conducted in the fall of 2015 in Rolling Loam sites in the Middle pasture of the West Shutta allotment raised concerns, also based on the level of cheatgrass present throughout the plant community. Moderate departure was noted for hydrologic function associated with reduced infiltration, evidence of erosion and water flow, and more bare ground than expected. It was also noted that

the functional and structural groups within the plant community were altered due to a dominance of annual invasive non-native plant species (primarily cheatgrass) and a lack of native perennial bunch grasses.

5.4.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

In the Blacks Gulch pasture, as described in CO-110-2012-0018-EA, hoof impact and trampling during wet soil conditions has potential to cause disruption of soil surface, compaction, reduced infiltration, increased sediment loss, damage to the roots of forage plants, and reduced forage yields (Vallentine, 2001). Under the proposed schedules, grazing in the Blacks Gulch pasture could begin on March 15 each year. Duration would be for 22 days two in three years with AUM use scheduled at approximately 46 percent of average forage production capacity. One in three years use would be scheduled for 27 days and AUM use at approximately 56 percent of average capacity. The reduced number of cattle in this pasture would effectively reduce the hoof action impacts and associated soil disturbance.

Scheduled grazing in the Middle pasture of the Blacks Gulch allotment would be at a higher intensity but for a shorter timeframe on an alternating schedule. Two in three years grazing would occur for 20 days resulting in AUM use scheduled at 87 percent of the average forage production capacity and one in three years grazing would occur for 15 days resulting in AUM use at 65 percent of average capacity. The reduced timeframe cattle are present and the reduced intensity of use scheduled (well below estimated average forage production capacity) would effectively reduce overall hoof action impacts to soils in the Middle pasture. Additionally, proposed scheduled grazing use in the Middle pasture would occur after soil surface moisture has reduced and soils are less vulnerable to physical (hoof action) impacts.

Under the proposed grazing schedules the higher elevation Scenery and Tschuddi pastures of the Blacks Gulch allotment would be grazed at the same time (4/26 to 6/15), for the same duration (51 days total) and at the same intensity with AUM use scheduled at 97-98 percent of estimated average forage production each year. Within each of these pastures there are distinct use areas where livestock use will rotate through reducing overall duration of use. The Tschuddi pasture has three distinct (fenced) units where use periods will average seventeen days. The Scenery pasture has two general use areas where livestock use will rotate through by herding resulting in an average of 25 day duration of use in each area. These fairly short use periods with alternating periods will allow each area a year of rest between grazing periods for recovery. Similarly, livestock use would occur after soil surface moisture has reduced and soils are less vulnerable to physical (hoof action) impacts.

Proposed scheduled use in the West Shutta allotment would result in two in three years where grazing would be at low to moderate intensity with AUMs scheduled at 24 to 74 percent of estimated forage production capacity and relatively short duration (4 to 15 days). One in three years all three pastures would be grazed for slightly longer timeframes (7 to 23 days) and AUM

use would be scheduled closer to the estimated capacity (87 to 94 percent). The Oil Well Gulch pasture of the Blacks Gulch allotment will be grazed as part of the rotation through the West Shutta allotment. Grazing intensity and duration would alternate where two in three years intensity would be high with AUM use scheduled at 100 percent of estimated average forage production capacity and a longer duration of 51 days. One in three years intensity would be reduced (59 percent of estimated capacity) and duration would be reduced to 30 days.

Proposed grazing schedules in the both the West Shutta allotment and the Oil Well Gulch pasture of the Blacks Gulch allotment would occur when soil surface moisture has reduced and soils are less vulnerable to physical (hoof action) impacts. It is expected that the relatively short use periods with the proposed two in three and one in three year rotation should allow soils adequate recovery between disturbance events when cattle are present at higher intensity or slightly longer duration.

Cumulative Impacts

Cumulative land uses including oil and gas development, wildlife browsing, livestock grazing, and dispersed recreation are expected to result in varying levels of disturbance. Livestock grazing, as proposed would occur at a lower intensity or during periods when soils are drier and less susceptible to impacts from hoof action. On years with average precipitation adequate vegetation recovery is expected during non-grazing periods to provide necessary litter for maintaining soil organic matter. Litter cover and subsequent organic matter are critical in maintaining the soil structure needed for proper water infiltration, reduced soil temperatures, increased moisture retention, and plant root mass necessary for soil retention. In ephemeral drainages localized, permanent modifications to bank soil structure are expected with concentrated use by cattle.

5.4.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

Overall, impacts to soils from livestock grazing would be similar to those of the Proposed Action. Under this alternative use in the Blacks Gulch pasture would occur at roughly the same time frame, for a shorter duration (16 days) but at intensity 25 to 40 percent higher than the Proposed Action. Impacts to soils would be higher but for a shorter timeframe.

In the Middle pasture of the Blacks Gulch allotment under this alternative each year soils would receive the same impacts and have the same recovery opportunity where grazing would continue to occur for 17 days each year at about 78 percent of the estimated forage production capacity. The main difference is that the Proposed action would allow for reduced duration and intensity one in three years allowing for overall slightly reduced impacts and slightly more opportunity for recovery.

Under this alternative for the Scenery and Tschuddi pastures livestock would be grazed as a larger group (600 head) for a shorter duration (17 to 20 days). Cattle would rotate through the

distinct use areas (three in Tschuddi and two in Scenery) so the days grazing in each use area would be very short. Similar to the Blacks Gulch pasture, impacts would be at twice the intensity than the Proposed Action but for a shorter duration.

In the West Shutta allotment continued this schedule would result in each pasture being grazed at the same intensity and duration every year. If the operator only grazed livestock during the early use period (4/20 through 5/25) grazing would be below estimated average forage production capacity but if they chose to graze cattle in the fall use period (11/10 through 12/15) overall AUM use would be above the estimated capacity. Utilization levels would likely be above objective levels leaving inadequate litter to protect soil surface and maintain soil organic matter for soil structure and water infiltration.

The Oil Well Gulch pasture would be grazed at a moderate intensity (approximately 65 percent of estimated capacity) and for a short duration (10 to 15 days) each year. This grazing use would likely result in only moderate impacts to soils and leave adequate litter for soil and site protection.

Overall it is not clear if impacts to soils would be greater or less under this alternative than under the Proposed Action for the Blacks Gulch, Middle, Scenery and Tschuddi pastures. It appears that impacts to soils under this alternative would be reduced in the Oil Well Gulch pasture. If the livestock operator chose to fully utilize both the early and late use periods currently authorized in the West Shutta allotment impacts to soils would be greater than under the Proposed Action.

Cumulative Impacts

Cumulative land uses including oil and gas development, wildlife browsing, livestock grazing, and dispersed recreation are expected to result in varying levels of disturbance. Livestock grazing, as currently permitted be similar to the Proposed Action for the Blacks Gulch allotment. Livestock grazing as currently permitted in the West Shutta allotment could occur at an intensity that would negatively impact soils. On years with below average precipitation it is likely that residual herbaceous litter would not be adequate to provide necessary litter for maintaining soil organic matter. Litter cover and subsequent organic matter are critical in maintaining the soil structure needed for proper water infiltration, reduced soil temperatures, increased moisture retention, and plant root mass necessary for soil retention. In ephemeral drainages localized, permanent modifications to bank soil structure are expected with concentrated use by cattle similar to the Proposed Action.

5.4.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

With no livestock grazing, there would be no direct livestock related impacts to soils. Indirectly, soils would benefit from reduced disturbance associated with hoof action in wet soils, reduced trailing, and increased litter accumulation.

Cumulative Impacts

Cumulative impacts are similar to those analyzed in Alternatives A and B. Under the No Grazing Alternative C, vegetative cover and litter would recover in and along areas impacted during grazing.

5.5. Vegetation

5.5.1. Affected Environment

Refer to CO-110-2007-30-EA page 59, CO-110-2012-018-EA page 23, and CO-110-2007-098-EA page 21 for more detailed descriptions of the following summary. Dominant ecological sites in the Blacks Gulch and West Shutta allotments are Pinyon-Juniper woodlands, Mountain Browse, Stoney Foothills, and Rolling Loam. Eleven percent of the Blacks Gulch allotment has ecological sites that have been rated as not meeting Colorado Public Land Health Standard 3 (2005 assessment). This rating was made primarily because of a lack of appreciable perennial plant cover and excessive erosion rates. The sites generally have altered structural/functional plant communities with the plant community understory dominated by invasive, non-native plant species (e.g., cheatgrass) and to a lesser extent noxious weeds that are highly competitive with native vegetation. Sites not meeting Standard 3 are typically located in the Alkaline Slopes and Rolling Loam range sites found in valley bottoms, valley toe-slopes, benches, and/or areas of gentle terrain, especially in the Blacks Gulch and Middle pastures.

In the West Shutta allotment 2007 Land Health Assessments generally supported that plant communities were within acceptable thresholds. Land Health Assessments conducted in the fall of 2015 in Rolling Loam sites in the Middle pasture raised concerns for the level of cheatgrass present throughout the plant community. Similar to the Blacks Gulch pasture the site showed altered functional and structural groups within the plant community and the understory was dominated by annual invasive non-native plant species (mainly cheatgrass). Most degraded areas in the Field Office are a result of historical grazing influences, drought, and in some instances, recent past grazing practices. Recovery from these conditions will be a slow process.

The 1997 White River RMP establishes minimum rest requirements during the plant growing season for grazing allotments to restore plant vigor, improve watershed conditions, and improve rangeland conditions. In the Blacks Gulch allotment the rest period is one out of every three years from March 15 through June 10 for the lower pastures (Blacks Gulch and Middle) and from April 15 through July 10 for the upper pastures (Scenery, Tschuddi and Oil Well Gulch). The rest requirement for the West Shutta allotment is to defer grazing until June 1st one out of every three years.

Neither the Proposed Action alternative nor the Continuation of Current Management alternative completely meet the specific rest requirements outlined in the White River ROD/RMP. However, the grazing schedules of these alternatives in terms of the timing, duration, and intensity of grazing would attempt to meet the objectives of the rest requirements to allow for improvements

in rangeland health while also meeting the management objectives of the livestock operator. For both alternatives relatively short grazing periods would allow forage plants opportunity during the growing season for growth before being grazed or regrowth after being grazed. For the Proposed Action the intensity of grazing would vary between the Year 1 and the Year 2/3 rotations. As with any grazing permit, grazing schedules are dynamic and are subject to adjustment through time based on range trend and condition. Future assessments could indicate the need for additional changes in grazing schedules to meet these objectives and make progress toward meeting the Standards for Public Land Health.

Active growth periods vary yearly depending on temperatures and precipitation but on average the growth periods for these allotments are from April 1 through June 10 in the lower pastures and from May 1 through July 10 in the higher elevation pastures. The lower pastures are considered to be South, Middle (West Shutta allotment), Blacks Gulch, and Middle (Blacks Gulch allotment). The higher elevation pastures are Oil Well Gulch, Scenery and Tschuddi.

Tables 14-16 provide a comparison of the average days of growth opportunity by pasture that forage plants would be allowed each year of the proposed grazing schedule rotation and the current management grazing schedule.

Table 14. Proposed Grazing Schedules Growth and Regrowth Opportunity by Pasture

Allotment	Pasture	Year 1 use period	Days of growth opportunity before grazing	Days regrowth opp. after grazing	Year 2 and 3 use period	Days growth opp. before grazing	Days regrowth opp. after grazing
West Shutta	South	4/1 - 4/14	0	56	4/1 - 4/2	0	68
West Shutta	Middle	4/15 - 5/7	14	33	4/3 - 4/17	2	53
West Shutta	North	5/8 - 5/14	7	56	4/18 - 4/23	dormant	70
Blacks Gulch	Oil Well Gl	5/15 - 6/13	14	27	4/24 - 6/13	6	27
West Shutta	South	6/14 - 6/15	60	0	6/14 - 6/15	68	0
Blacks Gulch	Blacks Gl	3/15 - 4/10	0	60	3/15 - 4/5	0	65
Blacks Gulch	Middle	4/11 - 4/25	10	46	4/6 - 4/25	5	46
Blacks Gulch	Tschuddi	4/26 - 6/15	0	25	4/26 - 6/15	0	25
Blacks Gulch	Scenery	4/26 - 6/15	0	25	4/26 - 6/15	0	25

Table 15. Blacks Gulch Current Grazing Schedules Growth/Regrowth Opportunity

Current Grazing Schedule Blacks Gulch						
Pasture	Even Year Scheduled Use Period	Days of growth opportunity before grazing	Days of regrowth opportunity after grazing	Odd Year Scheduled Use Period	Days of growth opportunity before grazing	Days of regrowth opportunity after grazing

Blacks Gulch	3/15-4/1	dormant	70	3/15-4/1	dormant	70
Homestead Wray	4/20-4/26	19	44	4/2-4/8	1	62
Oil Well Gulch	4/27-5/7	6	54	4/9-4/19	dormant	70
Middle	4/2-4/19	1	51	4/20-5/7	19	33
Scenery Gulch	5/26-6/15	24	25	5/8-5/25	7	45
Tschuddi Gulch	5/8-5/25	7	45	5/26-6/15	24	25

Table 16. West Shutta Current Grazing Schedules Growth/Regrowth Opportunity

Current Grazing Schedule West Shutta			
Pasture	**Scheduled Use Period**	**Days growth opp. before grazing**	**Days regrowth opp. after grazing**
South	4/20 - 4/30	19	10
Middle	5/1 - 5/19	30	21
North	5/20 - 5/25	19	45
North	11/10 - 11/15	dormant	dormant
Middle	11/16 - 12/5	dormant	dormant
South	12/6 - 12/15	dormant	dormant

5.5.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

Proposed use in the Blacks Gulch pasture would schedule grazing at a light to moderate intensity averaging (between Year 1 and Years 2/3) about 50 percent of the estimated average forage production capacity. The majority of grazing use would occur before or early in the growing season. Cheatgrass would be the primary forage to have initiated growth that early. Native forage species would generally just be breaking dormancy when livestock leave this pasture and would have the majority of the growing season to produce seed, restore nutrient reserves and produce standing biomass that would mostly remain in place until the following spring.

Under this alternative the Middle pasture of the Blacks Gulch allotment would be grazed for 20 days (Year 2/3) and 15 days (Year 1) through the first half of the growth period. Early in the growing season forage plants are at their weakest and lowest nutrient reserves. Yearly grazing during this timeframe has potential to reduce plant vigor. Grazing intensity would be moderate and would vary from 87 percent in Years 2/3 and 65 percent in Year 1. Every year plants would have the second half of the growth period to re-grow and recover after livestock have left. Recovery would depend on available moisture. In drier years recovery would likely be limited.

Under the proposed grazing schedules the higher elevation Scenery and Tschuddi pastures would be grazed at the same overall timeframe (4/26 to 6/15), and at the same intensity (97-98 percent

of estimated average forage production) every year. Within each of these pastures there are distinct use areas where grazing use would alternate through in a different rotation each year. The Tschuddi pasture has three distinct (fenced) units that would result in use periods of approximately 17 days each in area. The Scenery pasture has two general use areas (upper and lower) where livestock use could be focused through herding to accomplish similar rest/rotation each year and would result in grazing duration in each use area of 25 days. With the rotation through the distinct use areas forage plants in the Tschuddi pasture would have 53 days of growing season to grow or regrow around the gazing period each year. Forage plants in the Scenery pasture would have 45 days of growing season to grow or regrow around the grazing period yearly.

Proposed grazing in the West Shutta allotment would result in light intensity (South pasture) to moderate intensity (Middle and North pastures) and relatively short duration (4 to 15 days) two in three years. One in three years grazing intensity would be closer to estimated capacity in every pasture but grazing duration would still be relatively short ranging from 7-23 days. Timing of grazing would be before or early in the growth period (Year 2/3) and forage plants would have the majority of the growth period for recovery. In Year 1 the Middle pasture would be grazed in the middle of the growth period. The proposed schedule is expected to allow forage plants adequate opportunity to meet physiological needs and maintain vigor.

Under this alternative grazing use in the Oil Well Gulch pasture would result in grazing in the middle of the growth period. Each year forage plants would begin growth, be grazed and then have the last third of the growth period for re-growth and recovery. Proposed duration would be relatively long (51 days Year 2/3 and 30 days Year 1). Intensity would be high in Years 2/3 with use scheduled at the estimated average annual capacity. In Year 1 grazing intensity would be moderate, scheduled at roughly 60 percent of estimated capacity. Similar to the Middle pasture of the Blacks Gulch allotment, yearly grazing in the middle of the growth period has potential to reduce plant vigor. Re-growth and recovery in the latter part of the growth period would depend on available moisture. In drier years recovery would likely be limited.

In all pastures where grazing would occur when native forage plants are still dormant or are just breaking dormancy cattle would be forced to utilize the previous year's standing biomass and newly greening-up cheatgrass that initiates growth early in the spring. This use pattern would not likely result in any substantial control or reduction in presence of cheatgrass but would schedule grazing to make use of cheatgrass during the brief period when it is nutritious and palatable. Native forage species would have opportunity to complete growth and produce with reduced grazing pressure. This would also likely result in increased standing biomass for site protection.

In both allotments where plant functional and structural groups have been altered by past grazing practices and invasion by annual grasses it is unlikely that there would be significant positive shifts in plant community composition without intensive management actions such as seeding.

Cumulative Impacts

Past and current impacts to vegetation in these allotments include grazing induced shifts in plant community composition with associated increases in erosion where soils are disturbed by

trailing/trampling, exposed, or lack vegetation with adequate root masses to protect the surface from rain drop impact or overland flow. Soil and vegetation disturbance and noxious weed introduction also occurs in relation to energy development, disbursed recreation and other public land uses. Livestock grazing and these other land uses are expected to continue into the future, and will have varying impacts on vegetation within the overall area associated with these allotments. Implementation of the Proposed Action is expected to allow plant communities to maintain or improve, and is not expected to create additional cumulative effects to vegetation over what is currently taking place in the analysis area.

5.5.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

Continuation of current management in the Blacks Gulch allotment would result in similar impacts to vegetation as the Proposed Action. Pastures would be grazed for relatively short time frames either before (Blacks Gulch pasture) or early in the growing season and would have opportunity for regrowth and recovery after livestock have left each pasture. The Blacks Gulch pasture would be grazed at a higher intensity than under the Proposed Action.

Every other year the Middle pasture would have almost three full weeks of critical growth period prior to being grazed for seventeen days and would be grazed at a moderate intensity of 78 percent of average estimated capacity. The timing, intensity and duration of this grazing schedule should allow plant communities within the Middle pasture, especially forage plants to maintain vigor and reproduce.

Under this alternative the Tschuddi and Scenery pastures would have alternate years where forage plants would benefit from grazing being deferred until later in the growth period. One larger herd of cattle would graze for roughly six days in each of the five (total) use areas in these two pastures resulting in short duration higher intensity grazing, which benefits key forage species by reducing the number of defoliations they experience each growing season.

As scheduled, the Oil Well Gulch pasture would be grazed for roughly three weeks just before or early in the growing season and would have the majority of the growing season for regrowth and recovery. This type of grazing would allow plants to maintain vigor and reproduce. Under this current scheduled grazing rotation, with the new fencing of the private lands across the lower end of this pasture getting livestock in to the Oil Well Gulch pasture would require herding them several miles around through the West Shutta allotment or around through the Tschuddi pasture. This early in the year when calves are quite young and small this level of herding/trailing is not feasible. Additionally, with the fencing of the private lands the Homestead and Wray Gulch pastures have essentially been eliminated creating a seven-day gap in the current grazing schedule making its implementation impossible.

