

U.S. Department of the Interior Bureau of Land Management

Environmental Assessment DOI-BLM-NM- A010- 2013- 35 - EA

For Livestock Grazing Permit Issuance
On the Following Allotments:

Brandy (#00010), Seniorito (#00019),
Arroyo Empedrado (#00036), Cerro Cuate (#00041),
Wilson Canyon (#00061), South San Luis (#00070)
Tejon (00120), Ysidro Wash (#25418),

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- I. Summary of Standard Determinations.
- II. Fundamentals of Rangeland Health and Standards and Guidelines
- III. Standard Operating Procedures and Terms and Conditions
- IV. Allotment Maps

Introduction

This environmental assessment (EA) identifies the impacts to public land resources from a proposal to issue new term grazing permits on the following grazing allotments; Brandy (#00010), Senorito (#00019), Arroyo Empedrado (#00036), Cerro Cuate (#00041), Wilson Canyon (#00061), South San Luis (#00070), Tejon (00120), Ysidro Wash (#25418) Allotments. This EA fulfills the Bureau’s responsibility to comply with the National Environmental Policy Act (1969), the Public Rangeland Improvement Act (1978), The Clean Water Act (1972), the National Historic Preservation Act (1966 as amended) and the Endangered Species Act (1973). The Bureau of Land Management’s authority to administer livestock grazing on public land comes from the Taylor Grazing Act (1934) and the Federal Land Policy and Management Act (1976).

This EA will identify impacts of livestock grazing and its effect on other resources within the project area. The EA will also identify livestock project design features or livestock management practices to be implemented to reduce or eliminate potential undesirable impacts. The issues considered in this EA will be the effects of grazing on soils/hydrology, upland vegetation, riparian, water quality, wildlife, threatened and endangered (T&E) species, cultural resources, invasive/non-native species and rangeland health. The term grazing permits under consideration are for the eight allotments listed above (see general location map).

TABLE 1: - Current Permitted Grazing Use

Allotment Name , (Allotment #)	%Public Land	Permitted Livestock Class	Permitted Stocking Rate	Permitted Season of Use	Total Preference AUM's
Brandy (#00010)	89%	Cattle	265	11/01-05/31	1644
Senorito (#00019)	64%	Cattle	5	03/01-02/28	38
Arroyo Empedrado (#00036)	83%	Cattle Horses	81 5	03/01-02/28 03/01-02/28	807 50 *857
Cerro Cuate (#00041)	62%	Cattle	55	03/1-02/28	409
Wilson Canyon (#00061)	62%	Cattle Cattle	19 25	03/01-02/28 06/01-12/11	141 99 *240
South San Luis (#00070)	82%	Cattle	11	03/01-02/28	108
Tejon (#00120)	100%	Cattle	1	03/01-02/28	12

Ysidro Wash (#25418)	100%	Cattle	10	03/01-02/28	120
		Cattle	60	11/15-05/15	359
					*479

*Total AUM's are based on preference. Actual AUM's are rounded up or down to a number that will give an even number of cattle grazing.

Fundamentals of Rangeland Health and Standards and Guidelines

The Standards and Guidelines for livestock grazing on Bureau of Land Management lands in New Mexico were approved in January 2001. The standards were written to accomplish the four fundamentals of rangeland health. Appendix II, describes the fundamentals of rangeland health, the New Mexico Standards and Guidelines and the health assessment process.

Purpose and Need for the Proposal

The need for the proposal is to provide for legitimate multiple use of the public lands by issuing new term grazing permits on the eight allotments. The permits will be issued with terms and conditions for grazing use that conform to New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management, as developed by the New Mexico Resource Advisory Council (RAC) and approved in 2001. The proposed action will be in accordance with all applicable laws, regulations, and policies including Title 43 CFR 4130.2(a) which states "Grazing permits or leases authorize use on the public lands and other BLM-administered lands that are designated in land use plans as available for livestock grazing."

