

**United States Department of the Interior
Bureau of Land Management**

**Environmental Assessment
DOI-BLM-CO-S010-2012-0034**

**June 2015
Term Grazing Permit Renewal on the Gypsum Valleys
(08068) Allotment**

Location: San Miguel and Montrose Counties, CO

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Term Grazing Permit Renewal on the Gypsum Valley(08068) Allotment *DOI-BLM-CO-SO10-2012-0034*

1.0 PURPOSE & NEED

1.1 Introduction

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental effects of the Term Grazing Permit Renewal on the Gypsum Valley (08068) Allotment as applied for by Jimmy G. and Larry Suckla. The EA is a site-specific analysis of potential effects that could result with the implementation of a proposed action or alternatives to the proposed action. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any “significant” effects could result from the analyzed actions. “Significance” is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of “Finding of No Significant Impact” (FONSI). If the decision maker determines that this project has “significant” effects following the analysis in the EA, then an EIS would be prepared for the project. If not, a Proposed Grazing Decision may be issued which incorporates approval of the selected alternative, whether the proposed action or another alternative, and determines if the new grazing permit shall be granted to the applicant. The Proposed Grazing Decision along with a FONSI statement, documents the reasons why implementation of the selected alternative would not result in “significant” environmental effects (effects) beyond those already addressed in the approved Tres Rios Field Office Land & Resource Management Plan (LRMP, 2014) and Final Environmental Impact Statement (FEIS, 2013).

1.2 Background

The Bureau of Land Management (BLM) proposes to issue a new ten year term grazing permit for the Gypsum Valleys Allotment. The alternatives in this analysis encompass a reasonable range of management options which have been selected from results of public comment, BLM interdisciplinary scoping, and the applicant’s proposal. This permit would renew grazing on the Gypsum Valleys Allotment with associated modifications to the terms and conditions of use of the public lands. As part of this process BLM has identified a Preferred Alternative which includes specific management prescriptions to be included as terms and conditions of the grazing permit.

On April 10th, 2008 Jimmy G. & Larry Suckla made application for renewal of the term grazing permit on the Gypsum Valleys grazing allotment. Along with this application the applicants submitted a proposal for the management of the allotments to be included in the terms and conditions of the new permit. This proposal is analyzed within this EA as the Proposed Action – Permittee Alternative.

This EA incorporates much of the analysis contained in previous efforts entitled Environmental Assessment CO-800-2008-043EA, Livestock Grazing Use on Three BLM Allotments in the Vicinity of Lower Disappointment Valley, Colorado that was released for public comment in

August 2009, and Version 2 of this EA that was released for public comment the following August 2010. As a result of extensive public comments received the previous environmental analysis efforts were never finalized.

Appendix A of this document includes a map of the Gypsum Valleys grazing allotment.

1.3 Need for the Proposed Action

The term grazing permit currently held by the applicant for the Gypsum Valleys Allotment expires on 6/30/2017. However, this permit previously expired and was renewed for a ten-year term, as authorized by Section 325, Title III, H.R. 2691, Department of the Interior and Related Agencies Appropriations Act, 2004 (P.L. 108-108), which was enacted on November 10, 2003. The renewed grazing permit contained the following language:

This grazing permit has been renewed without analyzing its compliance with the National Environmental Policy Act (NEPA) or other laws and regulations. In accordance with Public Law 108-108 the terms and conditions contained in the expired or transferred permit have been incorporated into this permit and shall continue in effect under the renewed permit until such time as the Secretary of the Interior completes processing of this permit in compliance with all applicable laws and regulations, at which time this permit may be cancelled, suspended or modified in whole or in part to meet the requirements of such applicable laws and regulations.

The applicant followed federal regulations (at 43CFR § 4130.1) and submitted an application for a grazing permit. BLM's need for this proposal is to manage livestock grazing on public lands to provide for a level of grazing consistent with multiple use, sustained yield, and watershed function and health; to authorize grazing use in accordance with applicable laws, regulations, policies, and land use plans; and manage livestock grazing in a manner that will meet or make significant progress towards the standards for rangeland health.

A Land Health Assessment and Standard Determinations completed as part of this analysis for the Gypsum Valleys Allotment concluded that the 1) standards for both upland soils and healthy, productive native plant and animal communities were not being achieved, and current cattle grazing practices were identified as one of the contributing factors; 2) significant progress was being made towards meeting the standard for riparian systems, and; 3) the standards for special status, threatened and endangered species and water quality were being achieved. This created a need to examine current livestock management to identify opportunities for change that would lead to improved conditions in upland soils and healthy, productive native plant and animal communities and maintain the progress towards meeting the riparian standard as mandated by federal grazing regulations (at 43CFR § 4180.1).

A more detailed summary of the land health assessment process used in this analysis can be found in Appendix B, and a description of the Public Land Health Standards and indicators are fully described in Appendix C.

1.4 Purpose(s) of the Proposed Action

The purpose of the proposed action is to continue to authorize permitted livestock grazing on the public lands consistent with the BLM's multiple use mandate defined by the Federal Land Policy and Management Act (FLPMA) (at 1-2) and the approved Tres Rios Field Office Resource Management Plan (RMP, 2015) and Final Environmental Impact Statement (FEIS, 2013), while modifying current management to provide for improvement in land health consistent with FLPMA (pg 2), the Resource Management Plan (RMP pg 67) and federal grazing regulations (at 43CFR § 4180.1).

Decision to Be Made

The BLM will decide whether or not to issue a term grazing permit, and if so, under what terms and conditions.

1.5 Conformance with BLM Land Use Plan

The proposed action is in conformance with the approved Tres Rios Field Office Resource Management Plan (RMP, 2015) and Final Environmental Impact Statement (FEIS, 2013). Gypsum Valleys Allotment (#08068) was identified in the approved RMP as suitable for livestock grazing. Livestock Management Guideline 2.8.16 contained in the ROD on page II-52, states "Grazing systems should be designed in a manner to provide periodic rest to forage species during the critical growing season in order to promote species diversity, reproduction, and productivity."

1.6 Relationship to Statutes, Regulations, or Other Plans

The proposed action is in conformance with the following federal laws and regulations:

- Taylor Grazing Act of 1934, § 315b.
- Federal Land Policy and Management Act of 1976, Sec. 102. (a)(8), Sec. 302. (a), Sec. 402. (a), Sec. 402. (c).
- Public Rangelands Improvement Act of 1978, Sec. 1901(b).
- Federal Land Grazing Regulations 43 CFR Part 4100 Grazing Administration Exclusive of Alaska, Sec. 4130-2 Grazing permits or leases, Sec. 4130.3 Terms and conditions.
- Colorado Public Land Health Standards EA and Finding of No Significant Impact (FONSI, 1997).
- Interagency Technical References
- BLM Handbook 4180-1, Rangeland Health Standards
- BLM Handbook 4120-1, Grazing Management
- BLM Handbook 4400, Rangeland Inventory, Monitoring, and Evaluation
- BLM Handbook H-1790-1, NEPA Handbook

1.7 Identification of Key Issues

This section summarizes the process used for identification of issues relevant to the proposed action's effects to specific resources or elements of the human environment. The NEPA process

began with the document entitled Environmental Assessment CO-800-2008-043-EA, Livestock Grazing Use on Three BLM Allotments in the Vicinity of Lower Disappointment Valley, Colorado. This EA has incorporated much of the background information used to identify resource issues in previous analysis efforts.

As part of the Environmental Assessment on March 12, 2008, the Dolores Public Lands Office sent out scoping letters to interested publics, along with a map identifying the allotment and pasture boundaries. Initial recipients of the scoping documents included the grazing permittee in these allotments, Colorado Parks and Wildlife, San Miguel County and Montrose County. San Miguel County expressed concern over land health conditions. No other comments were received.

Public notices regarding scoping were published in both the March 14, 2008, issue of the Dolores Star, and the March 15, 2008, issue of the Cortez Journal, both local newspapers. In response to the newspaper articles BLM received one request for a hardcopy of the scoping notice and the allotment map. No other comments were received.

In addition, the San Juan Public Lands Center in Durango Colorado published a quarterly Schedule of Proposed Actions (SOPA), for a broad area of public lands that included the Tres Rios Field Office of the BLM. Notice of this grazing permit renewal analysis began appearing in the SOPA April 1, 2008, and now appears on the Tres Rios Field Office NEPA log at: <http://www.blm.gov/co/st/en/fo/sjplc.html>

The following lists the resources determined to be both present on the allotment involved and potentially affected by the proposed action (results of external and internal scoping). Following each potentially affected resource is the specific key issue(s) which have been identified:

- **Upland Soils**

Resource assessment has determined current livestock grazing to be a contributing factor in the failure to achieve the land health standard for productive upland soil processes.

- **Watershed Conditions**

Soil and site stability and hydrologic function assessments completed as part of the rangeland health assessment determined that current livestock grazing to be affecting watershed conditions within the allotment.

Standard 2: Riparian Systems associated with both running and standing water, function properly and have the ability to recover from major disturbance such as fire, severe grazing, or 100-year floods. Riparian vegetation captures sediment, and provides forage, habitat and biodiversity. Water quality is improved or maintained. Stable soils store and release water slowly.

- **Wetlands/Riparian Zones**

Resource assessment has determined that significant progress is being made towards meeting the land health standard for riparian systems.

Standard 3: Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential. Plants and animals at both the community and population level are productive, resilient, diverse, vigorous, and able to reproduce and sustain natural fluctuations, and ecological processes.

- **Vegetation**

Resource assessment has determined current livestock grazing to be a contributing factor in the failure to achieve the land health standard for productive native plant communities – to include plant community composition (specifically lower than expected levels of palatable shrubs and native bunchgrasses, especially cool season grasses, in some areas), the vigor and reproductive capability of the existing plants, and the litter amounts created by these plants and left as ground cover.

Rangeland Health Standards

Standard 1: Upland Soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes. Adequate soil infiltration and permeability allows for the accumulation of soil moisture necessary for optimal plant growth and vigor, and minimizes surface runoff.

- **Noxious and Invasive (non-native) Species**

The permitting of current livestock grazing has the potential to affect the extent and distribution of invasive species or noxious weeds through a variety of ways.

- **Wildlife**

The permitting of current livestock grazing has the potential to alter habitats of both terrestrial and aquatic wildlife species.

There is also the potential for forage competition of native grasses and forbs between livestock and naturally occurring ungulates such as Desert bighorn sheep, elk and mule deer.

Standard 4: Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

- **Special Status Species – (Terrestrial & Aquatic)**

The permitting of current livestock grazing has the potential to alter habitats for special status to include both terrestrial and aquatic animal species.

- **Special Status Species – (Plants)**

The permitting of current livestock grazing may have the potential to affect populations of special status plant species.

Standard 5: The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water

Quality Standards established by the State of Colorado. Water Quality Standards for surface and ground waters include the designated beneficial uses, numeric criteria, narrative criteria, and anti-degradation requirements set forth under State law as found in (5 CCR 1002-81, as required by Section 303(c) of the Clean Water Act.

- **Cultural Resources**

The permitting of livestock grazing under current terms and conditions has the potential to damage cultural resources through trampling, churning of soils, crushing and displacement of artifacts and archeological features. Livestock can also cause damage to wooden artifacts and structures by rubbing on them and/or trampling.

- **Socioeconomics and Cultural Lifestyle**

A change in permitted livestock use has the potential to affect producers and local economies.

1.8 Issues Considered but Eliminated from Further Analysis

Visual Resources

There are no new or temporary range improvements being proposed by any of the proposed alternatives.

Water Quality

The land health assessment found that the Standard for water quality was achieved.

Wilderness/WSA

The permitting of livestock grazing has the potential to affect the Dolores River Canyon Wilderness Study Area. However, as a result of the Non-impairment analysis conducted on August 15, 2014 it was determined that due to the project design (including reduced grazing levels and no proposed range improvements) the degree of naturalness and solitude, the diversity and quality of the primitive recreational opportunities, the size of the unit, and the supplemental values would remain unaffected by any actions considered in the EA. The proposed activity would not constrain Congressional prerogative regarding the area's suitability for preservation as Wilderness.

Gypsum Valleys ACEC

This issue was eliminated from further consideration because livestock grazing is a prescribed use within this ACES as identified in the 2015 Record of Decision and Approved Resource Management Plan on page II-141.

Native American Religious Concerns

The permitting of livestock grazing has the potential to affect Native American Religious Concerns, however through tribal coordination it was determined the action would not did not trigger any concerns.

Migratory Birds

The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712 as supplemented) prohibits unregulated “take” of most native bird species except gallinaceous birds. It covers direct harm to birds rather than including harm to habitat. These are non-game migratory avian species that the U.S. Fish and Wildlife Service have targeted as conservation priorities but are not currently federally listed as threatened or endangered.

Grazing is not considered to be an action where “take” is expected, therefore, this resource will not be carried forward for further analysis.

1.9 Summary

This chapter has presented the purpose and need of the proposed project, as well as the key issues, i.e., those elements of the human environment that could be affected by the implementation of the proposed project. In order to meet the purpose and need of the proposed project in a way that addresses the key issues, the BLM has developed a range of action alternatives. These alternatives are presented in Chapter 2. The potential environmental effects resulting from the implementation of each alternative considered in detail are analyzed in Chapter 4 for each of the identified key issues.

2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING PROPOSED ACTION

2.1 Introduction

The alternatives that follow were developed to respond key issues identified in Section 1.7, and progress towards achievement of rangeland health standards. They were designed to represent a reasonable range of management options for fulfillment of the stated objective of continuing to authorize permitted livestock grazing on the public lands consistent with the BLM’s multiple use mandate defined by the Federal Land Policy and Management Act (FLPMA) (at 1-2) and the approved Tres Rios Field Office Resource Management Plan (RMP, 2015), while modifying current management to provide for improvement in land health consistent with FLPMA (pg 2), the RMP (pg. 27), and federal grazing regulations (at 43CFR § 4180.1).

In the formulation of these alternatives, and subsequent analysis of each in Section 4, it was presumed that if improvements can be made in the short term for certain recognized indicators of the larger environmental processes there would be progress towards land health goals in the long term. These indicators remain constant across the suite of alternatives in determining relative likelihood of achieving the objective of the proposed action.

In contrast, the potential effects related to the key issues identified in Section 1.7 will vary between alternatives, mostly due to differential timing, intensity, and duration of permitted livestock use under each. This variation in potential effects is illustrated in the effects analysis for each resource analyzed in Section 4.

Familiarity with the concepts of deferment, rest, key areas and key species, within the context of grazing management, will be helpful to more fully understand the alternatives in this analysis. For those unfamiliar with these concepts the reader is referred to Section 6.2 of this EA for a glossary of the terms used in the alternative descriptions.

Irrespective of which alternative is selected that authorizes some level of grazing, BLM grazing regulations provide for modification of grazing permits when “grazing use or related management practices are not meeting the land use plan, allotment management plan or other

activity plan, management objectives, or is not in conformance with the land health standards contained in 43 CFR 4180”.

2.2 Alternative A – Permittee Proposed Action

In this document the Proposed Action is the grazing use and related activities that the applicant (the current grazing permit holder) proposes to make on public lands, not the BLM’s Proposed Action. The typical pasture rotation schedule for all alternatives, including Permittee Alternative (proposed action), can be found in Appendix D.

Table 1. Gypsum Valleys Allotment Alternative A

Allotment Name	Livestock Number	Grazing Period	Percent Federal Range	Total AUMs	BLM AUMs
Gypsum Valleys	312 Cattle	11/1 – 5/31	81%	2,175	1,761

Information developed during the collection and analysis of rangeland health data for the Gypsum Valleys Allotment shows that approximately 81% of the livestock forage is available from public lands. The previous permit was based on a figure of 83% federal range. This figure is not static and can change whenever a grazing permittee: 1.) fences their private lands out of, or into, a BLM administered grazing allotment; 2.) loses or acquires a (non-federal) land lease for lands in an allotment; 3.) buys or sells lands in an allotment; or 4.) when BLM recalculates the existing situation. The only difference between the existing permit and Alternative A is the change from 83% federal range to 81%. As this is an administrative adjustment prescribed by regulation, with no effect on the natural resources involved (same number of cattle for same dates) the previous percent federal range value (83%) will not be carried forward for further analysis under any alternatives.

The permittee proposed action includes continuing to graze the Gypsum Valleys Allotment under a two herd operation, Jimmy Suckla’s 156 c on the Big Gypsum portion and Larry Suckla’s 156 c on the Little Gypsum portion, simultaneously. Two rotations, each on three year cycles are being proposed. The permittee proposed action also includes the following elements:

1. Placement of supplemental feeds (protein blocks, salt licks, and protein meal) on the upper 1/3 of slopes.
2. Temporary water tanks in areas where water was not previously available in order to improve cattle distribution. This is expected to result in more uniform and less concentrated forage utilization.
3. Big Gypsum Valley would use a six pasture deferred rotation system. Pastures would be grazed in a different order each year, to improve plant vigor. Rest would occur during the critical growth period (3/1-5/31) at least once every three years for each pasture.
4. Little Gypsum Valley would use a six pasture rotation system. Pastures would be grazed in a different order each year, with a few stipulations proposed by Larry Suckla:

- a. Coyote Wash and Silvey's pocket pastures should be grazed first each year. This is due to their inaccessibility later in the year.
 - b. Coyote Wash can be grazed for ten days each year, even when Silvey's Pocket is unavailable due to lack of water. Livestock operators may not find it worthwhile to trail cattle from the Raven pasture to Coyote Wash for ten days of grazing.
 - c. Magpie and River Pastures must always be grazed last. This is due to difficulty in trailing cattle with young calves across the Dolores River, during spring run-off.
 - d. During dry years, allow the Little Gypsum herd to use either East or West Lavender pasture. These are small, primarily private land pastures located in Big Gypsum Valley.
 - e. Enter the Little Gypsum portion as late as December 1, on years when the permittee has the flexibility to do so. On years when this is possible, days grazed would be reduced in each pasture to lessen grazing effects.
5. Use existing roads for water hauling, placing supplemental feed (truck access) and chopping ice (ATV access), as shown on the attached map. Authorization to maintain specific segments of these BLM roads would be documented via approval of a Cooperative Agreement for Rangeland Improvements, which would not be issued until after site specific cultural resource inventory and clearance was conducted. No new NEPA analysis would be necessary prior to authorizing maintenance of existing BLM system roads. Use of existing roads, whether casual or BLM system roads, where no additional maintenance is needed and no resource damage would result, would not require this specific authorization. See Appendix E for a display of motorized access routes used for livestock operations.
6. Maintenance on existing reservoirs. Authorization to maintain existing, but previously unauthorized earthen reservoirs on public lands would be documented via approval of a Cooperative Agreement for Rangeland Improvements, which would not be issued until after site specific cultural resource inventory and clearance was conducted.
7. Temporary locations for protein supplements and water tanks. Protein supplements are not approved for placement at locations where water is available they must be placed in traditionally underused areas, sometimes using ATVs to reach more remote areas. Locations for temporary drinking tubs to hold truck-transported livestock water are generally located along existing roads or adjacent to existing dry reservoirs. All water tank and supplemental feed locations would be evaluated and approved annually by an agency Rangeland Management Specialist.
8. The proposed action pasture rotation schedule (Appendix D) would serve as a guideline, with the grazing permittee and the BLM continuing to meet annually to establish each season's pasture schedule. Even after the grazing season begins, the rotation schedule could still be modified, in a coordination process that would continue to involve both the grazing permittee and the BLM. Ultimate authority to approve, disapprove or modify annual pasture schedules rests with the BLM, but if the schedule is not realistic, even the most progressive livestock operator would not be able to implement it. In this livestock operation the grazing permittee has a high degree of flexibility to move cattle around in

the first four months of the grazing period; once there are small calves on the ground (usually early March) the situation is different. Long moves, or moves across multiple pastures in one day, are generally not realistic.

2.3 Alternative B – No Action Alternative

Under this alternative the existing term grazing permit would be renewed with no changes to the existing terms and conditions as follows:

Table 2. Gypsum Valleys Allotment Alternative B

Allotment Name	Livestock Number	Grazing Period	Percent Federal Range	Active AUMs
Gypsum Valleys	178 Cattle	11/1 – 2/28	78%	548
	177 Cattle	3/1 – 2/28	78%	418
	136 Cattle	11/1 – 2/28	89%	478
	135 Cattle	3/1 – 5/31	89%	363
Total	318 Cattle	11/1 – 5/31		1,807

1. Actual grazing use records must be submitted by June 15th each year.
2. No more than 1/3 of the active public land grazing qualifications may be used between March 1st and May 31st (critical plant growth period for this allotment).
3. The permittee and the BLM will participate in an annual planning meeting prior to livestock entering the allotment each fall, to develop an annual operating plan/pasture rotation schedule for that season.
4. Livestock use must be in conformance with this pasture rotation schedule.
5. Written authorization is required prior to construction of any facilities on public lands, including but not limited to, fences, pipelines, wells, reservoirs, etc.
6. Due to the presence of cultural resources (Archeological & Historical sites), authorization is also required to coordinate the location of salt, drinking tubs or supplemental feed on public lands.
7. Salt/Feed locations, on public land must be at least ¼ mile from livestock water sources.

2.4 Alternative C - Adaptive Management Alternative

The Adaptive Management Alternative has the same rotation, season of use, subsequent AUMs, eight additional elements as described above for the Proposed Action and potential drought management actions, range improvement maintenance requirements, monitoring requirements and allotment specific objectives for the Gypsum Valleys Allotment.

Table 3. Gypsum Valleys Allotment Alternative C

Allotment Name	Livestock Number	Grazing Period	Percent Federal Range	Total AUMs	BLM AUMs
Gypsum Valleys	312 Cattle	11/1 – 5/31	81%	2,175	1,761

This alternative follows most of the principles of the Permittee Alternative (Proposed Action), including the pasture rotation schedule identified in Appendix D, with some additional measures. A substantial difference is that this alternative incorporates an adaptive management philosophy that specifically provides for adjustments in the permitted grazing use during the life of the

grazing permit. Any adjustments to livestock grazing will be based on utilization monitoring studies that indicate adjustments are needed to protect public land resources.

Adaptive Management

The explanation of this process and the monitoring triggers appear below:

1. **Utilization Monitoring:** Under this alternative, at a minimum utilization levels by livestock on key forage and browse species would be monitored in half of the grazed pastures every year.

Two key monitoring sites would be identified in each pasture in consultation with the grazing permittees. In general, key monitoring sites would be located in areas between ¼ and ½ mile from livestock waters, in areas of the pastures that receive livestock grazing use, and would be identified and located in accordance with Technical Reference 1734-03 “Utilization Studies & Residual Measurements, Interagency 1999.”

Key forage and browse species for cattle on this allotment would depend largely on the potential of the ecological site. Likely key forage species, where they are present, would include Indian rice grass, needle-and-thread, Salina wild rye, western wheatgrass, alkali sacaton, sand drop seed, winterfat and fourwing saltbrush.

Although utilization monitoring sites would be established in each pasture, BLM’s initial focus would be on monitoring utilization levels in those pastures that were 1) identified as not meeting the rangeland health standards; and 2) or where allotment supervision visits indicate excessive utilization is most likely.

The grazing permittees would be encouraged to participate with BLM resource specialists in the collection of utilization information on this allotment. In addition, resource specialists from BLM would appreciate the opportunity to be present if/when other parties collect utilization information.

Research indicates that light grazing is a useful tool for improving short grass ranges, where the ranges are not “highly deteriorated and brush-infested” (Holocheck, 2004). These conditions describe much of this allotment, excepting the Salt Flats ecological sites, which appear to have lost much of their topsoil due to historical disturbance events and are now dominated by greasewood.

2. **Triggers and Adaptive Management Actions:** Utilization limits for both herbaceous and shrub forage species would be established at a maximum of either 30% or 40% depending on resource conditions in the respective pasture(s). Utilization monitoring will measure the amount of the current year’s forage production that is removed by weight for palatable herbaceous and shrub species.

Changes in authorized grazing use would not be implemented based solely on one occurrence of excessive utilization. A pattern of two or more years of excessive utilization (not necessarily consecutive years) in the same pasture during the life of the

new 10-year term grazing permit would trigger targeted adjustments in authorized grazing use in those pastures.

The intent of any adjustments to grazing would be to reduce utilization levels down too or below the aforementioned utilization limits. Utilization levels would be compared with actual grazing use records for the relevant pastures. Adjustments would be proportionate and applied to the actual grazing levels that occurred: for example, if two years of utilization data on key forage species at key monitoring sites in a pasture averaged 10% above the maximum level, then the average level of grazing use that resulted in this overutilization would be the baseline used to decrease the AUM's of livestock grazing in that pasture by 10% in the subsequent grazing seasons.

Any necessary adjustments would be implemented by reducing the number of days used in that pasture. If reduced days of grazing are implemented in a pasture, then the day cattle leave the allotment in the spring would be decreased by that number of days, unless utilization studies with at least two years of data show that actual grazing use in other pastures have resulted in utilization levels, on key forage species at key monitoring sites, far below the 30% or 40% allowable limit. If this proves to be the case, small increments of no more than 10% increases in days grazed may be authorized in those pastures.

3. Utilization Limits by Pasture: The following table identifies the established utilization limits by pasture based on the existing resource conditions as identified by the land health assessment and supporting monitoring information:

Table 4. Established utilization limits by pasture.