In the West Shutta allotment this alternative results in grazing starting three weeks later than under the Proposed Action. This would allow forage plants three to four weeks of growth before being grazed but would also result in shorter periods for regrowth after livestock leave. Grazing during the growth period would be similar to the Year 1 rotation of the Proposed Action where

grazing would be scheduled at a moderate to high intensity (especially in the Middle pasture) and for a moderate duration every year. This type of grazing use would be expected to allow forage plants to maintain vigor and reproduce over the long term though it would lack the shorter lighter grazing schedules of Years 2/3 of the Proposed Action. This alternative also includes a dormant season schedule that if the allotment were re-grazed in the fall at the scheduled intensity would likely result in the removal of most of each year's forage production land leave minimal herbaceous litter for soil/site preservation and other resource values such as cover.

Cumulative Impacts

Overall impacts to vegetation from livestock grazing in the Blacks Gulch, Middle, Tschuddi, and Scenery pastures of the Blacks Gulch allotment under this alternative would be essentially the same as those described for the Proposed Action alternative. With the reduced access to the Oil Well Gulch pasture making substantial grazing use would be difficult. Without the Homestead and Wray Gulch pastures the current grazing schedule rotation is not functional.

5.5.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

Under the No Livestock Grazing Alternative there would be a 100 percent reduction in livestock grazing with no direct or indirect impacts to vegetation from livestock. This alternative provides the greatest opportunity for forage plants to maintain vigor, grow, produce seed, and compete with weedy species. Increased residual vegetation throughout the allotments would allow more opportunity for seed disbursal and seedling establishment. Both cover and composition of perennial forage species would be expected to increase with the improved opportunity to meet physiological needs. In the areas dominated by invasive annuals (cheatgrass) improvements in plant community composition would be slow and minimal without intervention. Areas with intact but suppressed perennial plant communities would experience a favorable shift in plant community composition. This alternative would not be consistent with the Taylor Grazing Act or the 1997 White River RMP which identifies livestock grazing as an acceptable use on these public lands and also identifies these allotments as being available for livestock grazing.

Cumulative Impacts

Other public land uses as described for the cumulative impacts of the Proposed Action are expected to continue in the future and will have varying impacts on vegetation within the overall area associated with these allotments and pastures. Without livestock grazing there would be no impacts associated with trailing and trampling. There would be no livestock grazing related impacts to vegetation resources. Consumption of forage resources would be limited to slight utilization by deer and elk resulting in more litter accumulation to protect soil surfaces, to improve infiltration, and to provide organic content to the soils. Over the long term plant community cover and composition in most range sites would improve in the absence of livestock grazing.

5.6. Invasive, Non-Native Species

5.6.1. Affected Environment

Refer to CO-110-2007-30-EA page 21, CO-110-2012-018-EA page 35, and CO-110-2007-098-EA page 11 for more a more detailed description of the following summary. The West Shutta allotment is relatively free of noxious weeds though it is immediately adjacent to the Blacks Gulch allotment where there are several weed species of concern. In the Blacks Gulch allotment active weed treatment on CPW lands has reduced the presence of noxious weeds though they are still common and need continued treatment. Cheatgrass is common throughout most of the plant communities associated with both of these allotments and dominates some areas in the lower pastures.

Across the northern edge of the Oil Well Gulch and Tschuddi pastures along Colorow Mountain there are several patches of spotted and diffuse knapweed that continue to spread mainly by vehicles traveling the two-track roads through these areas. The Russian knapweed low in Scenery Gulch has been nearly eradicated and follow-up treatment will need to continue into the future. Hoary cress mostly on private land has also been treated and is reduced in extent but new infestations continue to occur requiring on-going treatment. Scotch thistle has expanded dramatically in many areas of the Field Office including several new infestations in and around these allotments. Houndstongue and the other thistle species (bull, Canada, and musk) are scattered mostly throughout the valley bottoms and to a lesser extent on the slopes of the upper pastures on both public and CPW lands. Tamarisk is present in the Blacks, Scenery, and Tschuddi Gulch drainages and in association with some ponds throughout the allotments.

Regardless of the grazing program implemented, the extent and amount of noxious weeds present throughout the Blacks Gulch allotment will require concerted on-going control efforts by the BLM, CPW and their lessees to control the spread and reduce the presence of noxious weeds.

5.6.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

In the both the Blacks Gulch allotment and the West Shutta allotment the Proposed Action would generally result in fairly short duration grazing of varying intensity where one in three years each pasture would have some level of reduced grazing intensity. The Blacks Gulch pasture would experience the greatest reduction in grazing intensity where every year grazing would be scheduled at approximately half of the pasture's estimated average forage production. Similarly, in Years 2/3 the South pasture of the West Shutta allotment would be grazed lightly at less than half its estimated average forage production capacity. On those same years the Middle and North pasture of the West Shutta allotment would also be grazed moderately. The Oil Well pasture and the Middle pasture of the Blacks Gulch allotment would each be grazed at a moderate intensity one in three years. The Tschuddi and Scenery pastures would have relatively short duration grazing where livestock would rotate through separate use areas limiting duration in each area to 17 and 25 days respectively.

In every pasture grazing would occur relatively early in the growing season and livestock would have to rely to some extent on the previous year's standing forage production. After livestock

leave each pasture forage plants would have varying opportunity to grow, regrow, produce seed, and replenish nutrient reserves. The shortest duration of regrowth opportunity after cattle leave would be 25 days in the somewhat more resilient upper pastures. Indirectly, between reduced intensity and duration, reduced selective grazing pressure on preferred forage species, and regrowth opportunity this alternative should allow native plant communities the ability to compete with noxious weeds.

Cumulative Impacts

Past and present land uses including oil and gas development dispersed recreation, off-highway vehicle use, hunting and livestock grazing in these allotments have contributed to the introduction and spread of noxious and invasive plants throughout this area. Given the nature of noxious and invasive plant species their continued presence in areas of infestation and progressive spread is expected. It is anticipated that the current land uses will continue further contributing to the spread of noxious weeds. The grazing schedules of this alternative should allow native plant communities opportunity to persist and compete to slow the spread of noxious and invasive weeds. Future weed control efforts by adjacent private land owners, livestock operators, CPW and the BLM will be necessary to control and reduce the spread of these weeds.

5.6.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

Continuation of current management in both the Blacks Gulch allotment and the West Shutta allotment would result in similar impacts to the Proposed Action with regard to noxious weeds. Pastures would be grazed for relatively short time frames but grazing intensity would be more constant each year in each pasture. Most grazing in the Blacks Gulch pasture would occur before native forage plants break dormancy so native forage plants would have the full growing season after livestock leave for growth and recovery. Grazing in the Blacks Gulch allotment would be an average of 19 percent higher intensity and in the West Shutta allotment would be at an average of 46 percent higher intensity than under the Proposed Action. The main difference between alternatives would be the increased grazing pressure on preferred forage species, and increased soil disturbance providing more opportunity for establishment of weeds under this alternative.

Similarly, the Middle pasture would be grazed at a moderate intensity each year for seventeen days allowing alternating growth and regrowth opportunities around the grazing period. This scenario should allow native plant communities opportunity to compete with noxious weeds.

The relatively short duration and higher intensity grazing scheduled in the Tschuddi and Scenery pastures along with longer recovery periods every other year after livestock leave should allow native forage plants to maintain vigor and compete with noxious weeds.

After being herded around the newly fenced private lands and into the Oil Well Gulch pasture it would be grazed for relatively short time frames either before or early in the growing season. Native forage plants would have the majority of the growing season for regrowth and recovery to maintain vigor and compete with weeds.

As scheduled, grazing in each pasture of the West Shutta allotment would allow forage plants moderate growth/regrowth opportunity both before and after being grazed. This type of grazing use would be expected to allow forage plants to maintain vigor and compete against noxious weeds though it would lack the shorter reduced intensity grazing schedules of Years 2/3 of the Proposed Action. Forage plants re-grazed in the fall would be dormant. Unless they were grazed heavily leaving the plant crown with minimal protection there would be no negative effect to individual plants in terms of reducing vigor and ability to compete. Lack of residual plant matter to provide litter could over the long term increase run-off and reduce soil moisture resulting in less favorable conditions for native forage plants.

Cumulative Impacts

Past and present impacts are similar to those analyzed in the Proposed Action alternative. Continuing grazing as currently authorized should generally allow native plant communities opportunity to persist and compete with noxious and invasive weeds. Future weed control efforts by adjacent private land owners, livestock operators, and the BLM will be necessary to control and reduce the spread of weeds.

5.6.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

Generally, with no grazing by livestock native plant communities in both allotments, especially in areas with intact plant communities, would have full opportunity to flourish and compete with noxious and invasive weeds. The proliferation of invasive annuals would likely be reduced as the interspersed native grass community when relieved from grazing pressure would have improved ability to compete. Early seral areas presently dominated by weedy annual species would likely show minimal improvement over time. Soil disturbance and weed seed disbursal associated with livestock use would be eliminated. Contributions by the lessee (LK Ranch) toward weed control on CPW and public lands would cease. If weed control efforts were not continued on CPW and public lands, untreated weeds would continue to spread.

Cumulative Impacts

Past and present impacts are similar to those analyzed in the Proposed Action alternative. This alternative would remove the potential for livestock to spread weeds in the analysis area. Over the long term no grazing by livestock would allow rangelands the greatest opportunity to compete against noxious and invasive weed species. However, given the nature of noxious and invasive plant species their continued presence in areas of infestation and progressive spread is expected. To prevent unchecked spread of weeds, continued control efforts by the BLM and CPW would be necessary

5.6.5. Mitigation Measures and Residual Impacts

Noxious weed infestations on the Blacks Gulch and West Shutta allotments shall be treated in a manner consistent with BLM protocol as outlined in the White River RMP. For noxious weed populations on BLM administered lands, weeds will be treated by a certified pesticide applicator

hired by the permittee, or by the BLM. The permittee will be responsible for coordinating and implementing appropriate weed control measures where livestock grazing practices result in the spread of noxious weeds on BLM lands.

5.7. Livestock Grazing

5.7.1. Affected Environment

Refer to CO-110-2007-30-EA page 90, and CO-110-2012-018-EA page 58 for more detail regarding the Blacks Gulch allotment. Refer to CO-110-2007-098-EA page 29 for more detail regarding the West Shutta allotment. Table 17 below summarizes from those documents the estimated grazing capacity combined with the proposed grazing schedules by pasture in the Blacks Gulch and West Shutta allotments. The proposed grazing schedules are intended to result in moderate stocking rates to better allow progress toward meeting the Public Land Health Standards.

5.7.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

The primary impacts associated with livestock grazing include utilization of preferred forage production, shifts in plant community composition as a result of selective grazing pressure, potential for spread of noxious weeds and invasive annuals due to both seed dispersal and reduced competitive ability of grazed forage species, trailing impacts to soils, and trampling of vegetation especially when soils are soft and saturated.

Under Alternative A the Blacks Gulch allotment would be scheduled for grazing at a total (BLM and private) of 1,765 AUMs in Year 1 and 1,953 AUMs in Years 2/3 (Table 17). The West Shutta allotment would be scheduled for grazing at a total of 302 AUMs in Year 1 and 164 AUMs in Years 2/3 (Table 17).

Table 17. Proposed Blacks Gulch and West Shutta Grazing Schedules

Rotation Year	Allot-ment	Pasture	Livestock		Date		Days Gra-zed	Total AUMs Sched-uled	Total Estimat-ed Carrying capacity (BLM)	% PL	BLM AUMs	% BLM carrying capacity Sched-uled
			#	Kind	On	Off						
Yr 1	West Shutta	South	200	C	4/1	4/14	14	92	**113**	100%	**92**	81%
Yr 1	West Shutta	Middle	200	C	4/15	5/7	23	151	**160**	100%	**151**	94%
Yr 1	West Shutta	North	200	C	5/8	5/14	7	46	**53**	100%	**46**	87%
Yr 1	Blacks Gulch	Oil Well Gl	200	C	5/15	6/13	30	197	**336**	100%	**197**	59%
Yr 1	West Shutta	South	200	C	6/14	6/15	2	13	**113**	100%	**13**	12%

Yr 1	Blacks Gulch	Blacks Gl	300	C	3/15	4/10	27	266	**441**	93%	**248**	56%
Yr 1	Blacks Gulch	Middle	600	C	4/11	4/25	15	296	**442**	97%	**287**	65%
Yr 1	Blacks Gulch	Tschuddi	300	C	4/26	6/15	51	503	**300**	58%	**292**	97%
Yr 1	Blacks Gulch	Scenery	300	C	4/26	6/15	51	503	**383**	75%	**377**	98%
							West Shutta Total	**302**			**302**	
							Blacks Gulch Total	**1,765**			**1,401**	
Yr 2 &3	West Shutta	South	200	C	4/1	4/2	2	13	**113**	100%	**13**	12%
Yr 2 &3	West Shutta	Middle	200	C	4/3	4/17	15	99	**160**	100%	**99**	62%
Yr 2 &3	West Shutta	North	200	C	4/18	4/23	6	39	**53**	100%	**39**	74%
Yr 2 &3	Blacks Gulch	Oil Well Gl	200	C	4/24	6/13	51	335	**336**	100%	**335**	100%
Yr 2 &3	West Shutta	South	200	C	6/14	6/15	2	13	**113**	100%	**13**	12%
Yr 2 &3	Blacks Gulch	Blacks Gl	300	C	3/15	4/5	22	217	**441**	93%	**202**	46%
Yr 2 &3	Blacks Gulch	Middle	600	C	4/6	4/25	20	395	**442**	97%	**383**	87%
Yr 2 &3	Blacks Gulch	Tschuddi	300	C	4/26	6/15	51	503	**300**	58%	**292**	97%
Yr 2 &3	Blacks Gulch	Scenery	300	C	4/26	6/15	51	503	**383**	75%	**377**	98%
							West Shutta Total	**164**			**164**	
							Blacks Gulch Total	**1,953**			**1,589**	

The proposed grazing schedules provide for reduced intensity and duration of grazing in both the Blacks Gulch pasture and the South pasture of the West Shutta Allotment. In the Blacks Gulch pasture a reduced number of cattle would be grazed for a relatively short duration each year. A benefit of reduced duration of grazing would be reduced selective grazing and reduced repeat defoliation of preferred forage species. Scheduled grazing use would be mostly before or early in the growth period so livestock would be forced to consume the previous year's residual growth and cheatgrass that begins growth earlier than native forage species. Water sources would be available throughout the pasture allowing for optimal distribution. In the South pasture of the West Shutta allotment two in three years cows with young calves would drift through the pasture in two days early in the use period (early April) and again at the end of the use period (mid-June). This should result in light grazing use while allowing cows and calves to pair up when entering and leaving the allotment. One year in three cattle would stay in the South pasture for two weeks (in April) and drift back through for two days in mid-June resulting in more thorough use of the pasture.

Proposed grazing use in the Middle pasture of Blacks Gulch Allotment will alternate from 20 days at moderate/high intensity two in three years and 15 days at moderate intensity one in three

years. Cattle will be equally spread throughout both the east and west sides of the pasture to optimize and distribution and result in more even grazing pressure throughout the pasture.

As proposed, cattle would be split into two equal herds when they enter the Scenery and Tschuddi pastures for the same time periods each year. Three distinct use areas in the Tschuddi pasture should allow for optimal grazing use in terms of short duration and with controlled distribution within the smaller pastures. In the Scenery pasture there are two general use areas where again overall duration in each area would be relatively short. Distributed water sources in these pastures including new developments would result in improved distribution and more even grazing pressure throughout each pasture.

In the Middle and North pasture of the West Shutta allotment proposed use would alternate from moderate intensity two in three years to higher intensity one in three years. Duration in the North pasture would always be short (6-7 days) because the small size of the pasture. Duration in the Middle pasture would range from 15 to 23 days. There are multiple ponds throughout the West Shutta allotment and grazing use is scheduled early enough that most ponds on most years should have water through the use period allowing good distribution throughout each use area.

Under the proposed grazing schedules the Oil Well Gulch pasture of the Blacks Gulch allotment would be grazed in conjunction with the West Shutta allotment. Proposed use in the Oil Well Gulch pasture would have the greatest variation between both the timing (late-April to mid-June on Years 2/3 and mid-May to mid-June on Year 1) and the length of the use periods (51 days on Years 2/3 and 30 days on Year 1). Scheduled grazing use in Years 2/3 would result in higher use intensity but on Year 1 intensity would be more moderate. Livestock grazing use in the Oil Well Gulch pasture will be strongly influenced by uneven water distribution, steep topography, and limited access to some parts of this pasture. Intensified herding efforts as well as additional water sources and access routes may need to be implemented in the future if reasonable distribution cannot be achieved with current developments. Implementation of the proposed access route (around newly fenced private lands) into the southeast corner of this pasture would greatly improve livestock herding and management.

Cumulative Impacts

Past and present oil and gas development and other land uses including dispersed recreation, off-highway vehicle use, and hunting are expected activities that have the potential to impact rangeland management is expected to continue in the future. This use would include localized surface disturbance, vegetation removal, and the spread of noxious and invasive weeds. Past and recent livestock grazing use in these allotments has resulted in some areas mostly in the Blacks Gulch allotment not meeting the Public Land Health Standards primarily due to changes in plant community composition resulting from season long grazing use and concentrated use in more accessible areas. Implementation of the proposed grazing schedules with the alternating use periods and reduced overall duration of grazing would moderate the intensity of grazing use on preferred forage species; incrementally improve livestock management and land health; and would not be anticipated to create any cumulative impacts to vegetation or rangelands.

5.7.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

Continued grazing under this alternative would be similar to the Proposed Action with some exceptions. Most notably the Blacks Gulch pasture would be grazed near the estimated average capacity every year. Scheduled grazing use is prior to the growth period so livestock are forced to consume mostly the previous year's residual growth and the early green-up of cheatgrass. Water sources would be available throughout the pasture allowing for optimal distribution.

Under this alternative the grazing in the Middle pasture of the Blacks Gulch allotment would deferred until later in the grazing period every other year and grazing would be scheduled at 78 percent of the estimated annual production each year.

Grazing in the Scenery and Tschuddi pastures would also have alternating use periods allowing deferment until later in the growth period every other year. Livestock would graze as one larger herd moving between the two use areas in Scenery and then the three use areas in Tschuddi and reversing this order the following year. Duration of use in each area would be around seven days.

The remainder of this grazing schedule is not feasible with the sale of the private lands within the allotment. The Homestead and Wray Gulch pastures no longer exist and access to the Oil Well Gulch pasture with the current rotation is also severely limited.

As permitted, livestock grazing in the West Shutta allotment authorizes grazing at the same time and intensity each year and at a total of approximately 127 percent of the estimated average forage production for this allotment. Scheduled growing season grazing use is within estimated average forage production with the South, Middle and North pastures being scheduled at 64 percent, 83 percent and 74 percent respectively. However, if livestock re-grazed these pastures during the scheduled fall use period utilizing residual growth it is likely that there would be minimal litter remaining. Additionally, the fall use period is does not mesh with the overall desired grazing schedule for these two allotments as they fit with the other allotments on the White River National Forest that are utilized in this livestock operation.

Cumulative Impacts

Past and present oil and gas development and other land uses including dispersed recreation, off-highway vehicle use, and hunting are expected activities that have the potential to impact rangeland management is expected to continue in the future. This use would include localized surface disturbance, vegetation removal, and the spread of noxious and invasive weeds. Past and recent livestock grazing use in these allotments has resulted in some areas mostly in the Blacks Gulch allotment not meeting the Public Land Health Standards primarily due to changes in plant community composition resulting from season long grazing use and concentrated use in more accessible areas. With the loss of the Homestead and the Wray Gulch pastures and the reduced access to the Oil Well Gulch pasture continuation of the current grazing schedules for the Blacks Gulch allotment as a whole is not feasible. Continued grazing as permitted in the Blacks Gulch, Middle, Scenery and Tschuddi pastures of the Blacks Gulch allotment and the early use period (only) in the West Shutta allotment would not be anticipated to create any cumulative impacts

vegetation or rangelands. Continuation of the current grazing schedules for the West Shutta allotment with the fall use period has potential over utilize annual forage production in this allotment and cause cumulative impacts to rangelands.