Conformance to Land Use Planning

The proposed action is consistent with Federal, State, and local plans to the maximum extent possible. The proposed action is in conformance with the Rio Puerco Resource Management Plan, approved November 1986. The proposed action has been analyzed within the scope of other relevant plans, statutes, regulations, and executive orders listed below and found to be in compliance:

- New Mexico Nonpoint Source Management Program, 2009.
- Endangered Species Act of 1973, as amended (PL 93-205; 16 U.S.C. 1531 et seq.).
- Wilderness Act (1964) (PL 88-577; 16 USC 1131-1136)
- Migratory Bird Treaty Act of 1918, as amended (Executive Order 11629)

Conformance to Statues, Regulations, or Other Plans

The proposed action complies with BLM New Mexico State Office, as per the requirement set forth in BLM Washington Office IMs WO 2003-071 and WO 2004-126. This document complies with the IM guidance. It also complies with the requirements outlined in the following policies and manuals:

- BLM Manual 8560, H-8560-1, 8561 (Wilderness Management)
 "The BLM must foster a natural distribution of native species of wildlife, fish, and plants by ensuring that ecosystems and ecological processes continue to function naturally" (.11 A 1).
 BLM Manual 8400 - Visual Resources Management

Description of the Proposed Action and Alternatives

Proposed Action

The Bureau of Land Management would re-authorize grazing through the issuance of new permits on the Brandy (#00010), Senorito (#00019), Arroyo Empedrado (#00036), Cerro Cuate (#00041), Wilson Canyon (#00061), South San Luis (#00070), Tejon (00120), Ysidro Wash (#25418) Allotments. Grazing activities would be administered through individual permits issued to operators and the allotment would continue to be managed as a whole in terms of total stocking rate and season of use. The proposed livestock management actions are described in the table below:

Table: 2 – Current and Proposed changes to allotment AUMs and seasons of use.

Allotment Name / Number	Current Allotment AUM's	Proposed Allotment AUM's	Current Season of Use	Proposed Season of Use
Brandy (#00010)	1,644	0-1,644	11/01-05/31	11/01-05/31
Senorito (#00019)	38	0-38	*03/01-02/28	**03/01-02/28
Arroyo Empedrado (#00036)	857	0-857	*03/01-02/28	**03/01-02/28
Cerro Cuate (#00041)	409	0-409	*03/01-02/28	**03/01-02/28
Wilson Canyon (#00061)	240	0-240	*03/01-02/28	**03/01-02/28
			06/01-12/11	06/01/12/11
South San Luis (#00070)	108	0-108	*03/01-02/28	**03/01-02/28
Tejon (00120)	12	0-12	*03/01-02/28	**03/01-02/28
Ysidro Wash (#25418)	479	0-479	*03/01-02/28	**03/01-02/28
			11/15-05/15	11/15-05/15

*Maximum season of Yearlong Grazing

** Flexibility and deviations in livestock numbers, areas of use and periods of use may be determined on a seasonal basis where such deviations are warranted. Authorization of deviation would not prevent attainment of shared goals, the multiple-use objectives and the standards for grazing administration.

Based on the livestock management described above in Table 2, new permits would be issued for a period of up to ten years. The terms and conditions as listed in appendix III, of the permits would contain stipulations to aid in achieving and/or maintaining the New Mexico Standards and Guidelines for Public Land Health.

Adaptive Management

The BLM in cooperation with the permittees have recognized the need for adaptive management and the permittees agree to voluntarily adjust stocking rates or season of use in order to reduce grazing intensities and allow for rangeland rest and recovery when deemed necessary by the authorized officer. Adaptive management adjustments will continue to be made until resource conditions are rested and recovered to desired levels.

Alternatives to the Proposed Action

No Action Alternative:

Under this alternative grazing would continue under current management with the same Terms and Conditions.