ALLOTMENT	PASTURE	UTILIZATION LIMIT
Gypsum Valleys	Coyote Wash	30%
	Silvey's Pocket	30%
	Raven	30%
	Bullington	30%
	River	40%
	Magpie	30%
	Carnation	30%
	West Lavender	40%
	East Lavender	30%
	The Gap	30%
	Hughes Gypsum	30%
	Dunham	30%

The established utilization limits can be adjusted either up or down if it is determined through monitoring that significant improvement in land health conditions within the allotment and/or pasture has improved over time.

Drought Management Actions

Drought has been defined by the Society of Range Management as, “(1) a prolonged chronic shortage of water, as compared to the norm, often associated with high temperatures and winds during spring, summer and fall. (2) A period without precipitation during which the soil water content is reduced to such an extent that plants suffer from lack of water.” (Bedell 1998).

The effects of drought on the existing environment may include but are not limited to the following:

1. Lack of forage and drinking water
2. Decreased vigor and production of plants
3. Damage and/or death loss to plant species
4. Increased wind and water erosion of soils

In order to allow for a rapid response to drought conditions for alleviating the effects of authorized livestock grazing on natural resources that are at risk of being adversely affected by drought within this allotment the following management actions may be implemented:

1. Temporary partial or complete closure of the allotment from livestock grazing.
2. Temporary reduction in livestock numbers and/or grazing duration within the allotment.
3. Temporary change in season of use outside of the critical growth periods of the vegetation communities within the allotment.
4. Temporary water hauling to improve livestock distribution and/or to areas where adequate forage exists within the allotment.

Range Improvement Maintenance

Authorize the continued maintenance of the existing authorized range improvements within this allotment. A list of the existing authorized range improvements are found in Appendix F.

Maintenance activities may include such actions as 1) cross country travel with earth moving equipment to periodically clean existing pit reservoirs; 2) cross country travel along existing fence lines using rubber tired vehicles for hauling fence repair materials; 3) stretching fence wire and pounding fence posts into the ground; and 4) using heavy equipment to clean or replace existing cattle guards.

Monitoring

In addition to utilization monitoring, additional resource monitoring will be determined as needed and may include such things as use pattern mapping, vegetation trend, vegetation composition, forage production, bare ground measurements, riparian proper functioning condition assessments, etc.

All monitoring information collected during the term of the proposed grazing permit will be used to complete a new land health assessment for determining whether or not rangeland health standards are being met or significant progress is being made towards their attainment for this allotment.

Allotment Specific Objectives

The following are allotment specific objectives for the Gypsum Valleys Allotment:

1. Increase the Functional/Structural composition of plant species within the allotment.

2. Decrease the amount and extent of bare ground within the allotment.
3. Increase the presence of key forage species for both livestock and wildlife within the allotment.
4. Maintain or improve the functional conditions of existing seeps and springs within the allotment. Specifically, improve the riparian functionality of the Silvey's Pocket spring.

2.5 Alternative D - Reduced Grazing Alternative

Table 5. Gypsum Valleys Allotment Alternative E

Allotment Name	Livestock Number	Grazing Period	Percent Federal Range	Total AUMs	BLM AUMs
Gypsum Valleys	238 Cattle	11/1 – 4/15	81%	1,299	1,052

Under this alternative the final 46 days of the historically permitted grazing season would be removed from the grazing permit and permitted livestock numbers would be reduced from 312 cattle to 238 cattle. With the exception of the aft mentioned four small pastures, the cattle would have to be grazed together in one herd, rather than the current two herd operation.

A proposed rotation schedule, following a four year cycle, was developed with the combined herd and reduced numbers. It can be found in Appendix K. The rotation schedule would defer each pasture from being grazed during the spring and fall critical growth periods at least one out of three years. Four of the smaller pastures (East & West Lavender, Hughes Gypsum & Dunham) would be combined in the rotation to account for the increased herd size (due to the combined herd). With an increase in cattle herd size, individual livestock water sources would be depleted more quickly. This could decrease distribution as cattle are ultimately concentrated at fewer water sources. Simultaneously using both the East and West Lavender pastures, and both the Hughes Gypsum and Dunham pastures, would mitigate the potential effects from poor livestock distribution.

The rotation schedule developed for this alternative does not include Coyote Wash pasture. It is not being excluded from grazing, but will be used when water and forage are available in Silvey's Pocket. It is unrealistic to use Coyote Wash on years when Silvey's Pocket pasture is unavailable due to lack of water. This is due to the remote location and difficult access to Coyote Wash, which requires a full day of trailing cattle through the Silvey's Pocket pasture. Coyote Wash also must be grazed during the fall, before water freezes in the canyon. On years when water is available in Silvey's pocket, it will be used in combination with Coyote Wash.

The east portion of Silvey's pocket can be accessed by cattle grazing the Raven pasture. On years when Silvey's Pocket does not have adequate water to be grazed as a standalone pasture, it will be combined with the Raven pasture in Alternative D.

2.6 Alternative E - No Grazing Alternative

Under this alternative no grazing use of the approximately 45,000 acres of public lands in Gypsum Valleys Allotment would be authorized and a term grazing permit would not be issued.

2.7 Alternatives Considered, but Eliminated from Further Analysis

One comment BLM received in response to Environmental Assessment CO-800-2008-043EA, Livestock Grazing Use on Three BLM Allotments in the Vicinity of Lower Disappointment Valley, Version 1 suggested “permittees should switch from cow-calf to yearling cattle operations”. The commenter did not provide any information to indicate why this change would be beneficial. There are recognized benefits to returning experienced cows to large rugged ranges; these are females that have grown up on that range and learned from their mothers where the waters, trails etc., are. While yearling cattle tend to travel farther than cow/calf pairs, they do not know anything about where to find water, or where the trails are through steep terrain.

Yearlings are also much harder to keep under fence, as they tend to walk the boundary fence of each new pasture they are placed in until they find a break in the fence or a hole they can squeeze through. Tighter fences would be needed to successfully run yearlings on these allotments, and tighter fences would increase the barriers to wildlife movement. Yearling cattle operations are also financially much riskier than cow-calf operations. This type of forced change in permitted grazing use would require clear and unequivocal evidence that it was necessary to improve the health of public lands. Because BLM did not see any definitive value to public land health from this suggestion, it was not carried forward for further analysis.

Another comment BLM received in response to Version 1 of the Environmental Assessment CO-800-2008-043EA, Livestock Grazing Use on Three BLM Allotments in the Vicinity of Lower Disappointment Valley, suggested BLM consider an alternative that would place a maximum limit on the AUMs that could be grazed in a ten-year period. Under this proposed scenario numerical limits would be imposed on the AUMs that could be grazed in a ten year period, based on not exceeding past levels of average actual livestock use. While BLM felt like this alternative could have merit in some circumstances, we believe it was less responsive to land health issues than either the Adaptive Management or the Reduced Grazing Alternatives, which we also decided provided an adequate range of alternatives. Consequently, this suggestion was not carried forward for further analysis.

2.8 Design Features for Alternative C (Adaptive Management) and Alternative D (Reduced Grazing).

The design features below would be implemented as stipulations of the grazing permit.

1. If one or more pastures are unavailable because of lack of water, and the grazing permittee cannot haul adequate livestock water into that pasture, then the pasture would be taken out of the rotation for that year and the cattle would leave the allotment early, rather than make up those lost grazing days in other pastures.
2. The placement of salt blocks, supplemental feed, water tanks, holding pens or other facilities on public lands requires prior authorization from BLM. Proposed locations should be flagged prior to seeking authorization. All archaeological or historic sites or conflicts with T&E species must be avoided. All water tanks will be required to be

equipped with a wildlife escape ramp. No structures or other facilities (reservoirs, springs, corrals, roads, etc.) may be maintained on public lands, unless authorized under an existing Range Improvement Permit or Cooperative Agreement from the BLM. This written authorization must be on-site when the work is being performed.

3. All proposed grazing rotations are deferred rotation systems. Spring Deferment may equal season long rest on some years.
4. Occasionally cross-country travel by ATV or other vehicles may be needed to place supplements or transport materials for fence maintenance. In these circumstances the BLM will approve the location and timing prior to use. As travel management planning occurs in these areas the grazing permittees will be part of the public involvement process.
5. If it is determined through monitoring that authorized grazing use by livestock is damaging existing cultural sites within the allotment then appropriate mitigation measures will be developed and implemented in order to address the effects. If appropriate mitigation measure cannot be implemented and continued livestock use is jeopardizing cultural resources on public lands within the allotment, the grazing permit may be modified or canceled in whole or in part to address the effects.
6. If archaeological or historic artifacts (for example structures or burials) are discovered by the permittee or their representatives during the course of allotment operations, the BLM will be notified as soon as possible so that further deterioration and resource loss can be prevented.
7. The operator is responsible for informing all persons associated with their livestock operation that they will be subject to prosecution for knowingly disturbing Native American Indian shrines, historic and prehistoric archaeology sites, or for collecting artifacts of any kind, including historic items and/or arrowheads and pottery fragments from Federal lands.
8. In both weed-infested and relatively weed-free pastures, pasture rotations shall be timed if possible to prevent livestock movement from infested to non-infested pastures after weed seed set.
9. To help prevent the establishment of noxious weed infestations, all heavy equipment (including motor graders, bulldozers, backhoes, and trenchers) used in the construction or maintenance of public land range improvements shall be pressure washed at an offsite location prior to entering public lands. Pickup trucks and passenger vehicles are not subject to this requirement. If heavy equipment is removed from a project area, it shall again be pressure washed at an offsite location prior to re-entering the project area. In areas of heavy weed infestations, equipment shall also be cleaned prior to moving out of the area. Any gravel or fill imported onto BLM lands must come from sources approved by the BLM.

10. If livestock are to be placed on a BLM grazing allotment following the use of areas with heavy weed infestations, the livestock will be quarantined and fed only weed-free feed for 24 hours prior to entering the allotment.
11. Conduct survey for cultural resources, rare plants, lichens or associated biologic crust communities prior to issuing authorization for: 1) any new structural range improvement or new maintenance authorizations for existing structures; or 2) prior to authorizing the placement of supplemental feed or temporary drinking troughs for hauled livestock water. This would be done to ensure that cultural resources, the aforementioned plant occurrences or their potential habitat would not suffer direct or indirect effects from livestock grazing.
12. Existing range improvements (i.e. stock ponds, fences etc.) within the allotment that are not currently authorized under a cooperative range improvement agreement will be assessed in order to determine if they are needed for proper grazing management activities. If it is determined that authorization of the improvement(s) are necessary for proper livestock management, then the appropriate clearances and/or surveys will be completed and if feasible the improvement(s) will be authorized under a cooperative agreement with the existing permittee. Any authorization(s) issued will allow for appropriate maintenance activities.
13. Existing range improvements such as old retention dams, dikes, soil contouring, and seeding areas determined to not be functioning or necessary for livestock management will be abandoned and removed from any existing cooperative agreements.
14. No motorized vehicles (OHVs such as ATVs, motorcycles, UTVs, and/or full size vehicles) may be used to monitor, move, or 'check-on,' livestock within any Wilderness Study Area (WSA). The following pastures of the Gypsum Valleys Allotment all contain parts of the Dolores River Canyon WSA: Coyote Wash, Silvey's Pocket, Raven, Bullington, and River.
15. Coordination efforts with the Utah, BLM to address unauthorized grazing use in the Coyote Wash Pasture.
16. If riparian proper functioning assessments (PFC) or other riparian monitoring data collected indicates that sensitive aquatic and/or riparian systems are being negatively impacted by current livestock grazing, then grazing management practices will be modified.
17. The operator is responsible for informing all persons associated with their livestock operation that they will be subject to prosecution for knowingly harming, taking or harassing a Threatened, Endangered or candidate species; as listed by the U.S. Fish and Wildlife Service. If a known listed or candidate species is discovered within the allotment at any time, the BLM field office is to be notified immediately.

18. Any existing Allotment Management Plans (AMPs) will be superseded and replaced by the final permit decision resulting from this analysis.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

This chapter presents the potentially affected existing environment (i.e., the physical, biological, social, and economic resources) of the project area. This information provides the baseline for comparison of effects described in Chapter 4.

3.2 General Setting

The following sections provide general information about land descriptions, recent past levels of actual grazing use by livestock and climate.

3.2.1 General Land Description

This environmental analysis is generally limited in scope to BLM-administered public lands. These lands are primarily located between 5,500' and 7,700' in elevation and are characterized by plant communities ranging from lower elevation salt desert shrub and shortgrass plant communities to black and/or big sagebrush communities, through the pinyon-juniper and vegetation types. The majority of the acres in this project area are at the lower and drier end of the above described plant community spectrum.

All the public lands addressed in this document are located within the Dolores River Watershed. Lands in the Gypsum Valleys Grazing Allotment drain to the Dolores River through the Big and Little Gypsum Valley watersheds, as well as the Coyote Wash watershed.

The Gypsum Valleys Allotment consists of approximately 41,000 acres of public land and 4,100 acres of private land owned by the grazing permittee. Geographically the allotment encompasses the Big Gypsum and Little Gypsum Valleys, together measuring over 12 miles long. The northwestern-most corner of the allotment borders the Utah State line at Coyote Wash and runs southeast along county road 20R to Highway 141, creating the southwest boundary.

The Gypsum Valley Area of Critical Environmental Concern (ACEC) is within the Gypsum Valleys Allotment. The Gypsum Valley ACEC contains 13,135 acres within the Big and Little Gypsum Valleys, and ranges in elevation from 6,100 to 6,500 feet.

The Gypsum Valley ACEC is one of several northwest-southeast-trending valleys formed by the collapse of ancient salt domes. It contains Gypsum outcrops and Gypsum soils of the Paradox member of the Hermosa Formation that are unique and rare. The ACEC contains known occurrences and abundant habitat for two BLM special status species: Gypsum Valley cat-eye (*Cryptantha Gypsumsophila*) and Naturita milkvetch (*Astragalus naturitensis*). The ACEC also contains five species with G1, G2, S1, or S2 CNHP/NatureServe Plant Community status rankings: *Lecanora Gypsumsicola*, nodule cracked lichen (*Acarospora nodulosa* var. *nodulosa*),

largeleaf Gypsumsoplaca lichen (*Gypsumsoplaca microphylla*), winding mariposa lily (*Calochortus flexuosus*), Gypsum dropseed (*Sporobolus nealleyi*), and shortstem beardtongue (*Penstemon breviculus*). These plants are imperiled or critically imperiled globally or within Colorado and are at a high or very high risk of extinction due to extreme rarity, very restricted ranges, or extremely low populations.

In addition, several important animal species are found within the ACEC. The rims of Big Gypsum Valley have historically provided nesting habitat for migratory raptors, including peregrine falcons and golden eagles, which are both Colorado BLM State Director's sensitive species. In addition, desert bighorn sheep, another Colorado BLM State Director's sensitive species, use the canyon rims as travel corridors between the benches above the canyon and the Dolores River below. Desert bighorn sheep and other big game species use the Dolores River corridor and the flats of Big Gypsum Valley as important winter range and for other seasonal use.

3.2.2 General Actual Use Discussion

This section describes livestock grazing management¹ over the last 20+ years. By comparing the current land conditions with the recent livestock grazing management, the interdisciplinary team determined that current management practices are maintaining or improving resources in some areas and not maintaining desirable resource conditions in other areas. This section describes both past and recent livestock management.

Authorization to graze public lands on the Gypsum Valleys Allotment is currently granted by one grazing permit. The allotment has been managed with two cow herds since 1999. Prior to 1999 this allotment was grazed as part of a one herd operation that also used both the Disappointment Creek and RCA Allotments that are adjacent to this allotment. Currently, the two separate cow herds rotate through the 12 pastures simultaneously. Generally, one herd grazes the six Little Gypsum Valley pastures and the other herd grazes the six Big Gypsum Valleys pastures.

The TRFO Resource Management Plan (RMP) calls for providing periodic rest to forage species during the critical growing season in order to promote species diversity, reproduction, and productivity. A critical growth period for cool season perennial grasses occurs from October through the end of November in the Gypsum Valleys area. This is a critical time for these grass species to be grazed, because they are preparing for winter dormancy by storing more carbohydrates into their root systems. If these grasses are being grazed during this growth period, their potential growth rate in the spring may be diminished.

The Big Gypsum Valley grazing schedule defers about one-half of the pastures from spring grazing one year, with the balance of the pastures deferred from spring grazing the second year. The third year the rotation starts over again. This exceeds the aforementioned one-year-in-three spring deferment requirement, by providing deferment from spring use for every pasture every two years.

¹ In this instance livestock management includes AUMs grazed annually by allotment and pasture, stocking rates (AC./AUM), when each pasture was grazed each year (timing) and for how long (duration).

The Little Gypsum Valley grazing schedule rotates every other year. There is less flexibility built into this grazing schedule, due to inaccessibility to some pastures at certain times of year. The Coyote Wash and Silvey's Pocket pastures are often grazed together and usually during the fall. The other four pastures are switched from year to year between spring and fall grazing. The current schedule for both the Big Gypsum and Little Gypsum Valleys has caused some pastures to be grazed during both critical growing periods for cool season perennial grass species. By grazing pastures in the spring during critical growth and again the following fall, these grass species appear to be affected.

A term and condition common to all BLM grazing permits requires that the livestock operators provide BLM with copies of their actual grazing use records by allotment at the end of each grazing season. This information was used for comparing the actual grazing use levels (i.e. actual livestock numbers, actual AUMs used, the timing and duration of grazing) with existing rangeland health monitoring information in order to determine how current grazing management practices is affecting rangeland conditions within this allotment.

BLM Grazing Regulations, Title 43 Code of Federal Regulations Part 4100, contain the following definition: "*Livestock Carrying Capacity means the maximum stocking rate possible without inducing damage to vegetation or related resources. It may vary from year to year on the same area due to fluctuating forage production.*" The livestock carrying capacity of any grazing allotment also varies substantially based on the way the livestock are managed.

If livestock are not actively managed they will generally concentrate their use around available water sources and in valley bottoms. Under this scenario these areas are very susceptible to resource damage. Although, if the same number of cattle are actively managed through a combination of: 1) herding; 2) placement of supplements in rarely visited upland areas; 3) multiple, well distributed water sources; 4) shorter grazing periods and 5) periodic rest and/or deferment from grazing the potential for resource damage is significantly reduced.

Estimating livestock carrying capacity by simply adding up the AUMs of available forage produced in an average year, and then subtracting 50% (take half, leave half) is a method of estimating carrying capacity that omits the extremely important management factor from the process of estimating the carrying capacity of a specific piece of geography.

The placement of supplemental feed, hauling of livestock drinking water and the development of dispersed permanent water sources, can all serve to lessen the concentration of cattle in just a few areas and improve their distribution across the landscape. Holochek (2004) found that: "Feeding salt-meal [*a protein supplement with salt added to control animal intake*] away from water reduced the overgrazed area by about 30%, the light or unused area by about 30%, and nearly doubled the zone of proper grazing over the unit." The use or failure to use, these types of management practices can greatly influence the "livestock carrying capacity" of any given grazing unit (pasture, allotment, etc.).

BLM grazing regulations define an animal unit month as the amount of forage required to sustain one cow calf pair or its equivalent for one month. As one dry (non-lactating) cow is an Animal

Unit (AU), an animal unit month (AUM) can be defined as the amount of forage required to sustain one animal unit for one month. Based on a forage intake requirement of 29 pounds of air dry forage per day, an AUM equals about 882 pounds of forage/browse. Cows with calves are generally more accurately calculated as 1.31 animal units.

Summary of Gypsum Valleys Allotment

Prior to 1998 pastures within the Gypsum Valleys Allotment were grazed as part of the adjacent Disappointment Creek Allotment. As a result of this grazing management system the stocking rates, duration and timing of grazing are different than that of current management which has occurred since 1999 when the Gypsum Valleys Allotment was grazed as a separate unit.

The following table reflects the average actual grazing use that occurred from 1986 – 1998 when the livestock grazing use in this allotment was combined with that of the Disappointment Creek Allotment:

Table 6. Average Actual Grazing Use (all pastures) from 1986 – 1998 compared to current permitted use.

Years	Average # Pasture Days Grazed	*Average # of Total Days Grazed	Average Total AUMs (PVT. & BLM)	Productive Acres Grazed	Average Stocking Rate AC/AUM	Allotment Percent Federal Range	Average Federal (BLM) AUMs
1986-1998 (1)	30	195	1,599	**12,377	8	81%	1,295
Current Permitted Use		212	2,177	***16,125	7	(89% L Gypsum. 78% Big Gypsum.)	1,807

* These values calculated by summing the days grazed in each pasture: Two herds in two (or more) pastures on the same date raises this value above the number of days in the grazing period.

**This value reflects productive acres in the pastures grazed each year, averaged over the years covered in each row; acres were placed in the non-productive category if slopes ≥ 40%, or if < 40% slope but primarily surface rock.

*** All productive acres in the allotment.

1. This row reflects the years when the present day Gypsum Valleys Allotment pastures were grazed as parts of the Disappointment Creek Allotment (1986-1998).

Although it is important to understand how past and/or historical grazing management may have impacted the existing resource conditions, it is equally important to determine how current grazing management practices are affecting existing resource conditions as well.

Therefore, In order to accurately evaluate the potential effects from current permitted livestock grazing management on this allotment, the actual grazing use between 1999 – 2014 was summarized and is shown in the tables below. Table 7 below reflects the average actual grazing use that has taken place on the entire allotment since 1999 as compared to the current permitted use authorized as shown on the existing term grazing permit.

In order to determine the specific effects to the allotment by pasture the average actual use for each pasture was also calculated and is displayed in Table 8. The actual use displayed by pasture reflects the average actual AUMs used, average days grazed, average cattle numbers, as well as the amount of livestock use that has occurred during the time of year when plants are either dormant or actively growing. This information is important when trying to determine the effects from current grazing to that of the existing resource conditions within each pasture.

Table 7. Average Actual Grazing Use (all pastures) from 1999 – 2014 compared to current permitted use.

Years	Average # Pasture Days Grazed	**# of Days Grazed (total)	Average Total AUMs (pvt. & BLM)	Productive Acres Grazed	Average Stocking Rate AC/AUM	Allotment Percent Federal Range	Average Federal (BLM) AUMs
1999-2014 (1)	36	*363	1,890	**13,278	7	81%	1,531
Current Permitted Use		212	2,177	***16,125	7	(89% L Gypsum. 78% Big Gypsum.)	1,807

* These values calculated by summing the days grazed in each pasture: Two herds in two (or more) pastures on the same date raises this value above the number of days in the grazing period.

**This value reflects productive acres in the pastures grazed each year, averaged over the years covered in each row; acres were placed in the non-productive category if slopes $\geq 40\%$, or if $< 40\%$ slope but primarily surface rock.

*** All productive acres in the allotment.

1. This row includes only those years after the present day Gypsum Valleys Allotment pastures were separated from the Disappointment Creek Allotment (1999-2008) to form a separate grazing allotment.

Table 8. Average Actual Grazing Use by pasture 1999 – 2014.

Pasture	Average AUMs	Average Days	Average Cattle Numbers	Average Dormant Season AUMs	Average Growing Season AUMs
Magpie	261	52	156	275	234
Hughes Gypsum	139	30	140	146	124
Dunham	61	13	139	54	63
West Lavender	108	23	146	110	103
East Lavender	137	29	142	149	130
Bullington	125	26	147	131	95
River Pasture	213	42	158	199	226
Raven	149	31	146	151	145
The Gap	263	58	144	266	267
Silvey's Pocket & Coyote Wash	175	36	147	182	125
Carnation	259	51	141	274	237

3.2.3 Existing Conditions, Desired Conditions and the Gap In-between

Long Term Desired Conditions – The long term (10 to 30+ year) desired future condition for all pastures is a landscape that meets Colorado Land Health Standards, can withstand and recover from drought periods, and provide forage for cattle and wildlife. Healthy, productive plant communities of native and other desirable species are maintained at viable population levels commensurate with the species' and the habitat's potential. Plants at both the community and population level are productive, resilient, diverse, vigorous, and able to reproduce and sustain natural fluctuations, and ecological processes. Because climatic conditions fluctuate in

this semi-arid landscape, growth during years with more precipitation, when plants are able to rebuild root reserves, increase in size and produce seed periodically, further promoting their vigor needs to be maintained to provide a basis for resilience and recovery during drier years. ‘A complete return to Potential Natural Vegetation and soil conditions is not a desired future condition for this landscape, because historical events have contributed to soil loss over much of the area, altering the potential of many ecological sites.

Desired Conditions in Less than 10 years – Because many positive physical and biological changes occur slowly in semi-arid landscapes, it is helpful to identify which aspects could show positive change in the short term. By describing incremental steps that will lead to long-term recovery and improvement, we can describe our need for change as well as predict the effects of our actions more succinctly. Elements most likely to show observable changes and provide evidence of improvement are described in Appendix G, as short term (less than 10 years) desired outcomes.

Many short-term desired conditions involve maintaining or improving current conditions and avoiding further degradation, since this is an attainable goal, though improvements in these conditions may or may not be detectable within the ten year permit cycle. For most elements, improvement over current conditions is long-term desired condition.

The Difference between Current Conditions and Desired Conditions – A gap exists between existing conditions and the short term desired conditions for portions of all pastures. Appendix G describes short and long term desired conditions, compared to existing conditions for selected elements of the landscape. While some pastures were in better conditions than others, the existing condition and desired conditions apply to all pastures. The Land Health Assessment showed similar findings in most of the pastures as displayed in the tables in Appendix H. The long term desired condition (greater than 10 years) columns provide a description for future managers to consider along with other aspects of Land Health Standards and desired conditions outlined in the resource management plan.