5.7.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

Under this alternative no grazing permit would be issued on the Blacks Gulch allotment or the West Shutta allotment where livestock grazing is currently permitted. This Alternative would provide the greatest benefit to rangelands due increased opportunity for native forage plants to grow, reproduce, stabilize and protect soils, and compete with invasive species in the absence of livestock grazing related impacts. However, this alternative is not consistent with the Taylor Grazing Act or White River RMP that identifies these allotments and pastures as areas available for livestock grazing and describes grazing as an acceptable use on public lands.

Cumulative Impacts

Past and present oil and gas development and other land uses including dispersed recreation, off-highway vehicle use, and hunting are expected activities that have the potential to impact rangeland management is expected to continue in the future. This use would include localized surface disturbance, vegetation removal, and the spread of noxious and invasive weeds. In the absence of livestock grazing there would be no impacts associated with trailing and trampling or forage consumption. This alternative would not be expected to result in any cumulative effects detrimental to long-term rangeland health.

5.8. Surface and Ground Water Quality

5.8.1. Affected Environment

Based on the USGS National Hydrologic Database (NHD), the Blacks Gulch and West Shutta allotments are located within the Black Gulch watershed (12-digit Hydrologic Unit 140500050501 - Black Gulch) and the Rio Blanco – White River watershed (12-digit Hydrologic Unit 140500050502). The Black Gulch and Rio Blanco-White River watersheds drain 23,332 acres and 24,793 acres, respectively.

Due to limited precipitation (typically 12 to 16 inches annually) in this semi-arid landscape, no perennial streams exist, but rather, a poorly developed parallel to sub-dendritic patterned network of ephemeral and/or intermittent stream channels. The parallel to sub-dendritic drainage pattern is indicative of moderate to steep slopes located in the upper reaches of these watersheds with geologic controlling features limiting water flow direction. As a result, outflows from these watersheds typically occur during early spring due to snowmelt and late-summer following monsoonal (convective) rainfall events. The primary ephemeral and/or intermittent channels located in the Blacks Gulch and West Shutta allotments includes E. Blacks Gulch, E. Tschuddi Gulch, Oil Well, and Wray Gulch which all drain into the Main-stem of the White River Water Body ID (WBID) - COLCWH07.

In 2014, the Colorado Water Quality Control Commission (CWQCC) classified WBID COLCWH07 capable of sustaining a wide variety of cold water biota (Cold I), classified P (potential primary contact use) for recreation from March 2nd to November 30th, and designated as providing a beneficial use for agriculture and water supply. This segment is listed on the Colorado monitoring and evaluation list for copper (Cu) in the CWQCC Regulation #93 2014 revision. In 2016, proposed revisions to CWQCC Regulation #93 would add arsenic (As) and iron (Fe) to the 303(d) list for WBID COLCWH07 and would move this segment from the Monitoring & Evaluation (M&E) List to the 303(d) List for non-attainment of Aquatic Life Use and exceedances of temperature standards.

Based on Natural Resource Conservation Service (NRCS) Soil Data Viewer 2012 data, approximately 5.5 miles of the E. Blacks Gulch floodplain, starting at the confluence with the White River, and 4.0 miles of Tschuddi Gulch floodplain, a tributary to E. Blacks Gulch, are comprised of soils high in gypsum and alkaline salts. In terms of area, this equates to 2,061 acres of floodplain comprised of soils classified as saline by the NRCS in the Blacks Gulch allotment.

As discussed in Section 5.5, portions of the Blacks Gulch and West Shutta allotments have altered structural/functional plant community understory dominated by invasive, non-native plant species (e.g., cheatgrass). In hydrologic terms, the primary concerns with invasive species, especially cheatgrass, are the shallow rooting depth and low vegetative density (biomass).

Typically, most rangelands have some level of soil compaction or, a compaction layer. Deep rooting plants are beneficial in penetrating these compaction layers promoting deeper percolation of rainwater. With shallow rooting invasive plants, compaction layers remain intact and act as an impermeable layer to the downward movement of rainwater. Cheatgrass, although prolific in coverage, is very limited in biomass which is detrimental in-terms of reducing rain drop impacts at the soil surface, resulting in surface sealing during rain events, and limited in-terms of providing organic matter critical for maintaining soil structure which is directly related to the water absorption by the surface soil. As such, a cheatgrass dominated rangeland typically exhibits an increase in overland rainwater runoff, increased rill erosion, and sediment transport to the stream channel.

Groundwater:
Based on BLM 2015 ArcGIS data, 10 surveyed perennial groundwater expressions (springs) are located in the Blacks Gulch and West Shutta allotments including Tom Little, Indian Valley, Adobe Spring, Indian Valley #3, Hillside Spring, Blacks Gulch, Kellogg #1 and #2, Rattlesnake, and Coyote. These spring surveys were conducted in the early 1980s and have not been resurveyed.

5.8.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

Under Alternative A for the Blacks Gulch allotment, in the Blacks Gulch and Middle pastures 562 (Year 1) and 612 (Years 2/3) total AUMs (BLM and private) of grazing would be scheduled

from early spring (3/15) to late spring (4/25), primarily during periods of intermittent stream flow, high soil moisture content, and vegetation growth period.

Given that grazing will occur during periods of streamflow, it is expected that livestock will graze in the floodplain potentially resulting in stream bank destabilization, surface soil disturbances, compaction, and riparian vegetation consumption. These impacts could contribute to the degradation of the stream hydrology in the Blacks Gulch allotment including active down cutting, sediment laden runoff during late-summer monsoonal rains, and suspension/transport of salts directly impacting surface water quality in the White River.

As discussed in Section 5.5.2, the majority of grazing on the Blacks Gulch pasture would occur before or early in the growing season. Cheatgrass would be the primary forage. Preferential native species would just be breaking dormancy or germinating when livestock are removed. In an average precipitation year, native species would fully mature. Native plants are essential for promoting the breakdown of compaction layers and maintaining soil structure by providing the necessary organic matter. As biomass, and resulting organic matter soil content increases, rill erosion and sediment deposition would be expected to decrease.

In-terms of surface water quality impacts, any increases in AUMs in the Blacks Gulch and/or Middle pastures would be detrimental to the water quality of downstream perennials streams, including White River segment COLCWH07, and any decreases beneficial. As such, Alternative A would be the preferred since it proposes a total of 562 (Year 1) and 612 (Years 2/3) total AUMs (BLM and private) versus Alternative B which currently schedules 710 total AUMs for the Blacks Gulch and Middle pastures.

No impacts to groundwater quality are expected from Alternative A. In general, livestock congregate around perennial water sources in this case, springs leading to significant impacts from denudation (the stripping off covering, or surface removal). In extreme instances, the rate of surface expression (spring) of groundwater can be significantly diminished or stopped by these impacts.

Cumulative Impacts

Oil and gas development impacts including surface disturbance for well pads, pipelines, roads and support facilities. Dispersed recreation including off-highway vehicle use, hunting, and other activities are expected impacts. In general, the proposed Alternatives A or B, oil and gas development, roads, and recreation would be expected to increase sediment and salt loading to the White River and potentially, could contribute to the exceedance of State standards for water quality for segments of the White River downstream of the confluence with the Black Gulch watershed.

5.8.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

Under Alternative B, livestock grazing for a total of 1,834 AUMs (BLM and private) are proposed for the Blacks Gulch allotment from early spring to early summer, primarily during

periods of intermittent stream flow, high soil moisture content, and early critical riparian and upland vegetation growth period.

As discussed above for Alternative A, the current management Alternative B schedules 148 (Year 1) and 98 (Years 2/3) additional total AUMs in the sensitive Blacks Gulch and Middle pastures. Based on this comparison, Alternative A is the preferred action alternative for minimizing the disturbance of the floodplains located in these allotments and the subsequent transport of salt and sediment laden runoff to the currently impaired COLCWH07 segment of the White River.

No impacts to groundwater quality are expected from the continued management proposed under Alternative B. In general, livestock congregate around perennial water sources in this case, springs leading to negative impacts from denudation (the stripping off covering, or surface removal). In extreme instances, the rate of surface expression (spring) of groundwater can be significantly diminished or stopped by these impacts.

Cumulative Impacts

Cumulative impacts would be expected to be similar to Alternative A but to a greater extent based on the higher number of AUMs in the sensitive Blacks Gulch and Middle pastures.

5.8.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

Without livestock grazing, native vegetation would become reestablished within the floodplain resulting in improved peak-flow moderation, sediment filtration, and stabilization of stream banks and channels. Thus, the no grazing alternative will have the lowest potential to adversely impact water rights and hydrology/morphology when compared to the proposed Alternative A and current grazing management Alternative B.

Cumulative Impacts

Impacts from oil and gas development and dispersed recreation are expected to continue within the Black Gulch and Rio Blanco-White River watershed. Impacts from oil and gas include surface disturbances from well pads, pipelines, roads, and supporting facilities. Dispersed recreation, including off-highway vehicle use, hunting, on-road vehicle use, and hunting impacts include surface disturbances, compaction, and fugitive dust.

In general, without grazing, oil and gas development and recreation activities would be expected to continue to result in sediment and salt loading to the White River and potentially, could contribute to the exceedance of State standards for water quality for segments of the White River downstream of the confluence with the Black Gulch watershed.

5.8.5. Mitigation Measures and Residual Impacts

BLM spring surveys on BLM administered lands within the affected allotments should occur within the 10 years of this permit issuance including assessment for potential livestock

impacts. Consistent with the White River ROD/RMP Appendix B, where BLM spring surveys determine that livestock grazing is having an adverse impact to spring sources; mitigation (e.g., fencing) will be developed in coordination with the permittee.

5.9. Floodplains, Hydrology, and Water Rights

5.9.1. Affected Environment

Floodplain and Hydrology: Based on the USGS National Hydrologic Database (NHD), the Blacks Gulch and West Shutta allotments are located within the Black Gulch watershed (12-digit Hydrologic Unit 140500050501 - Black Gulch) and the Rio Blanco – White River watershed (12-digit Hydrologic Unit 140500050502). The Black Gulch and Rio Blanco-White River watersheds drain 23,332 acres and 24,793 acres, respectively.

Due to limited precipitation (typically 12 to 16 inches annually) in this semi-arid landscape, no perennial streams exist, but rather, a poorly developed parallel to sub-dendritic patterned network of ephemeral and/or intermittent stream channels. The parallel to sub-dendritic drainage pattern is indicative of moderate to steep slopes located in the upper reaches of these watersheds with geologic controlling features limiting water flow direction. With this type of drainage pattern, intense peak-flows of short duration would be typical. As such, inundation of the flood plain and suspension of any deposited/exposed sediment would result and these sediments would be quickly transported to the White River.

As a result, outflows from these watersheds typically occur during early spring due to snowmelt and late-summer following monsoonal (convective) rainfall events. The primary ephemeral and/or intermittent channels located in the Blacks Gulch and West Shutta allotments includes E. Blacks Gulch, E. Tschuddi Gulch, Oil Well, and Wray Gulch which all drain into the Main-stem of the White River Water Body ID (WBID) - COLCWH07. Based on aerial imagery data analysis (Google Earth – October, 2015) and BLM lotic (flowing water) hydrologic reviews in 2006, substantial sediment and alluvium are transported from E. Blacks Gulch and E. Tschuddi Gulch to the White River. Onsite surveys have identified two primary channel types, based on Rosgen classification, F and G.

The “F” streams are the classic “entrenched - meandering” channels often observed to be working towards re-establishment of a functional floodplain inside the confines of a channel that is consistently increasing its width within the valley. “F” stream types are deeply incised in valleys of relatively low elevation relief, containing highly weathered rock and/or erodible materials. The “F” stream systems are characterized by very high channel width/depth ratios at the bankfull stage, and bedform features occurring as a moderated riffle/pool sequence.

“G” or “gully” stream types are entrenched, narrow and deep, step/pool channels typically exhibiting very high bank erosion rates and sediment transport rates. Exhibiting moderate to steep channel slopes, low channel width/depth ratios and high sediment supply, the “G” stream type generates high bedload and suspended sediment transport rates.

Based NRCS Soil Data Viewer data (2012), 2,061 acres of E. Blacks Gulch and E. Tschuddi Gulch floodplains are classified as saline indicating these soils are high in gypsum and alkaline salts. On Wray Gulch, outside the West Shutta allotment, the floodplain is classified as saline between the outflows from the West Shutta allotment to the confluence with the White River.

As discussed in Section 5.5 (Vegetation), portions of the Blacks Gulch allotment have been rated as not meeting Colorado Public Land Health Standard 3 due to lack of appreciable perennial plant cover and excessive soil erosion rates. This rating was attributed to the altered structural/functional plant community understory being dominated by invasive, non-native plant species (e.g., cheatgrass) and to a lesser extent, noxious weeds. In West Shutta allotment, while meeting Standard 3, it showed an altered functional and structural altered plant community with the understory being dominated by annual invasive non-native plant species with cheatgrass being the dominant invasive. In hydrologic terms, the primary concerns with invasive species, especially cheatgrass, are the shallow rooting depth and low vegetative density (biomass).

Typically, most rangelands have some level of soil compaction or, a compaction layer. Deep rooting plants are beneficial in penetrating these compaction layers promoting deeper percolation of rainwater. With shallow rooting invasive plants, compaction layers remain intact and act as an impermeable layer to the downward movement of rainwater. Cheatgrass, although prolific in coverage, is very limited in biomass which is detrimental in-terms of reducing rain drop impacts at the soil surface, resulting in surface sealing during rain events, and limited in-terms of providing organic matter essential for water absorption by the soil. A cheatgrass dominated rangeland typically exhibits an increase in overland rainwater runoff, increased rill erosion, and sediment transport to the stream channel.

Water Rights: A search conducted using the Colorado's Decision Support Systems web site (CDSS, 2006) and the BLM White River Field Office springs/wells 2015 GIS database, identified 14 surveyed springs within the allotments. Existing water rights issued to the United States include 85CW372 (BLM spring 123.14), 85CW404 (BLM spring 122.08), 85CW468 (BLM spring 145.05), 99CW293 (BLM spring 145.06), and 99CW296 (BLM spring 145.08). No new water developments are proposed for either Alternative A or B. As such, no new depletions to the Colorado River Basin or impacts to existing water rights are anticipated. Under Alternative C, the elimination of livestock grazing would reduce the impacts on the springs by livestock (see Section 5.8 Surface and Groundwater Quality).

5.9.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

Under Alternative A, 562 (Year 1) and 612 (Years 2/3) total AUMs (BLM and private) of grazing would be scheduled for the Blacks Gulch and Middle pastures from early spring (3/15) to late spring (4/25). During this period, streamflow will be expected in the ephemeral/intermittent channels located in the Blacks Gulch and Middle pastures.

With flowing water, it is expected that cattle will graze within the floodplain. In early spring, the soils within the floodplain would typically be saturated (muddy) and very susceptible to damage

to surface soil layer, stream banks, and stream channel. A healthy floodplain reduces the water velocity and filters suspended sediment. Without a healthy and communicating floodplain, the continued degradation (vertical and horizontal erosion or cutting) of the Type G channels would be expected. In Type F channels, a migration to a Type G channel would be expected.

As discussed in Section 5.5.2, the majority of grazing on the Blacks Gulch pasture would occur before or early in the growing season. Cheatgrass would be the primary forage. Preferential native species would just be breaking dormancy or germinating when livestock are removed. In an average precipitation year, native species would fully mature producing deep rooting viable biomass. As discussed in the affected environment, this is an essential component for maintaining effective infiltration of rain water into the soil profile.

As the grazing period moves later into the growing season, the benefits discussed in the previous paragraph would be expected to decrease. In Blacks Gulch allotment, the most beneficial results would be expected in the Blacks Gulch and Middle pastures and the least with the proposed use in the Oil Well, Tschuddi, and Scenery pastures.

For West Shutta, Alternative A would schedule 302 (Year 1) and 164 (Year 2 and 3) total AUMs of grazing use with grazing occurring only from 4/1 to 6/15 compared to grazing occurring from 4/20 to 5/25 (237 AUMs) and again from 11/10 to 12/15 (178 AUMs) under the current management Alternative B. As discussed above in the affected environment, the soils in the floodplain downstream from the West Shutta allotment are high in gypsum and alkaline salts. Any increased runoff from the West Shutta Middle pasture would potentially result in increases of salt laden sediment being eroded from downstream BLM administered and private lands which would be transported to the White River. Under Alternative A, two in three years 99 AUMs would be permitted on Middle pasture with grazing occurring from 4/3 to 4/17 (15 days) and one in three years151 AUMs would be permitted from 4/15 to 5/7 (23 days) compared to 125 AUMs from 4/6 to 4/25 (20 days) followed by 99 AUMs from 11/16 to 12/5 (20 days) every year under the current management Alternative B. The early initiation and earlier termination of grazing and lighter use two in three years with no fall re-use period under Alternative A would reduce impacts to the floodplain and stream channel hydrology including more viable native vegetation and the associated benefits to floodplain and stream channel hydrology.

Cumulative Impacts

Oil and gas development is expected in about a fifth of the allotment. Oil and gas development typically includes surface disturbance for well pads, pipelines, roads and support facilities. Dispersed recreation including off-highway vehicle use, hunting and other activities are expected impacts. In general, under either Alternative A or B, oil and gas development, and recreation would be expected to increase sediment and salt loading to the White River and potentially, could contribute to the exceedance of State standards for water quality for segments of the White River downstream of the confluence with the Black Gulch watershed.

5.9.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

As discussed above for Alternative A, the current management Alternative B schedules 148 (Year 1) and 98 (Years 2/3) additional total AUMs in the sensitive Blacks Gulch and Middle pastures. Based on this comparison, Alternative A is the preferred action alternative for minimizing the disturbance to the floodplains located in these allotments and the subsequent transport of salt and sediment laden runoff to the currently impaired COLCWH07 segment of the White River.

In West Shutta, the later initiation and later termination of grazing on the Middle pasture would result in more concentrated impacts to the floodplain and stream channel. As such, the ability of the floodplain to reduce peak-flows and the resistance of the stream channel to vertical and horizontal erosion during late summer monsoonal rains would be expected to be diminished compared to the proposed Alternative A.

Cumulative Impacts

Cumulative impacts would be similar to Alternative A.

5.9.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

Without livestock grazing, over time native vegetation would become reestablished in the uplands and within the floodplain resulting in improved peak-flow moderation, sediment filtration, and stabilization of stream banks and channels. Thus, the no grazing alternative would have the lowest potential to adversely impact water rights and hydrology/morphology when compared to the proposed Alternative A and current grazing management Alternative B.

Cumulative Impacts

Impacts from oil and gas development and dispersed recreation are expected to continue within the Black Gulch and Rio Blanco-White River watershed. Impacts from oil and gas include surface disturbances from well pads, pipelines, roads, and supporting facilities. Dispersed recreation, including off-highway vehicle use, hunting, on-road vehicle use, and hunting impacts include surface disturbances, compaction, and fugitive dust.

In general, without grazing, oil and gas development and recreation activities would be expected to continue to result in sediment and salt loading to the White River and potentially, could contribute to the exceedance of State standards for water quality for segments of the White River downstream of the confluence with the Black Gulch watershed.

5.10. Wetlands and Riparian Zones

5.10.1. Affected Environment

Refer to CO-110-2007-30-EA page 40, CO-110-2012-018-EA page 21 and CO-110-2007-0098-EA page 18 for more detail.