No Grazing Alternative

The no grazing alternative would no longer allow for authorized grazing on BLM lands within the eight allotment boundaries. All applications to graze livestock on the allotments would be denied based on this alternative and permits would not be re-issued. Livestock found on public lands within the allotment would be classified as unauthorized. Maintenance of range improvements would be re-assigned to the BLM's wildlife program in situations where wildlife would receive primary benefits such as from water sources. All other improvements would be removed from public lands. Permittees would receive reasonable compensation for permanent range improvements placed or constructed on public lands covered under the cancelled permits. The planning documents for the Field Office would be amended to show the change in use of the lands within the eight allotments.

Additionally, the Environmental Impact Statement for the New Mexico Statewide Resource Management Plan analyzed several other alternatives:

1. The no-action alternative, Management of vegetation on public lands within New Mexico would continue, consistent with existing RMP decisions and guidance.
2. Resource Advisory Council (RAC) alternative (Preferred)
3. The County alternative
4. The Fallback alternative

Description of the Affected Environment

The Brandy (#00010), Seniorito (#00019), Arroyo Empedrado (#00036), Cerro Cuate (#00041), Wilson Canyon (#00061), South San Luis (#00070), Tejon (00120), Ysidro Wash (#25418) Allotments are located a few miles south of Cuba, New Mexico. All of the allotments are located in Sandoval County. The average annual precipitation is approximately from 8 to 12 inches.

Typically, about half of the annual precipitation falls from July through October, and November through June are the drier months. Much of the rainfall occurs as convective thunderstorms late in July through September. Snow falls regularly in winter, but it does not remain on the ground very long. Allotment acres both public and private are listed in Table 3 below. The figures below display the general location of the allotments, the land ownership characteristics along with the allotment boundary distinctions.

Table 3: Allotment Ownership Acreage Summary

Allotment Name	BLM Acres	State Land Acres	Private Land Acres	Total Allotment Acreage	MLRA
Brandy	11,296	640	309	12,245	36
Arroyo Empedro	6,809	0	887	7,696	35&36
Cerro Cuate	2,564	655	622	3,871	35
Senorito	683	555	325	1,563	36
South San Luis	930	0	324	1,254	36
Tejon	62	0	18,321	*24,263	70
Wilson Canyon	1,460	609	275	2,344	35
Ysidro Wash	2,558	0	0	2,558	36

*Remaining balance are tribal lands

Standard Elements of the Human Environment

The elements of the human environment which must be considered because of requirements specified in statute, regulation, executive order or Bureau policy, are listed in Table 4. Additional elements that may be affected are further described in this EA. Those elements that are not present or would not be affected are also listed in the table, but will not be considered further in this document.

Table 4. Standard Elements of the Human Environment

Element	No or Negligible Effect Beyond Those Disclosed in the RMP/FMP/Grazing EIS	May Be Affected	Not Present	Rationale
Air Quality	X			Some blowing dust occurs due to wind and certain soil surfaces without livestock grazing. Changes in grazing management could improve soil surface conditions.
Areas of Critical Environmental Concern (ACEC)		X		San Luis Mesa ACEC is within portions of South San Luis Allotment, Brandy Allotment, Cerro Cuate Allotment, and Arroyo Empedrado Allotment. This area is an ACEC for raptor protection. The proposed action has little potential to negatively affect the species.
Cultural Resources		X		The allotments are predominately within a medium to high cultural sensitivity level.
Environmental Justice		X		In accordance with Executive Order 12898, each federal agency must analyze environmental effects, including human health, economic, and social effects, of federal actions, including effects on minority communities and low-income communities, when such analysis is required by NEPA. The No Grazing alternative would have a potentially negative social and economic effect on the predominantly Hispanic permittees.
Farmlands (Prime or Unique)			X	No prime farmland soils occur in the allotments.
Floodplains	X			Floodplains would be affected only if Land Health Standards are not met.