Monitoring will focus on whether or not progress has been made towards the short-term DFC. Current research shows that improvement on these elements will lead to progress towards the long-term desired conditions listed here as well as other aspects of the Land Health Standards. The indicators described in the Short Term desired conditions column define the parameters for detecting change. Indicators are not shown for the long-term desired conditions because future managers will determine these based on their assessments. Methods for monitoring the indicators are described in more detail in the Monitoring Plan in Appendix G. The possible management practices were carried forward in the alternatives at various levels depending on the alternative. The effects sections of this EA will focus on the different rates of change expected under the different alternatives for the short-term DFCs.

3.2.4 Descriptions of Ecological Sites

Table 9 below displays the total acreage of each ecological site in the Gypsum Valleys Allotment, regardless of land ownership. Vegetation is described using ecological sites as described by the Natural Resource Conservation Service (NRCS). An ecological site is an area

where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. It is typified by an association of plant species that differ from those on other ecological sites in kind and/or proportion of species or in total production. Full NRCS ecological site descriptions for the sites listed in the tables are available from that agency. Some of the ecological sites described and mapped for this project area are complexes of two or more sites, though generally only the primary site is named. For example some of what is typed as Rock Outcrop also contains scattered inclusions of Pinõn-Juniper plant communities. There are at least four NRCS ecological sites that describe different types of Pinõn-Juniper Woodlands in this area.

Table 9. Gypsum Valleys Grazing Allotment Total Acres by Ecological Site*

ECOLOGICAL SITES	ACRES
Rock Outcrops, Orthents	15,384
Semi Desert Sandy Loam	11,254
Semidesert Juniper Loam, Rock Outcrop	7,264
Basin Shale, Ustic Torriothents	5,067
Shallow Clay Loam Pinyon-Juniper, Steep SCL PJ, Rock	1,199
Gypsumsiorthids [weathered Gypsum: climax 45% grasses; 25% shrubs; 10% forbs]	1,156
Semidesert Loam	953
Ustic Torriothents, Ustochreptic Calciorthids (<i>Sparse steep P-J</i>)*	787
Shallow Sandy Loam Pinyon-Juniper	764
Water [<i>primarily the Dolores River</i>]	496
Foothills Swale	481
Gypsum [<i>lots of bare ground & biological soil crusts, few vascular plants*</i>]	223
Fluvaquents [<i>Riparian*</i>]	3
Total	45,245

*Where ecological sites were not available, soil type is named with a brief vegetation descriptor in *italics*.

3.2.5 Precipitation and Drought

Though BLM found drought to be a partial causal factor for not meeting the standards, drought is a common, recurring fact of life on these ranges (NOAA precipitation records; Holocek, 1998; Gates, 2003). Drought has been defined as prolonged dry weather, generally when precipitation is less than 75% of average annual amount (Society for Range Management, 1989).

The influence of drought on plant health was considered largely in the context of its interaction or compounding of other disturbances, like herbivory. Plant communities in better health and higher ecological seral stages are more resilient and less affected by drought than plant communities in lower seral stages/lower condition classes (Holocek, 1998). Similarly, Hanselka and White (1986) found "...moderately grazed grasses can continue to extract soil moisture even when it drops as low as 1-2%. On the other hand, heavy grazing can cause plants to permanently wilt when there is still 6-8% moisture available." (from Howery, 1999). Data from the two closest National Oceanic and Atmospheric Administration (NOAA) weather collection stations did not reflect drought conditions, when viewed over a 10 or 20 year period at their locations. Although, there were individual years of drought conditions most significantly in 2002.

A review was made of precipitation data from the two closest NOAA weather collection stations. The Uravan station is located approximately 23 miles north-northeast of the project area. Records have been collected there since 1960, and the mean annual precipitation is 12.21 inches. The Norwood station is located approximately 30 miles east-northeast of the project area. Records have been collected here since 1924, and the mean annual precipitation is 16.05 inches. Please refer to Table 10 below for specific precipitation data.

Table 10. Annual Precipitation in Inches for the two weather stations in Western Colorado.

YEAR	URAVAN STATION		NORWOOD STATION	
	Recorded	Departure From Mean	Recorded	Departure from Mean
1987	16.74	+4.21	14.85	-0.65
1988	10.20	-2.33	13.72	-1.78
1989	7.13	-5.4	10.94	-4.56
1990	11.05	-1.48	16.39	+0.89
1991	10.57	-1.96	13.39	-2.11
1992	11.13	-1.4	17.22	+1.72
1993	14.62	+2.09	16.12	+0.62
1994	11.96	-0.57	15.16	-0.34
1995	14.48	+1.95	18.78	+3.29
1996	15.89	+3.36	17.47	+1.97
1997	17.85	+5.32	19.24	+3.74
1998	12.47	-0.06	18.65	+3.15
1999	11.21	-1.32	18.05	+2.55
2000	10.28	-2.25	14.58	-0.92
2001	11.00	-1.53	15.02	-0.48
2002	8.22	-4.31	13.42	-2.08
2003	9.71	-2.82	15.45	-0.05
2004	13.64	+1.11	15.89	+0.39
2005	13.47	+0.94	15.92	+0.42
2006	15.32	+2.79	19.29	+3.79
2007	14.95	+2.42	17.54	+2.04
2008	10.78	-1.75	Dropped: 4 months missing 26+ days each	
2009	8.61	-3.92		
2010	16.00	+3.47		
2011	10.75	-1.78		
2012	6.73	-5.8		
2013	15.03	+2.5		
Average	12.10 (97% of mean)	-0.32	16.05 (103% of mean)	0.55
Last 10 Years of Record	12.52 (99% of mean)	-0.002	16.38 (105% of mean)	+0.55

Over the last 10-year period of record, precipitation at the Uravan Station was 99% of the 49 year mean, for the station; and over the last 20 years was 99% of the mean. Over the last 10-year period of record, precipitation at the Norwood Station was at 105% of the 60 year mean for the station; and over the last 21 years 103% of that mean.

Precipitation in the project area can be very spotty. The records reproduced in the table above are not intended to represent that precipitation in the project area was necessarily above or below average in a particular year, just because such was the case at the nearest NOAA weather station.

Precipitation values recorded at these stations may not reflect localized conditions. In addition, total precipitation is not meaningful without considering when in the year the precipitation fell, and whether they were slow soaking rains where much of the moisture tends to find its way into the soil or brief intense events where much of the precipitation runs off. The records in the table above are intended to represent a broad trend. That is that over the periods studied, precipitation was not substantially below the mean or somehow broadly unrepresentative of what can be expected in the project area. Based on local experience in the project area, 2002 and 2003 were very dry. For a thorough analysis of the relative severity of this event see *Drought 2002 in Colorado: An Unprecedented Drought or a Routine Drought?*, from Pure and Applied Geophysics 162 (2005) 1455-1479, Roger A. Pielke, Sr., et al.

The following quote is taken from *The Journey to Recovery of the Range after Drought*, Roger N. Gates, et al, Proceedings, The Range Beef Cow Symposium XVIII, University of Nebraska, December 9, 10 and 11, 2003 Mitchell, Nebraska (**bold emphasis added**):

“A realistic understanding of drought is essential to appropriate planning and response when rainfall is short. “Average” rainfall is a misleading index of potential plant growth... The mathematical mean for precipitation is calculated from a few years when rainfall is above “normal” and more years that are below normal. Additionally, **exceptionally dry years should not be unexpected. Cyclic drought is characteristic of arid and semi-arid areas of the world. Viewing drought as unusual or as a crisis is not realistic.**”

Drought has been the suspected cause of a loss of vigor and substantial mortality amongst some native grass species, as well as die-off of some sagebrush. All evaluation processes BLM followed to determine causal effects for land health conditions observed in 2006 fully considered the 2002-2003 drought and the subsequent drought recovery period.

3.2.6 Description of Land Health Standard Rating for Vegetation

Finding on the Public Land Health Standards for Plant Communities

For the Gypsum Valleys Allotment more than half of the rated acres fell within the “Moderate”, “Moderate to Extreme” or “Extreme to Total” rangeland health ratings for the Biotic Integrity Attribute. As a whole the allotment failed to achieve this Standard for Healthy Lands. The majority of the acres are in the “at risk” or “beyond risk” level, with recovery questionable without some changes to current grazing management. The River and West Lavender Pastures were exceptions with less than half of the pasture acres rating “Moderate to Extreme” for 41% of rated acres. Please refer to Table 11 below:

Table 11. Biotic Integrity Ratings.

Gypsum Valleys Allotment: Proportion of acres within each health rating category, by pasture, for the health attribute Biotic Integrity					
2006 Rangeland Health Assessment	Biotic Integrity				
Pasture	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme to Total
Coyote Wash			36%	64%	
Sylvies Pocket			57%	43%	
Raven			100%		
Bullington			73%	27%	
River		73%	27%	10%	
Magpie			52%	48%	
Carnation		15%	47%	38%	
Dunham				100%	
West Lavender		55%		45%	
East Lavender			9%	91%	
Hughes Gypsum				100%	
The Gap			44%	56%	
Gypsum Valleys Total		10%	50%	41%	

3.2.7 Range Condition Trend as reflected by Long Term Frequency Studies

Trend information is used to help determine changes in conditions of vegetation and ground cover over time. This information is used to help determine whether or not present management is resulting in changes toward or away from desired management objectives for vegetation and/or soils.

There are a total of eleven permanent trend transects which are monitored for the purpose of measuring trend within the allotment. Please refer to Appendix I for a map of the trend monitoring locations within the allotment. Trend monitoring studies are located in The Gap, East Lavender, Carnation, Magpie, River, Bullington, Raven, Slivers Pocket and Coyote Wash Pastures.

The following are general summaries of trend data for the allotment by pasture. More detailed information is available at the Tres Rios Field Office.

The Gap Pasture - There are two transects located within this pasture. Trend information collected at The Gap 1 monitoring site indicates that there was a significant decline in the cool season perennial bunchgrass Indian rice grass between 1991 and 2007. Since 2007 there has been a small increase in this cool season bunchgrass but its occurrence remains low. Warm season perennial bunchgrasses and winter fat, a low growing half- shrub have remained relatively stable over time. Overall, trend for this site appears to be stable to downward.

Trend information collected at The Gap 2 monitoring site indicates that cool season perennial bunchgrasses have either remained stable or have decreased since 1987. Both Indian ricegrass and squirreltail have decreased since 1987, while needlegrass has remained relatively stable

although at very low levels. The warm season perennial grass blue gramma has remained stable since 1987 and dominates the site. There has been a slight increase in Sand dropseed, but it also remains at low levels of frequency. Winterfat a low growing half-shrub has remained stable. Overall, trend for this site appears to be stable to downward.

East Lavender – Trend information for this pasture indicates that overall the majority of cool season perennial bunchgrasses have declined since 1991. Although there has been a small increase in both Indian ricegrass and New Mexico feathergrass since 2007, their frequency of occurrence remains extremely low. Overall, Warm season perennial grasses have remained stable. Winter fat, a low growing half-shrub has remained stable. Overall, trend appears to be stable to downward.

Carnation – Trend information for this pasture indicates that overall, cool season perennial bunchgrasses have generally declined since 1992. Blue gramma a warm season perennial grass has increased. Winterfat a low growing half-shrub has remained stable. Overall, trend appears to be downward.

Magpie – Trend information for this pasture indicates that it is dominated by sand dropseed and Galleta, both of which are perennial warm season grasses. These grass species have remained stable on this site since 2005. The perennial forb globemallow has remained stable. Overall, trend appears to be stable.

River – Trend information for this pasture indicates that the salt desert shrub community consisting of four wing saltbush, and shadscale has remained stable. Warm season perennial grass species (sand dropseed and galleta) have remained stable. An increase in annual weedy species occurred between 2004 and 2009 mainly due to the effects of drought conditions. These species tend to fluctuate in density with precipitation levels. Overall, trend appears to be stable.

Bullington – There are two transects located within this pasture. Trend information collected at the Bullington 1 monitoring site indicates that cool season perennial bunchgrasses are absent from this site. Cool season perennial bunchgrass should be the dominate grasses for this vegetation type. Galleta, a warm season perennial grass has remained stable since 1984 and is now the dominate grass species. Sand dropseed, also a warm season perennial grass species has slightly increased on the site since 2005 but overall has seen a significant decline since 1989. The diversity of desirable perennial forbs is very low with both globemallow and phlox absent from the site. Undesirable annuals to include cheatgrass and Russian thistle have increased on the site and tend to fluctuate from year to year depending on precipitation levels. Overall, the site is degraded and trend appears to be stable to downward.

Trend information collected at Bullington 2 indicates that most cool season perennial bunchgrasses are absent from the site with the exception of small amounts of crested wheatgrass a seeded non-native species. Indian ricegrass was last documented at this monitoring site in 1981 and again in 1994 at very small amounts. Crested wheatgrass occurred at relatively high densities on this site in 1986 but since, significantly declined and subsequently disappeared from the monitoring site. Blue gramma a warm season perennial grass has significantly declined since 1994. Sand dropseed and galleta both warm season perennial grasses have remained stable on

the site. Undesirable annual weedy species such as cheatgrass and Russian thistle dominate the site. Overall, trend appears to be downward.

Raven – Trend information for this pasture indicates that since 1986 there has been a decline in cool season perennial bunchgrasses primarily Indian ricegrass. The diversity of cool season perennial grass species is lacking. Warm season perennial grass species Galleta, and blue gramma have remained stable while Sand dropseed has declined. Winter fat a low growing half shrub has also remained stable on the site. Overall, trend appears to be downward.

Silveys Pocket – Trend information for this pasture indicates that since 2004 warm season perennial grasses (sand dropseed, blue gramma, galleta) have been stable, although there has been a significant increase in sand dropseed since 1988. Indian ricegrass a cool season perennial bunchgrass has remained stable. Both fourwing saltbush and winterfat has increased on the site. A good diversity of native perennial forbs also occurs on the site. The amount of bare ground has decline with a corresponding increase in the amount of litter and basal vegetation. Overall, trend appears to be stable.

Coyote Wash - Trend information for this pasture indicates that both warm season and cool season perennial grass species occur in levels significantly below the potential for this ecological site. In addition, there is a significant lack of diversity in perennial grass species. Fourwing saltbush, and big sagebrush have remained stable. Russian thistle a weedy annual species has significantly increased on the site. Overall trend appears to be degraded but stable.

3.3 Resources Brought Forward for Analysis

3.3.1 Upland Soils

Soils within the analysis area lie within the Soil Survey of San Miguel County Area, Colorado. This area is considered the plateau country of southwestern Colorado. The plateau country consists of valleys and basins separated by mesas. The major physiographic features in the analysis area include Big and Little Gypsum Valleys which were formed by the collapse of salt anticlines. Soils in the allotment are derived primarily from sedimentary sandstone on the fringes of the valley and Gypsumiferous soils intermixed with other windblown soil types on the valley floor. A unique feature on the valley floor is outcrops of nearly barren exposures of soft Gypsum. These outcrops were formed by groundwater percolating through fractures and faults in the basin that dissolved underlying salt deposits leaving residual leached “Gypsum caps.”

Finding for Land Health Standards for Healthy Upland Soils - The Colorado BLM Standard for Healthy Upland Soils states: *“Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, landform and geologic processes. Adequate soil infiltration and permeability allows for the accumulation of soil moisture necessary for optimal plant growth and vigor and minimizes surface runoff.”*

This standard is not currently being met for the majority of pastures within this allotment. Information used by the BLM interdisciplinary team to come to these determinations consists of

soil and site stability and hydrologic function assessments as determined through the rangeland health assessment (TR 1734-6). It is important to note that the biological and physical potential of every site is unique in space and time and that spatial and temporal variability are taken into account when making assessments.

Soil and site stability is the capacity of an area to limit redistribution and loss of soil resources (including nutrients and organic matter) by wind and water. The key indicators of soil and site stability are rills, water flow patterns, pedestals, and/or terracettes, bare ground, gullies, wind-scoured areas, soil surface resistance to erosion, soil surface loss or degradation, compaction layer, and biological crusts.

Hydrologic function is the capacity of an area to capture, store, and safely release water from rainfall, run-off, and snowmelt (where relevant), to resist a reduction in this capacity, and to recover this capacity when a reduction does occur. Key indicators for hydrologic function include all of the soil and site stability indicators except wind scour and in addition include the following: litter movement, plant community composition and distribution relative to infiltration and runoff, and litter amount.

For a complete description of the indicators refer to Interpreting Indicators of Rangeland Health (TR 1734-6). Indicators are given a rating that references their departure from reference (undisturbed) conditions: either none to slight (NS), slight to moderate (SM), moderate (M), moderate to extreme (ME), or extreme to total (ET). If moderate, moderate to extreme, and extreme total ratings combined are more than 50% of the BLM acres in a pasture for either soil and site stability or hydrologic function it was determined that the standard for upland soils was not met for that pasture. Table 12 below identifies the pastures that are not meeting the standard along with the percent of the acres not meeting and causal factors.

Table 12 Soil Standard Causal Factors

Allotment	Pasture	Percent of pasture not meeting Standard 1 (Soil and Site Stability)	Percent of pasture not meeting Standard 1 (Hydrologic Function)	Causal Factors
Gypsum Valleys	Bullington	100%	27%	Historic and current livestock grazing, recent periods of drought.
	Carnation	100%	100%	Historic and current livestock grazing, recent periods of drought
	Coyote Wash	36%	100%	Historic and current livestock grazing, unauthorized livestock

Allotment	Pasture	Percent of pasture not meeting Standard 1 (Soil and Site Stability)	Percent of pasture not meeting Standard 1 (Hydrologic Function)	Causal Factors
				use from bordering grazing allotment and recent periods of drought.
	Dunham	100%	100%	Historic and current livestock grazing, recent periods of drought
	East Lavender	100%	100%	Historic and current livestock grazing, recent periods of drought
	Hughes Gap	100%	100%	Historic and current livestock grazing, recent periods of drought
	Raven	100%	100%	Historic and current livestock grazing, recent periods of drought
	The Gap	100%	100%	Historic and current livestock grazing, recent periods of drought
	West Lavender	100%	100%	Historic and current livestock grazing, recent periods of drought

Of all possible indicators for soil and site stability and hydrologic function only rills and wind scour did not surface as concerns for the pastures listed in Table 12. All other indicators had the following conditions, where there was a moderate or greater departure rating:

- Water flow patterns were more numerous and extensive than expected; deposition and cut areas demonstrate instability and deposition.
- Pedestals were active (terraces were rarely present).
- Bare ground was higher than expected for the site; bare areas were of moderate or larger size and connected.

- Gullies were moderate or greater in number with indications of active erosion; vegetation was intermittent or infrequent on slopes and/or bed; head cuts were present.
- Soil surface resistance to erosion was significantly reduced in at least half of the plant canopy interspaces and may be reduced beneath plant canopies.
- Soil surface loss or degradation was moderate to severe in plant interspaces with some degree of degradation beneath plant canopies; soil structure was degraded and soil organic matter was significantly reduced.
- Biological crust cover was greatly reduced with a limited suite of life forms and species, occurring only in protected areas or not at all.
- Litter movement was moderate to extreme for small class sizes and greater.
- Infiltration was moderately to greatly reduced, due to adverse changes in the plant community composition and/or distribution.
- Amount of litter present was moderately to greatly more or less than expected for the site relative to potential weather.

For every pasture listed in Table 12, with the exception of the Bullington Pasture, a 100% of the acres are not meeting the standard in regards to soil and site stability and hydrologic function.

The effects of this condition can be seen in Big Gypsum Creek, an ephemeral wash that has incised several feet and continues to erode laterally in its upper reach. In regards to the upper reach, hydrologic features indicate that the sinuosity, width/depth ratio, and gradient are not in balance with the landscape setting and that the upland watershed is contributing to degradation of the stream channel. Erosional/depositional features indicate that channel characteristics are not adequate to dissipate energy, the channel continues to be laterally and vertically unstable, and that the creek is not in balance with the water and sediment being supplied by the watershed.

Big Gypsum Creek's hydrologic and erosional features are partly the result of upland watershed conditions in which almost 100% of the upland soils are not meeting the upland soil standard for rangeland health.

3.3.2 Watershed Conditions

Soils. Standard 5 of BLM's Standards for Public Land Health in Colorado states: "Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, landform and geologic processes. Adequate soil infiltration and permeability allows for the accumulation of soil moisture necessary for optimal plant growth and vigor and minimizes surface runoff." This standard is not being met for the majority of pastures or acres in the Gypsum Valleys Allotment. Information used by the BLM interdisciplinary team to come to these determinations consists of soil and site stability and hydrologic function assessments as determined through the rangeland health assessments (TR 1734-6). It is important to note that the biological and physical potential of every site is unique in space and time and that spatial and temporal variability are taken into account when making assessments.

Soils within the analysis area lie mostly within the Soil Survey of San Miguel Area, Colorado. This area is considered the plateau country of southwestern Colorado. The plateau country

consists of valleys and basins separated by mesas. Major physiographic features in the analysis area include Big and Little Gypsum Valleys (both of which were formed by the collapse of salt anticlines). Soils in the area are derived primarily from sedimentary sandstone and shale formations. The Mancos shale is a saline-marine evaporite that occupies most of the lower valley floors and basins. The sandstone formations include the Dakota, Burro Canyon, and Morrison formations and can be found on the fringes of the valleys. The sandstone formations have interbedded shales that are much less saline and coarser textured than the Mancos shale. A unique feature on the valley floor of Big and Little Gypsum Valleys is outcrops of Gypsum land that consists of nearly barren exposures of soft Gypsum. These outcrops were formed by groundwater percolating through fractures and faults in the basin that dissolved underlying salt deposits leaving residual leached “Gypsum caps.” Small inclusions of Gypsumiferous soils intermixed with other soil types are found throughout the analysis area.

There are a total of 28 soil map units. The primary, secondary, and tertiary soil map units (based on areal extent) are listed in Table 13. Additional specific soil characteristics for all of the soil map units can be found in the Soil Survey of San Miguel Area, Colorado.

Table 13. Major Soil Map Units

Soil Map Unit	Name	Parent Material	Landform	Slope
88	Rock outcrop-Orthents complex	Rock outcrop consists of exposed sandstone bedrock. Orthents complex derived from colluvium and residuum from sandstone and shale.	Rock outcrops occur on barren escarpments, ridgetops, and points of sandstone. Orthents complex soils occur on structural benches and canyon mesas.	40-90%
87	Rock outcrop	Rock outcrop consists of exposed sandstone bedrock.	Rock outcrop consists of barren exposures of sandstone.	40-120%
44	Gladel-Bond-Rock outcrop complex	Gladel and Bond soils derived from residuum weathered from sandstone. Rock	Mesa, structural bench, escarpment	1-50%

For the major soil map units runoff potential is very high and susceptibility to sheet and rill erosion from water is low to moderate. All major soil map units are non-saline. Soil and site stability is the capacity of an area to limit redistribution and loss of soil resources (including nutrients and organic matter) by wind and water. The key indicators of soil and site stability are rills, water flow patterns, pedestals and/or terracettes, bare ground, gullies, wind-scoured areas, soil surface resistance to erosion, soil surface loss or degradation, compaction layer, and biological crusts.

Hydrologic function is the capacity of an area to capture, store, and safely release water from rainfall, run-on, and snowmelt (where relevant), to resist a reduction in this capacity, and to

recover this capacity when a reduction does occur. Key indicators for hydrologic function include all of the soil and site stability indicators except wind scour and in addition include the following: litter movement, plant community composition and distribution relative to infiltration and runoff, and litter amount.

For a complete description of the indicators refer to Interpreting Indicators of Rangeland Health (TR 1734-6). Indicators are given a rating that references their departure from reference (undisturbed) conditions: either none to slight (NS), slight to moderate (SM), moderate (M), moderate to extreme (ME), or extreme to total (ET). If moderate, moderate to extreme, and extreme to total ratings combined are more than 50% of the BLM acres in a pasture for either soil and site stability or hydrologic function it was determined that the standard for upland soils was not met for that pasture. Table 14 lists the pastures that are not meeting the standard along with the percent of the acres not meeting and the causal factors.

Table 14. Soil Standard Causal Factors

Allotment	Pasture	Percent of pasture not meeting Standard 1 (Soil and Site Stability)	Percent of pasture not meeting Standard 1 (Hydrologic Function)	Causal Factors
Gypsum Valleys	Bullington	100%	27%	Historic and current livestock grazing, recent drought, trespass livestock
	Carnation	100%	100%	Historic and current livestock grazing, recent drought
	Coyote Wash	36%	100%	Historic and current livestock grazing, recent drought, trespass livestock
	Dunham	100%	100%	Historic and current livestock grazing, recent drought
	East Lavender	100%	100%	Historic and current livestock grazing, recent drought
	Hughes Gap	100%	100%	Historic and current livestock grazing, recent drought
	Raven	100%	100%	Historic and current livestock grazing, recent drought
	The Gap	100%	100%	Historic and current livestock grazing, recent drought
	West Lavender	100%	100%	Historic and current livestock grazing, recent drought

Of all possible indicators for soil and site stability and hydrologic function only rills and wind scour did not surface as concerns for the pastures listed in Table 14. All other indicators had the following conditions where there was a moderate or greater departure rating:

- Water flow patterns were more numerous and extensive than expected; deposition and cut areas demonstrate instability and deposition.
- Pedestals were active (terraces were rarely present).