In both the Blacks Gulch and the West Shutta allotments there are numerous earthen reservoirs mostly constructed for livestock watering purposes. Many of these ponds have sufficient water holding capacity to sustain riparian communities. Riparian vegetation includes some Nebraska sedge mixed with mostly Baltic rush on the banks and emergent vegetation such as cattails and bulrushes deeper in the ponds. Some ponds have small stands of coyote willow and varying presence of tamarisk, a non-native invasive species. Current conditions are influenced to some extent by livestock trampling and grazing use.

All drainages in the West Shutta allotment and in the Oil Well Gulch pasture of the Blacks Gulch allotment are ephemeral channels that do not support any riparian vegetation. There are just over 14 miles of channel in the Scenery, Middle and Blacks Gulch pastures of the Blacks Gulch allotment that are mostly ephemeral, and support variable amounts of riparian vegetation. Almost all areas with perennial water adequate to support riparian plant communities are on CPW property. There is approximately a mile and a half of both Scenery Gulch and Tschuddi Gulch that currently sustain riparian vegetation though surface flows cease most years by June. These channels are in the Scenery and Middle pastures. Overall, the 2006 riparian assessments of channels on BLM administered lands rated 0.2 miles of riparian channel as properly functioning; 2.8 miles as functional-at-risk but with an un-apparent trend; 8.2 miles as functional-at-risk with a downward trend; and 3.0 miles as non-functional.

There are over 11 miles of channel associated with Blacks Gulch, Tschuddi Gulch and Scenery Gulch that are ephemeral with low water holding capacity and currently lack adequate sustained moisture to support riparian vegetation. 2006 assessments stated that conditions were due mostly to scoured channels associated with high velocity flows resulting from conditions in the uplands such as altered plant community composition, reduced cover of perennial grasses, and minimal residual litter to trap and slow overland flows. Those assessments also stated that livestock impacts in the riparian zone were not a factor contributing to current conditions.

Since those assessments were done, permitted livestock grazing use has been revised throughout the allotment. Shorter grazing duration in each pasture has allowed more regrowth opportunity after livestock are removed. This results in more residual litter remaining in the uplands after grazing. As noted in previous assessments, improved conditions in the uplands would slow overland flows, allow for increased infiltration, and potentially reduce the intensity of the scouring flows in the channels though it is unlikely that there has been much notable improvement in the past four years since the revised grazing was been implemented.

5.10.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

Under this alternative livestock grazing in the Blacks Gulch allotment would be scheduled for the essentially the same timeframe (starting two weeks later) as the continuation of current

management alternative. Ponds throughout the allotment would be more likely to have adequate water for livestock needs through the schedules use period. Wider availability of water would allow for improved distribution and reduce impacts associated with livestock trailing to and from, or concentrated trampling around, limited water sources. Grazing related disturbance would be early in the growing season and during the spring run-off period. Ephemeral channels would generally have surface flow during the early use periods. Soft wet soils would be more susceptible to impacts of livestock hoof action and could increase suspended sediment in these channels. Proposed use in the Middle and Scenery pastures where there are channels that support riparian systems would result in grazing early in the growing season and for relatively short duration.

The entire Blacks Gulch pasture would benefit from reduced grazing intensity (39 percent less on Years 2/3 and 25 percent less on Year 1) and would have essentially the entire growing season for re-growth and litter accumulation after livestock leave in early April. This would allow for increased litter accumulation, especially in the uplands, to slow overland flows and allow increased infiltration.

Grazing in the Middle pasture would occur when both Scenery and Tschuddi Gulches would likely have surface flow. Grazing intensity would alternate from higher (87 percent of estimated average capacity) in Years 2/3 to lighter (65 percent of estimated capacity) in Year 1. Upland ponds scattered throughout the Middle pasture, especially in the eastern half, would on most years be expected to have water during the scheduled April use periods. Livestock distribution would be improved by the increased availability of water. Soils in places would still be muddy and vulnerable to hoof action. The short un-named section of perennial riparian channel in the Middle pasture is in a narrow draw where livestock don’t tend to make much use and would likely not be affected by this grazing schedule.

The mile of Scenery Gulch in the lower end of the Scenery pasture would have livestock present for about 25 days either early or late in the use period. Intensity would be near the estimated capacity for this pasture and for about six days longer in each general use area. The lower BLM end of this pasture adjoins CPW sub-irrigated meadows where livestock grazing use would tend to focus. The duration and intensity of expected grazing use in area of the Scenery channel is not expected to produce negative impacts in the channel or adjacent uplands.

Cumulative Impacts

Future low level energy development is not expected to have negative effects on riparian resources. Continued early season short duration livestock grazing use has potential to impact soils due to use during wet soil conditions. It is not yet clear if impacts will balance with the benefits of short duration of use and recovery opportunity. In the long term, the livestock management practices of this alternative should result in improved conditions in the uplands that will translate to gradual improvements in the riparian areas in the intermittent and ephemeral channels in the allotment.

5.10.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

Continuation of the current grazing schedules would have the same overall use period as the Proposed Action with short duration grazing use in each pasture. Wider availability of water during the early use period allows for improved distribution and reduces impacts associated with concentrated use and increased trailing when water sources are limited later in the summer. Livestock related disturbance in the Blacks Gulch allotment would be early in the growing season, during the spring run-off period, and when soils are still soft, wet, and vulnerable to impacts of hoof action. Ephemeral channels would likely have surface flow and upland ponds would generally still have water. Grazing when soils are muddy could increase suspended sediment entering channels.

The Blacks Gulch pasture would still be grazed for a shorter sixteen days (compared to 22 days in Years 2/3 and 27 days in Year 1) prior to the start of the growing season but at a higher intensity (39 percent more in Years 2/3 and 25 percent more in Year 1). Overall, the timing of hoof action impacts would be similar between these alternatives but it would be difficult to tease out a meaningful difference between the intensity and duration.

Continued grazing use as permitted in the Middle pasture would be at a steady mid-level intensity (78 percent of estimated average capacity) and for 17 days every year but the use period would be deferred until ten to fourteen days later in the growth period every other year as compared to the Proposed Action. During the later use period soils would be drier and less susceptible to hoof action impacts but declining water availability could to reduce distribution.

Under the current management schedules grazing in the Scenery pasture would be about six days shorter and at moderate intensity (an average of 75 percent of the estimated average capacity) compared to the Proposed Action. As under the Proposed Action, while livestock do graze the southern (BLM) end of this pasture more use tends to occur higher up in the sub-irrigated meadows. Continued grazing at this duration and intensity in area of the Scenery channel is not expected to produce negative impacts in the channel or adjacent uplands.

Cumulative Impacts

This alternative is essentially similar enough to the Proposed Action that cumulative impacts would be the same as those addressed under the Proposed Action alternative.

5.10.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

Direct impacts to riparian systems such as bank trampling by livestock currently are negligible but would be eliminated under the no grazing alternative. Without livestock grazing, upland plant communities and to a lesser extent riparian vegetation would over time experience increased ground cover of perennial vegetation and litter accumulation. Improved plant

communities in the uplands would reduce overland flows and result in more water being retained in the uplands. Increased infiltration in the uplands would reduce overland run-off and reduced flow volumes, erosion and scouring in drainages. As flows moderate and scouring forces reduce, sediments would accumulate; riparian vegetation would likely increase and become more effective in stabilizing channels. Over time the moisture holding capabilities of channels could increase with potential for increased extent and density of riparian vegetation. A no grazing alternative would allow downstream conditions to improve incrementally in response to improved rangeland health in the uplands.

Cumulative Impacts

Past and present land uses including oil and gas development would continue and have minimal effect on the drainages and riparian areas throughout the Blacks Gulch allotment. No grazing by livestock would result in incremental improvements in channel condition and function as a result of improved conditions in the uplands. Without livestock grazing the increase in perennial grass cover and litter accumulation would slow overland flows associated with storm events. The volume and velocity of flows would reduce, allowing channels to stabilize and progress toward their potential more rapidly than under the other alternatives

5.11. Aquatic Wildlife

5.11.1. Affected Environment

Aquatic habitats/riparian areas potentially influenced by livestock on BLM-administered lands within the permit area consist of Scenery Gulch (7.3 miles), Tschuddi Gulch (5.2 miles), and Blacks Gulch (1.5 miles). Due to mostly ephemeral and some intermittent flows and heavily degraded channels, Scenery Gulch and Blacks Gulch are incapable of supporting higher order aquatic habitats. Although Tschuddi Gulch currently supports small and discontinuous populations of leopard and chorus frogs, it is not capable of sustaining a viable fisheries population. Dominant riparian species associated with these drainages include Baltic rush and inland saltgrass. Other riparian associates that are present (at extremely low densities) include sedges, bulrush, and redtop. Tamarisk, an invasive, non-native is common throughout all three drainages with increasing frequency in the lower (southern) portion of these drainages.

Several of the ponds in the West Shutta allotment are functional in the sense that they are able to retain water, however in most cases it is only for a short duration (generally through early summer). In general, these ponds have well-established obligate riparian vegetation such as cattail, Baltic rush, and sedge. It is likely these aquatic areas support populations of tiger salamander, chorus frog, and possibly northern leopard frog, a BLM sensitive species. Persistent waters have potential to serve as reproductive habitat for small numbers of Great Basin spadefoot, but BLM has not documented their presence in the area. Roughly half of the Blacks Gulch ponds are in a non-functional state, with only remnant riparian vegetation and limited capability to retain water. It is unlikely that these ponds provide suitable for habitat for aquatic wildlife species. The remaining ponds would be similar in function and habitat characteristics as those discussed above for West Shutta.

5.11.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

West Shutta : Livestock use would now only occur during the spring months (4/1 – 6/15), instead of both spring and fall use, as what is currently authorized. Overall grazing use in this allotment would decrease by 27 percent; however there would be a 28 percent increase in spring use one out of three years. In the remaining two out of three years, overall use of the allotment would decrease by 60 percent, with a 30 percent decrease in spring use. In general, the proposed grazing system would not be expected to negatively influence the condition of riparian and wetland vegetation and amphibian habitat quality at isolated stock ponds, and may actually enhance riparian development as a means of providing habitat for aquatic wildlife species.

Blacks Gulch: Grazing use in the Blacks Gulch pasture would decrease by 25 percent in Year 1 with a 39 percent decrease in spring use in Years 2/3. Use of the Middle pasture would decrease by 17 percent in Year 1. Grazing use in Years 2/3 would increase by 11 percent with the season of shifted 2 weeks earlier (4/6 - 4/25 vs. 4/20 – 5/7).

In the long term, as perennial upland ground cover increases, it is expected that reduced overland flow (i.e., increased infiltration) and sediment contributions to Scenery, Blacks, and Tschuddi Gulches would reduce channel instability, enhance expression of obligate riparian and wetland vegetation along the channel floodplain and banks, and prolong surface flows. It is likely that improvements in aquatic conditions would result in increased populations of leopard and chorus frogs along Tschuddi Gulch and may prompt reestablishment of amphibian populations along both Black's and Scenery Gulches. Although there are few migratory birds that would respond to these conditions (e.g., song sparrow) it is probable that small mammals requiring well developed herbaceous understories in close proximity to water would benefit in terms of abundance and more continuous and expansive distribution.

Cumulative Impacts

Activities associated with oil and gas development and livestock grazing are the two most prevalent management actions in the area resulting in loss or modification of riparian habitat. While livestock grazing would result in reductions in ground cover, the Proposed Action would not be expected to negatively influence aquatic wildlife populations.

5.11.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

West Shutta: Continuation of the current grazing system would maintain current riparian/wetland conditions at these stock ponds. Many of these sites have well-established riparian communities

and appear to have developed in the face of higher intensity and longer duration growing season use. It is expected that the current distribution and abundance of amphibians would remain static over the term of the permit.

Blacks Gulch: Continuation of the current grazing system would maintain current riparian character in the Scenery, Blacks and Tschuddi Gulches. The current grazing system does not appear to have any substantial negative influence on aquatic communities throughout the allotment. Impacts from the current grazing system are described in greater detail in Environmental Assessment DOI-BLM-CO110-2012-018-EA and in DOI-BLM-CO110-2007-030-EA.

Cumulative Impacts

Cumulative impacts to aquatic wildlife would be similar to those described above under the Proposed Action.

5.11.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

The effects of no-grazing would be similar to those of the Proposed Action, although full vegetation expression realized every year would likely lead to indeterminate acceleration of gains in the density, vigor, and composition of upland and channel vegetation and associated wildlife forage and cover values. In the absence of grazing, accumulations of herbaceous production in the allotments' stock ponds may reduce the area of open surface water and accelerate filling of these small impoundments, thereby more quickly reducing the availability of amphibian habitats and foregoing pond maintenance performed by the livestock permittee.

Cumulative Impacts

There would be no contribution from livestock grazing to previous or existing disturbances in the area that would potentially impact aquatic species or associated habitats under this alternative. Livestock removal would increase perennial upland ground cover which would reduce overland flow and sediment contributions to Scenery, Blacks and Tschuddi Gulches. As a result, improvements in channel stability and vegetative cover would be expected, improving habitat for local aquatic species.

5.12. Migratory Birds

5.12.1. Affected Environment

The permit areas span an array of elevations and vegetation communities that support a wide variety of migratory birds during the nesting season (early- May through mid-July). Elevation within these allotments ranges from about 5,700 to 8,000 feet. The project area is generally comprised of upper elevation pinyon-juniper woodlands interspersed with mixed mountain shrub

(~10,400 acres) with Wyoming big sagebrush and greasewood communities in the lower elevation valley bottoms.

The lower elevation South and Middle pastures of the West Shutta allotment are largely comprised of more open big sagebrush/ greasewood and grassland communities with isolated narrow ridges dominated by pinyon-juniper woodlands. The upper elevation North pasture is largely dominated by pinyon-juniper ridges with narrow sagebrush valleys.

The Blacks Gulch and Middle pastures of the Blacks Gulch allotment are largely open big sagebrush and greasewood dominated valley bottoms with disconnected pinyon-juniper dominated ridges. The steep, upper-elevation slopes of Scenery, Tschuddi and Oil Well pastures are dominated by pinyon-juniper woodlands (~6,400 acres) and mountain shrub communities (~5,000 acres). Drainage bottoms, which are largely owned by CPW in the Scenery and Tschuddi pastures, are comprised mainly of basin big sagebrush with a heavy greasewood and Wyoming big sagebrush component along the toe-slopes. Herbaceous groundcover in these drainages is often dominated by undesirable species such as cheatgrass, mustard, yarrow and dandelion but does contain a minimal perennial component (e.g., basin wild rye, western wheatgrass and Sandberg bluegrass). Houndstongue and musk thistle are common, particularly in the upper portions of Scenery and Tschuddi Gulches.

Cheatgrass, a non-native, invasive annual grass is prevalent throughout the lower elevation valley bottoms of both allotments. Other invasive annuals such as bur buttercup, redstem filaree (storksbill), and flixweed are common throughout the understory as well. A residual component of perennial species, namely western wheatgrass and Sandberg bluegrass are scattered throughout the lower elevations. Degraded understory conditions likely result in reduced nest densities in these areas (close to 3,500 acres).

A wide variety of migratory birds nest in the woodland and shrubland communities during the breeding season. Most songbirds return to summer breeding ranges in April, begin nesting in earnest in mid to late May and have fledged young by late July to early August. Sagebrush and mountain shrub communities provide nesting habitat for species such as Brewer's sparrow (BLM sensitive), vesper sparrow, horned lark, meadowlark, spotted towhee, and rock wren. Juniper woodlands (~10,400 acres of BLM) provide habitat for species such as gray flycatcher, pinyon jay, juniper titmouse, and black-throated gray warbler. Birds of higher conservation interest (i.e., Partners in Flight program) associated with these habitats and well represented in the permit area include: black-throated gray warbler, juniper titmouse, pinyon jay (pinyon-juniper communities), Brewer's sparrow, Virginia's warbler and green-tailed towhee (sagebrush and mountain shrub habitats). It is likely that the full complement of pinyon-associated species such as white-breasted nuthatch, black-throated gray warbler and pinyon jay are greatly reduced in those lower-elevation juniper-dominated woodlands.

5.12.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

West Shutta: There would be little potential for direct disruption to migratory bird nesting activities in this allotment. At the latest, livestock would be removed by mid-May, essentially avoiding the core nesting period. The South pasture would experience some light use for a two-day period (6/14 – 6/15) each June however, this would not be expected to have a measurable influence on nesting activities nor would it be expected to result in a substantial decrease in herbaceous vegetation.

As proposed, grazing use in this allotment would now only occur during the spring (4/1 - 6/15), whereas current grazing use occurs annually during the spring and late fall/winter periods. Eliminating fall grazing would be expected to provide greater residual cover available in the early weeks of the nesting season, although some residual growth would likely be consumed as well. In Year 1, grazing use throughout the entire allotment (South, Middle and North pastures) would decrease by 27 percent; however there would be a 28 percent increase in spring use. In the remaining two out of three years, overall use of the allotment would decrease by 60 percent, with a 30 percent decrease in spring use. Use of the South and Middle pastures, which likely have the most noticeable influence on migratory bird nesting activities due to accessible open, flat terrain, would now increase by 46 and 20 percent, respectively one out of three years. In the remaining two years, spring use in these two pastures would decrease by 63 and 21 percent, respectively. As proposed, livestock turnout would take place two to three weeks earlier than what is currently authorized (depending on pasture), with livestock removed 10 to 30 days earlier (depending on year and pasture).

Increased spring use one out of three years would be expected to reduce the amount of effective herbaceous understory available as cover and forage for nesting birds, however removal of livestock by mid-April to early-May in the lower two pastures, would provide one to three weeks regrowth opportunity prior to the nesting season as well as an additional two weeks after the onset of nesting. Reductions in herbaceous cover may indirectly lead to decreased nest success as nests would be more exposed to predators and environmental conditions. Migratory bird nesting activities are less likely to be influenced in the North pasture, which would see the latest removal date (5/14), as this pasture is largely comprised of steep mountain shrub and woodland dominated terrain that is relatively inaccessible to livestock. Increased use in the valley bottoms would be expected although duration of use would be relatively short (7 days).

Use of the South and Middle pastures would decrease in Years 2/3. In these years the South pasture would be grazed for a two day period in early April and then again for another two days in mid-June. The Middle pasture would be grazed for an approximately two week period from mid to late April. Livestock removal by early to mid-April (two out of three years) in South and Middle pastures would allow for 4 – 6 weeks of regrowth opportunity prior to the onset of the nesting season. This grazing system would be expected to allow development of effective ground cover as a means of protection from predators and environmental conditions, particularly for ground nesting species (e.g., meadowlark, vesper sparrow). Species more closely associated with

sage-steppe shrub canopies would be less apt to be influenced. Reductions in grazing use two out of three years would be expected to improve plant vigor and reproductive capability. Improvements in species composition (increased expression of perennial grasses and forbs) may take longer to realize due to intense competition with annual invasive species.

Blacks Gulch: Changes in livestock use would vary greatly depending on pasture and year. Overall use of the Blacks Gulch allotment would decrease by four percent one out of three years. In Years 2/3, overall use in the allotment would increase by roughly six percent. Use in the Blacks Gulch pasture will decrease by 25 percent in year one with a 39 percent decrease in Years 2/3. Use in the Middle pasture would decrease by 25 percent in Year 1 with an 11 percent increase in Years 2/3. Although use in the lower two pastures (Blacks Gulch and Middle) would not coincide with the migratory bird nesting period and would have little direct influence on nesting activities (trampling, nest disruption), reduced spring use would be expected to provide more effective ground cover available prior to and throughout the nesting season. Some residual growth would likely be utilized during the first week or two after turnout. While reductions in spring use would be expected to improve plant vigor and reproductive capability, it may take decades, and possible management intervention (vegetation treatments) to positively alter species composition due to the prevalence of annual grasses and forbs.