Table 4. Standard Elements of the Human Environment

Element	No or Negligible Effect Beyond Those Disclosed in the RMP/FMP/Grazing EIS	May Be Affected	Not Present	Rationale
Migratory Birds	X			A number of migratory bird species are known to have a distribution that overlaps with the proposed action area. Migratory bird nesting and foraging habitat may be located throughout the allotments. Based on known habitat associations, species composition may be somewhat anticipated. Where sagebrush occurs, migratory obligate species may use the area. Outside the breeding season, a number of species have the potential to use the area during the winter or migration. The potential for the proposed livestock grazing to negatively affect migratory birds is discountable because of low density of livestock within the allotments.
Native American Religious Concern	X			No concerns have been identified so far. Consultation with potentially affected American Indian tribes will be initiated on the basis of this EA
Noxious Weeds and Non-Native, Invasive Species		X		Proposed action may increase the risk of establishment or spread of these species in the allotment.
Federally Listed or Proposed Plant and Animal Species			X	No known species present.
Special Status Animal and Plant Species (Federally candidate threatened or endangered species and state sensitive species)	X			There are no special status or threatened/endangered plant or animal species that occur within the allotments.
Wastes (Hazardous and Solid)			X	No hazardous or solid wastes exist in the allotment nor would be introduced by the proposed action.
Water Quality	X			Water quality would be affected only if Land Health Standards are not met.
Wetlands/Riparian			X	There are no riparian areas within the allotments
Wild Horses and Burros			X	There is no Herd Management Areas associated with the allotments.

Table 4. Standard Elements of the Human Environment

Element	No or Negligible Effect Beyond Those Disclosed in the RMP/FMP/Grazing EIS	May Be Affected	Not Present	Rationale
Wild and Scenic Rivers			X	There are no wild and scenic rivers in or near the allotment.
Wilderness Values		X		None of the allotments occur within Wilderness Areas. Although, Cerro Cuate Allotment and Brandy Allotment are located within a (WSA) Wilderness Study Area.

In addition to the standard elements of the human environment, the BLM considers other resources and uses that occur on public lands and the issues that may result from the implementation of the proposed action. The potential resources and uses, or additional elements that may be affected are listed in Table 5. A brief rationale for either considering or not considering these elements further is provided. The additional elements that are considered in the EA are described in the Affected Environment and are analyzed in the Environmental Consequences section.

Table 5. Other Resources and/or Issues in the Allotment

Resource or Issue	No or Negligible Effect Beyond Those Disclosed in the RMP/FMP/Grazing EIS	May Be Affected	Not Present	Rationale
Livestock Grazing/Range Standards and Guidelines		X		The proposed action would add terms and conditions to the grazing permit that would aid livestock management toward maintaining/achieving the Standards for Rangeland Health.
Vegetation		X		Proposed additional stipulation changes may affect vegetation in the allotment through improved management.
Soils		X		Livestock Grazing may affect soils on the allotments. Thresholds are set by the Standards for Rangeland Health, and comparison of actual rangeland conditions to the thresholds is made with Rangeland Health Assessments.
Wildlife		X		Grazing management changes may affect wildlife habitat through improved grazing management.
Recreation	X			Grazing management changes would not affect recreation activities which occur on the allotment.
Visual Resource	X			Grazing activities would not affect Class IV VRM classified landscapes.

Potentially Affected Elements of the Human Environment

Based on the review of existing baseline data and surveys conducted in preparation of this EA, BLM specialists have identified the following as potentially affected resources that relate to the human environment:

- Livestock Grazing/Rangeland Health Standards and Guidelines
- Noxious Weeds and Invasive Non-Native Species
- Soils
- Vegetation
- Wildlife
- Cultural Resources
- American Indian Uses
- Socio-economic

Livestock Grazing/Rangeland Health Standards and Guidelines

Rangeland health assessments for the eight allotments were conducted between August and November 2012. Data was collected using an interdisciplinary team of natural resource professionals. It was identified that all of the allotments are achieving the New Mexico Standards for Public Land Health as written by the New Mexico Resource Advisory Council (RAC) and approved in 2001 (see table 2).