- Bare ground was higher than expected for the site; bare areas were of moderate or larger size and connected.
- Gullies were moderate or greater in number with indications of active erosion; vegetation was intermittent or infrequent on slopes and/or bed; head cuts were present.
- Soil surface resistance to erosion was significantly reduced in at least half of the plant canopy interspaces and was reduced to some degree beneath plant canopies.
- Soil surface loss or degradation was moderate to severe in plant interspaces with some degree of degradation beneath plant canopies; soil structure was degraded and soil organic matter was significantly reduced.
- Biological crust cover was greatly reduced with a limited suite of life forms and species, occurring only in protected areas or not at all.
- Litter movement was moderate to extreme for small class sizes and greater.
- Infiltration was moderately to greatly reduced due to adverse changes in the plant community composition and/or distribution.
- Amount of litter present was moderately to greatly more or less than expected for the site relative to potential and weather.

For Gypsum Valleys every pasture listed in Table 14, with the exception of the Bullington pasture, has 100% of its acres as not meeting the standard in regards to soil and site stability and hydrologic function. The effects of this condition can be seen in Big Gypsum Creek, an ephemeral wash that has incised several feet and continues to erode laterally in its upper reach. Big Gypsum Creek's hydrologic and erosional features are partly the result of upland watershed conditions in which almost 100% of the upland soils are not meeting the upland soil standard for rangeland health. In regards to the upper reach, hydrologic features indicate that the sinuosity, width/depth ratio, and gradient are not in balance with the landscape setting and that the upland watershed is contributing to degradation of the stream channel. Erosional/depositional features indicate that channel characteristics are not adequate to dissipate energy, the channel continues to be laterally and vertically unstable, and that the creek is not in balance with the water and sediment being supplied by the watershed.

Water quality. Standard 5 of BLM's Standards for Public Land Health in Colorado states: "The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado. Water Quality Standards for surface and ground waters include the designated beneficial uses, numeric criteria, narrative criteria, and anti-degradation requirements set forth under State law as found in (5 CCR 1002-8), as required by Section 303 of the Clean Water Act." This standard is achieved for the Gypsum Valleys Grazing allotment.

Groundwater quality is not affected by any proposed action within this analysis. Therefore, the discussion is limited to surface water quality.

In Colorado, the segment descriptions within the Lower Disappointment analysis area include segments 1, 2, and 3a of the Lower Dolores River Basin. Segment 1 is the mainstem of the Dolores River from the bridge at Bradfield Ranch (Forest Route 505, near Montezuma/Dolores County Line) to the Little Gypsum Valley Bridge at San Miguel/Montrose County line. Segment 2 is the mainstem of the Dolores River from the Little Gypsum Valley Bridge at the San

Miguel/Montrose County line to the Colorado/Utah border. Segment 3a is all tributaries to the Dolores River including all wetlands, lakes and reservoirs, from the bridge at Bradfield Ranch (Forest Route 505, near Montezuma/Dolores County Line) to the Colorado/Utah border. Beneficial uses for segment 1 are cold water aquatic life, existing primary contact recreation, water supply, and agriculture. Beneficial uses for segments 2 and 3a are warm water aquatic life, existing primary contact recreation, and agriculture (CDPHE-WQCD, June 2010, Regulation No. 35). Segment 3a is use-protected, a designation which allows for some water quality degradation as long as parameters associated with use classifications continue to meet State water quality standards. In association with beneficial uses there are numeric and/or narrative standards.

Numeric standards include physical, biological, inorganic and metal parameters. The salinity standard applicable to Colorado's surface waters is a unique numeric standard that is defined in the document "Proposed Water Quality Standards for Salinity including Numeric Criteria and Plan of Implementation for Salinity Control, Colorado River System, June 1975"; which was most recently updated in 1997. The standard requires that water characteristics in the headwaters of the Colorado River are such that a total dissolved solid (TDS) value of 723 mg/L can be maintained below Hoover Dam. The temperature standard for the Dolores River Basin is a narrative standard that states that temperatures must maintain a normal pattern of diurnal and seasonal fluctuations with no abrupt changes. In addition to these standards, the Colorado Water Quality Control Commission (CDPHE-WQCD, July 2007, Regulation No. 31) has included a narrative statement for all surface waters that states all water (except in wetlands and/or except where authorized by approved permits, certificates, or plans of operation) shall be free from substances attributable to human caused point or non-point source discharges in amounts, concentrations, or combinations that can settle to form bottom deposits detrimental to the beneficial uses (this would include the accumulation of fine sediments); are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life; and, produce a predominance of undesirable aquatic life. These are often referred to as the "free from" standards.

Stream segments that are not fully supporting their designated beneficial uses (by exceeding the one or more of the numeric or narrative standards) are defined as impaired and placed on the State's 303(d) List. The Dolores River from Gypsum Valley Bridge to the Colorado/Utah border, Segment 2, is currently listed for iron. In addition to the 303(d) List of Impaired Waters, there are waters identified for Monitoring and Evaluation (M&E) List (CDPHE-WQCD, June 2010, Regulation No. 93), which identifies water bodies that are suspect of water quality problems, but uncertainty exists regarding several factors, such as reliability of the data. Segment 2 is on the M&E for E. coli.

The primary parameters that can be affected by livestock management include dissolved oxygen, pH, bacteria, TDS, temperature, nitrates, ammonia, phosphorus and the "free from" standards. Iron concentrations are not affected by livestock management. In relation to livestock management, dissolved oxygen, pH, TDS (salinity), phosphorus, and the presence of fine sediments can be influenced by the amount of erosion occurring on the watershed while nitrogen concentrations are influenced more by the amount of runoff. Bacteria and ammonia concentrations are influenced by the presence of livestock in the stream channel or riparian zone and to a lesser degree their presence and concentration on the uplands. Temperature is

influenced by the amount of stream shading and by physical characteristics of the stream, such as width/depth ratio.

3.3.3 Wetlands/Riparian Zones

Standard 2 of BLM's Standards for Public Land Health in Colorado states: "Riparian systems associated with both running and standing water, function properly and have the ability to recover from major disturbances such as fire, severe grazing, or 100-year floods. Riparian vegetation captures sediment, and provides forage, habitat and bio-diversity. Water quality is improved or maintained. Stable soils store and release water slowly." This allotment is currently making significant progress towards meeting this standard. Information used by the BLM interdisciplinary team to come to these determinations consists of proper functioning condition assessments for lotic (flowing water) and lentic (standing water) riparian areas.

The Gypsum Valleys allotment is contained within the Dolores River Watershed. Major drainages within the analysis area include the Dolores River, Big Gypsum Creek, Little Gypsum Creek, and Coyote Wash. The Dolores River is a perennial stream partially controlled by flow releases from McPhee Reservoir. Cottonwoods, some box elder, privet, willow, and several types of riparian herbaceous species dominate the banks of the Dolores River. Tamarisk is present in the floodplain but has recently been controlled through cut stump treatment on much of the BLM administered public land. All other major drainages, along with numerous smaller unnamed drainages, are primarily intermittent and/or ephemeral drainages that flow in response to runoff events and may or may not support discontinuous patches of riparian vegetation. Some of these drainages are dominated by sagebrush, greasewood and rabbitbrush due to limited amounts of available water in the system. All drainages are tributary to the upper Colorado River Basin.

Several springs are scattered throughout the analysis area. Many of these are contact springs which occur where there is an impermeable geologic layer found beneath a permeable geologic layer and many are seep-infiltration springs that occur in channels where the stream has downcut or there is up-thrusting geology. Many of the contact springs lack riparian vegetation, while the seep-infiltration springs are marked by (usually isolated) cottonwoods at their source with riparian vegetation such as willow, phragmites, and rushes continuing for a short way downstream of the source. Springs in the allotment are considered tributary to the Dolores River for the purposes of assigning State water quality standards.

Portions of the Dolores River and Coyote Wash along with one lentic riparian area on public lands were evaluated using Proper Functioning Condition protocol (Table 15). Proper Functioning Condition is a qualitative survey used to assess the hydrology, vegetation and erosional/depositional processes of riparian areas (both lentic and lotic). Riparian areas are rated Proper Functioning Condition (PFC), Functional-At-Risk (FAR) or Non-Functional (NF). Functional-At-Risk ratings include an assessment of trend (BLM 1998). For riparian areas that have a rating of FAR with a "not apparent" trend, causal factors are provided.

Table 15: Proper Functioning Condition ratings.

Allotment	Pasture	Riparian Area	Rating	Trend	Causal Factors
Gypsum Valleys	Coyote Wash	Coyote Wash	FAR	Upward	
	River	Dolores River	FAR	Upward	
	Silvey's Pocket	Silvey's Pocket Spring	FAR	Not Apparent	OHV use, invasive species

The lotic riparian areas rated FAR with an upward trend. Silvey's Pocket Spring rated FAR with trend not apparent. Silvey's Pocket Spring had evidence of current livestock use but it was not certain that this was a causal factor leading to its FAR condition. Future monitoring of the spring will help determine trend and, once OHV use is controlled, if livestock is affecting the spring's functionality.

3.3.4 Vegetation Conditions

Finding on the Public Land Health Standard for Plant Communities

Overall, public lands in the Gypsum Valleys Grazing Allotment achieved the Public Land Health Standard for healthy plant communities in the River and West Lavender Pastures and did not achieve this standard for the remainder of the allotment.

For this allotment the attributes for healthy plant communities (also called Biotic Integrity) rated a "Moderate" departure from expected potential for 50% of rated acres and "Moderate to Extreme" for 41% of rated acres. Conversely 10% of the acres rated a "Slight to Moderate" departure from expected.

Indicators contributing to the substantial departure ratings included soil surface resistance to erosion and surface structure and organic matter content (mostly in the Gap pasture). Cool season perennial bunchgrasses were typically found only in trace to minor amounts, warm season grasses were usually present but species diversity was limited. It was common to see dead perennial bunchgrass bases and shrubs in decadent condition. The capability to produce seed was somewhat limited to greatly reduced, especially in the southern pastures including the Bullington Pasture.

Three long-term trend monitoring transects show a stable trend. One transect also appears to be stable but is in such degraded condition that change is unlikely and the other seven transects show a downward or stable to downward trend. Please refer to Table 16 below:

Table 16. Gypsum Valleys Allotment Trend		
Direction of Trend	Number of Studies	Pasture
Downward	3	Bullington 2, Carnation, Raven
Stable to Downward	4	Bullington 1, East Lavender, Gap 1, Gap 2
Stable Degraded	1	Coyote Wash
Stable	3	Magpie, River, Silveys Pocket

Causal factors for this allotment were identified as current livestock use, previous periods of drought conditions, big game wintering use, past land treatment activities and associated prairie dog activity.

The affected vegetation was described in detail during the land health assessment process and a summary of existing conditions can be found in the Land Health Evaluation and Determination document in Appendix H and the existing condition column in Appendix G. In addition, Table 9 of this document displays the total acreage of each ecological site regardless of land ownership. The Environmental Effects section for vegetation focuses on the elements of vegetation identified in the existing condition/desired conditions.

An ecological site is an area where climate, soil and relief are sufficiently uniform to produce a distinct natural plant community. It is typified by an association of plant species that differ from those on other ecological sites in kind and/or proportion of species or in total production. An important part of the Land Health Assessment process BLM conducted on these allotments in 2006 was to compare the plant community occupying specific ecological sites with the potential plant community described for that ecological site. The health of ecological sites was rated based on the level of departure from the existing vegetation displayed when compared with the potential.

BLM used Natural Resource Conservation Service (NRCS) ecological site descriptions as baseline information. Soils were cored and checked at each field site to evaluate the accuracy of the NRCS ecological site mapping. The ecological sites present within this allotment and their respective acreages are listed in Table 9.

Dominant ecological sites affected by livestock grazing in this allotment are: Semi Desert Sandy Loam/Semi Desert Loam and Shallow Clay Loam Pinyon Juniper.

The following paragraphs describe the vegetation each ecological site would sustain at its potential. While potential vegetation is not generally the target vegetation community in this analysis, it is useful to understand the range of vegetation these sites could support under a suite of ideal conditions. In many areas on this landscape, there is a gap between existing vegetation and the desired vegetation. Existing vegetation conditions have been summarized in Appendix G.

Semi Desert Sandy Loam/Semi Desert Loam: Potential vegetation on this site is dominated by cool season bunchgrasses. Biological soil crusts are a dominant or subdominant component. Subdominant components include big sage, black sage and galleta grass. Warm season bunchgrasses are either a subdominant or common component. Several perennial forbs and the cool season rhizomatous western wheatgrass are common components.

Shallow Clay Loam Pinyon Juniper: Potential vegetation on these sites has a high variability in dominance. Common species include pinyon – juniper, sagebrush species, galleta, Indian ricegrass, bottlebrush squirreltail, needle-and-thread, Sandberg bluegrass, junegrass and several species of palatable shrubs. Biological soil crusts are a subdominant component. Within the Gypsum Valleys allotment, the existing conditions for the above mentioned ecological sites do not display potential vegetation. Long-term desired conditions outlined in Appendix G include the presence of many of the native species described as potential vegetation, but generally in lesser amounts. In the short-term, desired conditions focus on elements most likely to show observable changes and provide evidence of improvement. The environmental effects section describes effects related to plant vigor, establishment of new native vegetation and the life cycle of plants.

3.3.5 Noxious and Invasive (non-native) Species

Noxious weed plant species known to occur within the allotment include Russian knapweed, tamarisk, halogeton, musk thistle, cheatgrass and Russian thistle. Russian knapweed, tamarisk and musk thistle are classified as List B species while cheatgrass and halogeton are classified as List C species for the State of Colorado. Weeds on the List B consist of species which must be controlled in order to stop the spread, while weeds on List C consist of those species in which the goal is not to stop the spread but is to provide additional educational, research and biological control resources to jurisdictions that choose to require management of List C species.

Russian Knapweed is the most prevalent weed species occurring within the allotment followed to a lesser extent by halogeton, tamarisk, musk thistle and cheatgrass. The infestations are primarily associated with recently disturbed sites such as stock reservoirs, corrals, fence lines, roads, trails, and mining activities.

With the exception of cheatgrass, known populations of these invasive species are treated annually with herbicides to reduce the spread and overall size of infestations as part of the San Juan Public Lands Invasive Species Action Plan. These treatments are conducted in cooperation with the Tres Rios Field Office, San Miguel County and existing uranium mine operators.

3.3.6 Wildlife – Terrestrial

Finding on the Public Land Health Standard for plant and animal communities

The Gypsum Valley allotment failed to achieve Range land health Standard 3, *Healthy Plant and Animal Communities*. However, none of the failures to achieve this Standard were based on or related to observed deficiencies in the health of terrestrial wildlife communities. The attributes

that reflected a failure to achieve this Standard were related to the poor health of some plant communities. It is reasonable to assume that the lack of health in those plant communities has some impact on the health of the terrestrial wildlife species that use, occupy or otherwise rely on those plant communities. However we did not observe specific failures in the health of terrestrial wildlife communities and, based on current information, we find that this Standard was met for terrestrial wildlife communities. For more complete information on this Standard see Appendix H the Land Health Evaluation and Determination Document. We anticipate this standard to improve under the adaptive management alternative. The ability to make needed changes to the grazing system based on annual monitoring will benefit the plant and animal communities in this allotment.

There are numerous and diverse terrestrial wildlife species that may occur in the analysis area. Mammals that may be within the project area include: red and gray fox (*Vulpes spp.*), raccoon (*Procyon lotor*), coyote (*Canis latrans*), badger (*Taxidea taxus*), desert shrew (*Notiosorex crawfordi*) possibly the Merriam's shrew (*Sorex merriami*), black-tailed jackrabbit (*Lepus californicus*), desert and mountain cottontail (*Sylvilagus spp.*), chipmunks (*Tamias spp.*), ground squirrels (*Sciuridae spp.*), Gunnison's prairie dog (*Cynomys gunnisoni*), woodrats (*Neotoma spp.*), mule deer (*Odocoileus hemionus*), elk (*Cervus Canadensis*), desert bighorn sheep (*Ovis canadensis nelsoni*), several species of mice (*Peromyscus spp.*), and the ringtail (*Bassariscus astutus*) (Fitzgerald 1994, pers. observations). The condition of the grasses and forbs throughout the project area would affect the rodent, rabbit, and prairie dog populations, since these vegetation types are the forage base for these animals. Prairie dogs occur in very low densities and are seen infrequently in the project area. Animals that utilize these vegetation types can illustrate extremes in numbers, fluctuating with available food resources and weather conditions. Rodents and rabbits, in turn, are prey for the carnivores likely to be found within these allotments. Numerous studies have illustrated the cause and effect relationship between healthy carnivore populations and availability of prey.

The Gypsum Valleys contain important big game winter range providing forage for elk and deer throughout the winter months. Historic and current big game use has contributed to the existing resource conditions in the Gypsum Valley Allotment. Cattle arrive on the allotment in November, and elk often begin using the area in December. Depending on snowmelt at the higher elevations, both elk and cattle can be present on the allotment at the same time in the spring and as late as May 1st. Colorado Parks and Wildlife has designated the area within the allotment as big game winter range. Winter range is broken down into three categories: normal winter range, severe winter range, and winter concentration areas (CPW, 2013). The Gypsum Valleys Allotment is almost entirely classified as "severe winter range" for both mule deer and elk. The intensity of winter elk use varies widely from year to year and from site to site, and is generally controlled by annual variation in the timing and amount of snowfall, and in the long-term by fluctuations in population levels. In these allotments, elk movements are also affected by water availability and elk have taken advantage of water sources provided by the permittee in recent winters. Elk populations are managed by Colorado Parks and Wildlife and are not controlled by the BLM.

Elk migrate into the valleys from the Grand Mesa, Utah, and other high elevation summer habitat on surrounding U.S. Forest Service lands. Elk move in and out of these valleys over the winter

months; strongly influenced by weather patterns and available forage in mid-elevations. Deer tend to migrate into the valleys by late fall and stay there until late April, when they move into upper elevations for fawning and summer forage. Gypsum and adjacent valleys support large deer herds throughout the winter.

These big-game species are having a profound influence on private lands within and adjacent to the Disappointment Valley area; damaging agricultural croplands and fences. Local State and Federal agencies are actively engaged in habitat improvement and game damage programs with the following objectives: change the pattern of use on the landscape, discourage game damage, and improve forage.

3.3.7 Wildlife – Aquatic

With the exception of the Dolores River, most of the drainages in the Gypsum analysis area are intermittent and/or ephemeral. Springs or seeps found within the intermittent drainages often provide riparian habitat. In other places there are pools of water that may persist into the summer but they are likely to be dry much of the year. These areas provide habitat for aquatic insects and amphibians, as well as important sources of water for a variety of birds, mammals, and reptiles. Various species of amphibians have been documented using water sources in the Gypsum Valley area, particularly Coyote wash. These species may include the Northern leopard frog (*Rana pipiens*) and Canyon tree frog (*Hyla arenicolor*). Artesian water sources have been utilized in the past to provide water sources for livestock, as well as wildlife. These are considered valuable resources and may warrant further development and protection. The Dolores River supports a wide variety of aquatic invertebrate species that help support the overall diversity and health of this riparian ecosystem. The Dolores River also hosts a successfully reintroduced River otter (*Lontra canadensis*) population which relies on the aquatic health of this unique river system for its continued proliferation.

The diversion of water for use in stock ponds would cause water depletions to occur downstream into the Colorado River, affecting federally listed fish species. In July 2008, BLM prepared a Programmatic Biological Assessment (PBA) that addresses water depleting activities in the Colorado River Basin. In response to BLM's PBA, the FWS issued a Programmatic Biological Opinion (PBO) (#ES/GJ-6-CO-08-F-0010) on February 25, 2009, which determined that water depletions from the Colorado River Basin resulting from BLM actions described in the PBO are not likely to jeopardize the continued existence of the Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), bonytail (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*) or result in the destruction or adverse modification of their critical habitat. These threatened, endangered and sensitive fish species are addressed in the next section, 3.3.8. The PBO addresses internal and external BLM projects including impoundments, diversions, water wells, pipelines, and spring developments. The FWS determined that projects that fit under the umbrella of the PBA would avoid the likelihood of jeopardy and/or adverse modification of critical habitat for depletion effects to the Upper Colorado River Basin if they deplete relatively small amounts of water (less than 100 AF) and BLM makes a one-time contribution to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) in the amount equal to the average annual acre-feet depleted by each project. The PBO instructed BLM to make an annual payment to the National Fish and Wildlife

Foundation (NFWF) to cover all BLM authorized actions that result in water depletions. Refer to the mitigation section relating to stock ponds and the FWS programmatic Biological Opinion.

3.3.8 Special Status Species – Terrestrial & Aquatic

Finding on the Public Land Health Standard for Threatened & Endangered Wildlife Species

The standard states that special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities. This standard is achieved for the Gypsum Valley allotment.

Analyzing and disclosing the effects of the proposed action to federally listed species is needed to comply with the Endangered Species Act of 1973 (16 U.S.C.1531 et seq.), as amended; BLM manual 6840 direction for special status species management; and the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C.4321 et seq.), as amended. The project effects discussed below do not result in a requirement to consult with the US Fish and Wildlife Service (Section 7, Endangered Species Act). Therefore, the permittee need not be informed through written letter, their opportunity to be an "Applicant" in the Section 7 consultation process.

This allotment falls within the range of several listed threatened or endangered species in Colorado and eastern Utah and are listed in Appendix J. Though the Project Area does provide potential suitable habitat for some listed species, there are no occurrences of listed or candidate species. An analysis of potential effects to federally listed or otherwise sensitive species has been completed and is addressed below.

There is no habitat within the proposed action area for Uncompahgre fritillary butterfly (*Boloria acronema*), a federally listed endangered species, or Canada lynx (*Lynx Canadensis*), a federally listed threatened species. Therefore, Uncompahgre fritillary butterfly and Canada lynx will not be carried forward for analysis.

The yellow-billed cuckoo (*Coccyzus americanus*) is a federally listed threatened species that relies on cottonwood galleries within riparian areas. There are no documented observations and no mapped critical habitat for yellow-billed cuckoo in the project area.

- *The proposed alternatives will have “No Effect” on the yellow-billed cuckoo and its associated habitat.*

The New Mexico Jumping mouse (*Zapus hudsonius luteus* NMMJM) is a federally listed endangered species. There are no known occurrences of NMMJM and no proposed critical habitat within the Gypsum Valleys Allotment boundaries currently or historically. The nearest known population is on the Florida River outside Durango, Colorado, 71 miles from the Gypsum Valleys Allotment.

- *The proposed alternatives will have “No Effect” to the New Mexico meadow jumping mouse or its associated habitat.*

The Bonytail (*Gila elegans*), humpback chub (*Gila cypha*), Colorado pikeminnow (*Ptychocheilus lucius*) and razorback sucker (*Xyrauchen texanus*) are federally endangered fish species that are not known to occur within this area of the Dolores River. Critical habitat for all of these species is outside of the project area and the proposed project will have no effect to these species. Creeks and canyons within these allotments are tributaries to the Dolores River within the Upper Colorado watershed. Viewed narrowly, water depletions are not associated with pure livestock management activities (rotating pastures, etc.) so there would be no effect to listed fishes from these activities. Range improvement projects, such as the creation of new reservoirs, might result in water depletion. These types of projects are considered under a programmatic assessment and the responsive programmatic biological opinion for depletions in the Upper Colorado River; under the procedures spelled out in that opinion issued by the U.S. Fish and Wildlife Service. Water depletions or affects to these fish species will not be addressed further in this assessment.

- *The proposed alternatives will have “No Effect” to the Bonytail, Humpback Chub, Colorado pikeminnow and the razorback sucker.*

The Mexican spotted owl (*Strix occidentalis lucida*) is a threatened species with habitat definitions that have been refined for Colorado which include the importance of sandstone cliffs for nesting. Though there is no mapped critical habitat for the Mexican spotted owl in the analysis area, there is potentially suitable habitat for Mexican spotted owls within the canyons of this allotment. Recent survey efforts in the upper Dolores River canyon have been unsuccessful and there have been no observations of this species within the Gypsum Valleys Allotment. Survey efforts will continue in ensuing years to locate Mexican spotted owls and define the best potential habitat. Grazing is not expected to have any negative effects on potential individuals or breeding pairs of Mexican spotted owls in this area.

- *The proposed action will have “No Effect” on the Mexican Spotted owl.*

The southwestern willow flycatcher (*Empidonax traillii extimus*) is a federally endangered species that predominately uses riparian areas with slow moving water and a multi-structured vegetation component, usually comprised of willow with a cottonwood over-story. As described in the Southwest Willow Flycatcher Recovery Plan (USFWS 2002), no portion of this allotment is within the Upper Colorado Recovery Unit and there is no critical habitat within the project area. Though there is some potential habitat for this species, there are no known occurrences within the project area. Due to the timeframe in which cattle would be removed from the allotment, grazing is not expected to have any impact on potential individuals or breeding pairs of this species if they were to be found in the project area.

- *This proposed action will have “No Effect” on the Southwestern Willow Flycatcher.*

The Gunnison sage grouse (*Centrocercus minimus*), hereafter referred to as grouse is a federally listed threatened species. There are no recent documented occurrences of grouse in the Gypsum Valleys analysis area; even though this allotment is within the historic range of the Gunnison

sage grouse as mapped by the Colorado Parks and Wildlife Public Sam Data (CPW, 2013). Maps prepared by Rogers in 1942 and 1961 do not show grouse use in this area.