Use in Tschuddi and Scenery pastures would increase by 41 and 21 percent, respectively in Year 1with use alternating in Years 2/3. The most notable change would be in the Oil Well pasture, where use would decrease by nine percent one out of three years, with a 54 percent increase in the remaining two years. Use of the upper three pastures (Oil Well, Tschuddi and Scenery) would coincide with the early part of the nesting season. Steep or heavily vegetated terrain likely precludes heavy use on the majority of the BLM administered slopes in all three pastures. As such, woodland and shrubland associates are likely minimally influenced by livestock grazing. Use in the valley bottoms may disrupt nesting activities, but of greater consequence would be impacts to vegetation due to increased grazing use. Nearly all of the valley bottoms in the Tschuddi and Scenery pastures are owned by CPW. Because of the steep terrain, most of the use will be concentrated in the valley bottoms and would be expected to result in reductions in herbaceous vegetation. Reductions in herbaceous understory prior to and during the early portions of the breeding season can make nesting birds more susceptible to predation and environmental conditions (cold). This would be most evident for ground nesting species. Over time, increased use would likely reduce plant vigor and reproductive functions which would reduce seed availability for granivorous bird species, and may lead to deleterious shifts in species composition (increase in annuals or more grazing tolerant species).

Both the Tschuddi and Scenery pastures are divided into general/distinct use areas which are separated by fences or through active herding practices. Rotating livestock through these use areas should alleviate grazing pressure across the entire pasture and allow for recovery periods in each distinct area annually. Similarly, recent water developments on BLM lands were designed to draw livestock further up the slopes to reduce concentrated use in the valley bottoms and allow for more even distribution of livestock across these pastures. Terms and conditions outlined in the Proposed Action (Section 3.3.1) would require adjustments to season of use,

livestock numbers etc. be made should monitoring data show a negative impact/downward trend in overall rangeland health conditions (vegetation, soils, etc.).

Cumulative Impacts

Activities associated with oil and gas development and livestock grazing are the two most prevalent actions in the area resulting in loss or modification of habitats supporting migratory birds. This is especially evident in the Blacks Gulch pasture of the Blacks Gulch allotment and the South and Middle pastures of the West Shutta allotment where a high density of well pads and extensive road systems are common. In most cases, the Proposed Action would not be expected to result in a substantial loss or modification of habitats supporting migratory birds. Overall reductions in use throughout the allotment, particularly in the extensive sage-steppe communities throughout the lower elevation pastures would be expected to enhance and improve plant communities that provide forage and cover resources for migratory birds.

5.12.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

West Shutta: The current grazing system has limited potential to directly influence migratory bird nesting activities (nest disruption etc.). Use in the South pasture takes place prior to nesting season, and while use of the Middle and North pastures is coincident with the nesting season, it likely has minimal direct influence as livestock are removed by mid- to late May. Annual spring and fall use would be expected to reduce the amount of effective herbaceous ground cover as well as residual component available prior to the nesting season. Impacts to migratory birds would be similar to those discussed below. These impacts are likely most evident in the lower elevation pastures (South and Middle), where open terrain provides greater accessibility for livestock throughout the majority of these pastures.

Blacks Gulch: Currently, the grazing period does not coincide with and likely has little direct influence on migratory bird nesting activities in the Blacks Gulch, Middle, and Oil Well pastures. Use of these pastures takes place prior to the migratory bird nesting season annually and although grazing use would result in the reduction of residual cover (see discussion below), direct impacts (trampling, nest disruption etc.) to nesting activities would largely be avoided. Livestock removal by early April to early May in the Blacks Gulch, Middle and Oil Well pastures essentially allows for uninfluenced (by livestock grazing) vegetative growth during the majority of the growing season. Grazing onset of mid-March through late-April likely reduces effective ground cover (height and lateral density) and residual cover prior to the nesting season and, depending upon the year and pasture, may indirectly affect nesting outcomes by increasing the susceptibility of incubating or brooding hens and their clutches to predation or extremes in temperature or moisture. This impact likely has minor influence on ground nesting species (e.g., meadowlark, lark sparrow) associated with open shrubland and grassland habitats and would be most evident in the Oil Well (even year) and Middle (odd year) pastures where livestock remain

until early May. In most instances, removal of livestock by early April to late April would allow sufficient time (~ up to 6 weeks) for growth and/or regrowth/recovery prior to the onset of the nesting period and would have negligible impacts on most species associated with grassland and shrubland communities.

Current use in Scenery and Tschuddi pastures coincides with the early portions of the migratory bird nesting season, with each pasture being grazed 18 days (5/8 – 5/25) and 21 days (5/26 – 6/15), with number of days in the respective pastures alternating each year. Much of the BLM-administered lands within these pastures consist of rugged, pinyon-juniper or mountain shrub dominated slopes. While livestock may make use of these slopes, grazing use is typically light and dispersed, with woodland/mountain shrubland associated species being minimally influenced by grazing practices. The most noticeable influence of the grazing system would be on grassland and open shrub associates that nest in areas that receive more heavy or concentrated livestock use (valley bottoms, mild terrain). These valley bottoms are largely privately-owned or in areas that are in close proximity to a water source.

Overall, the current grazing system is generally compatible with maintenance of habitats supporting migratory bird breeding functions. While reductions in herbaceous ground cover would be expected, the current grazing system allows for adequate regrowth/recovery period prior to and throughout the majority of the nesting season, particularly in the lower pastures where grazing would be expected to have the most influence on nesting outcomes. This alternative is consistent with plant growth requirements, continued improving trends in ground cover composition (increases in native grasses and forbs), and plant vigor, but would probably have little short-term influence on understory conditions across those ~2,800 acres of early-seral bottomland and lower elevation sagebrush/grasslands (particularly in Blacks Gulch and Middle pastures) where annual weeds exert strong competitive influences. Without substantial intervention, these habitats would continue to serve in a limited capacity for migratory bird breeding activities regardless of the grazing management option employed. Commitment from the permittee for continued treatment of noxious weeds would improve vegetative composition which would benefit shrubland and grassland associated migratory bird species. It is important that monitoring continue to ensure the proposed grazing system is compatible with continued maintenance that support migratory bird nesting functions.

Cumulative Impacts

Cumulative impacts would be similar to those discussed above under the Proposed Action.

5.12.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

Livestock removal would be expected to have little effect on breeding bird abundance or reproductive/recruitment success in the permit area's ~10,400 acres of woodland and mountain

shrub types. Low forage availability and more rugged terrain limits livestock use of these habitats; the birds associated with these upper elevation woodlands do not tend to respond positively to relatively minor increases in herbaceous expression.

Vegetation would be expected to respond favorably (plant vigor and reproductive capability) in the lower elevation pastures of the West Shutta and Blacks Gulch allotments (roughly 6,700 acres of early and mid-seral communities) that have recently and historically experienced heavy to severe grazing use. However intense competition with annual species would likely impede a rapid recovery. 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. Studies where cattle had been removed from riparian and associated shrubland communities in the southwest showed 2 to 3-fold increases in vegetation density prompted consistent doubling of breeding bird densities in virtually every guild (Kreuper et al. 2003). Assuming such response is roughly applicable to these pastures that received heavy to severe levels of utilization with little regrowth opportunity, nesting birds associated with the allotments' shrub-steppe communities would be expected to undergo substantive increases in response to full herbaceous expression.

Cumulative Impacts

There would be no contribution from livestock grazing to previous or existing disturbances that would potentially impact migratory bird species or important habitats under the No Grazing Alternative. Livestock removal would be expected to result in improvements in vegetative composition, plant vigor and reproductive capability as well as increases in residual component which would benefit not only migratory birds, but local wildlife populations in general. Improvements in understory condition would likely be realized more quickly in the allotments' 3,840 acres of mid seral communities. Improvements in the allotments 2,840 acres of early seral communities may take decades for any measurable recovery.

5.13. Terrestrial Wildlife

5.13.1. Affected Environment

The allotments span an elevation gradient that supports lower elevation deer and elk severe winter ranges (5,800 ft- 6,400 ft) to higher elevation winter ranges (up to 8,100 ft) that are used somewhat more sparingly through the summer months. The lower elevation Wyoming big sagebrush and greasewood communities, which encompass the entire West Shutta allotment and the southern half of the Blacks Gulch allotment, are classified by Colorado Parks and Wildlife as mule deer severe winter range. Severe winter range is a specialized component of winter range that supports roughly 90 percent of a population two out of the ten worst winters (e.g., heavy snowfall, minimum temperatures). These ranges typically receive the most use from January through April.

Wyoming big sagebrush and an intergraded Wyoming-black sagebrush community constitutes the primary winter forage base for deer on these lower elevation ranges through February or March, when deer switch to emerging herbaceous growth. The availability of quality herbaceous growth on these severe winter ranges figures prominently in recovery of deer from the nutritional deficits of winter as well as gaining nutritional planes appropriate for the later stages of gestation. Based on observations by BLM biologists, deer are feeding principally on fresh growth of Sandberg bluegrass and prairie Junegrass in March and early April, making little use of western wheatgrass and no apparent use of prodigious annual growth, composed primarily of cheatgrass, clasping pepperweed, red-stem filaree, and bur buttercup, that forms the dominant ground cover on about 60 percent of the lower valley terraces in early spring (e.g., late March).

The upper three pastures of the Blacks Gulch allotment (i.e., Tschuddi, Scenery, and Oil Well) involve general big game winter ranges composed of pinyon-juniper woodlands and mountain shrub with small scattered stands of Douglas-fir. Areas in close proximity to reliable water sources support a small number of deer through the summer months. These pastures are part of the greater Gray Hills and Colorow Mountain area which also supports a wide-ranging resident herd of between 500 and 1,000 elk. These animals shift elevationally through the year, but perhaps ¼ to ½ of these animals use the allotments' northern three pastures and southern four pastures (Middle, South, Middle, and Blacks Gulch) during the summer and winter seasons, respectively.

Although the status of dusky grouse populations in the Gray Hills is not well understood, the birds occur widely across the allotment's higher elevation mountain shrub ridges and upper sagebrush basins during the spring through fall months, and likely retire to the allotment's scattered Douglas-fir stands in the winter. Dusky grouse broods tend to gravitate to mesic mountain shrub and sagebrush basins during the later summer months (mid-July through mid-August) where strong herbaceous ground cover expression, as protective cover, forage, and foraging substrate (for invertebrates) is considered one of the principal factors in realizing optimal reproductive success.

Breeding raptor use of the allotment area is represented largely by woodland accipitrine species. Mature pinyon-juniper woodlands and small stands of Douglas fir confined mainly to the upper three higher elevation pastures and the northern ridges of Middle pasture (~10,400 acres) likely support a small number of breeding sharp-shinned and Cooper's hawk and long-eared owl. Other raptors (e.g., red-tailed hawk) may opportunistically forage in the allotment's open grasslands. Cliffs and rock outcrops can provide nesting substrate for several raptor species including golden eagle and red-tailed hawk.

Nongame mammals and birds 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 overwinter survival (mammals).

Non-game populations associated with the three higher elevation pastures in the Blacks Gulch allotment and the North pasture of the West Shutta allotment, particularly in upland habitats, are likely distributed at densities that approach habitat potential. More poorly developed herbaceous understories likely suppress breeding densities of those species associated with basin big sagebrush bottoms in the lower ends of the major drainages, but this acreage is relatively small (about 50 acres per pasture) and occurs as narrow linear features. Small mammal and bird populations in the lower four pastures of these allotments (Middle, South, Middle and Blacks Gulch) would be expected to be considerably below their potential across at least 20 percent of the BLM-administered lands (i.e., early seral) including the 14 miles of degraded riparian communities (sedge-rush, inland saltgrass habitats) and at least 2,000 acres of shrubland benches along the major drainages. Non-game populations are likely suppressed, but remain relatively intact on an additional 20 percent of these pastures' extent where the ecological status of herbaceous ground cover is classified as mid-seral.

5.13.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

Changes in grazing use in both allotments are discussed in greater detail in the Migratory Bird section above.

West Shutta: Overall declines in spring grazing use throughout this allotment, particularly in the South and Middle pastures, would be expected to improve plant vigor and enhance reproductive capabilities. Livestock use during the early spring can precondition bunchgrasses by enhancing big game access to emerging spring growth or fall regrowth through heavy dormant material, however, because the density of bunchgrasses in comparison with annual grasses and forbs is considerably disproportionate, this likely provides only limited value for big game. Livestock use in this allotment would now occur two to three weeks earlier than what is currently authorized, and would involve a shorter duration of use, particularly in the South pasture (2 day period in April then again in June, 2 out of 3 years) and to a lesser extent in the Middle pasture. This grazing system would be expected to allow adequate regrowth opportunity for grasses and forbs, which would provide the greatest benefit to nongame species. In general, declines in the height and density of ground cover as a component of nongame reproductive habitat would be most pronounced, but localized near the numerous water facilities in the West Shutta allotment. Availability of perennial species is extremely limited in the lower two pastures and big game are likely in direct competition with livestock during the early spring. Reduced livestock use in these pastures (two out of three years) would be expected to benefit big game by increasing the amount of forage available an these severe winter ranges.

Use in the North pasture would increase one out of three years, with no change in grazing intensity from the current system in the remaining two years. Use would likely be concentrated in the valley bottoms. Reductions in vegetation height would likely have the greatest influence on nongame birds and mammals, particularly in the one year when use extends into mid-May (also see discussion in Migratory Bird section). Shrubland associates would likely only be minimally influenced.

Blacks Gulch: Grazing impacts in the Blacks Gulch pasture would be similar to those described for the lower elevation pastures of the West Shutta allotment. The composition and abundance of species within the resident small mammal community may be increasingly sensitive to ground cover conditions as modified by livestock, since they rely on concealing cover and foodstuffs throughout the year. It is anticipated that vegetative response in the lower pastures will be positive (improvements in plant vigor and reproductive potential), although positive changes in plant composition (e.g., increase in diversity and of perennial species) may take decades and likely will not be dramatic.

Increased use in three upper elevation pastures would be expected to have the most notable influence on nongame wildlife species (nongame birds and small mammals), particularly in the valley bottoms where reductions in height and density of herbaceous ground cover would be most pronounced. Mountain shrub and woodland associates would likely not be as influenced as livestock tend to make limited use of the steeper, more densely vegetated slopes. Similarly, big game would be more prone to use the steeper slopes than would livestock.

The proposed grazing system is not anticipated to have any substantive influence on nesting success/outcome of woodland raptors. Livestock use would be concurrent with the early to mid-portions of the nesting season (depending on year) in the higher elevation pastures Tschuddi, Scenery, and Oil Well) however, as previously stated, livestock use tends to be concentrated in areas of more open, gentler terrain with only incidental use in steeper, wooded areas. As proposed, the grazing schedule allows for sufficient regrowth/recovery 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).

Improvements in vegetative composition and density would likely provide the greatest benefit to small mammal populations and would be most noticeable in the lower three pastures. In the long term, improvements in herbaceous composition (shift to stronger perennial expression) and increased height and density of herbaceous ground cover (as a forage and cover resource) would be expected to improve reproductive success and increase small mammal densities.
Livestock grazing influences would be expected to be minimal in woodland and steep-sloped mountain shrub communities.

Cumulative Impacts

In addition to livestock grazing, oil and gas extraction is the predominant management action resulting in loss or modification of vegetative communities that provide forage and cover for big game and nongame wildlife species. The Proposed Action would result in reductions in

herbaceous ground cover throughout the early portions of the growing season; however livestock removal by April in the lower elevation pastures and mid-June in the upper elevation pastures would allow adequate time for regrowth opportunity throughout the remainder of the growing season.

5.13.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

West Shutta: Current use of the West Shutta allotment involves a spring/fall rotation. Impacts associated with spring grazing in the lower two pastures (South and Middle) are similar to those discussed below for the lower elevation pastures in Blacks Gulch. Current grazing use in the West Shutta allotment is essentially relegated to the growing season and mid to late winter period. This pattern of use provides limited fall preconditioning of bunchgrass forage for big game. Dormant season use in the West Shutta allotment could be expected to precondition this forage base for spring use, but snow accumulations late in the season may confine these effects to a certain degree. Conversely, dormant season use reduces herbaceous residual remaining through the winter and into the following reproductive cycle for many nongame species (small mammals and migratory birds). Livestock currently use this allotment two to three weeks later than the schedule that is being proposed. This would allow herbaceous vegetation a few weeks more during the initial growing period, but shorter regrowth opportunity. This would likely have the greatest influence on nongame birds, as livestock removal immediately prior to the breeding season allows little opportunity for herbaceous regrowth prior to and throughout the nesting season. Although current grazing use is considered compatible with the maintenance of acceptable sagebrush community conditions, persistent growing season use in the West Shutta allotment is likely suppressing the availability (diversity and density) of favored herbaceous forages, particularly broadleaf herbs that comprise important nutritional fractions for big game diets in spring and fall. Use of the North pasture involves a short duration use period during the spring and fall (six days). Impacts associated with spring use of the North pasture would be similar to those discussed above under the Proposed Action.

Blacks Gulch: The current grazing system involves a short duration-high intensity use period, averaging about 18 days per pasture. The lower two pastures (Blacks Gulch and Middle) are used prior to or during the early portions of the growing season (mid-March through early-May); with livestock leaving these pastures by early-April through early-May. This essentially allows for uninfluenced (by livestock) growth during much of the growing season annually. Proposed livestock use in these lower pastures coincides with big game use during the early spring months. Collective use by livestock and big game likely reduces residual cover to varying degrees however; it is suspected that any influences on ground nesting birds (see Migratory Bird section) and small mammals, as it relates to cover availability would be minimal. Livestock use of heavy bunchgrass residual in the early spring likely operates to increase accessibility of emergent spring growth for big game. Improvements in vegetative cover and composition (native grasses and forbs) would in the long-term provide an enhanced and more nutrient rich forage base for big game in much of the severe winter ranges throughout the lower pastures.

Livestock use in the three upper elevation pastures (Oil Well, Tschuddi and Scenery) overlaps to a certain extent with big game use periods, however topographical and vegetative features (rugged slopes, heavy shrub cover) likely constrain use, largely confining livestock to the valley bottoms and toe slopes, with big game utilizing the more rugged, shrub-dominated slopes. Allotment inspections indicate a strong perennial grass component interspersed throughout the mountain shrub communities with no indication of prolonged use or big game-livestock conflicts.

Impacts to small mammal populations would be similar to those discussed under Alternative B in the Migratory Bird section. Impacts to woodland raptors would be similar to those discussed above in the Proposed Action.

Cumulative Impacts

Continuation of the current grazing system is not expected to add substantially to current or future disturbances (namely oil and gas associated development). The proposed grazing system would result in annual reductions in residual and herbaceous ground cover, however this alternative allows for nearly full recovery throughout the growing season. Vegetative response in the long term is expected to be positive, with enhanced expression of native perennial species and improvements in herbaceous density and composition which would be expected to benefit local wildlife species in general.

5.13.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

Environmental Consequences of the No Grazing Alternative, page 83 in CO-110-2007-030-EA and page 27 in CO-11-2007-098-EA are incorporated by reference. It is expected that livestock removal would substantially enhance the vigor and reproductive capability of perennial plants and increase accumulations of persistent litter yielding measurable positive responses in nongame bird and small mammal populations. Additionally this would provide increased quantities of favored spring forage for mule deer.

Cumulative Impacts

There would be no contribution from livestock grazing to previous or existing disturbances in the area that would potentially impact terrestrial wildlife species or important habitats under the No Grazing Alternative. Livestock removal would result in improvements in plant vigor, reproductive capability and vegetative composition as well as increases in residual component which would benefit big game and nongame wildlife species.