All eight of the allotments that are being evaluated for New Mexico Standards for Public Land Health met most standards. Overall, the allotments appear to have a decrease in cool season species such as Indian ricegrass (*Achnatherum hymenoides*), western wheatgrass (*Pascopyrum smithii*) and the shrub winterfat (*Krascheninnikovia lanata*). The current vegetative composition of native species within the allotments is appropriate for the range sites and is conducive to allowing a hydrologic cycle and energy flow that will support a productive and diverse native biotic community. Though the frequency of desirable native primary grammanoid and shrub species is less than what is recommended in the Ecological Site Descriptions (ESD), the presence of the primary species along with secondary species within the allotment is an indicator that the overall ecological condition within the community is functioning. Currently a mixture of drought and livestock numbers have been a factor in the frequency of desirable native plants being less than the recommended Ecological Site Descriptions (ESD). “Studies from a variety of range types show drought can reduce forage production by more than 50 percent the annual average. Under drought conditions pastures heavily grazed show much greater reductions than those moderately grazed. The best way to deal with drought is to apply conservative stocking rates (Holecheck 2002).”

Grazing management is in conformance within the guidelines for all eight allotments. The complete summary of Evaluations and determinations are located in Appendix I. Table 6 shows a summary of the standards by allotment:

Table 6. Summary of Standards

Allotment	Standard 1. Upland Sites	Standard 2. Biotic Communities	Standard 3. Riparian Health	Are livestock a contributing factor?
Arroyo Empedrado	Meeting the Standard	Meeting the Standard	N/A	N/A
Brandy	Meeting the Standard	Meeting the Standard	N/A	N/A
Cerro Cuate	Meeting the Standard	Meeting the Standard	N/A	N/A
Senorito	Meeting the Standard	Meeting the Standard	N/A	N/A
South San Luis	Meeting the Standard	Meeting the Standard	N/A	N/A
Tejon	Meeting the Standard	Meeting the Standard	N/A	N/A
Wilson Canyon	Meeting the Standard	Meeting the Standard	N/A	N/A
Ysidro Wash	Meeting the Standard	Meeting the Standard	N/A	N/A

Noxious Weeds and Invasive, Non-Native Species

Weeds (invasive/non-native vegetation) can be introduced in many ways, including wind, vehicles, recreational activity, heavy equipment, livestock, and wildlife. The potential for weeds to invade or spread within an area is increased when native vegetation is removed and physical disturbance to the soil occurs. Establishment of weeds usually occurs in disturbed sites. There are currently no known weed infestations within the allotments. While completing the rangeland health assessments for these allotments, the ID team determined that non-listed invasive/non-native plants are scattered throughout the allotments which include;

- Salt cedar *Tamarix spp.*
- Cheatgrass *Bromus tectorum*

Piñon pine and juniper, though native, have invaded sagebrush/grass areas and are scattered throughout these sites. In addition, sagebrush has invaded historical grasslands. When sagebrush invades a grassland it utilizes the available nutrients, which in turn limits the establishment of grasses. Current terms and conditions address management practices that are in place to reduce the risk of introduction and or spread of invasive plants. (Appendix III)

Soils

Soils in the allotments are variable across the terrain that consists of hill slopes, mesa tops, alluvial fans, and valley bottom areas. Soils are generally deep and well drained except on mesa tops, sides, and in other areas of rock outcrop. Surface textures are dominantly loamy and vary among clay loams, silt loams, fine sandy loams, silty clay loams, and other loamy textures. These soils are formed in alluvium or by in-place weathering from sandstone and shale parent material. Mean annual precipitation ranges from approximately 8 inches on the lower elevations to about 12 inches on the upper elevations.