At the time Gunnison sage grouse were listed as threatened, the USFWS concurrently published a final rule to designate critical habitat. Twenty one acres of critical habitat overlap with the Gypsum Valleys Allotment. However, only habitat that meets the Primary Constituent Elements (PCE) listed in the USFWS's "*Designation of Critical Habitat for Gunnison Sage-grouse*" (U.S. Fish and Wildlife Service, 2014 p. 92) within Critical Habitat is protected from adverse modification under the Endangered Species Act. The PCEs for grouse are one landscape level element that outlines sagebrush cover density, size, and configuration; and four site-scale elements that outline breeding, summer and late fall, winter, and alternative mesic habitats. The allotment area that overlaps with critical habitat does not contain habitat characteristics of any of the PCEs and can be characterized as steep habitat with Pinyon/Juniper vegetation. Therefore, even though some of the allotment overlaps grouse Critical Habitat, the proposed action will not result in adverse modification of grouse habitat.

Gunnison sage grouse exist in two distinct population areas within the Tres Rios field office; the Dove Creek-Monticello and San Miguel populations. The closest known occupied habitat for grouse in relation to the Gypsum Valleys allotment is in Dry Creek Basin (a sub-population of the San Miguel population), to the north and east of this analysis area. The Gypsum Valleys contain very little continuous sagebrush that could provide breeding, nesting and wintering habitat for grouse. The salt desert shrub lands that are predominant in the Gypsum analysis area are not considered to be suitable habitat for Gunnison sage grouse nor would it provide suitable habitat for the recovery of this species. Currently there is no USFWS recovery plan for the Gunnison sage grouse. For guidance in the interim, the BLM currently adheres to the "Gunnison Sage-grouse Rangeland Conservation Plan" (RCP 2005) for management direction in regards to the grouse. If grouse are discovered within the Gypsum analysis area, the guidelines in the RCP and in the eventual recovery plan for this species will be adhered to. If this species is documented, the direction outlined in the RCP in relation to grazing will be implemented and every effort will be taken to manage grouse habitat appropriately. All of the alternatives for this allotment, except the no action, propose a decrease in overall AUM numbers. The preferred alternative would utilize adaptive management practices in which conditions to grasses and forbs are projected to improve in the analysis area. Because grouse do not occur in the Gypsum analysis area, this species will not be affected by grazing.

- *This proposed action will have "No Effect" on Gunnison sage grouse or its associated critical habitat.*

Under all the alternatives, it has been determined that the above listed threatened, endangered or candidate species will not be affected and formal consultation with the USFWS is not necessary. Therefore these species will not be brought forward for further analysis.

BLM Sensitive Species

Several BLM sensitive species that may be found in the project can be found in Appendix J and were brought forward for analysis in this assessment. These include the Desert bighorn sheep, Brewer's sparrow, Bald eagle, ferruginous hawk, Allen's big-eared bat, fringed myotis, Yuma

myotis, big free-tailed bat, spotted bat, peregrine falcon, western burrowing owls, northern leopard frog, desert spiny lizard and long-nosed leopard lizard. There is a diversity of habitats suitable for terrestrial species from steep, rocky canyons, vegetated riparian areas to pinyon-juniper woodlands. There are several sensitive species that may have suitable habitat within the proposed project areas, but no occurrences have been documented.

Desert Bighorn Sheep (*Ovis canadensis nelsoni* - BLM sensitive) populations have been successfully introduced into the upper Gypsum Valley allotment area over the last 20 years and are referred to as the Lower Dolores river population. This population of bighorn sheep regularly uses the Dolores River corridor that goes through the Gypsum valley allotment. Colorado Parks and Wildlife has monitored this population in recent years with GPS radio collars and has collected more precise habitat use data for this population. Though there is the potential for competition of forage between Desert bighorn sheep and livestock in this allotment; the limited timing and placement of the livestock will have little impact to the overall habitat for the bighorn sheep. This population will continue to be annually monitored to insure conflicts that could be detrimental to this species are not occurring as a result of the proposed action.

Brewer's sparrow (*Spizella breweri* - BLM sensitive) is a small, commonly found migratory songbird that is found in the plains and foothills of the western U.S. Historic practices of removing sagebrush to increase grazing opportunities have contributed to the overall decline of this species, but current grazing practices are not thought to threaten this species. This species will not be carried forward for further analysis.

American bald eagles (*Haliaeetus leucocephalus* -BLM sensitive) and Golden eagles(*Aquila chrysaetos*) are known to use the Gypsum Valleys during the winter for roosting and foraging. The known bald eagle roosts in this project area are located on private lands along the Dolores River. Eagles have been known to roost in this vicinity for many years and are not affected by livestock or grazing. Bald eagles utilize winter roost sites in the Gypsum valley grazing allotment. These roosts have had use documented since the 1960's and are still being used. Grazing has occurred concurrently during the time of year eagles are known to be in these valleys for decades. It does not create additional disturbance, nor do the proposed actions or alternatives constitute an impact to this bird. Golden eagles are prevalent in the Gypsum analysis area and regularly nest on the cliff faces surrounding Gypsum valley. Grazing is not causing any negative affects to golden eagles. These species will not be carried forward for further analysis.

Ferruginous Hawk's (*Buteo regalis* - BLM sensitive) are migratory raptors with no known occurrences of breeding within the Tres Rios Field Office management area. They may occur during migration and forage in the project area during the winter. There are no effects to this species from grazing. This species will not be carried forward for further analysis.

The following BLM sensitive bat species; Allen's big-eared bats (*Idionycteris phyllotis*), fringed myotis (*Myotis thysanodes*), Yuma myotis (*Myotis yumanensis*), Big free-tailed (*Nyctinomops macrotis*) and spotted bats (*Euderma maculatum*) are found in semi-desert environments and are known to roost in mines, rock crevices and caves. There may be roosts, as well as foraging areas, within the pinyon-juniper woodlands in the project area. These species are also tied to surface water and riparian areas and therefore would likely occur in the Gypsum Valleys Allotment.

There are no known effects to bat species from grazing. These species will not be carried forward for further analysis.

Peregrine falcons (*Falco peregrinus*) are known to occur and reproduce in the Gypsum Valley analysis area. This species is rebounding and was recently delisted from protection under the Endangered Species Act. They are beginning to re-occupy cliff sites that have not been used in decades. New sites are located in southwest Colorado annually. Peregrine falcon annual breeding success is strongly tied to prey availability. Potential effects to peregrines could occur as a result of changes to their prey base but this is difficult to tie back to grazing practices. Peregrines eat a diversity of bird species including neotropical migrants and year-round residents. Several neotropical migrants known to occur in the area are negatively impacted by heavy grazing including the horned lark and green-tailed towhee. Conversely, other birds are positively impacted by heavy grazing such as the mountain bluebird and sage thrasher (Saab 1995). There are no effects to this species from grazing. This species will not be carried forward for further analysis.

The burrowing owl (*Athene cunicularia*) is a state listed species and a BLM sensitive species. Potential habitat for this species exists in the Gypsum Valleys, though they are not documented to occur within the proposed project areas. There are few known prairie dog colonies in the Gypsum Valleys Allotment, which burrowing owls are dependent on for nesting and reproduction. There are no known effects to this species from grazing and it will not be carried forward for further analysis.

The long-nose leopard lizard (*Gambelia wislizenii*) is a larger-bodied lizard that is on the BLM sensitive species list. Habitat for the longnose leopard lizard is flat or gently sloping shrublands with a large percentage of open ground and includes mesa tops above canyons. The longnose leopard lizard has a small home range from 1.6 to 6 acres in size and has an unwary behavior, making them vulnerable to human exploitation (Hammerson, 1986). Though habitat exists in the Gypsum Valleys Allotment, this species is active above ground from May to early August and would not be affected by the timing of proposed grazing in this analysis area.

The desert spiny lizard (*Sceloporus magister*) is on the BLM sensitive species list. It possibly occurs within the project area since its habitat includes shrub-covered dirt banks and sparsely vegetated rocky areas near flowing streams or arroyos (Hammerson, 1986). This species is also dormant during the winter and would not be affected by grazing.

The northern leopard frog (*Rana pipiens*) is known to occur throughout Colorado and is associated with wet meadows and water's edge. This species is likely to occur in riparian areas located within the Gypsum valleys and may be affected by grazing in small riparian areas, but is not likely to be affected in the long-term by grazing.

3.3.9 Special Status Species – Plants

Finding on the Public Land Health Standard for Threatened & Endangered Plant Species

The standard states that special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or

enhanced by sustaining healthy, native plant and animal communities. This standard is not achieved for the Gypsum Valleys Allotment due to OHV use in the Magpie Pasture. Current livestock grazing is not a causal factor for not achieving this standard.

As part of the Tres Rios Field Office’s effort to follow BLM Sensitive Species management direction (BLM Manual 6840), the monitoring and inventory of selected rare species, and their potential habitat occurs yearly. This work is done both by BLM and in partnership with the Colorado Natural Heritage Program (CNHP) and others. CNHP is the official steward of the BLM Colorado’s rare plants database and updates it regularly.

Based on the most current data from the CNHP rare plants database (September 2013), there are no known endangered, threatened or candidate plant species present within the allotment. There are known occurrences of both BLM and Forest Service sensitive plant species and other rare plant species within the allotment. Habitat also exists for sandstone milkvetch (*Astragalus sesquiflorus*) and Jones’ bluestar (*Amsonia jonesii*). Table 17 below lists the sensitive and rare species that occur within the allotment:

Table 17. Sensitive and Rare Plant Species within the Gypsum Valleys Allotment.

Common Name	Scientific Name	Sensitive	Rare	Habitat
Aromatic scurf pea	<i>Pediomelum aromaticum</i>	BLM		Open pinyon-juniper woodlands, in sandy soils or adobe hills, 4,800’ – 5,700’.
Eastwood’s Monkeyflower	<i>Mimulus eastwoodiae</i>	BLM		Shallow caves and seeps on canyon walls, 4,700’ – 5,700’.
Gypsum Valley cat-eye	<i>Cryptantha Gypsumsophila</i>	BLM		Scattered Gypsum outcrops of the Paradox Member of the Hermosa Formation in Western Colorado.
Naturita milkvetch	<i>Astragalus naturitensis</i>	BLM		Sandstone mesas, ledges, crevices and slopes, 5,000’ – 7,000’.
Giant helleborine	<i>Epipactis gigantean</i>	USFS		Seeps on sandstone cliffs and hillsides; springs, hot springs, 4,800’ – 8,000’.
Weak-stemmed mariposa lily	<i>Calochortus flexuosus</i>	USFS		Dry, rocky sites in creosotebush, blackbrush, sagebrush, scrub or, less commonly, in pinyon-juniper woodland. It grows in sandy and clay soils.
Nealley’s dropseed	<i>Sporobolus nealleyi</i>		CNHP	Scattered Gypsum outcrops of the Paradox Member of the Hermosa Formation in Western Colorado.
Largeleaf Gypsumsoplaca	<i>Gypsumsoplaca macrophylla</i>		CNHP	Gypsumsiferous and calcareous soils.
Nodule cracked lichen	<i>Acarospora nodulosa var. nodulosa</i>		CNHP	Gypsumsiferous and calcareous soils.
Gypsum rim lichen	<i>Lecanora Gypsumsicola</i>		CNHP	Gypsumsiferous and calcareous soils.

Gypsum valley cat-eye (*Cryptantha Gypsumsophila*) is a BLM sensitive species. It is found only almost exclusively in Gypsum, Disappointment and Paradox valleys of Colorado, except for one disjunctive occurrence in Sinbad Valley, CO. Associated with this species on Gypsum soils are three rare lichen species: Gypsum rim lichen (*Lecanora Gypsumsicola*), nodule cracked lichen (*Acarospora nodulosa var. nodulosa*) and largeleaf Gypsumsoplaca (*Gypsumsoplaca*

macrophylla). In addition Nealley’s dropseed (*Sporobolus neallyi*) a perennial bunchgrass also is associated with these soils. In Colorado it is known only to Gypsum and Disappointment valleys. Because of these five rare, Gypsum specific species, an Area of Critical Environmental Concern has been proposed for the Gypsum outcrop areas of Gypsum valley.

3.3.10 Cultural Resources

Range permits are undertakings under Section 106 of the National Historic Preservation Act. Range Improvements associated with the allotment (e.g. fences, stock reservoirs, spring improvements) are subject to compliance requirements under Section 106 and will undergo standard cultural resources inventory and evaluation procedures. During 106 review, a cultural assessment (MacMillan 2010) was completed for the Disappointment Creek (#17036), Gypsum Valleys (#08068), and RCA (#17057) allotments on May 27, 2009 following procedures and guidance as outlined in the 1980 National Programmatic Agreement Regarding The Livestock Grazing And Range Improvement Program, IM-WO-99-039, IM-CO99-007, and IM-CO99-019.

One-hundred forty-two cultural resource inventories have been previously conducted over the past 32 years within the above mentioned allotments. A total of 11,403 acres have been surveyed, resulting in the recording of 447 archaeological sites. The chronological affiliation of these sites range from Paleo-Indian to Historic. The archeological site types include prehistoric rock shelters, open artifact scatters, rock art panels, wicki-ups, architectural features, and historic ditches, trails, and sweat lodges. Of the sites recorded, approximately 26% are determined Eligible for listing on the National Register of Historic Places. 30% are Needs Data, and 44% are Not Eligible.

A cursory, relative assessment of each allotment’s site potential was calculated as part of this analysis. This was done by using the number of acres previously inventoried and the resultant number of sites recorded during those inventories. A summary of this assessment is shown below in Table 18.

Table 18. Summary of the Lower Disappointment Allotments Permit Renewal Cultural Assessment.

Allotment	Acres Inventoried at a Class III level	Acres NOT Inventoried at a Class III level	Percent % of Allotment Inventoried at a Class III level	Number of Cultural Resources Known in allotment	High Potential of Historic Properties (y/n)	Management Recommendations (additional inventory required and historic properties to be visited)
Disappointment Creek	3,700 acres	38,725 acres	8.7%	233	Y	367 acres to survey and 14 sites to monitor; see Appx ARCH1a
Gypsum Valleys	4,693 acres	40,522 acres	10.4%	89	N	40 acres to survey and 10 sites to monitor; see Appx ARCH1b
RCA	3,010 acres	19,140 acres	15.7%	125	Y	120 acres to survey and 11 sites to monitor; see Appx ARCH1c

Allotment #17036 (Disappointment Creek; 233 sites/3,700 acres; 1 site per 15.9 acres) has the highest site density, in comparison to the adjacent allotments. Allotment #17057 (RCA; 125 sites/3,010 acres; 1 site per 24 acres) has relatively moderate site potential. Allotment #08068 (Gypsum Valleys; 89 sites/4,693 acres; 1 site per 53 acres) is considered low relative to the other adjacent allotments. As a result of this analysis, and the relatively low site density expected, the

cultural resources study (MacMillan 2010) did not include inventory in the Gypsum Valleys allotment.

3.3.11 Socioeconomics and Cultural Lifestyle

This section describes how the different alternatives may affect the economic well-being of the permittees, and it also assesses potential social, economic, and cultural effects to local communities. Therefore, this evaluation was done, and is presented, in both an individual permittee context, and a larger community scale context. Although some quantitative data is presented in this section, the majority of the social and economic analysis for communities is qualitative. This was done because many of the values associated with western ranching, such as cultural lifestyle, community heritage, and aesthetics, cannot be assigned a numerical dollar value for evaluation. A paper titled “The Economic Importance of Livestock Grazing on BLM Land in Fremont County Wyoming” (Taylor, 2004) was used for this evaluation, and is referenced in this section. We make the assumption that the economic importance of livestock grazing in Colorado is similar to that in Wyoming.

The economic analysis in this section does not consider the individual permittees personal financial information (real estate value, capital investment, operating costs, debt, profit margin, etc.) in regards to sustaining operations. Those values were not available to BLM. The economic analysis is conducted under the assumption that the ranch sustainability is dependent upon a profit margin.

The affected BLM grazing permittees for this allotment are involved in cow-calf beef cattle production operations. To be successful they have to have economical sources of feed and water for their mother-cows 365 days a year. Depending on a number of factors, these livestock operators may also carry all or part of their bulls year-around, or may buy all or part of their bulls each spring and sell them in the late summer or fall. Having adequate summer pasture is of little value if these livestock operators cannot accommodate their production cows for the balance of the year.

Community Scale Context: The Gypsum Valleys Allotment lies within portions of both San Miguel and Montrose Counties. These counties are predominantly rural. The Majority of the affected land is within San Miguel County.

Livestock grazing is recognized as an important aspect of the local custom, culture, and economy in San Miguel County and is supported in San Miguel County’s Comprehensive Development Plan (CDP), which was adopted in 1978 and amended in 2008. The San Miguel CDP states the following goals, objectives and policies that are related to agriculture, which includes ranching:

- Preserve agricultural lands of economic and social importance to the County (Objective, Page 13).
- Ensure that we uphold the “Right to Farm” legislation and the “Open Range Law” that protect farmers and ranchers and enable them to continue producing food and fiber, which maintains our Western Heritage (Policy – Page 13).
- Ensure multiple use of public lands for the protection and benefit of all users, both permanent and visitors, and develop where appropriate (Goal, Page 14).

Montrose County finalized a Master Plan in April 2010. The copy of the Master Plan available on the County web site on August 12, 2010 states that:

“Since the 1800s, farming and ranching have been integral parts of the economy and heritage of Montrose County. These activities have contributed to the attractive rural character of Montrose County. Through the years, the prevalence of agriculture in the County has changed, but its importance has not. As agriculture lands give way to other uses it is crucial that those who are willing and able to pursue agricultural activities as a livelihood have the support of the County.”

It is recognized that an important aspect of ranching in the Rocky Mountains is that grazing on public lands typically has no viable substitute. Ranch operations in the west have built and maintained their operations with reliance on federal grazing permits. Relatively little substitute grazing is available on private land, due to high land values and much of the land base of private ranches being dedicated to existing livestock grazing operations or raising hay for winter feed. Without federal grazing land, operators would either have to purchase more feed, find other private land to use for grazing, or change operations. Generally, the cost of grazing on private land is several times the cost of grazing on federal lands, making it an unaffordable option. If private land options could be found it would have to be fairly close to the existing base of operations; even affordable alternate sources of feed or forage would not be viable if substantial new transportation costs would have to be incurred.

According to a 2003 Agricultural and Resource Policy Report prepared by the Colorado State University (CSU Extension, 2003), in many rural areas of the United States, agricultural lands are under pressure to convert to rural residential uses. A socioeconomic analysis in neighboring Montezuma and Dolores Counties was completed for the Canyons of the Ancients National Monument Resource Management Plan. The Draft Environmental Impact Statement for the CANM Plan (BLM, 2008) states that traditional ranching and agricultural lands in Montezuma and Dolores Counties are being converted to low-density rural residential subdivisions. Farm size in these counties has decreased from 22-42 percent. Although the numbers for San Miguel and Montrose Counties cannot be assumed to be the same as Montezuma and Dolores Counties, we are assuming the conversion trend would be similar.

Residential land use typically leads to greater demand for community services, including police, emergency services, schools, and transportation infrastructure. The American Farmland Trust reported in a 2007 Cost of Community Services Fact Sheet (AFT, 2007) that, on average, residential development requires \$1.19 in community services for every \$1.00 of tax revenues it generates. In contrast, forest and farm land uses only require \$0.37 in services for every \$1.00 of tax revenue generated. This shows that in general, an agricultural use of the land pays for itself from a public policy perspective.

A paper titled “The Lack of a Profit Motive for Ranching: Implications for Policy Analysis” (Torell, 2001) identified values associated with ranches that cannot be quantified in economic terms. The paper stated: “Urban Coloradoans value Colorado ranchers, not for the beef they produce, but for the open spaces they provide.” This means that people in Colorado, that do not perform ranching operations themselves, associate an open-space value to ranches that cannot be

quantified in terms of dollars. Other recognized public good values associated with agricultural land include: a diversity of ownership, preservation of wildlife habitat, preservation of cultures and traditions, and attractive contributions to the view shed (pastures instead of buildings). According to the paper “Livestock Grazing On The National Forests – Why Continue to do it?” (Bradford, 2002) there does appear to be a connection between rapid human development and declines in livestock grazing on public lands. Although the paper refers to National Forests, grazing on Bureau of Land Management lands is managed in a similar fashion, and we are assuming the results presented in the paper could be applied to grazing allotments managed by both agencies. The paper stated that the loss of farm and rangeland in Colorado averages 250 acres per day (90,000 acres per year).

It is recognized that there are individuals and organizations that are opposed to grazing on public lands and would like to see it end.

4.0 ENVIRONMENTAL EFFECTS

4.1 Introduction

This sections will analyze the effects to the exiting Rangeland Health Standards for upland soils, watershed conditions, riparian and wetland ecosystems, vegetation, noxious and invasive (non-native) species, wildlife, special status species (terrestrial, aquatic & plants), water quality, cultural resources and socioeconomics and cultural lifestyle. The variation in potential effects related to these issues will vary between alternatives, mostly due to differential timing, intensity, and duration of permitted livestock proposed under each one.

4.2 Direct and Indirect Effects

This section analyzes the effects of implementing the proposed action and alternatives for the key issues identified in Sections 1.7 and described in Affected Environment, Chapter 3.

4.2.1 Alternative A - Permittee Proposed Action

4.2.1.1 Upland Soils

Under Alternative A, within 10 years, soil surface resistance to erosion may improve slightly given the current degraded conditions beneath plant canopies and litter movement may be reduced. Beyond 10 to 30+ years, soil surface to erosion may improve in plant interspaces as well as beneath canopies (except in areas of livestock concentration such as around stock ponds) and there may be a reduction in soil surface loss. Infiltration may improve as a result of slight changes in plant community composition and/or distribution. Water flow patterns, pedestals and terracettes, bare ground, gullies, and biological crusts would not show significant improvement.

4.2.1.2 Watershed Condition

Under Alternative A, within 10 years, soil surface resistance to erosion can be expected to improve slightly beneath plant canopies and litter movement may be reduced. Within 10 to 30+ years, soil surface resistance to erosion may improve in plant interspaces as well as beneath canopies (except in areas of livestock concentration such as around stock ponds) and there may

be a reduction in soil surface loss. Infiltration may improve as a result of slight changes in plant community composition and/or distribution. This would lead to reductions in litter movement. The exception to this slight improvement may be where soil conditions are severely degraded. Water flow patterns, pedestals and terracettes, bare ground, gullies, and biological crusts would not show significant improvement.

Under Alternative A, Permittee Alternative - Proposed Action the Gypsum Valleys allotment would continue to achieve Colorado State water quality standards. Within 10 years and within 10 to 30+ years, there would be no substantial improvement to the existing water quality.

4.2.1.3 Wetlands/Riparian Zones (Environmental Effects for All Alternatives)

The condition of the uplands can greatly affect the condition of a riparian-wetland area by influencing the magnitude, timing, or duration of overland flow events (BLM TR 1737-16). Regardless of overall functional rating, for many riparian areas in the analysis area (both lotic and lentic) it was noted that the surrounding upland watershed was contributing to riparian-wetland degradation and that the stream and/or riparian-wetland area was not in balance with the water and sediment being supplied by the watershed as evidenced by either excessive erosion or deposition. Changes to the uplands then are likely to affect these riparian areas.

4.2.1.4 Vegetation Conditions

Changes in vegetation conditions that occur within the ten-year permit cycle will set the stage for long-term vegetation changes. As specified in Appendix G, those desired future conditions that can be achieved within the permit cycle are differentiated from those that will likely take more than ten years to occur. It is assumed that if vegetation is moving toward or meeting short-term desired future conditions, then improvements would likely continue and trend toward meeting long-term desired future conditions under the same grazing management system would occur. A useful way of comparing all alternatives is by considering the rate of change toward desired future conditions under each one.

Current research indicates that plants weakened from overgrazing can normally recover and begin producing seed within a few years with proper grazing management (Monsen, 2004). Seed production is a key component for long-term improvement in this allotment for natural establishment of desirable species that will improve plant community composition. In this EA, we assume that light utilization is an appropriate level of grazing. Monsen (2004) found that after seeding treatments, Indian ricegrass, fourwing saltbush and winterfat (both desirable species on this allotment) required 3-4 years of establishment without any grazing in order to be successful and recommended 3-4 years of rest after seeding in pinyon-juniper ecosystems with less than 14 inches of yearly precipitation. However, seeding treatments are substantially different than the natural reproduction and establishment of plants. Seedings are generally concentrated in relatively small well defined areas that invite livestock concentration, while natural establishment is scattered across the landscape. Still, these data suggest that even light utilization may affect to some degree the natural establishment of native bunchgrasses and palatable shrubs on degraded range. The Land Health Assessment of this allotment indicated that in some areas the reproductive potential was severely reduced in existing desirable species, including those mentioned above. This problem could be reversed over time by allowing plants to complete their lifecycle without heavy grazing pressure, thereby increasing their root reserves

and allowing for seed production. In order to promote a healthy sustainable plant community, plants must be allowed to produce seed the first few years after establishment, and every few years thereafter, (Monson 2004).

Under this alternative there would be a slight decrease in permitted AUM levels (from 1807 to 1761 AUMs). Livestock distribution is expected to improve as a result of placing protein supplements on slopes and ridges where cattle are less likely to graze and the placement of temporary water tanks in areas of the allotment either lacking reliable livestock waters or to existing livestock reservoirs that are dry. Improving livestock distribution would decrease grazing pressure on individual plants in areas that have traditionally been heavily grazed and allow for longer recovery time of previously grazed plants. Improvements in distribution should reduce the number of times an individual plant is repeatedly grazed during a single grazing period, as well as reducing the overall utilization levels. As a result improvements in plant vigor and seed production should improve.