5.14. Special Status Animal Species

5.14.1. Affected Environment

There are no threatened or endangered animal species that are known to inhabit or derive important use from the project area. The major drainages on the Blacks Gulch allotment generally empty directly into the White River on either side of Rio Blanco Lake. The White River below Rio Blanco Lake is designated critical habitat for the endangered Colorado pike-minnow although present occupation is confined to the river below Taylor Draw dam (47 river miles downstream). Maintenance of proper bank, channel, and floodplain functions are specifically identified in the Recovery Program for Endangered Fishes of the Upper Colorado River Basin as essential to the continued existence of this fishery. BLM sensitive species that are known to occur or may inhabit the area include greater sage-grouse, Brewer's sparrow, golden eagle, bald eagle, northern goshawk and midget faded rattlesnake.

Based on recent (2012) Colorado Parks and Wildlife (CPW) mapping efforts, sage-grouse habitat has been classified into two types: 1) priority habitat management areas (PHMA) and 2) general habitat management areas (GHMA). PHMA represents areas having the highest conservation value in maintaining sustainable sage-grouse populations, including breeding, later brood-rearing, and winter concentration areas. Generally speaking, PHMAs are located within four miles of an active lek. GHMA represent occupied or recently occupied habitats that are outside priority habitat. Approximately 5,240 acres of GHMA occur on BLM-managed lands within the allotments, including 1,740 acres in West Shutta and 3,500 acres in Blacks Gulch.

Greater sage-grouse populations generally require large expanses of intact sagebrush habitat (Connelly et al. 2004). Sage-grouse nests are generally found under shrubs with larger canopies and within of stands greater shrub canopy cover (Connelly et al. 2000). Height and structure of herbaceous vegetation is an important component in nesting habitat and can influence sage-grouse nest site selection, nest success, and chick survival. Habitat requirements typically vary depending on season of use. Sage-grouse begin nesting from mid-April through mid-May with chicks appearing from mid-May through mid-July; peaking from mid to late June. Although classified as GHMA, an active lek (high count of five males in 2015) is located in the Blacks Gulch allotment. The WRFO has sparse, but regular records of sage-grouse in the Blacks and Wray Gulch area since 1984 that span all seasonal use functions (nesting, early brood, late brood, winter).

Suitable habitat is largely confined to the western portion of the Blacks Gulch pasture and the South pasture of the West Shutta allotment. The South pasture is heavily impacted by oil and gas development and likely only supports sporadic use by birds. GHMA extends further north into the Middle pastures of both allotments however the sagebrush parks are naturally fragmented and discontinuous and likely support only a small number of birds. In 2015, six monitoring transect were established in GHMA in the Blacks Gulch pasture. Based on several vegetation indicators including: sagebrush cover, height and shape; perennial grass and forb cover and height; and availability of preferred forbs, habitat suitability for sage-grouse nesting functions were assessed using the Habitat Assessment Framework (HAF [Stiver et al. 2015]). Based on these indicators, overall suitability for the site-scale level (use areas within seasonal habitats, in

this case breeding and nesting) is characterized as either suitable, marginal, or unsuitable. In all instances, breeding and nesting habitat in the Blacks Gulch pasture was determined to be either unsuitable or at the extreme low end of marginal due to the prevalence of annual grasses and forbs and reduced sagebrush cover.

Brewer's sparrows are common and widely distributed in virtually all big sagebrush, greasewood, saltbush, and mixed brush communities throughout the Resource Area. Brewer's sparrow almost exclusively nest in big sagebrush and are considered to be a sagebrush obligate species. These birds are typically one of the most common members of these avian communities and breeding densities generally range between 10-40 pairs per 100 acres. Although most abundant in extensive stands of sagebrush, the birds appear regularly in small (one to two acre) sagebrush parks scattered among area woodlands. Typical of most migratory passerines in this area, nesting activities normally take place between mid-May and mid-July. These birds would be expected to be found in sagebrush habitats throughout the allotment.

Golden eagles may nest on cliffs or rock outcrops within the allotment and forage throughout the big sagebrush communities. These birds typically begin nesting in February or March, with most young fledged by August.

The White River corridor serves as an activity hub for nesting and wintering populations of threatened bald eagles. A number of nest and winter roost sites are associated with the river's cottonwood galleries, but none of these features are encompassed or directly influenced by proposed activities within the allotment.

Goshawks occur throughout the Resource Area at extremely low densities. In general, they prefer to nest in mature aspen or mixed stands, however mature pinyon-juniper woodlands and isolated Douglas fir stands - which comprise the slopes of the three higher elevation pastures (Scenery, Tschuddi and Oil Well pastures) and the northeast finger of the Middle pasture may provide suitable nesting substrate. The BLM has no records of nesting activity in the vicinity of the allotment.

South and southeast facing rock slabs and outcrops below 7,000 feet may provide habitat for midget faded rattlesnakes. It is unlikely that grazing has any substantial influence on rattlesnake populations as most snakes would be at their dens during the March and April in the lower elevation pastures.

5.14.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

The proposed grazing schedule would potentially have the most noticeable influence on Brewer's sparrow and greater sage-grouse. Impacts to Brewer's sparrow are integral to analysis

relating to shrubland associates in the Migratory Bird section. Changes in grazing use for the two allotments are described in greater detail above in the Migratory Bird section.

Livestock grazing effects on sage-grouse are largely confined to 1) deleterious shifts in the composition of herbaceous understory vegetation, and 2) progressive declines in the density and height of herbaceous understories as supplemental cover for the concealment of nests and young broods. In this area, the first issue manifests itself in increasing complements of invasive annuals and Kentucky bluegrass in understory composition, and declining vigor and production of perennial native bunchgrasses and forbs, which reduces effective ground cover properties and the availability of preferred forb forage and invertebrate substrate. Although neither allotment presently support strong populations of sage-grouse, grazing effects on suitable habitat is important with respect to species recovery efforts being pursued by the BLM, State Wildlife Agencies (CPW), the U.S. Fish and Wildlife Service, and various non-governmental organizations. Reductions in herbaceous growth as cover is considered to be most important during the nest and early brood period (15 April through 15 June; 15 June through 1 August) and remains important prior to the fledging of young birds (August). The overall reduction in herbaceous cover as residual into the subsequent spring nest season is also considered an important component of nest cover prior to effective spring growth.

West Shutta: Impacts to greater sage-grouse would largely be similar to those described below under the current grazing management. The most notable differences would be that use would now occur two to three weeks earlier than what is currently authorized and the duration of use would be shortened (2 days vs. 11 days), two out of three years. Removal of livestock two weeks earlier would allow for ample regrowth opportunity immediately preceding and throughout the sage-grouse nesting period. Similarly, shortened duration of use would allow for a greater amount of residual cover for concealment prior to nest initiation. This would be an important factor as there is limited amount of perennial grasses that provide adequate cover structurally in the lower elevation pastures. Reductions in overall use would be expected to enhance understory conditions by improving plant vigor and reproductive capability. Improvements in species composition (e.g., density and diversity in perennial grass and forb cover), particularly the functional and structural capacity which would benefit grouse, may be more long term (e.g., decades) due to the strong prevalence of annual species throughout the bottomlands. Spring/fall rotation is generally not compatible with habitat requirements for sage-grouse. Eliminating fall grazing would provide greater residual cover available prior to the nesting season, although a certain amount would be consumed during the early spring.

Blacks Gulch: Impacts would be similar to those discussed for the Blacks Gulch pasture in Alternative B. Livestock use would overlap with the early portions of the strutting period. While there may be some potential for disruption, it is unlikely to have a substantial impact on lekking activities (see discussion below under Alternative B). Of notable difference would be annual reductions in spring grazing use (25 percent reduction in Year 1, 39 percent reduction in Years 2/3) would be expected to provide for increased height and density of perennial grasses as a source of cover during the nesting season throughout the Blacks Gulch pasture.

Based on the prevalence of invasive annuals the allotments sage-grouse habitats, seasonal habitat objectives for herbaceous ground cover described in Table 2-2 of the Northwest Colorado Greater Sage-Grouse Resource Management Plan Amendment (Northwest Colorado Greater Sage-Grouse Approved RMPA 2015)) are incapable of being met in the Blacks Gulch and West Shutta allotments. Adjustments made to the grazing system, including reductions in livestock numbers and number of days grazed are expected to be compatible with improved management of perennial bunchgrass components in the lower elevation pastures that support the breeding functions of sage-grouse, and thereby meet the overall objective for range management outlined in the RMPA. Positive shifts in grass and forb composition may take several decades to realize due to the strong prevalence of annual species and it is unlikely that the specific habitat objectives would be completely achieved without some type of management intervention. While these habitat objectives may not be met during the term of the permit renewal, the proposed grazing system would be moving towards enhancing understory conditions and would be expected to benefit grouse in the long term. The proposed grazing system would not be expected to further detract from meeting the objectives outlined in Table 2-2. Continued monitoring, as outlined in the Proposed Action, would allow BLM staff to evaluate and ascertain if vegetation requirements (composition and structure) for sage-grouse breeding functions are being met and, should they not be, provide for allowances in management to ensure that the grazing system will maintain or enhance vegetation communities that support sage-grouse in the long term.

Impacts to golden eagle would be similar to those discussed for raptors in above in the Terrestrial Wildlife section. In general, the proposed grazing system is not anticipated to have any conceivable influence on nesting golden eagles.

Cumulative Impacts

Similar to the No Grazing Alternative, the Proposed Action would contribute little, if any, to cumulative adverse effects on special status animals and in particular, sage-grouse, since its effects are decidedly in favor of improved herbaceous expression (e.g., repressing invasive annuals, improved concealment and forage substrate) and are largely compatible with sage-grouse and other avian (e.g., Brewer's sparrow) reproductive functions and recruitment.

5.14.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

West Shutta: Impacts to greater sage-grouse are described in greater detail in environmental assessment DOI-BLM-CO-110-2007-096-EA. Current use in the West Shutta allotment involves a spring/fall rotation that likely reduced the amount of residual component remaining as supplemental cover for concealment of hens prior to and during the early portions of the nesting season. Impacts associated with spring grazing would be similar to those discussed above under the Proposed Action.

Blacks Gulch: Impacts to greater sage-grouse from the current grazing system are described in greater detail in environmental assessment DOI-BLM-CO-110-2012-018-EA. Early and short duration use would likely promote more uniform and less selective utilization with no opportunity for repeat defoliations. This use pattern coincides with the first 10 days of the strutting period; with livestock removal occurring prior to the nest initiation. Although there is no indication in the literature that livestock use interferes with breeding activity per se (Colorado Greater Sage-Grouse Steering Committee, 2008), high livestock density, particularly during years of limited moisture or snowpack and in close proximity to stock ponds, could conceivably have an influence on lek attendance early in the strutting period (the lek lies within ¼ mile of two stock ponds). Early season lek attendance is typically more sporadic and less productive than mid to late April peaks in breeding activity and is unlikely that disturbance early in the cycle would thwart successful reproduction.

Overwinter residual forage would largely be removed by early April throughout the pasture and little herbaceous cover would be expected to remain in openings between shrub canopies. Use intensity would not be expected to involve bunchgrass growth within individual shrub crowns and this growth would continue to serve as supplemental concealment of the nest and incubating hen. Importantly, this grazing pattern would allow for full growing season expression, with near-peak ground cover density and height coinciding with the appearance of broods – optimizing both protective cover and the availability of succulent broadleaf herbaceous matter as forage and invertebrate substrate for adult and chick diets. Especially in response to past grazing influences, this grazing regimen would also be expected to promote improving trends over time in understory density and composition and help revert up to 40 percent of the uplands and most of the bottomlands from annual-dominated to perennial bunchgrass character. Although the availability of overwinter residuals would be largely foregone in this alternative (i.e., use intensity), historic grazing regimens and current ecological status did not present interstitial cover substantially different than this. In an overall sense, the proposed grazing use pattern is as complementary to optimal sage-grouse management as possible.

Middle Pasture: Current use in this pasture decreases the standing previous-year residuals and early emerging growth just prior to nesting peaks in one year and during the earliest quartile of nesting in the other. In both instances, livestock removal would allow for 1-4 weeks of herbaceous recovery prior to the earliest appearance of broods, as well as progressive development of ground cover through the entire brood period.

The proposed grazing schedule does not appear to have any measurable influence on northern goshawk nesting activity. Although livestock use will be concurrent with early portions of the nesting season, livestock typically make limited use of forested, steep slopes which tend to have the greatest potential as nesting habitat for northern goshawk.

Cumulative Impacts

Cumulative impacts would be similar to those discussed above under the Proposed Action. The most notable difference would likely be the amount of residual remaining as a cover source

during the early nesting period would be reduced due to fall grazing in the West Shutta allotment.

5.14.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

Lower Pastures of Blacks Gulch and West Shutta Allotments The absence of livestock grazing would prompt improving trends in understory character in a manner similar to that presented in the Proposed Action, however it may take decades to realize. The singular difference would involve the retention of previous year's residual ground cover that would optimize concealment of the nest and hen from predators and microclimatic factors at the nest (e.g., temperature and humidity buffer thought to enhance embryo survival and hatching). Since heavy and prolonged snow packs can modify the effective cover values provided by previous year ground cover, it is debatable whether the benefits of overwinter residuals are as influential to nest success and hen survival as the progressive development of fresh herbaceous growth.

Middle Pasture Although the absence of grazing would allow full ground cover expression in the pasture's sagebrush parks and optimize potential nest and brood-rearing conditions, it is uncertain whether sage-grouse would make substantive use of this pasture's sagebrush configurations.

Cumulative Impacts

There would be no contribution from livestock grazing to previous or existing disturbances in the area that would potentially impact special status animal species or important habitats under the No Grazing Alternative.

5.15. Cultural Resources

5.15.1. Affected Environment

The BLM's authorization of grazing permits is considered an undertaking subject to compliance with Section 106 of the National Historic Preservation Act (NHPA). The BLM has the legal responsibility to consider the effects of its actions on cultural resources located on federal land. BLM Manual 8100 Series; the Colorado State Protocol; and BLM Colorado Handbook of Guidelines and Procedures for Identification, Evaluation, and Mitigation of Cultural Resources provide guidance on Section 106 compliance requirements to meet appropriate cultural resource standards. Section 106 of NHPA requires federal agencies to: 1) inventory cultural resources within federal undertaking APEs, 2) evaluate the significance of cultural resources by determining National Register of Historic Places (NRHP) eligibility and, 3) consult with applicable federal, state, and tribal entities regarding inventory results, National Register eligibility determinations, and proposed methods to avoid or mitigate potential impacts to eligible sites.

In Colorado, the BLM's NHPA obligations are carried out under a Programmatic Agreement (PA) among the BLM, the Advisory Council on Historic Preservation, and the State Historic Preservation Officer (SHPO). Should an undertaking be determined to have “no effect” or “no adverse effect” by the BLM-WRFO archaeologist, the undertaking may proceed under the terms and conditions of the PA. If the undertaking is determined to have “adverse effects,” project specific consultation is then initiated with the SHPO. Additionally, cultural resources assessment of grazing allotments follows the procedures and guidance of the Colorado BLM State Director as provided in BLM Instructional Memorandums (IMs) IM-WO-99-039, IM-CO-99-007, IMCO-99-019, and IM CO-2002-29.

Blacks Gulch 06612 – To date, 2,407 acres (both private and Federal) of the allotment have been surveyed for cultural resources resulting in the identification of 70 archaeological sites. Eleven of these sites are determined as “needs data” or “eligible” for listing in the National Register of Historic Places. Many of the cattle concentration areas for the Blacks Gulch allotment have been previously surveyed for cultural resources; however, there are still concentration areas that need additional cultural survey before the end of the 10-year permit.

Table 18. Cultural Resources Literature Review Results Blacks Gulch Allotment

CULTURAL RESOURCES LITERATURE REVIEW RESULTS				
Allotment Number	**Percent of Allotment Previously Inventoried**	**Number of Sites Known in Allotment**	**High Potential of Historic Properties**	**Number of Historic Properties to be Visited**
06612	~ 12 %	70	Yes	11
Management Recommendations (Additional inventory required and/or historic properties to be visited)		Survey of cattle concentration areas and monitoring of the 11 needs data or eligible sites before the end of the 10-year permit.		

W Shutta 06604 – To date, 1,363 acres (all Federal) of the allotment have been surveyed for cultural and paleontological resources resulting in the identification of 43 archaeological sites. Of these, eleven are determined as “needs data” or “eligible” for listing in the National Register of Historic Places. Many of the cattle concentration areas for the West Shutta allotment have been previously surveyed for cultural resources; however, there are still concentration areas that need additional survey before the end of the 10-year permit.

Table 19. Cultural Resources Literature Review Results West Shutta Allotment

CULTURAL RESOURCES LITERATURE REVIEW RESULTS				
Allotment Number	**Percent of Allotment Previously Inventoried**	**Number of Sites Known in Allotment**	**High Potential of Historic Properties**	**Number of Historic Properties to be Visited**
06604	~56 %	43	Yes	11
Management Recommendations (Additional inventory required and/or historic properties to be visited)		Survey of cattle concentration areas and monitoring of the 11 needs data or eligible sites before the end of the 10-year permit.		

Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

Direct impacts to historic properties where livestock concentrate may include trampling, chiseling, and churning of site soils, cultural features and artifacts, artifact breakage, and impacts from standing, leaning, or rubbing against historic structures, aboveground cultural features and/or rock art (Broadhead 2001; Osbourn et al. 1987). Indirect impacts from livestock concentrations may include increased soil erosion and gullying, in addition to increased potential for unlawful artifact collection and/or vandalism of cultural resources. Other indirect impacts may include degradation of the historic setting, thereby detracting from the view-shed and historic feeling of nearby cultural resource sites.

Cumulative Impacts

Past and present land uses such as oil and gas development, recreation, livestock grazing, and foraging by deer and elk are expected to continue to occur in the future. The livestock impacts described above, such as increased wind and water erosion, trampling, and so on will continue.

Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

Continuation of the current level of livestock grazing is not expected to differ substantially from Alternative A in terms of its effect to cultural resources.

Cumulative Impacts

Cumulative effects under Alternative B would generally be similar to cumulative effects from Alternative A.

Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

While a no grazing alternative alleviates potential damage from livestock activities, cultural resources are constantly being subjected to site formation processes or events after creation (Binford 1981, Schiffer 1987). These processes can be both cultural and natural and take place in an instant or over thousands of years. Cultural processes include any activities directly or indirectly caused by humans. Natural processes include chemical, physical, and biological processes of the natural environment that impinge and or modify cultural materials.

Cumulative Impacts

Past and present land uses such as oil and gas development, recreation, and foraging by deer and elk are expected to continue to occur in the future. The livestock impacts described above, such as increased wind and water erosion, trampling, and so would be eliminated.

Mitigation Measures and Residual Impacts

Cultural resources survey of all cattle concentration areas on BLM administered lands within Blacks Gulch and West Shutta allotments should occur within 10 years of permit issuance. Any cultural resources identified as NRHP-eligible also should be assessed for potential livestock impacts. Continued livestock use of the area is appropriate, if any identified impacts to NRHP-eligible resources are mitigated. Should the BLM-WRFO archaeologist determine that livestock grazing is having an adverse effect on historic properties; mitigation will be developed in coordination with the Tribes and SHPO.

5.16. Paleontological Resources

5.16.1. Affected Environment

Paleontological materials (fossils) are not considered to be endangered by normal grazing activities. However, the proposed livestock access trailing corridor from Wray Gulch into Oil Well Gulch (T2N R96W Sec 9 SWSWSW) has the potential to cause permanent, irreversible, and irretrievable damage to a regionally important vertebrate fossil locality: 5RB 8588.