Based on comparisons of the current *soil / site stability* and *hydrologic function indicators* to those expected for the site from the ESDs, the ID team determined that overall:

- The soil / site stability attribute was rated as having a “none to slight” degree of departure from the range site descriptions.
- The hydrologic function attribute was rated as having a “none to slight” degree of departure from the range site description.

Vegetation

The allotments are characterized by desert shrub communities which dominate much of the valleys. Soils determine largely which plant communities occur. The soils are described in the soils section of this document.

The majority of the allotments are dominated by two Major Land Resource Areas. They are MLRA 35, and 36 with a minor component of MLRA 70. These are described in detail at the NRCS website which is located at <http://soils.usda.gov/survey/geography/mlra/index.html>

MLRA 35

MLRA 35 supports desert shrub and woodland vegetation. At high elevations, Piñon-juniper woodland and sagebrush have an understory of galleta, blue grama, black grama, and western wheatgrass. Galleta grass (*Pleuraphis jamesii*), alkali sacaton (*Sporobolus airoides*), Indian ricegrass (*Achnatherum hymenoides*), bottlebrush squirreltail (*Elymus elymoides*), and needlegrasses intermixed with fourwing saltbush (*Atriplex canescens*) and winterfat (*Krascheninnikovia lanata*) are at the lower elevations. Greasewood (*Sarcobatus vermiculatus*) and shadscale (*Atriplex confertifolia*) are part of the plant communities on salty soils. Blackbrush may dominant at the lower elevations.

MLRA 36

The potential vegetation is grass and sagebrush at the lower elevations. Piñon-juniper woodland and ponderosa pine forests are at mid elevations. Forests of Rocky Mountain Douglas –fir and white fir are at the higher elevations. Some common plants are Wyoming big sagebrush (*Artemisia tridentata*), western wheatgrass (*Pascopyrum smithii*), galleta, needle and thread (*Hesperostipa comata*), and blue grama at the lower elevations; two-needle Piñon, Utah juniper, Indian ricegrass, mountain mahogany (*Cercocarpus kunth*), ponderosa pine, Gambel oak (*Quercus gambelii*), Arizona fescue (*Festuca arizonica*), and mutton grass (*Poa fendleriana*) at mid elevations; and Rock Mountain Douglas-fir, white fir, mountain muhly, common snowberry, Parry’s oat grass, and mountain brome at the higher elevations.

MLRA 70

The native vegetation in this area consists of short or mid prairie grasses in the lowlands and pinyon and juniper at the higher elevations and on breaks. Fine textured soils support vegetation characterized by western wheatgrass, blue grama, sideoats grama, and galleta. Alkali sacaton and western wheatgrass dominate drainage ways. Soils along natural escarpments and shallow soils support little bluestem, sideoats grama, and blue grama and species of oak, juniper, pinyon, mountain mahogany, sumac, and Apache plume. Some of the major wildlife species in this area are mule deer, antelope, jackrabbit, cottontail, pheasant, bobwhite quail, and mourning dove.

Wildlife

Wildlife species composition expected to occur on these allotments is characteristic of both the Colorado Plateau and Southwestern Plateaus, Mesas and Foothills regions. Some common species include:

roadrunner, cottontail rabbit, scaled quail, mule deer, elk, antelope, fox, coyote, black bear, mountain lion, black-tailed jackrabbit, Gunnison’s prairie dog, skunk, bats, eagles, hawks, owls, crow, woodpecker, bluebird, swallows, badger, piñon jay, black-billed magpie, mountain chickadee, red-breasted nuthatch, white-breasted nuthatch, collared lizard, fence lizard, and western rattlesnake.