In addition, the frequency of spring grazing during the critical growing period would be reduced by implementing a three year grazing system that schedules at least 1 year out of every 3 years periodic deferment from spring grazing on all pastures within this allotment. Therefore, the proposed pasture rotations would provide periodic spring grazing rest for desirable cool season perennial bunchgrasses during their early growth period, which should maintain current perennial plant vigor in the short-term and improve it over the long-term. Periodic deferment from spring grazing will provide desirable plants an opportunity to complete their lifecycle; set seed and restore carbohydrate reserves to the roots. Any new seedlings of native bunchgrasses and palatable shrubs that sprout in years with spring deferment would have one growing season before they are potentially grazed by cattle, which would improve the chances for them to successfully establish.

4.2.1.5 Noxious and Invasive (Non-native Species)

Under Alternative A, it is expected that the existing invasive species populations would remain the same. Infestations that occur along existing roads and trails would more than likely persist due to the associated ground disturbing activities that occur annually associated with road maintenance. It is also expected that infestations associated with existing livestock reservoirs, corrals and various sections of fence lines that receive heavy trailing by livestock would also persist due to ground disturbance associated with the concentration of livestock.

4.2.1.6 Wildlife – (Terrestrial & Aquatic)

Terrestrial

The proposed alternative calls for an overall reduction in permitted AUM's on public lands (1807 to 1761 AUMs) which should result in slow, incremental improvements in overall vegetative conditions, both in quality and quantity. Improved vegetation creates more grasses, forbs, and shrubs available as a food source for animals such as jackrabbits, mice, insects, and birds. As discussed above, many of these animals are prey items for other animals commonly found within this allotment. Improvements in grazing practices benefit the food chain overall. Rodent and rabbit species would become more likely to withstand the pressures of drought, such as experienced in 2002.

Cattle grazing affects forage available for big game species including elk, mule deer and desert bighorn sheep. This alternative will result in incremental improvements in vegetation conditions thereby maintaining forage for big-game species similar to the prey species discussion above. In addition, habitat improvement projects are being planned to improve forage conditions for big game in areas outside of these grazing allotments. These projects will be conducted in areas surrounding this allotment; specifically areas in Dry Creek Basin and near Egnar, Colorado. These projects are being designed to change the distribution of big game animals on the public lands and reduce the impact of these species on adjacent agricultural lands.

Other land management practices are being implemented to manage the invasive plant problem (cheatgrass and tamarisk) and improve areas where degradation is beyond natural recovery. Improved vegetation from grazing management changes, in combination with other practices would restore the resiliency of the area. Wildlife populations in these circumstances are healthier and are capable of responding to extremes in annual weather.

Aquatic

On BLM lands in this allotment, most of the riparian areas rated “Proper Functioning Condition (PFC)” or “Functional at Risk (FAR) with an upward trend”. These inventories found no major issues from trampling or stepping on streambanks on any sites in the Gypsum Valleys Allotment. Only one spring in this allotment, Silvey’s Pocket Spring, had a FAR rating with livestock use effects noted. Another causal factor at Silvey’s Pocket Spring was OHV use. Coyote wash is one riparian area which should improve due to the reduced amount livestock and the limited duration livestock can graze in Coyote wash under this alternative. Trespass livestock from the Utah side will continue to be monitored in this riparian area.

Inventories found some sites had cattle present and no cattle use at other sites where the springs or seeps were at the upper slopes of a pasture (riparian inventory notes – project file). Where cattle are using water in creeks or springs, the timing and duration of that use varies by alternative.

This alternative will likely not have an overall positive effect on aquatic species or habitat due to minimal changes in grazing practices.

4.2.1.7 Special Status Species - Wildlife

This alternative proposes reducing the overall permitted AUM’s on public lands and should show slow, incremental improvements to the vegetation and overall range conditions of this allotment. This will have an overall benefit to threatened, endangered or sensitive species that may be present in the analysis area. There are no known occurrences of federally listed threatened, endangered or proposed species in the proposed action area and no negative effects are anticipated to threatened and endangered species that may be present.

Desert bighorn sheep are one of the only sensitive species brought forward for analysis that occur regularly in the project area. Desert bighorns are opportunistic grazers and may directly compete for forage with cattle (Monson, Gale and Lowell Sumner 1980). Without grazing, desert bighorn sheep forage is available in optimal quantities. Desert bighorn tend to use habitat that is less accessible to cattle, but habitat use may overlap when sheep are moving through the

Dolores river corridor. This alternative proposes an overall reduction in permitted AUM's and should benefit the available forage for desert bighorn. Desert bighorn populations will continue to be monitored by Colorado parks and wildlife for any potential conflicts.

4.2.1.8 Special Status Species - Plants

The rare plant, lichens and associated biological crust communities on the Gypsum soils are sensitive to disturbances such as mechanized or motorized vehicles and hoof effects. Currently, most of the Gypsum outcrop areas have a few livestock and game trails crossing them but general effects from livestock use are very limited. Trend of the Gypsum valley cat-eye and Nealley's dropseed populations are unknown at this time. However, Gypsum valley cat-eye monitoring sites have been established on two occurrences and baseline density data was collected in 2009 by CNHP and by BLM in 2014. Density measurements repeated over time will give an indication of trend for these occurrences. There was evidence of limited livestock and wildlife (deer & elk) at the sites but no major effects, making these sites representative of the other occurrences within the allotment.

Other than trailing, use and disturbance of these occurrences and their potential habitat by livestock is minimal to none. Because effects from livestock are minimal, effects related to all grazing alternative with exception of the no grazing alternative would be the same. Limited livestock trails would persist on the Gypsum outcrops. A design feature has been included to conduct surveys prior to any construction of a structural range improvement or placing of supplemental feed or water in order to ensure that occurrences or their potential habitat would not suffer direct, indirect or cumulative effects from livestock concentration.

Kachina daisy, giant helleborine and Eastwood's monkeyflower all occur along the Dolores River corridor in hanging gardens. These occurrences and their potential habitat are not impacted by livestock grazing. Naturita milkvetch and weak-stemmed mariposa lily and their potential habitats are not negatively impacted by current livestock grazing. Proposed changes in grazing from all alternatives would not have any effect on the occurrences or their habitat. The occurrences of aromatic scurf pea do not have precise or current data associated with them and it is unknown if current grazing is adversely affecting them.

4.2.1.9 Cultural Resources

The direct effects that occur where livestock concentrate include trampling, chiseling, and churning of site soils, cultural features, and cultural artifacts, artifact breaks, and effects from standing, leaning, and rubbing against historic structures, above-ground cultural features, and rock art. Indirect effects include soil erosion, gulying, and increased potential for unlawful collection and vandalism (e.g. Broadhead 2001, Osbourn et al. 1987). Continued grazing may cause substantial ground disturbance and cause cumulative, long term, irreversible adverse effects to historic properties (BLM 2005).

Current Survey

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, requires Federal agencies to locate and assess all heritage resources within the Area of Potential Effect for all undertakings. "Landscape-level" undertakings necessitate a phased approach to this inventory. As a result, a phased, ten-year inventory for the cultural resources within the Lower

Disappointment allotments was initiated as the first step in complying with the NHPA. A survey plan was developed to analyze the potential for the presence of cultural resource sites using ecological variables such as Potential Natural Vegetation and spring location. This analysis determined that site density would be the lowest in the Gypsum Valleys allotment compared with higher site density in the RCA and Disappointment Creek allotments. Thus no inventory was completed within the Gypsum Valleys allotment as part of this study. However, previously recorded sites were identified as needing monitoring in order to determine the impact that grazing activities have on cultural resources. Ten sites were identified in the Gypsum Valleys allotments. In 2014, these sites were monitored and the results will be forthcoming in a pending report.

Additional mitigation measures are necessary to avoid adverse effects to as yet unidentified cultural resources in the project area by this undertaking. Also, additional survey will be phased over the life of the permit. The results of future survey will influence additional literature review, survey, monitoring, avoidance, and consultation, as discussed in the associated cultural resources report (MacMillan2010).

If additional historic properties are located during the subsequent field inventories an assessment of livestock grazing effects will be made during initial documentation. If the BLM determines that grazing activities will adversely impact these newly recorded properties, mitigation will be identified and implemented in consultation with the Colorado State Historic Preservation Officer, (CO SHPO) as per the terms of the associated interagency agreement.

Consultation and development of a Programmatic Agreement with the CO SHPO and the Advisory Council on Historic Preservation (ACHP) was initiated on August 3, 2010 and modified on July 23, 2012. This interagency agreement will codify these mitigation procedures into a formal Mitigation Plan, to be implemented over the life of the permit. Mitigation could include but is not limited to, the placement of livestock barriers (e.g., fences, brush piles) around the perimeter of sensitive sites. All mitigation will be developed and implemented within the ten-year life span of the issued grazing permit.

4.2.1.10 Socioeconomics and Cultural Lifestyles

Two individuals operate as one undivided grazing permittee entity on this allotment. For this reason most, but not all references to this grazing permittee is expressed in the singular. Alternative A would be expected to have a minor effect on the operation. The permittee proposes to continue grazing the Big Gypsum Valley pastures with 156 cow/calves and the Little Gypsum Valley pastures with 156 cow/calves, simultaneously. Management proposals for both the Big Gypsum and Little Gypsum herds include placement of supplemental feeds (protein blocks, salt licks, protein meal) on the upper 1/3 of slopes and temporary water tanks in areas where water was not previously available in order to improve cattle distribution. There would be some added costs with using protein supplements versus the more commonly used mineral supplements, but with less success in improving distribution. Purchasing large water tanks and hauling water to more distant locations would also increase operation costs. The permittees also propose to voluntarily reduce numbers and/or grazing season in response to climatic conditions, water availability and forage production. Operation costs may not increase on the allotment if this should happen, but there would be an increase in cost for feeding and caring for livestock on

private land. Hay would need to be purchased, or hay produced by the operator could not be sold for profit if it is needed for feeding.

4.2.1.11 Monitoring

The BLM will continue to monitor the rangeland health conditions on this allotment as they relate to the permitted livestock grazing. Vegetation information from the existing long-term vegetation trend studies that have been established in this allotment will continue to be collected. In addition to trend studies, other monitoring information determined to be appropriate for assessing the effects of grazing may be collected on the allotment. These types of potential monitoring include such things as utilization studies, livestock use pattern mapping, vegetation composition studies, forage production studies, bare ground measurements and riparian proper functioning conditions assessments. Please refer to Appendix K for a description of the aforementioned monitoring studies.

All monitoring information collected will be used to assess short term changes in resource conditions and will be incorporated into a new land health assessment at the end of the permit cycle. The land health assessment will be used to determine if the Rangeland Health Standards are being achieved, or if there is significant progress is being made towards attainment of the standards under the existing grazing management.

4.2.2 Alternative B – No Action Alternative – Existing Permitted Use

4.2.2.1 Upland Soils

Under Alternative B within 10 years the soil surface resistance to erosion would not improve and is likely to continue to further degrade. Beyond 10 – 30+ years, the soil surface resistance to erosion would continue to decline resulting in the continued loss of soil resources to erosion. As a result, the long-term productivity and potential to the allotment would continue to decline.

4.2.2.2 Watershed Condition

Under Alternative B within 10 years and within 10 to 30+ years, soil surface resistance to erosion can be expected to decrease beneath plant canopies and litter movement may be increased. There is likely to be increased soil surface loss. Infiltration will decrease as a result of continued changes in plant community composition and/or distribution. This would lead to increases in litter movement. Water flow patterns, pedestals and terracettes, bare ground, gullies, and biological crusts would not show significant improvement and may even increase in abundance/significance.

Under Alternative B the Gypsum Valleys Allotment may continue to achieve Colorado State water quality standards. Within 10 years, there would be no significant changes to water quality. Within 10 to 30+ years, there may be degradation to existing water quality conditions. This alternative would be expected to decrease vegetative cover and increase any existing soil compaction throughout the allotments. This would negatively influence those water quality parameters that are affected by the amount of runoff and erosion occurring on the watershed. In addition, bacteria and ammonia concentrations would be expected to increase. Stream temperature may be negatively affected by changes in riparian cover/shading and/or width/depth ratios.

4.2.2.3 Wetlands/Riparian Zones

The environmental effects will be the same as those disclosed under Alternative A.

4.2.2.4 Vegetation

Under Alternative B the Gypsum Valleys Allotment would continue to not meet the Standard for healthy productive plant communities. The majority of the allotment acres would remain in the “at risk” or “beyond risk” level for Biotic Integrity. It is possible that in the long-term 10 to 30+ years, the number of acres currently rated in the “at risk” or “beyond risk” categories for Biotic Integrity would increase within the allotment.

The composition and diversity of the existing plant community would not improve and would continue to be comprised of lower than expected levels of palatable shrubs and native bunchgrasses (especially the cool season perennial bunchgrass communities). The long term vigor and reproductive capability of existing palatable vegetation would not improve and as a result the long-term trend of the vegetative community would continue to decline, resulting in further loss of desirable perennial bunchgrass and palatable shrub species.

4.2.2.5 Noxious and Invasive (Non-native Species)

Under Alternative B it is expected that the existing invasive species populations would remain the same. Infestations that occur along existing roads and trails would more than likely persist due to the associated ground disturbing activities that occur annually associated with road maintenance. It is also expected that infestations associated with existing livestock reservoirs, corrals and various sections of fence lines that receive heavy trailing by livestock would also persist due to ground disturbance associated with the concentration of livestock.

4.2.2.6 Wildlife – (Terrestrial and Aquatic)

Terrestrial – Wildlife

Alternative B proposes no changes in the amount of AUM’s or livestock numbers on public lands. This alternative is not likely to produce positive changes to the overall vegetative conditions, both in quality and quantity. Improved vegetation creates more grasses, forbs, and shrubs available as a food source for animals such as jackrabbits, mice, insects, and birds. As discussed above, many of these animals are prey items for other animals commonly found within this allotment. Improvements in grazing practices benefit the food chain overall. Rodent and rabbit species would become more likely to withstand the pressures of drought, such as experienced in 2002.

Cattle grazing effects forage available for big game species including elk, mule deer and desert bighorn sheep. This alternative will result in no improvements in vegetation conditions thereby maintaining current conditions of forage for big-game species similar to the prey species discussion above. In addition, habitat improvement projects have been conducted to improve forage conditions for big game in areas outside of this grazing allotment. These projects occurred in areas surrounding this allotment; specifically areas in Dry Creek Basin and near Egnar, Colorado. The completed projects were designed to change the distribution of big game animals on the public lands and reduce the impact of these species on adjacent agricultural lands.

Other land management practices are being implemented to manage the invasive plant problem (cheatgrass and tamarisk) and improve areas where degradation is beyond natural recovery. Improved vegetation from grazing management changes, in combination with other practices would restore the resiliency of the area. Wildlife populations in these circumstances are healthier and are capable of responding to extremes in annual weather.

Aquatic – Wildlife

On BLM lands in this allotment, most of the riparian areas rated “Proper Functioning Condition” or “Functional at Risk with an upward trend”. These inventories found no major issues from trampling or stepping on streambanks on any sites in the Gypsum Valleys Allotment. Only one spring in this allotment, Silvey’s Pocket Spring, had a FAR rating with livestock use effects noted. Another causal factor at Silvey’s Pocket Spring was OHV use. Trespass livestock in Coyote wash from the Utah side will continue to be monitored in this riparian area.

Inventories found some sites had cattle present and no cattle use at other sites where the springs or seeps were at the upper slopes of a pasture (riparian inventory notes – project file). Where cattle are using water in creeks or springs, the timing and duration of that use varies by alternative.

This alternative will likely not have an overall positive effect on aquatic species or habitat due to no changes in grazing practices.

4.2.2.7 Special Status Species - Wildlife

Alternative B proposes no change in AUM’s or livestock numbers on public lands and will likely show no improvements to the vegetation and overall range conditions of this allotment. This will have no overall benefit to threatened, endangered or sensitive species that may be present in the analysis area. There are no known occurrences of federally listed threatened, endangered or proposed species in the proposed action area and no negative effects are anticipated to threatened and endangered species that may be present.

Desert bighorn sheep are one of the only sensitive species brought forward for analysis that occur regularly in the project area. Desert bighorns are opportunistic grazers and may directly compete for forage with cattle (Monson, Gale and Lowell Sumner 1980). Without grazing, desert bighorn sheep forage is available in optimal quantities. Desert bighorns tend to use habitat that is less accessible to cattle, but habitat use may overlap when sheep are moving through the Dolores river corridor in route to steeper habitat. This alternative proposes no reduction in livestock AUM’s and would not affect the available forage for other species such as the desert bighorn. Desert bighorn populations will continue to be monitored by Colorado parks and wildlife for any potential conflicts. Use by domestic sheep would not be authorized by the Proposed Action or either alternative and will not be addressed in this analysis.

4.2.2.8 Special Status Species - Plants

The environmental effect for this alternative is the same as those discussed in Alternative A.

4.2.2.9 Cultural Resources

The environmental effects will be the same as those disclosed under Alternative A.

4.2.2.10 Socioeconomics and Cultural Lifestyles

Under the No Action Alternative/Existing Grazing there would be no changes to the existing livestock numbers or any additional requirements in livestock management activities that could potentially increase the financial costs to the current livestock operations.

4.2.2.11 Monitoring

The BLM will continue to monitor the rangeland health conditions on this allotment as they relate to the permitted livestock grazing. Vegetation information from the existing long-term vegetation trend studies that have been established in this allotment will continue to be collected. In addition to trend studies, other monitoring information determined to be appropriate for assessing the effects of grazing may be collected on the allotment. These types of potential monitoring include such things as utilization studies, livestock use pattern mapping, vegetation composition studies, forage production studies, bare ground measurements and riparian proper functioning conditions assessments. Please refer to Appendix K for a description of the aforementioned monitoring studies.

4.2.3 Alternative C – Adaptive Management Alternative

4.2.3.1 Upland Soils

For Alternative C, should light utilization levels be exceeded followed by a corresponding reduction in grazing time and or livestock numbers it is still unlikely that a timeframe of less than 10 years for recovery would result in more significant improvements than those described under Alternative A. Thus, the effects under Alternative C are expected to be similar to Alternative A for this time period. If utilization standards are met continuously during the 10 to 30+ year time frame the soil surface resistance to erosion can be expected to improve beneath plant canopies and in plant interspaces. There should be a reduction in soil surface loss. Infiltration would improve as a result of changes in plant community composition and/or distribution leading to reductions in litter movement. Water flow patterns, pedestals and terracettes, and gullies may not show any significant improvement. Bare ground would be expected to be reduced and early colonizers of biological crusts should begin to appear.

4.2.3.2 Watershed Conditions

For Alternative C, should light utilization be exceeded and there is a reduction in days, soil surface resistance to erosion can be expected to improve slightly beneath plant canopies and litter movement may be reduced. If utilization standards are met continuously during the 10 to 30+ year time frame, soil surface resistance to erosion can be expected to improve beneath plant canopies and in plant interspaces. There should be a reduction in soil surface loss. Infiltration would improve as a result of changes in plant community composition and/or distribution leading to reductions in litter movement. Water flow patterns, pedestals and terracettes, and gullies may not show any significant improvement. Bare ground would be expected to be reduced and early colonizers of biological crusts should begin to appear.

Under this alternative the Gypsum Valleys allotment would continue to achieve Colorado State water quality standards. Within 10 years, there would be no substantial improvement to water quality. Within 10 to 30+ years, there may be some improvement above existing water quality

conditions. This alternative would be expected to increase vegetative cover and reduce any existing soil compaction throughout the allotments. This would positively influence those water quality parameters that are affected by the amount of runoff and erosion occurring on the watershed. In addition, bacteria and ammonia concentrations would be expected to decrease. Temperature would be positively affected when it is being influenced by the amount of stream shading but negligibly affected when physical characteristics of the stream such as a high width/depth ratio are the primary drivers of temperature.

4.2.3.3 Wetlands/Riparian Zones

The environmental effects will be the same as those disclosed under Alternative A.

4.2.3.4 Vegetation

Alternative C applies the same parameters as Alternative A and would have the same general effects on the vegetation community with the exception of identified target utilization levels of 30-40%. If it is determined through monitoring that the established target utilization levels are exceeded for two or more years of this ten-year grazing permit cycle, the resulting action would be a reduction in the number of days grazed and/or livestock numbers in the impacted pastures. The utilization triggers will help to ensure that use levels on desirable plant species are met over the long-term by eventually establishing the proper stocking levels of livestock.

Limiting utilization to light (30-40%) amounts on palatable species would help to ensure that existing palatable plants are not grazed to levels which further reduce their vigor, competitiveness, and ability to be sustained in the plant community in the long-term. This would be especially helpful to the cool season perennial grasses, and it would help with shrub hedging where livestock are a factor.

Implementation of this alternative should lead to improvement in vegetation conditions and composition and make significant progress towards meeting the Land Health Standard for Health, productive plant and animal communities.

4.2.3.5 Noxious and Invasive (Non-native Species)

Under Alternative C, it is expected that the existing invasive species populations would either remain the same or slightly decrease. Infestations that occur along existing roads and trails would more than likely persist due to the associated ground disturbing activities that occur annually associated with road maintenance. It is also expected that infestations associated with existing livestock reservoirs, corrals and various sections of fence lines that receive heavy trailing by livestock would also persist due to ground disturbance associated with the concentration of livestock. Although, under this alternative it is expected that throughout the allotment overall ground cover and plant vigor would be expected to increase helping to prevent new weed infestations from establishing.

4.2.3.6 Wildlife – (Terrestrial & Aquatic)

Terrestrial

Alternative C calls for an overall reduction in permitted AUM's that should result in slow, incremental improvements in overall vegetative conditions, both in quality and quantity. Improved vegetation creates more grasses, forbs, and shrubs available as a food source for

animals such as jackrabbits, mice, insects, and birds. As discussed above, many of these animals are prey items for other animals commonly found within this allotment. Improvements in grazing practices benefit the food chain overall. Rodent and rabbit species would become more likely to withstand the pressures of drought, such as experienced in 2002.

Cattle grazing effects forage available for big game species including elk, mule deer and desert bighorns. This alternative will result in incremental improvements in vegetation conditions thereby maintaining forage for big-game species similar to the prey species discussion above. This alternative sets monitoring triggers of 30-40% utilization where cattle are a contributing factor. If grazing use by cattle exceeds the utilization levels for two years, changes in the days grazed per pasture would occur. In addition, habitat improvement projects have been conducted to improve forage conditions for big game in areas outside of these grazing allotments. These projects occurred in areas surrounding this allotment; specifically areas in Dry Creek Basin and near Egnar, Colorado. The completed projects were designed to change the distribution of big game animals on the public lands and reduce the impact of these species on adjacent agricultural lands.

Other land management practices are being implemented to manage the invasive plant problem (cheatgrass and tamarisk) and improve areas where degradation is beyond natural recovery. Improved vegetation from grazing management changes, in combination with other practices would restore the resiliency of the area. Wildlife populations in these circumstances are healthier and are capable of responding to extremes in annual weather.

Aquatic

On BLM lands in this allotment, most of the riparian areas rated “Proper Functioning Condition” or “Functional at Risk with an upward trend”. These inventories found no major issues from trampling or stepping on streambanks on any sites in the Gypsum Valleys Allotment. Only one spring in this allotment, Silvey’s Pocket Spring, had a FAR rating with livestock use effects noted. Another causal factor at Silvey’s Pocket Spring was OHV use. Coyote wash is one riparian area which should improve due to the reduced amount of livestock and the limited duration livestock can graze in Coyote wash under this alternative. Trespass livestock from the Utah side will continue to be monitored in this riparian area.

Inventories found some sites had cattle present and no cattle use at other sites where the springs or seeps were at the upper slopes of a pasture (riparian inventory notes – project file). Where cattle are using water in creeks or springs, the timing and duration of that use varies by alternative.

This alternative would allow managers to assess if conditions to aquatic species or riparian habitats are being affected by grazing. If it is determined that livestock use is negatively affecting aquatic species, managers would be able to modify the permit in order to improve these conditions. This alternative may have an overall positive effect to aquatic species and habitat due to our ability to make needed changes to grazing practices based on conditions and effects to the range.

4.2.3.7 Special Status Species - Wildlife

Alternative C proposes reduced permitted AUMs and should show slow, incremental improvements to the vegetation and overall range conditions of this allotment. This will have an overall benefit to threatened, endangered or sensitive species that may be present in the analysis area. There are no known occurrences of federally listed threatened, endangered or proposed species in the proposed action area and no negative effects are anticipated to threatened and endangered species that may be present.

Desert bighorn sheep are one of the only sensitive species brought forward for analysis that occur regularly in the project area. Desert bighorns are opportunistic grazers and may directly compete for forage with cattle (Monson, Gale and Lowell Sumner 1980). Without grazing, desert bighorn sheep forage is available in optimal quantities. Desert bighorns tend to use habitat that is less accessible to cattle, but habitat use may overlap when sheep are moving through the Dolores river corridor in route to steeper habitat. This alternative proposes an overall reduction in AUM numbers and should benefit the available forage for other species such as the desert bighorn. Additionally, the adaptive management alternative will allow BLM to evaluate potential conflicts with desert bighorns and make needed management changes. Desert bighorn populations will continue to be monitored by Colorado parks and wildlife for any potential conflicts.

4.2.3.8 Special Status Species - Plants

The environmental effect for this alternative is the same as those discussed in Alternative A.

4.2.3.9 Cultural Resources

The environmental effects for this alternative will be the same as those disclosed under Alternative A.

4.2.3.10 Socioeconomics and Cultural Lifestyles

Alternative C would initially have a similar affect to the permittee as Alternative A. The permittees would need to be responsive to adaptive management changes from year to year.