5.16.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

Livestock trailing from Wray Gulch into Oil Well Gulch has the potential to destroy fossils, especially smaller, more fragile ones when trailing across 5RB 8588. Fossils could also be removed from their paleo-environmental context resulting in additional loss of scientific data. Indirect impacts that are possible include erosion of fossils due to disturbance of the formation during trailing, increased potential for unlawful collection of fossil material due to increased human activity in the area, and increased visibility of fossils due to soil disturbance from trailing and erosion. Water born erosion can move smaller, lighter fossils from their location and in the process potentially tumble the fossils removing any diagnostic attributes that allow for accurate identification of the taxon and species of the fossils.

Under Alternative A, a short (~200 foot) fence would be constructed to control livestock trailing, allowing the BLM to mitigate impacts to the locality by controlling where livestock are trailing, thus minimizing the direct and indirect impacts to the site.

Cumulative Impacts

Livestock will continue to have cumulative impacts to fossil resources in the general area, on top of livestock grazing, wildlife, activities directly or indirectly caused by humans, and chemical, physical, and biological processes of the natural environment.

5.16.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

Impacts for Alternative B would be similar to those discussed under the Proposed Action because cattle will still cross from Wray Gulch into Oil Well Gulch thus trailing across 5RB 8588 causing direct and indirect impacts to the locality. Unlike Alternative A, a fence would not be constructed and disturbances to 5RB 8588 will be dispersed and widespread because of livestock and wildlife trailing.

Cumulative Impacts

Cumulative impacts for this alternative would be similar to those discussed under the Proposed Action.

5.16.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

Direct and indirect impacts to 5RB 8588 from livestock grazing activities would cease. Exposed fossil materials would still be subject to potential damage from foraging by deer and elk and other natural processes. These include any activities directly or indirectly caused by humans, and chemical, physical, and biological processes of the natural environment

Cumulative Impacts

Under this alternative, livestock will not contribute to cumulative impacts to fossil resources.

5.16.5. Mitigation Measures and Residual Impacts

There is a high likelihood of a net loss of scientific data from 5RB 8588 because of implementing the Proposed Action, even with specified mitigation, due to livestock trailing across the site. The loss would be minimized by where the fence is placed thus keeping both the direct and indirect disturbances to a minimum. The location and best construction material of this fence will be determined during a site visit with LK Ranch and BLM staff in the spring of 2016.

5.17. Recreation

5.17.1. Affected Environment

The Proposed Action occurs within the White River Extensive Recreation Management Area (ERMA). The BLM custodially manages the ERMA to provide for unstructured recreation activities such as hunting, fishing, dispersed camping, hiking, horseback riding, wildlife viewing and off-highway vehicle use. The project area is located in the Recreation Opportunity Spectrum

(ROS) classification area of Semi-Primitive Motorized. Areas within this classification are characterized by a largely natural appearance and are accessible by foot, horseback, bicycle or motor vehicle generally on native-surfaced or gravel roads. Interaction with other visitors is relatively low in these areas, there are minimum on-site controls and restrictions, and the area provides for a moderate probability of experiencing isolation, remoteness, and closeness to nature.

Within the project area specifically, hunting during the fall big game hunting seasons is the most popular recreational activity. Many hunters utilize the extensive road network in the area to access hunting areas. Hunting within Black Mountain WSA is also popular with those seeking a more primitive, non-motorized experience. There are two existing Special Recreation Permits (SRPs) for commercially guiding and outfitting big game hunters that have all or a portion of their operating area located within the project area. There also 14 SRPs for commercially guiding and outfitting mountain lion hunters, but most of these SRPs have operating areas that consist of the entire WRFO.

There is a growing interest in Off-Highway Vehicle (OHV) recreation within the WRFO. Currently there is a low amount of dispersed recreational OHV riding that occurs in this area, typically in the spring months. In 2014 Rio Blanco County (RBC) published a county-wide Trails Master Plan that identified a potential future new OHV trail riding area that overlaps with approximately 3,000 acres on the southwest side of the Proposed Action. There are no current or existing BLM plans to develop this area for OHV trails, but this may be an area of interest for this activity in the future. No known conflicts between recreationalists and the grazing activities associated with these grazing permits have been reported to the WRFO or are known to have occurred from any recreational activity at this time.

5.17.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

This alternative would result in eliminating interactions between cattle grazing on public lands and the most popular recreational activity in this area, big game hunting, by changing the grazing schedule. Under Alternative B, the current management, there would be some overlap with big game hunting from 11/10-12/15 each year in the West Shutta allotment. These dates typically would include CPW's fourth elk rifle season and the late elk rifle season each year. The elimination of grazing during this period would reduce any potential for conflicts or the potential for disturbance of the permittee's cattle. Overall, this would be considered a minor positive to negligible positive impact to existing recreational opportunities and settings. There is potential for recreational OHV riding to cause minor impacts cattle grazing during the spring months under this alternative. Because there is an extensive travel route network in the area and the amount of OHV riding is fairly low during any time of year, it is unlikely that OHV riders would need to ride through herds of cattle. There have been no issues with these activities occurring at the same time in this area in the past. However, the RBC Trails Master Plan indicates that the west side of these allotments and areas further west outside of these allotments may be an area of local interest to develop additional OHV opportunities in the future.

Cumulative Impacts

Combined with oil and gas operations in this area, existing recreational activities, and adjacent grazing activity, the Proposed Action would likely not result in any noticeable cumulative impacts.

5.17.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

Under this alternative, the current management, there would be some overlap with big game hunting from 11/10-12/15 each year in the West Shutta allotment. These dates typically would include CPW's fourth elk rifle season and the late elk rifle season each year. The grazing of cattle during this period has a low potential for conflicts with hunters or the potential for disturbance of the permittee's cattle. Overall, this would be considered a minor negative to negligible negative impact to existing recreational opportunities and settings. The impacts from recreational OHV riding would be relatively the same as Alternative A.

Cumulative Impacts

Combined with oil and gas operations in this area, existing recreational activities, and adjacent grazing activity, Alternative B or current management, would likely not result in any noticeable cumulative impacts.

5.17.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

By not grazing cattle at all in this area, there would be no potential for conflicts to occur between hunters or recreational OHV riders and cattle grazing operations. This would be considered a positive impact to the existing recreational settings and opportunities. There would also be no potential conflicts in developing a future OHV trails riding area on the west side of these allotments as proposed by the RBC Trails Master Plan. The residual effect of increasing the amount of forage for wildlife could provide improved habitat for big game species and improve hunting opportunities in this area.

Cumulative Impacts

Combined with oil and gas operations in this area, existing recreational activities, and adjacent grazing activity, Alternative C would likely result in somewhat noticeable cumulative impacts to improving hunting opportunities.

5.17.5. Mitigation Measures and Residual Impacts

There are no recommended mitigation measures. This is discussed in further detail in the Wildlife Section 5.13

5.18. Access and Transportation

5.18.1. Affected Environment

According to the 1997 White River RMP, motorized vehicle travel is limited to existing roads and trails from October 1 through April 30 of each year throughout the majority of the project area. In the Blacks Gulch ACEC, approximately 800 acres, motorized travel is limited to designated roads and trails. Approximately 600 acres on the west side of the project area are located in an area where motorized vehicles are limited to existing roads and trails year round. The project area consists of a variety of gravel or native surfaced roads and trails. The primary access routes to these allotments are via State Highway 64 then RBC Roads 142, 143, and 71 and then on a variety of BLM travel routes.

5.18.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

Overall the use of the existing travel and transportation network in order to administer these grazing permits would not cause any noticeable impacts. Typical use of the transportation system would include trailing livestock from pasture to pasture, gathering and removing livestock, adding mineral supplements, and general animal husbandry activities.

Cumulative Impacts

Combined with oil and gas operations in this area, existing recreational activities, and adjacent grazing activity, Alternative A would likely not result in noticeable cumulative impacts to the BLM travel and transportation system identified as a result of this alternative.

5.18.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

The impacts under this alternative are the same as described under the Proposed Action.

Cumulative Impacts

Cumulative impacts would be the same as for Alternative A.

5.18.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

By not grazing cattle in this project area there would be no impacts to the BLM travel and transportation system.

Cumulative Impacts

Cumulative impacts would be the same as for the other alternatives with the exception of livestock grazing.

5.19. Wilderness Study Areas

5.19.1. Affected Environment

The 9,900 acre Black Mountain Wilderness Study Area (WSA) includes approximately 1,200 acres of the eastern portion of the Blacks Gulch allotment. This area was designated a WSA for its pristine and natural landscape that presents opportunities for solitude and primitive types of recreation. The most popular recreational activity in this WSA is big game hunting in the fall followed by a low amount of spring and summer hiking. One existing range improvement (#3564), a stock pond and approximately 2,800 feet of a two-track route, occur in T2N R96W section 35, in the northwestern corner of the WSA. According to BLM Manual 6330-Management of Wilderness Study Areas, livestock management developments (range improvements) existing or under construction on October 21, 1976 may continue to be used and maintained in the same manner and to the same degree as such use was being conducted on that date. The #3564 range improvement project was constructed in September 1969. The associated two-track route is closed to motorized use, except for use by the grazing permittee for authorized purposes only while on official business (i.e., route or stock pond maintenance). However, it has been observed that this route has been used by hunters on OHVs during the fall big game hunting season. This use is considered an illegal incursion into the WSA.

5.19.2. Environmental Consequences – Proposed Action (Alt A)

Direct and Indirect Impacts

No major direct impacts to Black Mountain WSA are anticipated as a result of the Proposed Action. The portion of the allotment within the WSA is generally the steep western facing pinyon-juniper over story slope of Black Mountain itself. There would be no conflict between big game hunters and cattle grazing under this alternative. Due to steepness of the slopes and lack of palatable understory, the WSA receives negligible domestic livestock use. However, there is potential for indirect impacts to the WSA if unauthorized motorized vehicle use occurs on the travel route to #3564 stock pond. The motorized vehicle use of this route by hunters in the past presents an indirect impact that is not appropriate within WSAs. In the most recent Environmental Assessment for the Blacks Gulch allotment (DOI-BLM-CO-110-2012-0018-EA) mitigation stated that the project proponent would install a gate, wing fence and signage on the route (associated with Range Improvement project # 3564), where the route enters the WSA, and ensure it is maintained and remains closed and locked (with BLM administrative access) at all times. In order to prevent unauthorized motor vehicle use of the travel route to range improvement #3564, it is recommended that this mitigation be carried forward in this EA.

Cumulative Impacts

If the recommended mitigation is not adhered to consistently, the indirect use of the motorized travel route to range improvement #3564 by hunters or other unauthorized uses would impact the naturalness and solitude found in this portion of the Black Mountain WSA.

5.19.3. Environmental Consequences – Current Management (Alt B)

Direct and Indirect Impacts

There would be no conflict between big game hunters and cattle grazing under this alternative. Other impacts would be the same as described under the Proposed Action.

Cumulative Impacts

The cumulative impacts are the same as the Proposed Action.

5.19.4. Environmental Consequences – No Livestock Grazing (Alt C)

Direct and Indirect Impacts

By not grazing livestock in the 1,200 acre portion of overlap with the 9,900 acre Black Mountain WSA, there would be indirect beneficial effects to big game hunting opportunities and settings. This would likely result in more forage for big game species, which is described in more detail in the Wildlife Section 5.13. There would also be no need to retain the travel route and access into range improvement #3564 and this route could be reclaimed. This would improve the naturalness of this area and prevent the indirect impact of unauthorized use of this travel route.

Cumulative Impacts

The reclamation of the travel route to range improvement #3564 and subsequent natural re-vegetation of the stock pond would combine to blend with the surrounding naturalness found throughout the WSA and overall improve the wilderness characteristics found within the WSA.

As a term of the Cooperative Maintenance Agreement range improvement #3564 the permittee will contact the WRFO prior to performing any maintenance activities to coordinate and obtain prior approval.

5.20. Colorado Standards for Public Land Health

In January 1997, the Colorado BLM approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, special status 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 (EA). If there is the potential to impact these resources, the BLM will note whether or not the project area currently meets the standards and whether or not implementation of the Proposed Action would impair the standards.

The Summary of Assessment of the Standards for Public Land Health table for the West Shutta allotment can be found at page 8 of CO-110-2007-098-EA. The summary table for the Blacks Gulch allotment can be found at page 15 of CO-110-2007-30-EA. These tables summarize the results of Land Health Assessments conducted in these allotments. In the Blacks Gulch allotment approximately 2,800 acres, about 13 percent of the public land, were not meeting Land Health

Standards for Upland Soils (Standard 1), Plant and Animal Communities (Standard 3), and Special Status, T&E species (Standard 4) in the 2005 assessments. The majority of riparian systems were also not meeting standards (Standard #2). Historic and recent livestock grazing practices (five month use period) were identified as the general causal factors. Grazing during the critical growth period, heavy utilization of forage species, altered and degraded plant communities, excessive overland flow and associated erosion, and degraded soils were identified as specific concerns in these areas. Re-assessments have not been completed since 2005 though grazing duration and intensity has been reduced since the previous assessment and is expected overtime to allow modest improvements in conditions.

In the West Shutta Allotment from the 2006 assessments there were no areas identified as not meeting any of the Land Health Standards. While all areas still generally meet the Land Health Standards, re-assessments conducted in 2015 determined moderate departure in biotic integrity and hydrologic function in some rolling loam range sites. Similar to the Blacks Gulch allotment cheatgrass was noted as a common negative component of the plant community in some areas. Cheatgrass was also listed as a factor in reduced infiltration and increased runoff.

Expected effects to Land Health for both the Proposed Action alternative and the Continuation of Current Management alternative would be similar. Both alternatives would result in relatively short use periods for most pastures or allow forage plants varying amounts of time for growth or regrowth opportunity around grazing, which should allow plants to maintain vigor and maintain or improve plant community health over time. Re-growth opportunity after livestock have left each pasture should also allow for an increase in standing biomass at the end of the growing season. Some of this material will become litter that benefits soil organic-matter, slows overland surface flow, and improves infiltration. Overall, short duration of use through the allotments is expected to improve conditions throughout the uplands which would also benefit riparian channels. Improvements would be the result of reduced utilization levels, increased plant litter and improved plant community composition and perennial plant cover. Monitoring, especially in the first few years after implementation of this grazing schedule would be important because the early use when soils are saturated has potential to create excessive soil disturbance.

5.20.1. Standard 1 – Upland Soils

Refer to CO-110-2007-30-EA page 60 and CO-110-2007-098-EA page 21 for more detailed discussion. The objectives of this standard are for the maintenance of soil resources and its associated ecological processes. Indicators for meeting this standard include: minimal expression of rills, soil pedestals, or active gully erosion; vigorous, diverse, desirable plant communities, appropriate canopy and ground cover and adequate litter accumulation to minimize overland flow; and upland swales that are more densely vegetated than adjacent uplands. In the short-term the relatively short use periods of the Proposed Action would be expected to allow continued progress toward meeting this standard through rotational use intensity, and post grazing re-growth litter accumulation providing improved soil surface protection. It will be important to monitor the effects of the early season use for potential negative effects of trampling wet soils. Alternative B (Continuation of Current Management) should also allow for continued

improvements since these grazing schedules have similar relatively short duration use periods. The No Action alternative relative to the other alternatives would be expected to achieve the same results though in a shorter time frame. Regardless of the alternative, those areas in the Blacks Gulch allotment that have been identified as not meeting this standard will likely only improve modestly over the long-term.

5.20.2. Standard 2 – Riparian Systems

Refer to CO-110-2007-30-EA, page 51 and CO-110-2007-098-EA page 19 for more detailed discussion. The objectives of this standard are for riparian systems associated with both running and standing water to function properly where vegetation captures sediment, stabilizes soils, and provides forage, habitat and biological diversity; water is stored and released slowly; water quality is improved or maintained; and systems are able to recover from disturbance events. Indicators for meeting this standard include: presence of appropriate, adequate, diverse, and vigorous vegetation; stable banks and soils with sufficient moisture; and floodplains and channels with appropriate morphology. Similar to Standard 1, improvements in plant community composition and increased litter accumulation in the uplands should result in longer term improvements in the channels of the Blacks Gulch allotment. Also as with soils, it will be important to monitor the effects of the early season use, especially in the lower pastures. Alternative B should also allow for similar improvements for the same reasons. The No Action alternative relative to the other alternatives would be expected to achieve the same results though in a shorter time frame. For the riparian areas associated with the ponds throughout the allotments none of the alternatives would substantially modify current conditions over the term of the permit and thus would not contradict meeting or making progress toward meeting of Standard 2.

5.20.3. Standard 3 – Plant and Animal Communities

In 2006 Land Health Assessments determined that 11 percent of the BLM acres in the Blacks Gulch allotment were not meeting the Public Land Health Standards for Plant and animal communities. Some mid-seral sites were on a threshold for improvement or further degradation dependent on future livestock grazing management. Authorized use at that time resulted in a five month grazing period through the entire growing season. Since 2008 the allotment has been grazed as described under Alternative B, resulting in grazing for a total of 10 weeks. This early season, short duration grazing allows forage plants the majority of the growth period for either growth before being grazed or regrowth and recovery after being grazed. The Proposed Action would result in similar early season, relatively short duration grazing in both allotments with rotating intensity at least one in three years. Monitoring will be necessary under either alternative to see if plant communities recover adequately during the un-grazed period and during the lighter use years to allow for improvements in native perennial plant cover and composition throughout the allotments over time. Implementation of the no grazing alternative would result in the most rapid improvements in rangelands toward meeting this Standard.

5.20.4. Standard 4 – Special Status Species

There are 2,500 acres in the Blacks Gulch pasture and 780 acres in the South pasture of the West Shutta allotment that are not considered to meeting land health standards (habitat objectives) for greater sage-grouse due to the prevalence of annual grasses and forbs and reduced/altered sagebrush cover. The proposed grazing system (Alternative A) would allow for improvements in herbaceous expression, increases in height and density of perennial species, and retention of residual grasses as a source of cover in the subsequent nesting season. This alternative would be expected to, at a minimum, maintain current conditions, with improvements in understory conditions expected in the long term. Grazing impacts under Alternative A would be similar to those in Alternative B although reduced livestock numbers and shorter duration of use would likely result in more rapid improvements in herbaceous ground cover. Removal of livestock would be expected to result in the most rapid recovery in understory character; however, it will likely take many decades to achieve any appreciable positive shifts in understory composition under any of the alternatives.

5.20.5. Standard 5 – Water Quality

The Blacks Gulch and West Shutta allotments are located within the Black Gulch and Rio Blanco – White River watershed. Outflows from these ephemeral/intermittent watersheds drain into the White River segment COLCWH07. Currently, this segment is not listed as a Section 303(d) impaired stream segment. Both, Alternative A and B permit grazing during periods when intermittent flow typically occurs within the Blacks Gulch and West Shutta allotments albeit, very minimal when compared to ephemeral (event) based flows in late-summer. It is expected that livestock will congregate in and around the floodplain.

In the Blacks Gulch and Middle pastures, the floodplain contains high levels of gypsum and alkaline salts that when disturbed, could become suspended during late-summer monsoonal rains that inundate the floodplain, and be transported to the perennial White River. Though currently not 303(d) listed, a 2016 pending revision to CWQCC Regulation #93 proposed adding COLCWH07 to the 303(d) list for arsenic (As) and iron (Fe) and, moving this segment from the Monitoring & Evaluation (M&E) list to the 303(d) list for non-attainment of aquatic life use and temperature.

Although impacts are expected from early season grazing under Alterative A, the proposed modifications to the current management practices should result in a more viable native plant community in the floodplain and uplands which would provide peak-flow moderation, sediment removal, and stabilize stream banks. With Alternative A or B, with the inundation of the floodplain, during intense late-summer rain events, would result in the suspension and transport of sediment to the White River could contribute to the degradation of the White River in-terms of the proposed aquatic life impairment and potentially, temperature.