If, over time, monitoring shows that livestock use is resulting in more than light (30-40%) utilization, reductions in grazing time, or less likely in livestock numbers, would be implemented, with monitoring initially targeted to those areas with known resource conflicts. Should this be necessary it would very likely lead to additional expenses and a loss of income for the grazing permittee(s) affected. Permittees would have to find additional, likely private land forage or feed sources. If changes in livestock use indicated by monitoring were substantial enough, that operator might choose to get out of the livestock business, or stop using these public lands. Historically, when that has been the case, another cattle producer for whom the new dates and livestock numbers are compatible with the balance of their livestock production operation eventually ends up permitted on that grazing allotment. However, the private lands would need to either be fenced from public lands or leased by the new producer, which may not be economically feasible. This action would be triggered only if monitoring indicated changes were necessary. As was mentioned previously, there is almost always a loss of income whenever a commercial use of public land is decreased, and this would be no exception.

Permittees would be affected by a reduced grazing season in the year following a determination by BLM that there were two years of excessive (>30-40%) utilization. If permittees are forced to leave the allotment early, shipping costs would be higher as more fully described in Alternative D below. Jimmy Suckla would need to transport cattle from BLM to private and then transport from private to National Forest lands, when cattle are approved to enter the Lone Mesa Allotment. Larry Suckla would need to transport cattle from the allotment to private land and then from private land to Colorado State Land.

4.2.3.11 Monitoring

The BLM will continue to monitor the rangeland health conditions on this allotment as they relate to the permitted livestock grazing. Vegetation information from the existing long-term vegetation trend studies that have been established in this allotment will continue to be collected. In addition to utilization studies contained in the alternative and existing trend studies, other monitoring information determined to be appropriate for assessing the effects of grazing may be collected on the allotment. These types of potential monitoring include such things as utilization studies, livestock use pattern mapping, vegetation composition studies, forage production studies, bare ground measurements and riparian proper functioning conditions assessments. Please refer to Appendix K for a description of monitoring studies.

4.2.4 Alternative D – Reduced Grazing Alternative (1052 AUMs)

4.2.4.1 Upland Soils

Under Alternative D soil surface resistance to erosion would improve under plant canopies and in interspaces within the 10 year timeframe. Soil surface loss should be reduced and infiltration would improve as a result of changes in plant community composition and/or distribution. Litter movement would be reduced along with bare ground. Water flow patterns, pedestals and terracettes, gullies and biological crusts would not improve under this time frame but would begin to improve in the 10 to 30+ year time frame. Water flow pattern connections should become more stable and shorter with limited evidence of erosion and deposition. Pedestals should not be active and terracette formation should become rare. Early colonizers of biological crusts should be present and mid-successional species should be reestablishing.

4.2.4.2 Watershed Conditions

Under Alternative D the reduced grazing alternative soil surface resistance to erosion would improve under plant canopies and in interspaces within the 10 year time frame. Soil surface loss should be reduced and infiltration would improve as a result of changes in plant community composition and/or distribution. Litter movement would be reduced along with bare ground. Water flow patterns, pedestals and terracettes, gullies and biological crusts would not improve under this time frame but would begin to improve in the 10 to 30+ time frame. In 10 to 30+ years water flow pattern connections should become more stable and shorter with limited evidence of erosion and deposition. Pedestals should not be active and terracette formation should be even rarer. Early colonizers of biological crusts should be present and mid-successional species should reestablish.

Under this alternative the Gypsum Valleys Allotment would continue to achieve Colorado State water quality standards. Within 10 years, there would be no substantial improvement to water

quality. Within 10 to 30+ years, there may be some improvement above existing water quality conditions. Under this alternative there is expected to be an increase in vegetative cover and a reduction in any existing soil compaction throughout the allotments. This would positively influence those water quality parameters that are affected by the amount of runoff and erosion occurring on the watershed. In addition, bacteria and ammonia concentrations would be expected to decrease. Temperature would be positively affected when it is being influenced by the amount of stream shading but negligibly affected when physical characteristics of the stream such as a high width/depth ratio are the primary drivers of temperature.

4.2.4.3 Wetlands/Riparian Zones

The environmental effects will be the same as those disclosed under Alternative A.

4.2.4.4 Vegetation

Alternative D would reduce duration of grazing on the allotment and specifically during the critical spring growing period by 46 days every year. This change would have a substantial positive effect on plant vigor and reproductive capability of the existing desirable plants since they would have the opportunity to complete their life cycle every year compared to Alternatives A or B. As a result, plant community composition would be expected to improve more rapidly than under Alternatives A or B, since plants would likely have the opportunity to set seed every year, improve seedling establishment, improve plant overall vigor and build root reserves. This alternative would make significant progress towards meeting the Land Health Standard for Healthy productive plant and animal communities.

4.2.4.5 Noxious and Invasive (Non-native Species)

Under Alternative D invasive species would have a similar response to Alternative C for this allotment. Again with ground cover increasing and plant vigor improving, it is expected that noxious weed establishment would decrease and existing infestations would remain stable or slightly decrease.

4.2.4.6 Wildlife – (Terrestrial & Aquatic)

Terrestrial

Alternative D should result in steady, incremental improvements in overall vegetative conditions, both in quality and quantity. Improved vegetation creates more grasses, forbs, and shrubs available as a food source for animals such as jackrabbits, mice, insects, and birds. As discussed above, many of these animals are prey items for other animals commonly found within this allotment. Improvements in grazing practices benefit the food chain overall. Rodent and rabbit species would become more likely to withstand the pressures of drought, such as experienced in 2002.

Cattle grazing effects forage available for big game species including elk, mule deer and desert bighorns. This alternative will result in steady improvements in vegetation conditions, thereby maintaining forage for big-game species similar to the prey species discussion above. In addition, habitat improvement projects have been conducted to improve forage conditions for big game in areas outside of these grazing allotments. These projects occurred in areas surrounding the allotment; specifically areas in Dry Creek Basin and near Egnar, Colorado. The completed projects were designed to change the distribution of big game animals on the public lands and

reduce the impact of these species on adjacent agricultural lands. When water is unavailable, elk are not likely to use the area. The direct and indirect effect on vegetation assumes continued use by elk at some level but it is impossible to predict exactly when and where elk use would occur.

Other land management practices are being implemented to manage the invasive plant problem (cheatgrass and tamarisk) and improve areas where degradation is beyond natural recovery. Improved vegetation from grazing management changes, in combination with other practices would restore the resiliency of the area. Wildlife populations in these circumstances are healthier and are capable of responding to extremes in annual weather.

Aquatic

On BLM lands in this allotment, most of the riparian areas rated “Proper Functioning Condition” or “Functional at Risk with an upward trend”. These inventories found no major issues from trampling or stepping on streambanks on any sites in the Gypsum allotment. Only one spring in this allotment, Silvey’s Pocket Spring, had a FAR rating with livestock use effects noted. Another causal factor at Silvey’s Pocket Spring was OHV use. Coyote wash is one riparian area which should improve due to the reduced amount livestock and the limited duration livestock can graze in Coyote wash under this alternative. Trespass livestock from the Utah side will continue to be monitored in this riparian area.

Inventories found some sites had cattle present and no cattle use at other sites where the springs or seeps were at the upper slopes of a pasture (riparian inventory notes – project file). Where cattle are using water in creeks or springs, the timing and duration of that use varies by alternative. This alternative will likely have an overall positive effect to aquatic species and habitat.

4.2.4.7 Special Status Species - Wildlife

Alternative D should show slow, incremental improvements to the vegetation and overall range conditions of this allotment. This will have an overall benefit to threatened, endangered or sensitive species that may be present in the analysis area. There are no known occurrences of federally listed threatened, endangered or proposed species in the proposed action area and no negative effects are anticipated to threatened and endangered species that may be present.

Desert bighorn sheep are one of the only sensitive species brought forward for analysis that occur regularly in the project area. Desert bighorns are opportunistic grazers and may directly compete for forage with cattle (Monson, Gale and Lowell Sumner 1980). Without grazing, desert bighorn sheep forage is available in optimal quantities. Desert bighorns tend to use habitat that is less accessible to cattle, but habitat use may overlap when sheep are moving through the Dolores river corridor in route to steeper habitat. This alternative should benefit the available forage for other species such as the desert bighorn. Desert bighorn populations will continue to be monitored by Colorado parks and wildlife for any potential conflicts.

4.2.4.8 Special Status Species - Plants

The environmental effect for this alternative is the same as those discussed in Alternative A.

4.2.4.9 Cultural Resources

The environmental effects for this alternative will be the same as those disclosed under Alternative A.

4.2.4.10 Socioeconomics and Cultural Lifestyles

Alternative D would involve a similar number of pasture moves as Alternative A and C, but the pasture moves would occur more frequently, as they would be spread across a 166 day grazing season, rather than a 212 day season. This means there would be a net increase in the labor required to graze these cattle per unit of grazing days received.

This alternative would reduce 46 days (22%) from the historic (and current) grazing seasons that the livestock operation has built around. The 46 days constitute about 12.5% of the days in a year; about 12.5% of the days these cattle must either be able to forage or be fed each year. The increase in production cost would likely be greater than 12.5%, since, instead of paying about \$1.35 per head (for those over 6 months of age) per month in public land grazing fees (about \$2 per head or cow calf/pair for these lost 46 days), most of these cattle would have to be fed hay during this 46 day period. If each cow/calf pair requires approximately ½ ton of hay per month, and hay can be purchased at a delivered price of \$110/ton, the over-simplified cost increase to replace the lost public land forage might be estimated at about \$81/head. For 238 cow/calf pairs for 46 days the approximate cost would amount to \$19,278 per year.

The potential financial effects of this aspect of this alternative cannot be quantified this simply. Federal grazing fees for grazing public land are generally the smallest expense of grazing public lands, so for days not grazing public lands there would be other savings: water would not have to be hauled, public land range fences would not have to be re-paired, gates on roads open to public travel would not have to be checked daily, etc. On the other hand, hay prices fluctuate from year to year, and hay may be more or less expensive than the figure used above. Some years adequate quantities of affordable hay may not be available locally. Cow and calf health, and consequently total pounds of beef produced, are generally lower in confined hay feeding situations than when cow/calf pairs are grazing open rangelands. If this alternative were selected, it is expected that the grazing permittees would experience additional production expenses and a net loss of income.

In addition, this alternative would also reduce the current authorized cattle numbers from 312 to 238 cow/calf pairs. The allotment would also be managed under a one herd, 8 pasture rotational grazing system. The reduction in numbers would change from 156 cow/calf pairs to 119 cow/calf pairs for each of the two livestock operators, provided they decide to distribute the reduction evenly between themselves. These livestock operators operate as one undivided unit under the terms of their existing BLM term grazing permit for this allotment.

One of the challenges facing livestock management when moving from a two herd grazing system to a single herd system is the ability to provide adequate water for all the cattle in just one pasture. This area is arid in nature and water sources are not always reliable in each pasture. Currently, the permittees are hauling water to multiple locations on both the Big Gypsum and Little Gypsum side. There are some years when remotely located reservoirs do not fill with water. When this occurs, portions of pastures or sometimes entire pastures must be taken out of

the grazing rotation for that year. An increased number of cattle in each pasture would increase use on each individual water source. In areas where the permittee cannot haul water due to difficult terrain, the water source would be drained faster and the area surrounding it would no longer be usable by cattle as long as the water source remained dry. Water sources where the permittee could haul water would need to be filled more often by the permittee. This may or may not increase operating costs to the permittee. The current grazing system creates a situation where sometimes both operators need to haul water, depending on which two units are being grazed simultaneously. In other words, if the cattle are in two units where water must be hauled, then both Jimmy and Larry Suckla must haul water to their respective herds, using two separate water trucks. In this instance, operating costs may be more than if operating under a one herd operation.

Jimmy Suckla trails his cattle from Gypsum Valleys Allotment to the Lone Mesa Allotment each year on National Forest lands until approximately mid-August. From there, his cattle get moved to other BLM allotments as well as private land which he leases until October. The cattle get returned to the Gypsum Valleys Allotment each fall.

Larry Suckla trucks his cattle from the Gypsum Valleys Allotment to leased Colorado State Land each spring, typically by June 1st. The state land is adjacent to his National Forest grazing allotment that his cattle enter June 11th until October 30th. The calves are sold and shipped, and the adult cows return to the Gypsum Valleys Allotment by November 1st.

Under this alternative, Jimmy and Larry Suckla would either have to fence their private lands along the Dolores River in the Gypsum Valleys Allotment to feed cattle from April 16th until they could go to the summer feed sources described above, or truck their cows and calves from the Gypsum Valleys Allotment to private lands some distance from the allotment. They would then need to transport their cows and calves from private land to National Forest lands for the summer grazing period.

If the herds were combined as would be required under this alternative, this would cause additional logistical complexities and economic burdens on both operators. Under a one herd system, the cattle owned by both Jimmy and Larry Suckla would be combined for the time on the Gypsum Valleys Allotment. The cattle would have to be moved from pasture to pasture more frequently and longer distances, in order to meet the agencies spring and fall critical growth deferment requirements. This is because the same, single herd of cattle would rotate through/from the Big Gypsum side of the Gypsum Valleys Allotment. Before, one herd stayed on the Big Gypsum side and rotated through, and the other herd rotated through the Little Gypsum side. Cattle on the Gypsum Valleys Allotment typically start calving around March 1st. Once calving season starts, trailing cattle substantial distances would not be feasible until sometime in April.

Prior to cattle being transported to the National Forest, operators must round up the calves and brand them. Because they presently graze in separate herds, Jimmy and Larry have each been able to complete their branding in a short period of time. This alternative would require these livestock operators to round up and then separate their cows and calves by owner, and then insure that the calves, which often get separated from their mothers in gathering, are paired back

up with the mothers. As a result, branding efforts could take a considerable longer time to complete. This would require more hours in labor, increase operating costs and result in additional stress to the livestock.

4.2.4.11 Monitoring

The BLM will continue to monitor the rangeland health conditions on this allotment as they relate to the permitted livestock grazing. Vegetation information from the existing long-term vegetation trend studies that have been established in this allotment will continue to be collected. In addition to trend studies, other monitoring information determined to be appropriate for assessing the effects of grazing may be collected on the allotment. These types of potential monitoring include such things as utilization studies, livestock use pattern mapping, vegetation composition studies, forage production studies, bare ground measurements and riparian proper functioning conditions assessments. Please refer to Appendix K for a description of monitoring studies.

4.2.5 Alternative E – No Grazing Alternative

4.2.5.1 Upland Soils

Effects of Alternative E are similar to Alternative D with respect to the 10 year time frame. With respect to the 10-30+ year time frame, water flow patterns would have minimal evidence on the landscape, relic pedestals may be present but no active formation would be expected, terracettes would be absent or uncommon on the landscape, and gullies would begin to stabilize. These outcomes are also dependent on adequate precipitation; wildlife use, and extreme climate events such as floods or drought. In some areas, biological crusts should be present in abundance with the presence of late colonizers.

4.2.5.2 Watershed Conditions

Effects of Alternative E are similar to the reduced grazing alternative with respect to the 10 year time frame. With respect to the 10 to 30+ year time frame, water flow patterns would have minimal evidence on the landscape, relic pedestals may be present but no active formation would be expected, terracettes would be absent or uncommon on the landscape, and gullies would begin to stabilize. It is important to note that these outcomes are dependent on adequate precipitation, wildlife use, and extreme climate events such as floods or drought. In some areas, biological crusts should be abundant with the presence of late colonizers.

Under this alternative the Gypsum Valleys allotment would continue to achieve Colorado State water quality standards. Within 10 years, there would be no substantial improvement to water quality. Within 10 to 30+ years, there may be some improvement above existing water quality conditions with the implementation of this alternative. The No Grazing alternative would be expected to increase vegetative cover and reduce any existing soil compaction throughout the allotments. This would positively influence those water quality parameters that are affected by the amount of runoff and erosion occurring on the watershed. In addition, bacteria and ammonia concentrations would be expected to decrease. Temperature would be positively affected when it is being influenced by the amount of stream shading but negligibly affected when physical characteristics of the stream such as a high width/depth ratio are the primary drivers of temperature.

4.2.5.3 Wetlands/Riparian Zones

The environmental effects will be the same for this alternative as those disclosed under Alternative A.

4.2.5.4 Vegetation

Under Alternative E plants should complete their lifecycle most years, assuming that they receive adequate precipitation and/or injury from herbivory from wildlife. Setting seed and restoring root reserves would allow plant vigor and reproductive capability to improve over the short-term. The successful establishment of new seedlings should be improved resulting in the improvement in plant community composition over the long-term. This alternative would make significant progress towards meeting the Land Health Standard for Healthy productive plant and animal communities at a faster rate than any of the other alternatives.

4.2.5.5 Noxious and Invasive (Non-native Species)

Under Alternative E less ground disturbing activities specifically those associated with livestock management would be expected to take place. The potential for livestock transporting noxious weed seed to previously undisturbed sites would be eliminated. With expected increases in ground cover and plant vigor, it is expected that noxious weed establishment would decrease and existing infestations would remain stable or slightly decrease. Existing noxious weed infestations would likely persist without herbicide treatment activities.

4.2.5.6 Wildlife – (Terrestrial & Aquatic)

Terrestrial

Alternative E would result in improvements in overall vegetative conditions, both in quality and quantity. Improved vegetation creates more grasses, forbs, and shrubs available as a food source for animals such as jackrabbits, mice, insects, and birds. As discussed above, many of these animals are prey items for other animals commonly found within this allotment. The removal of grazing practices would likely benefit the food chain overall. Rodent and rabbit species would become more likely to withstand the pressures of drought, such as experienced in 2002.

Cattle grazing effects forage available for big game species including elk, mule deer and desert bighorns. This alternative will result in the greatest likelihood of improvements in vegetation conditions, thereby maintaining forage for big-game species similar to the prey species discussion above. In addition, habitat improvement projects have been conducted to improve forage conditions for big game in areas outside of this grazing allotment. These projects occurred in areas surrounding this allotment; specifically areas in Dry Creek Basin and near Egnar, Colorado. The completed projects were designed to change the distribution of big game animals on the public lands and reduce the impact of these species on adjacent agricultural lands.

Other land management practices are being implemented to manage the invasive plant problem (cheatgrass and tamarisk) and improve areas where degradation is beyond natural recovery. Improved vegetation from grazing management changes, in combination with other practices would restore the resiliency of the area. Wildlife populations in these circumstances are healthier and are capable of responding to extremes in annual weather.

Aquatic

On BLM lands in this allotment, most of the riparian areas rated “Proper Functioning Condition” or “Functional at Risk with an upward trend”. These inventories found no major issues from trampling or stepping on streambanks on any sites in the Gypsum allotment. Only one spring in this allotment, Silvey’s Pocket Spring, had a FAR rating with livestock use effects noted. Another causal factor at Silvey’s Pocket Spring was OHV use. Riparian areas under this alternative would benefit and would reach “Proper Functioning Condition” the most quickly.

This alternative would allow for the fastest recovery of riparian environments and would provide for the most natural restoration of aquatic habitat. This alternative will likely have a long-term overall positive effect to aquatic species and habitat due to the removal of livestock from aquatic systems in this allotment.

4.2.5.7 Special Status Species - Wildlife

Alternative E would allow for the most improvements to the vegetation and overall range conditions of this allotment. This will have an overall benefit to threatened, endangered or sensitive species that may be present in the analysis area. There are no known occurrences of federally listed threatened, endangered or proposed species in the proposed action area and no negative effects are anticipated to threatened and endangered species that may be present.

Desert bighorn sheep are one of the only sensitive species brought forward for analysis that occur regularly in the project area. Desert bighorns are opportunistic grazers and may directly compete for forage with cattle (Monson, Gale and Lowell Sumner 1980). Under this alternative, there is no anticipated conflict between cattle and bighorn sheep.

4.2.5.8 Special Status - Plants

Under Alternative E no new livestock trails would be created, although new wildlife game trails could be created. Any existing trails used only by livestock would heal over a long period of time. Existing trails used by big game would persist.

4.2.5.9 Cultural Resources

Under Alternative E Cultural Resource surveys associated with renewing the grazing permits would not be required.

4.2.5.10 Socioeconomics and Cultural Lifestyles

Alternative E would have substantial economic impact on the permittees’ livestock operations and on the cultural lifestyles of the grazing permittees and their immediate families. Without the winter/spring grazing provided by these allotments, the permittee’s cost of production would rise dramatically. Continuing a viable livestock operation for these grazing permittees would be very much in doubt. As has been discussed earlier, these permittees run cow-calf beef cattle production operations and they must have sources of livestock forage/feed for their mother cows 365 days a year. On the whole, if the costs of forage and all other expenses to keep the cattle fed and healthy year-around exceed the price received for the calves produced, the operations cannot continue for any length of time. The socioeconomic effects would be expected to be proportional to the current reliance of the grazing permittees on these winter-spring public land grazing permits, which is very high. The loss of their seven month grazing season would have

substantial impact. This could cause a cultural impact in the sense that a large motivation for most ranchers is not the financial rewards (generally a meager return on the capital value of their land and other assets), but the lifestyle and satisfaction they experience working as independent producers with cattle and the land.

Using the example cost figures given in Alternative D above, and using Alternative A as the baseline, the rough approximation of the loss of the 212 day grazing permits would be expected to increase the feed costs per cow by about \$370/cow. For a 312 head operation that would increase feed expenses by approximately \$115,400. There might also be increased costs incurred as a result of poor cattle performance and increased health problems.

This alternative could locally increase the rate at which rural western Colorado private lands are leaving agricultural production and being sold for 35 acre home sites. This generally has a negative impact on wildlife populations as most 35 acre home sites end up with human activities which effect habitat quality and continuity. There are approximately 3,440 acres of permittee controlled lands within this allotment. These privately held lands could possibly be diverted to other uses if livestock production on the intermingled public land were no longer authorized for grazing.

For livestock production to continue on the private lands within this grazing allotment, additional livestock fencing would be necessary in order to restrict cattle to the private lands, and avoid unauthorized use on adjacent BLM administered public lands. The permittee's own a substantial amount of private land with this BLM grazing allotment. In most instances the cost of building miles of new fence, not to mention the additional costs of surveying to establish property boundaries on the ground, would be prohibitive: for many pieces of the private land it would not make economic sense to construct fence. The approximate miles of fence that would have to be constructed to separate their privately controlled lands are shown below in Table 19.

Table 19. Approximate miles of new fence construction

Allotment	Pastures	Approximate Miles of Fence Needed To Separate Permittees Controlled Lands From Public Lands	
		Miles	Acres
Gypsum Valleys	Gap	1.25	80
	Hughes Gypsum	5.0	680
	Dunham	1.5	440
	West Lavender	2.25	320
	East Lavender	4.25	680
	Carnation	2.0	240
	River	9.0	940
	Magpie	1.0	40
	Bullington	0.25	20
Total		26.5	3,440

The estimated costs that would be associated with constructing new fence for the private lands they own or control within this allotment would be approximately \$265,000. This cost estimate is based on the assumption that it costs approximately \$10,000/per mile for new fence construction. This fencing would need to be completed before they could make use of their privately controlled lands without resulting in unauthorized grazing use of the adjacent public

lands. This business expense would give them access to no more than 414 private land AUMs of livestock forage annually. Over a 25 year period, without discounting the return by considering the net present value of the construction expenses, or including substantial property line survey costs, or water development and maintenance costs, or the life-of-the-fence maintenance costs, over an approximate 30 year life of a fence, this would result in an estimated fencing cost of more than \$21 per AUM (414 AUMs a year for 30 years = 12,420 AUMs at a cost of \$265,000). Considering the present value of the construction expenses, survey costs (which often exceed \$10,000 per each 640 acre section), development of new water sources to replace those lost from fencing, lifetime maintenance of the new fencing, and existing operating expenses (taxes, livestock water, livestock health care, trucking, etc.), the true cost of grazing these privately controlled AUMs would be more than likely much higher than the \$21 per AUM. If the operators lost their BLM term grazing permit and additional fencing not constructed, the operators cattle would more than likely end up making unauthorized grazing use of the adjacent public lands while making use of their privately controlled lands.

Community Scale:

Under the action alternatives, grazing at some levels would continue on this allotment, incorporating the management adjustments depending on the alternative selected. With sustainable operations, the privately owned ranch land would continue to be agricultural land. This would contribute towards:

- The permittees continuing to graze on public lands for a source of affordable forage.
- The permittees being able to market beef.
- The permittees privately owned ranch land continuing to be used for agricultural purposes, rather than the likely conversion into rural residential areas.
- Maintaining privately owned open space.
- Providing forage and habitat needs to wildlife specifically big game species such as deer, elk and antelope.
- San Miguel and Montrose Counties maintaining their Western Heritage.
- San Miguel and Montrose Counties continuing to have a net gain in tax revenue generated, compared to community services on these lands.

All action alternatives would help retain San Miguel and Montrose Counties recognized social and cultural values associated with privately owned ranches. Those in the affected communities who would like to see an end to grazing on public land would continue to have concerns associated with federal grazing.

Under this alternative, continuing a viable livestock operation for these operators would be very much in doubt. There is a high likelihood that the community benefits in the list above would not occur for this portion of San Miguel and Montrose Counties.

4.2.5.11 Monitoring

Under this alternative there would be no monitoring implemented to assess the effects of livestock grazing to rangeland health conditions.

4.3 Cumulative Effects Analysis

The purpose of the cumulative effects section required by Council on Environmental Quality (CEQ) is to evaluate the significance of the Proposed Action's and other Alternative's contribution to the cumulative effects (40 CFR, Part 1500).

Cumulative Effects are defined as incremental effects of the action, decision, or project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or persons undertake such other actions. Cumulative effects can result from minor but collectively significant actions taken place over a period of time. The Cumulative Effects area is the existing Gypsum Valleys Allotment boundary.

4.3.1 Past, and Present Actions

- Domestic livestock grazing has occurred within the analysis area since the late 1870's. Associated with this activity there have been numerous range improvements constructed within the allotment such as fences, corrals and stock water developments.
- Historical mineral exploration and associated mining activities directed at uranium and vanadium deposits have occurred within the allotment. Current mining activities have included underground uranium and vanadium mines.
- There are existing oil and gas lease areas within the analysis area but have not been currently developed.
- In the last five years there have been various Notice Level uranium mine explorations within the allotment and wider area. Primarily in areas along Gypsum Ridge and Joe Davis Hill. These actions are less than five contiguous acres in size, last for 2 years or less and involve exploratory drilling. Operators usually use existing roads and pads are reclaimed after use to a vegetated state. Operators are required to do road maintenance. Pads that existed prior to 5 years ago are generally re-vegetated and no longer contribute environmental effects to the area.
- In the past 5 years, noxious weed treatments have occurred at localized sites within the allotment. This work has included cooperative agreements with San Miguel County to treat Russian knapweed and other noxious weeds along county maintained roads within the allotment and within the larger area. Tamarisk removal and control has occurred along the Dolores River within the allotment.
- There are several well pads within the allotment that are in various stages of vegetative recovery.
- Adjacent and/or intermingled private lands occur within the allotment and are primarily used for agricultural purpose.
- Recreational activities occurring within the analysis area include hunting, dispersed camping, off highway vehicle travel and recreational climbing.
- Reintroduction efforts of Desert bighorn sheep have occurred in the past within the analysis area.

4.3.2 Reasonably Foreseeable Action Scenarios (RFAS)

- Further uranium and vanadium mining activities will continue to occur within the analysis area.
- The potential for oil and gas exploration is possible in connection with the current oil and gas lease areas within the analysis area.
- Noxious weed treatment and restoration activities will continue to occur within the analysis area.
- Continued maintenance of existing range improvements such as fences, stock ponds and corrals would continue as part of authorized livestock grazing activities.
- Dispersed recreation activities are expected to continue within the analysis area.
- An Area of Critical Environmental Concern is proposed within the analysis area to restrict off road travel for the protection of the Gypsum outcrops and associated populations of Gypsum valley cat-eye (*Cryptantha Gypsumsophila*), Gypsum rim lichen (*Lecanora Gypsumsicola*), nodule cracked lichen (*Acarospora nodulosa var. nodulosa*) and largeleaf Gypsumsoplaca (*Gypsumsoplaca macrophylla*).
- TRFO will implement a travel management planning effort that will designate routes.

4.3.3 Alternative A – Permittee Proposed Action (1761 AUMs)

4.3.3.1 Upland Soils

Currently existing roads, off highway vehicle use and mining activities are contributing to the sediment and erosion potential to the analysis area, although mitigation measures associated with approved mining activities reduce the potential for this effect to occur. Currently, off highway use is affecting sensitive soil types in some areas of the analysis area contributing to the amount of sediment and erosion potential, as well as damage to existing sensitive plant communities. However, an ACEC is being proposed within the analysis areas which will limit off road travel and reduce the potential effects to these sensitive soils and associated plant communities. In addition, future travel management planning efforts will restrict or eliminate open cross-country travel and will designate specific routes. Proposed adjustments in livestock grazing management should improve watershed conditions and reduce the disturbance and loss to existing soil resources.

4.3.3.2 Watershed Conditions

The combination of current road effects, foreseeable future reductions in road effects to soil and water resources from adjustments in livestock management will result in overall improvements to soil and water resources. Colorado State Water Quality Standards are met.

4.3.3.3 Wetlands/Riparian Zones

Due to the predicted effects to soil and water resources from adjustments in livestock management slow improvement in riparian conditions is expected in areas where cattle graze. No cumulative effect exists for riparian areas where no grazing does not occur because there is no effect from livestock.

4.3.3.4 Vegetation Conditions

Effects of livestock grazing on vegetation is additive to effects from notice level uranium development and lack of vegetation in existing roads. Livestock management that improves vegetation lessens the cumulative effect. Better livestock management, road decommissioning and reclamation of mining activities and oil and gas well pads combine to improve vegetation conditions in the future.

4.3.3.5 Noxious and Invasive (non-native) Species

Minor positive cumulative effects are expected as a result of improved vegetation conditions from proposed changes to livestock management, reduced off road travel, and ongoing noxious weed treatment activities within the analysis area.

4.3.3.6 Wildlife – Terrestrial & Aquatic

Although there have been past effects in the analysis area that have reduced habitat quality such as uranium mining exploration, roads and past livestock grazing practices, the proposed changes in grazing management should help to improve exiting vegetation conditions which should lead to improved habitat conditions for wildlife.

4.3.3.7 Special Status Species – Terrestrial & Aquatic

The cumulative effects to BLM Special Status Species habitat is minor because of measures taken for habitat protection on all permitted BLM projects.

4.3.3.8 Special Status Species – Plants

The cumulative effects to BLM Special Status Species habitat is minor because of measures taken for habitat protection on all permitted BLM projects. In addition, protections are being proposed as part of the proposed ACEC to protect the Gypsum Valley cat-eye (*Cryptantha Gypsumsophila*) and associated species which occur in the Gypsum soils.

4.3.3.9 Cultural Resources

Any loss that might occur as a result of project implementation would result in an irreversible and irretrievable loss of cumulative data for the regional archaeological database. The loss might be limited to the currently known extent of resources present but, the data loss is cumulative in nature.

4.3.3.10 Socioeconomics and Cultural Lifestyle

Cumulative beneficial socioeconomic effects on the region are expected under all alternatives except for the No Grazing Alternative.

4.3.4 Alternative B – No Action Alternative (1807 AUMs – Current Permitted)

4.3.4.1 Upland Soils

Currently existing roads, off highway vehicle use and mining activities are contributing to the sediment and erosion potential to the analysis area, although mitigation measures associated with approved mining activities reduce the potential for this effect to occur. Currently, off highway use is affecting sensitive soil types in some areas of the analysis area contributing to the amount of sediment and erosion potential, as well as damage to existing sensitive plant communities. However, an ACEC is being proposed within the analysis areas which will limit off road travel

and reduce the potential effects to these sensitive soils and associated plant communities. In addition, future travel management planning efforts will restrict or eliminate open cross-country travel and will designate specific routes. Continuing current livestock grazing management is unlikely to lead to improvement in watershed conditions and reduce the disturbance and loss to existing soil resources.

4.3.4.2 Watershed Conditions

The combination of current road effects, foreseeable future reductions in road effects to soil and water resources alone should result in some improvement to soil and water resources. Although, combined with no changes to current livestock management it is not likely result in overall improvements to soil and water resources. Colorado State Water Quality Standards are met.

4.3.4.3 Wetlands/Riparian Zones

With no changes to current grazing management effects to soil and water resources from adjustments in livestock management improvement in riparian conditions is not expected in areas where cattle graze. No cumulative effect exists for riparian areas where no grazing does not occur because there is no effect from livestock.

4.3.4.4 Vegetation Conditions

Effects of livestock grazing on vegetation is additive to effects from notice level uranium development and lack of vegetation in existing roads. Livestock management that does not improve vegetation increases the cumulative effect. Better livestock management, road decommissioning and reclamation of mining activities and oil and gas well pads combine to improve vegetation conditions in the future.

4.3.4.5 Noxious and Invasive (non-native) Species

Cumulative effects are expected to remain the same as a result of vegetation conditions not improving from maintaining current livestock management. Although, reduced off road travel, and ongoing noxious weed treatment activities within the analysis area lead to some improvement in vegetation in areas not impacted by current grazing management.

4.3.4.6 Wildlife – Terrestrial & Aquatic

Although there have been past effects in the analysis area that have reduced habitat quality such as uranium mining exploration, roads and past livestock grazing practices, no changes in grazing management would not improve existing vegetation conditions which would not lead to improved habitat conditions for wildlife.

4.3.4.7 Special Status Species – Terrestrial & Aquatic

The cumulative effects to BLM Special Status Species habitat is minor because of measures taken for habitat protection on all permitted BLM projects.

4.3.4.8 Special Status Species – Plants

The cumulative effects to BLM Special Status Species habitat is minor because of measures taken for habitat protection on all permitted BLM projects. In addition, protections are being proposed as part of the proposed ACEC to protect the Gypsum Valley cat-eye (*Cryptantha Gypsumsophila*) and associated species which occur in the Gypsum soils.

4.3.4.9 Cultural Resources

Any loss that might occur as a result of project implementation would result in an irreversible and irretrievable loss of cumulative data for the regional archaeological database. The loss might be limited to the currently know extent of resources present but, the data loss is cumulative in nature.

4.3.4.10 Socioeconomic and Cultural Lifestyle

Cumulative beneficial socioeconomic effects on the region are expected under all alternatives except for the No Grazing Alternative.

4.3.5 Alternative C – Adaptive Management (1761 AUMs)

4.3.5.1 Upland Soils

Currently existing roads, off highway vehicle use and mining activities are contributing to the sediment and erosion potential to the analysis area, although mitigation measures associated with approved mining activities reduce the potential for this impact to occur. Currently, off highway use is affecting sensitive soil types in some areas of the analysis area contributing to the amount of sediment and erosion potential, as well as damage to existing sensitive plant communities. However, an ACEC is being proposed within the analysis areas which will limit off road travel and reduce the potential effects to these sensitive soils and associated plant communities. In addition, future travel management planning efforts will restrict or eliminate open cross-country travel and will designate specific routes. Proposed adjustments in livestock grazing management to include adaptive management actions should improve watershed conditions and reduce the disturbance and loss to existing soil resources.

4.3.5.2 Watershed Conditions

The combination of current road effects, foreseeable future reductions in road effects to soil and water resources from adjustments in livestock management to include adaptive management actions will result in overall improvements to soil and water resources. Colorado State Water Quality Standards are met.

4.3.5.3 Wetlands/Riparian Zones

Due to the predicted effects to soil and water resources from adjustments in livestock management slow improvement in riparian conditions is expected in areas where cattle graze. No cumulative effect exists for riparian areas where no grazing does not occur because there is no effect from livestock.

4.3.5.4 Vegetation Conditions

Effects of livestock grazing on vegetation is additive to effects from notice level uranium development and lack of vegetation in existing roads. Livestock management that improves vegetation as lessens the cumulative effect. Better livestock management, road decommissioning and reclamation of mining activities and oil and gas well pads combine to improve vegetation conditions in the future.

4.3.5.5 Noxious and Invasive (non-native) Species

Minor positive cumulative effects are expected as a result of improved vegetation conditions from proposed changes and adaptive management actions to livestock management, reduced off road travel, and ongoing noxious weed treatment activities within the analysis area.

4.3.5.6 Wildlife – Terrestrial & Aquatic

Although there have been past effects in the analysis area that have reduced habitat quality such as uranium mining exploration, roads and past livestock grazing practices, the proposed changes in grazing management to include adaptive management practices should help to improve exiting vegetation conditions which should lead to improved habitat conditions for wildlife.

4.3.5.7 Special Status Species – Terrestrial & Aquatic

The cumulative effects to BLM Special Status Species habitat is minor because of measures taken for habitat protection on all permitted BLM projects.

4.3.5.8 Special Status Species – Plants

The cumulative effects to BLM Special Status Species habitat is minor because of measures taken for habitat protection on all permitted BLM projects. In addition, protections are being proposed as part of the proposed ACEC to protect the Gypsum Valley cat-eye (*Cryptantha Gypsumsophila*) and associated species which occur in the Gypsum soils.

4.3.5.9 Cultural Resources

Any loss that might occur as a result of project implementation would result in an irreversible and irretrievable loss of cumulative data for the regional archaeological database. The loss might be limited to the currently known extent of resources present but, the data loss is cumulative in nature

4.3.5.10 Socioeconomic and Cultural Lifestyle

Cumulative beneficial socioeconomic effects on the region are expected under all alternatives except for the No Grazing Alternative.

4.3.6 Alternative D – Reduced Grazing Alternative(1052 AUMs)

4.3.6.1 Upland Soils

Currently existing roads, off highway vehicle use and mining activities are contributing to the sediment and erosion potential to the analysis area, although mitigation measures associated with approved mining activities reduce the potential for this impact to occur. Currently, off highway use is affecting sensitive soil types in some areas of the analysis area contributing to the amount of sediment and erosion potential, as well as damage to existing sensitive plant communities.

However, an ACEC is being proposed within the analysis areas which will limit off road travel and reduce the potential effects to these sensitive soils and associated plant communities. In addition, future travel management planning efforts will restrict or eliminate open cross-country travel and will designate specific routes. Proposed adjustments in livestock grazing management should improve watershed conditions and reduce the disturbance and loss to existing soil resources.

4.3.6.2 Watershed Conditions

The combination of current road effects, foreseeable future reductions in road effects to soil and water resources from adjustments in livestock management will result in overall improvements to soil and water resources. Colorado State Water Quality Standards are met.

4.3.6.3 Wetlands/Riparian Zones

Due to the predicted effects to soil and water resources from adjustments in livestock management slow improvement in riparian conditions is expected in areas where cattle graze. No cumulative effect exists for riparian areas where no grazing does not occur because there is no effect from livestock.

4.3.6.4 Vegetation Conditions

Effects of livestock grazing on vegetation is additive to effects from notice level uranium development and lack of vegetation in existing roads. Livestock management that improves vegetation as lessens the cumulative effect. Better livestock management, road decommissioning and reclamation of mining activities and oil and gas well pads combine to improve vegetation conditions in the future.

4.3.6.5 Noxious and Invasive (non-native) Species

Minor positive cumulative effects are expected as a result of improved vegetation conditions from proposed changes to livestock management, reduced off road travel, and ongoing noxious weed treatment activities within the analysis area.

4.3.6.6 Wildlife – Terrestrial & Aquatic

Although there have been past effects in the analysis area that have reduced habitat quality such as uranium mining exploration, roads and past livestock grazing practices, the proposed changes in grazing management practices should help to improve exiting vegetation conditions which should lead to improved habitat conditions for wildlife.

4.3.6.7 Special Status Species – Terrestrial & Aquatic

The cumulative effects to BLM Special Status Species habitat is minor because of measures taken for habitat protection on all permitted BLM projects.

4.3.6.8 Special Status Species – Plants

The cumulative effects to BLM Special Status Species habitat is minor because of measures taken for habitat protection on all permitted BLM projects. In addition, protections are being proposed as part of the proposed ACEC to protect the Gypsum Valley cat-eye (*Cryptantha Gypsumsophila*) and associated species which occur in the Gypsum soils.

4.3.6.9 Cultural Resources

Any loss that might occur as a result of project implementation would result in an irreversible and irretrievable loss of cumulative data for the regional archaeological database. The loss might be limited to the currently known extent of resources present but, the data loss is cumulative in nature.

4.3.6.10 Socioeconomics and Cultural Lifestyle

Cumulative beneficial socioeconomic effects on the region are expected under all alternatives except for the No Grazing Alternative.

4.3.7 Alternative E – No Permitted Grazing (0 AUMs)

4.3.7.1 Upland Soils

Currently existing roads, off highway vehicle use and mining activities are contributing to the sediment and erosion potential to the analysis area, although mitigation measures associated with approved mining activities reduce the potential for this impact to occur. Currently, off highway use is affecting sensitive soil types in some areas of the analysis area contributing to the amount of sediment and erosion potential, as well as damage to existing sensitive plant communities. However, an ACEC is being proposed within the analysis areas which will limit off road travel and reduce the potential effects to these sensitive soils and associated plant communities. In addition, future travel management planning efforts will restrict or eliminate open cross-country travel and will designate specific routes. No grazing should improve watershed conditions and reduce the disturbance and loss to existing soil resources.

4.3.7.2 Watershed Conditions

The combination of current road effects, foreseeable future reductions in road effects to soil and water resources combined with no grazing will result in overall improvements to soil and water resources. Colorado State Water Quality Standards are met.

4.3.7.3 Wetlands/Riparian Zones

Due to the predicted effects to soil and water resources from no grazing improvement in riparian conditions is expected in areas where cattle graze. No cumulative effect exists for riparian areas where no grazing does not occur because there is no effect from livestock.

4.3.7.4 Vegetation Conditions

Effects of livestock grazing on vegetation is additive to effects from notice level uranium development and lack of vegetation in existing roads. Therefore, no grazing would improve vegetation conditions and lessens the cumulative effect. No grazing, road decommissioning and reclamation of mining activities and oil and gas well pads combine to improve vegetation conditions in the future.

4.3.7.5 Noxious and Invasive (non-native) Species

Positive cumulative effects are expected as a result of improved vegetation conditions from proposed changes to livestock management, reduced off road travel, and ongoing noxious weed treatment activities within the analysis area.

4.3.7.6 Wildlife – Terrestrial & Aquatic

Although there have been past effects in the analysis area that have reduced habitat quality such as uranium mining exploration, roads and past livestock grazing practices, the no grazing action should help to improve existing vegetation conditions which should lead to improved habitat conditions for wildlife.

4.3.7.7 Special Status Species – Terrestrial & Aquatic

The cumulative effects to BLM Special Status Species habitat is minor because of measures taken for habitat protection on all permitted BLM projects.

4.3.7.8 Special Status Species – Plants

The cumulative effects to BLM Special Status Species habitat is minor because of measures taken for habitat protection on all permitted BLM projects. In addition, protections are being proposed as part of the proposed ACEC to protect the Gypsum Valley cat-eye (*Cryptantha Gypsumsophila*) and associated species which occur in the Gypsum soils.

4.3.7.9 Cultural Resources

Any loss that might occur as a result of project implementation would result in an irreversible and irretrievable loss of cumulative data for the regional archaeological database. The loss might be limited to the currently known extent of resources present but, the data loss is cumulative in nature.

4.3.7.10 Socioeconomic and Cultural Lifestyle

Cumulative beneficial socioeconomic may be reduced on the region under the No Grazing Alternative.

5.0 CONSULTATION AND COORDINATION

5.1 Persons, Groups, and Agencies Consulted

- BLM grazing permittees: Steven and Pamela Jo Suckla; Jimmy Gene and Larry Suckla
- Colorado Parks and Wildlife: Jim Garner, Chris Closter
- San Miguel County: Board of Commissioners and Environmental Health Department
- San Juan Citizens Alliance, Amber Clark
- Al Heaton
- The Hopi Tribe
- Jicarilla Apache Tribe
- Navajo Nation
- Ute Mountain Ute Tribe
- Southern Ute Indian Tribe
- Northern Ute Tribe
- Pueblo of San Juan
- Pueblo of Acoma
- Pueblo de Cochiti
- Pueblo of Isleta

- Pueblo of Jemez
- Pueblo of Laguna
- Pueblo of Nambe
- Pueblo of Picuris
- Pueblo of Pojoaque
- Pueblo of San Felipe
- San Ildefonso Pueblo
- Pueblo of Sandia
- Pueblo of Santa Ana
- Santa Clara Pueblo
- Santo Domingo Pueblo
- Taos Pueblo
- Tesuque Pueblo
- Pueblo of Zia
- Zuni Pueblo

5.2 Summary of Public Participation

On March 12, 2008, the Tres Rios Field Office sent out scoping letters, along with a map identifying the allotment and pasture boundaries. Initial recipients of the scoping documents included the grazing permittees, Colorado Parks and Wildlife, San Miguel County and Montrose County.

The grazing permittee comments were expressed in their grazing permit renewal application. San Miguel County expressed concern over land health conditions. No other comments were received from the aforementioned groups.

Public service notices expressing the same scoping message as the referenced letter appeared in both the March 14, 2008, issue of the Dolores Star, and the March 15, 2008, issue of the Cortez Journal, both local newspapers. In response to the newspaper articles BLM received one request, for a copy of the scoping notice. The scoping notice was sent to the requesting member of the public, but did not result in any comments from the individual as well as any other member of the public.

The San Juan Public Lands Center in Durango, Colorado publishes a quarterly Schedule of Proposed Actions (SOPA), for a broad area of public lands that include the Tres Rios Field Office, BLM. Notice of this grazing permit renewal analysis began appearing in the SOPA April 1, 2008, and will continue to appear there until after the decision regarding this grazing permit is signed. All tribal Governments that receive the SOPA are listed in Section 5.2 of this document. The aforementioned SOPA publication led to an inquiry from the San Juan Citizens Alliance (SJCA), a local conservation group. They were provided with a copy of the scoping notice; and subsequently submitted comments expressing interest in BLM's analysis of how to best improve areas where land health standards were not met, and asked that BLM consider the resources that led them to request several ACEC (Area of Critical Environmental Concern) designations for areas that overlap these allotments.

Following scoping and identification of issues an environmental assessment titled “Livestock Grazing Use on Three BLM Allotments in the Vicinity of Lower Disappointment Valley, Colorado (CO-800-2008-043EA) which addressed three separate grazing allotments (Gypsum Valleys, RCA & Disappointment Creek) was prepared and released for public comment in August 2009. Copies were mailed to those that commented during scoping, other agencies and local government officials.

A total of eight individuals/organizations submitted a total of 89 substantive comments. After thorough consideration of the extensive public comments received and continuing discussions with the Tres Rios Field Office, BLM interdisciplinary team, it became apparent that the alternatives in the environmental assessment could be improved: 1) The adaptive management alternative lacked sufficient detail and focus to clearly describe monitoring triggers and subsequent actions; and 2) The range of choices for improvement were limited because the alternatives developed were too similar to current use levels and management techniques.

As a result of these comments, the original version of the environmental assessment (CO-800-2008-043EA) was revised to address the concerns expressed, and was released again for public comment in August 2010. Additional comments were received from a total of five individuals.

Therefore, based on all comments received, resource specialist from the Tres Rios Field Office, BLM: 1) further refined the adaptive management alternative to include a more detailed description of the monitoring triggers and subsequent grazing management actions; 2) developed an additional alternative that would significantly reduce the levels of grazing during the critical spring growing season; and 3) completed a new environmental assessment for the Gypsum Valleys Allotment based on these changes.

5.3 List of Preparers

Michael Jensen	Rangeland Management Specialist	Bureau of Land Management
Mike Schmidt	Wildlife Biologist	Bureau of Land Management
Cara Gildar	Ecologist	U.S. Forest Service
Shauna Jensen	Hydrologist	U.S. Forest Service
Julie Bell	Archeologist	Bureau of Land Management
Jeff Christenson	Recreation Specialist	Bureau of Land Management
Lindsey Eoff	NEPA Coordinator	Bureau of Land Management

6.0 REFERENCES, GLOSSARY AND ACRONYMS

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6.2 Glossary of Terms

From Society for Range Management (1998), except as noted:

- **Deferment:** The delay of grazing to achieve a specific management objective. A strategy aimed at providing time for plant reproduction, establishment of new plants, restoration of plant vigor, a return to environmental conditions appropriate for grazing, or the accumulation of forage for later use.
- **Rest:** To leave an area of grazing land ungrazed or unharvested for a specific time, such as a year, a growing season or a specified period required within a particular management practice.
- **Key areas:** A portion of range which, because of its location, grazing or browsing value, and/or use serves as an indicative sample of range conditions, trend, or degree of seasonal use.
- **Key species:** A forage [*or browse plant*] species whose use serves as an indicator to the degree of use of associated species, and because of its importance, must be considered in any management program” (Society of Range Management, 1989). Key species are usually decreaser plants that are an important part of the climax vegetation. If the range has been heavily grazed, decreaseers may be in short supply but they have the potential to become abundant if grazing pressure is reduced...It is important to recognize that key species for one type of animal may be different for another type due to differences in food habitats (Holocek, 2004).

The following terms and acronyms are also used to describe alternatives in this document:

%FR (percent federal range): Percent federal range refers to the percent of forage available from federal land in an allotment, or sometimes in a pasture within an allotment. If a BLM grazing permittee owns or leases other lands (i.e., private or State lands) that are not fenced separate from the Federal lands they are permitted to graze, the BLM credits them for the forage available on these other non-federal controlled lands. It is not directly linked to the percentage of acres in an allotment (or pasture) that are federal (BLM in this instance), but rather on an estimate of the percent of the forage available on federal (BLM administered) land.

AUM (animal unit month): An AUM is the amount of forage required to sustain an animal unit (AU), which BLM regulations define, for billing purposes as “one cow or its equivalent”, for one month. The BLM grazing regulations (43 CFR Part 4100) make no distinction between various size or gender classes of cattle. Once cattle are weaned, or over six months of age, they are all billed the same. See the actual grazing use discussion in Section 4.1.3 of this document for more information. **Total AUMs** grazed can be determined for a particular level of grazing use by dividing the number of days grazed by 30.41667 (days in a month) and multiplying that fractional month value times the animal units grazing. To calculate **BLM AUMs**, multiply that total AUM value times the percent federal range.

Total AUMs indicates the forage grazed from both BLM administered public lands and other controlled lands (see above) in a grazing allotment. Total AUMs do not show up on BLM issued grazing permits, however the figure can be calculated by dividing the BLM permitted AUMs, by the percent Federal range. Examining total AUMs is generally the most meaningful way to analyze livestock grazing use, since changes in the percent federal range figure can make it appear that fewer (or more) BLM AUMs are being consumed, when the same number of livestock may actual be grazing the same area for the same number of days.