6. SUPPORTING INFORMATION

6.1. Interdisciplinary Review

Table 20. List of Preparers

Name	Title	Area of Responsibility	Date Signed
Keith Sauter	Hydrologist	Air Quality, Surface and Ground Water Quality; Floodplains, Hydrology, and Water Rights; Prime and Unique Farmlands	2/8/2016
Lisa Belmonte	Wildlife Biologist	Special Status Animal Species, Migratory Birds, and Aquatic and Terrestrial Wildlife	3/4/16
Mary Taylor	Rangeland Management Specialist/Project Lead	Vegetation, Invasive, Non-Native Species, Wild Horses, Livestock Grazing, Soil Resources, Wetlands and Riparian Zones, Hazardous or Solid Wastes, Social and Economic Conditions,	2/5/16
Matt Dupire	Ecologist	Special Status Plant Species, Forestry and Woodland Products, Areas of Critical Environmental Concern	3/3/16
Brian Yaquinto	Archaeologist	Cultural Resources, Paleontological Resources, Native American Religious Concerns	1/27/2016
Aaron Grimes	Outdoor Recreation Planner	Visual Resources, Lands with Wilderness Characteristics, Recreation, Access and Transportation, Wilderness, Scenic Byways	2/11/2016
Paul Daggett	Mining Engineer	Geology and Minerals	2/4/2016
Landon Smith	Fire Management Specialist	Fire Management Specialist	2/4/16
Keesha Cary	Realty Specialist	Realty Authorizations	1/29/2016
Heather Sauls	Planning & Environmental Coordinator	NEPA Compliance	3/8/2016

6.2. Tribes, Individuals, Organizations, or Agencies Consulted

Consultation letters were sent and contact was made with the Eastern Shoshone Tribe of the Wind River Reservation, Ute Indian Tribe of the Uintah and Ouray Reservation, the Southern Ute Indian Tribe and the Ute Mountain Ute Tribe for this project. If additional information comes out in consultation, aspects of the project may be changed in response to tribal concerns.

CPW (Terry Ivie, Property Technician) was contacted and the Proposed Action with its associated grazing schedules was discussed with him. It was agreed that if resource concerns develop at any point in the future whether on BLM administered lands or on CPW owned property, the grazing permit and schedules will be re-visited jointly by the BLM, CPW, and livestock grazing permittee.

6.3. References

Binford, Lewis R.
1981 Behavioral archaeology and the "Pompeii Premise". Journal of Anthropological Research 37(3):195-208.

Broadhead, Wade
2001 Brief Synopsis of Experiments Concerning Effects of Grazing on Archaeological Sites. Bureau of Land Management-Gunnison Field Office, Gunnison, Colorado.

Bureau of Land Management (BLM). 2015. Northwest Colorado Greater Sage-Grouse Approved Resource Management Plan Amendment, Attachment 3.

Colorado Greater Sage-grouse Steering Committee. 2008. Colorado greater sage-grouse conservation plan. Colorado Division of Wildlife, Denver, Colorado, USA.

Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. Wildlife Society Bulletin 28:967-985.

Connelly, J.W., S.T. Knick, M.A. Schroeder, and S.J. Stiver. 2004. Conservation assessment of Greater sage-grouse and sagebrush habitats. Unpublished Report, Western Association of Fish and Wildlife Agencies. Cheyenne, WY. 610pp.

Holechek, J.L., R. D. Pieper, C. H. Herbel. 1998. *Range Management Principles and Practices*. Prentice-Hall, Inc.

Krueper D, Bart J, Rich TD. 2003 Response of vegetation and breeding birds to the removal of cattle on the San Pedro River, Arizona (USA). Conservation Biology 17: 607-615.

Osbourn, Alan, Susan Vetter, Ralph Hartley , Laurie Walsh, Jesslyn Brown
1987 Impacts of Domestic Livestock Grazing in the Archaeological Resources of Capitol Reef National Park, Utah. Occasional Studies in Anthropology No. 20. Midwest Archaeological Center, Lincoln, Nebraska

Schiffer, Michael B.
1987 Formation Processes of the Archaeological Record. University of New Mexico Press, Albuquerque.

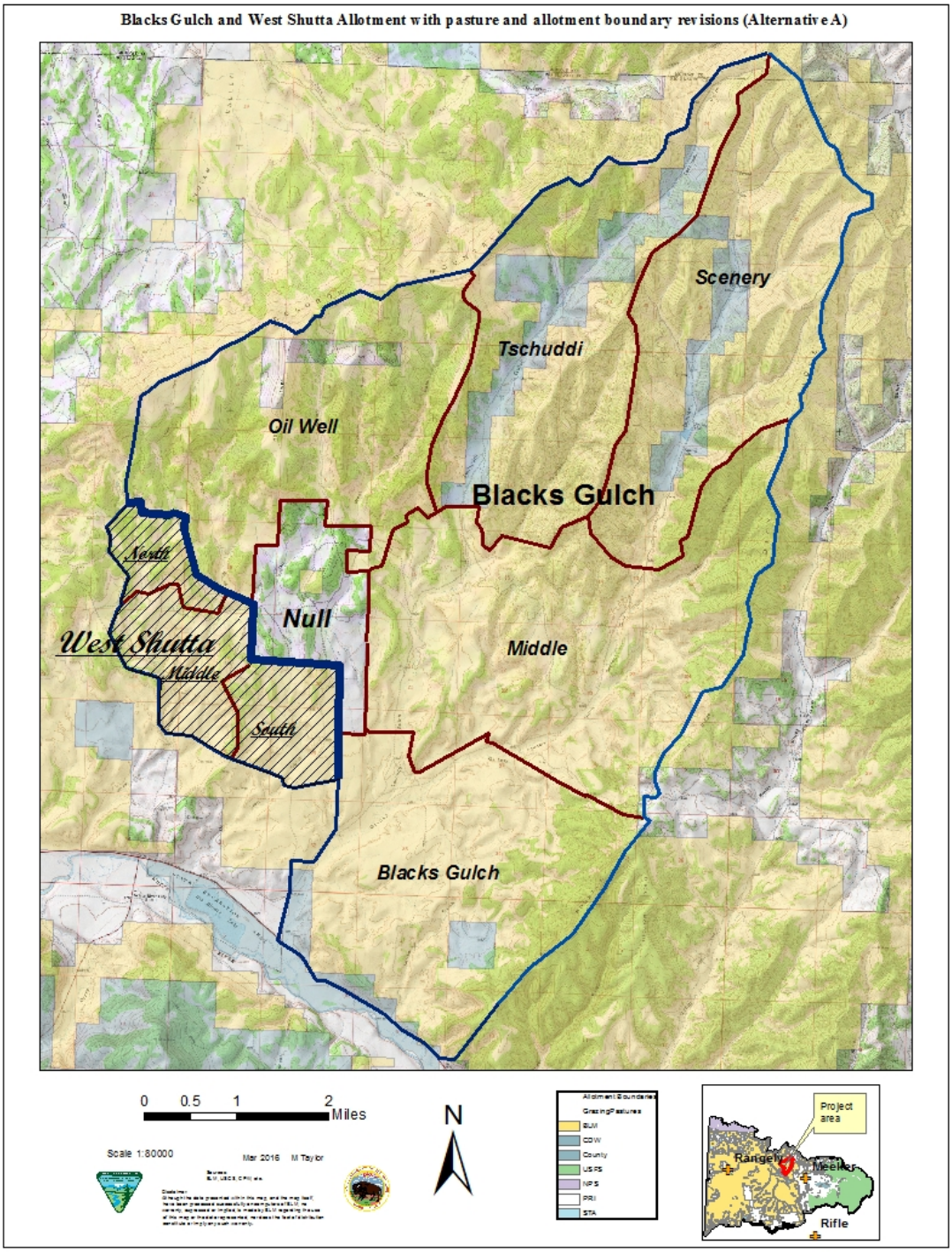
Stiver, S., E. T. Rinkes, D. E. Naugle, P. D. Makela, D. A. Nance, and J. W. Karl. 2015. Sage-grouse habitat assessment framework: a multiscale assessment tool. Technical Reference

6710-1. Bureau of Land Management and Western Association of Fish and Wildlife Agencies, Denver, Colorado, USA.

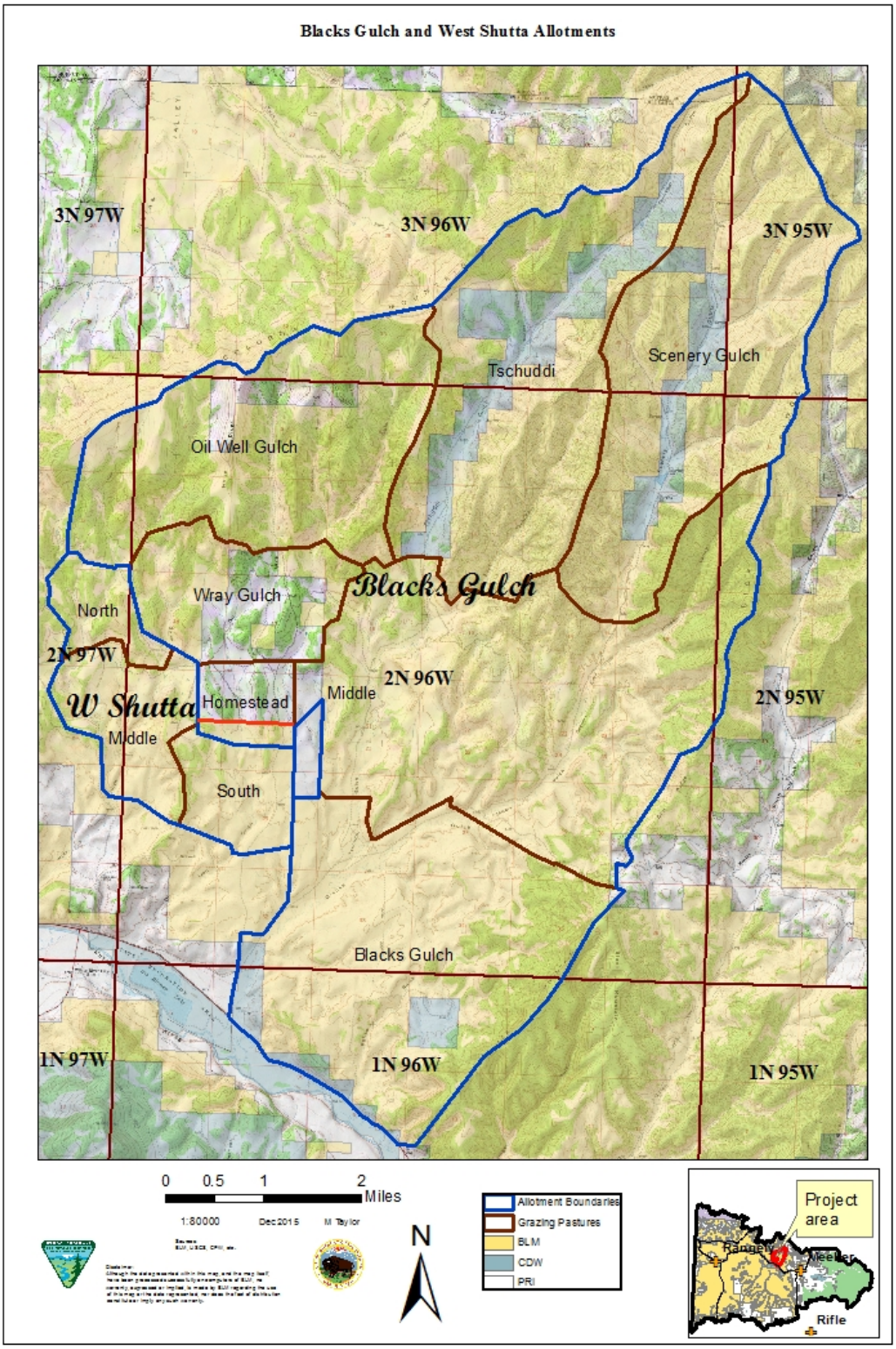
Vallentine, J.
2001 Grazing Management page 158

APPENDIX A. FIGURES

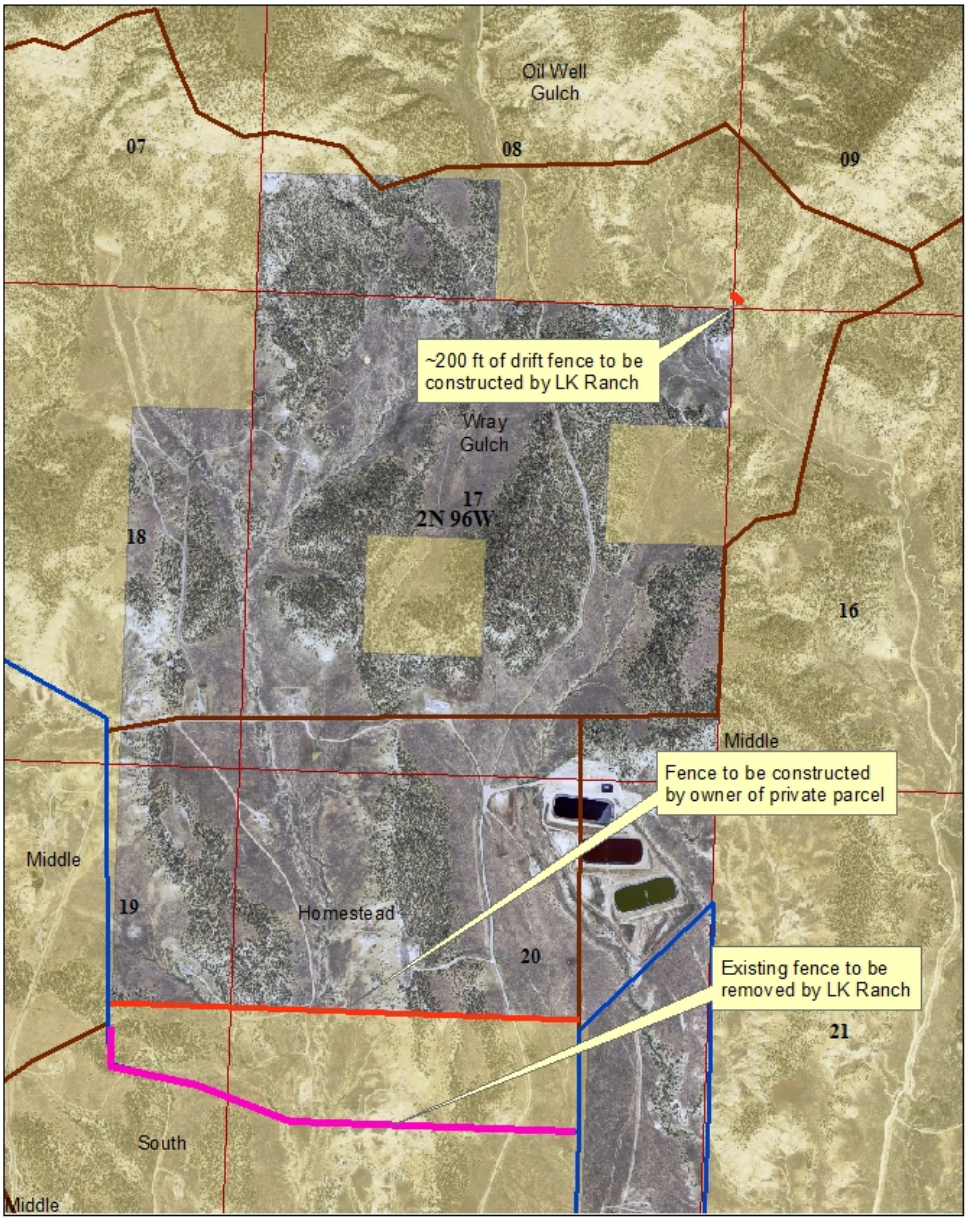
Map 1.



Map 2.


Blacks Gulch and West Shutta Allotments
3N 97W
3N 96W
3N 95W
Tschuddi
Scenery Gulch
Oil Well Gulch
Wray Gulch
Blacks Gulch
North
2N 97W
2N 96W
2N 95W
W Shutta
Homestead
Middle
Middle
South
Blacks Gulch
1N 97W
1N 96W
1N 95W
0 0.5 1 2 Miles
1:80000
Dec 2015
M Taylor
N
Allotment Boundaries
Grazing Pastures
BLM
CDW
PRI
Project area
Rifle

Area of proposed new drift fence, fence to be constructed by private land owner and fence to removed by LK Ranch, and private parcels previously part of Homestead and Wray Gulch pastures of Blacks Gulch allotment.



APPENDIX B. STANDARD TERMS AND CONDITIONS

1. Grazing permit or lease terms and conditions and the fees charged for grazing use are established in accordance with the provisions of the grazing regulations now or hereafter approved by the Secretary of the Interior.
2. They are subject to cancellation, in whole or in part, at any time because of:
    a. Noncompliance by the permittee/lessee with rules and regulations.
    b. Loss of control by the permittee/lessee 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 BLM within the allotment described.
    e. Repeated willful unauthorized grazing use.
    f. Loss of qualifications to hold a permit or lease.
3. They are subject to the terms and conditions of allotment management plans if such plans have been prepared. Allotment management plans MUST be incorporated in permits or leases when completed.
4. Those holding permits or leases MUST own or control and be responsible for the management of livestock authorized to graze.
5. The authorized officer may require counting and/or additional or special marking or tagging of the livestock authorized to graze.
6. The permittee's/lessee's grazing case file is available for public inspection as required by the Freedom of Information Act.
7. Grazing permits or leases are subject to the nondiscrimination clauses set forth in Executive Order 11246 of September 24, 1964, as amended. A copy of this order may be obtained from the authorized officer.
8. Livestock grazing use that is different from that authorized by a permit or lease MUST be applied for prior to the grazing period and MUST be filed with and approved by the authorized officer before grazing use can be made.
9. Billing notices are issued which specify fees due. Billing notices, when paid, become a part of the grazing permit or lease. Grazing use cannot be authorized during any period of delinquency in the payment of amounts due, including settlement for unauthorized use.
10. The holder of this authorization must notify the authorized officer immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (cultural items), stop the activity in the area of the discovery and make a reasonable effort to protect the remains and/or cultural items.
11. Grazing fee payments are due on the date specified on the billing notice and MUST be paid in full within 15 days of the due date, except as otherwise provided in the grazing permit or lease. If payment is not made within that time frame, a late fee (the greater of $25 or 10 percent of the amount owed but not more than $250) will be assessed.
12. No Member of, Delegate to, Congress or Resident Commissioner, after his/her election of appointment, or either before or after he/she has qualified, and during his/her continuance in office, and no officer, agent, or employee of the Department of the Interior, other than members of Advisory committees appointed in accordance with the Federal Advisory Committee Act (5 U.S.C. App. 1) and Sections 309 of the Federal Land Policy and

Management Act of 1976 (43 U.S.C. 1701 et seq.) shall be admitted to any share or part in a permit or lease, or derive any benefit to arise therefrom; and the provision of Section 3741 Revised Statute (41 U.S.C. 22), 18 U.S.C Sections 431-433, and 43 CFR Part 7, enter into and form a part of a grazing permit or lease, so far as the same may be applicable.

13. This grazing permit conveys no right, title or interest held by the United States in any lands or resources.
14. This grazing permit is subject to a) modification, suspension or cancellation as required by land plans and applicable law; b) annual review of terms and conditions as appropriate; and c) the Taylor Grazing Act, as amended, the Federal Land Policy and Management Act, as amended, the Public Rangelands Improvement Act, and the rules and regulations now or hereafter promulgated thereunder by the Secretary of the Interior.