Threatened, Endangered and Sensitive Species

Threatened, endangered and sensitive wildlife species lists for Sandoval County (<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/> and http://www.fws.gov/southwest/es/NewMexico/SBC_view_all_BC.cfm) as well as the NM BLM sensitive species list, (October 22nd 2013) were reviewed for this analysis. Geographic distribution and habitat requirement information for each species was considered with regard to the habitat within the allotments. No federally listed (endangered, threatened, or candidate) species are known to occur within the allotments. There are 3 federally listed endangered species, 1 threatened species, 3 candidate species and 18 BLM sensitive species likely present within Sandoval County. Of the 18 BLM sensitive species, 3 have suitable habitat present, are known or have the potential to exist, and may be affected by one of the proposed alternatives. The following table is a list of wildlife species that potentially occur within the allotments. Those species excluded due to not being present on the allotment or because there would be no effect due to implementation of one of the alternatives will not be addressed further in this document.

Table 7. TE&S Wildlife Species for Rio Puerco Field Office Grazing Allotments

Species	Status	Habitat	Potential to Occur within the Allotment	Potential Impacts	Species Justification
Loggerhead shrike (<i>Lanius ludovicianus</i>)	BLMS	Occurs in most upland habitats. Prefers areas with some scrub for nesting.	High	High- destruction of grasslands by heavy grazing could lead to loss of prey base.	Analysis is required. See below for species discussion.
Black-footed ferret (<i>Mustela nigripes</i>)	FE	Suitable habitat consists of b-t prairie dog colonies (>80 ac) or Gunnison’s p d colonies (>200 ac). Presumed extirpated from NM.	None – species is presumed extirpated from NM and no large prairie dog colonies present in the allotment analysis area	None – Presumed extirpated from NM	Species does not occur in analysis area. No further analysis required
Gunnison’s prairie dog (<i>Cynomys gunnisoni</i>)	FC	Suitable habitat consists of sagebrush ecosystems with sufficient grass component	None – outside the species distribution	None – does not occur in allotment	Species does not occur in analysis area. No further analysis required

Table 7. TE&S Wildlife Species for Rio Puerco Field Office Grazing Allotments

Species	Status	Habitat	Potential to Occur within the Allotment	Potential Impacts	Species Justification
Spotted bat (<i>Euderma maculatum</i>)	BLMS	Habitats include riparian, p-j woodlands, and ponderosa pine. Roost sites include crevices in cliffs or under loose rocks.	Low – this species could potentially occur within suitable habitats in the RPFO.	None – grazing unlikely to be harmful to this species	No Effect – grazing will not affect habitat. No further analysis required
Western small-footed myotis (<i>Myotis ciliolabrum melanorhinus</i>)	BLMS	Found in woodlands, forests, and desert communities. Known to roost in caves, abandoned buildings, under rocks, in crevices and under pine bark.	Low – This species may occur in buildings in the vicinity of the analysis allotments.	None – Low; Grazing unlikely to be harmful to this species.	No Effect – grazing will not affect habitat. No further analysis required
Long-eared myotis (<i>Myotis evotis</i>)	BLMS	Uses p-j woodlands, and coniferous forests. Roosts in caves and buildings generally above 6,700 feet.	Low – this species may occur in buildings in the analysis allotment	None – low; grazing unlikely to be harmful to this species	No Effect – grazing will not affect habitat. No further analysis required
Occult little brown bat (<i>Myotis lucifugus occultus</i>)	BLMS	Uses riparian habitats associated with perm water sources. Roost in man-made structures, caves, tunnels, and hollow trees including p-j, and ponderosa pine and mixed conifer forests.	Low – this species could occur within suitable habitats throughout the analysis allotments	None- Low; grazing unlikely to be harmful to this species	No Effect – grazing will not affect habitat. No further analysis required
Fringed myotis (<i>Myotis thysanodes thysanodes</i>)	BLMS,	Occurs in mid-elevation habitats included desert scrub, grasslands, and oak/pj. Roosts in caves, mines and buildings.	Low – this species could occur within suitable habitats throughout the analysis allotment	None –low; grazing unlikely to be harmful to this species	No Effect – grazing will not affect habitat. No further analysis required

Table 7. TE&S Wildlife Species for Rio Puerco Field Office Grazing Allotments

Species	Status	Habitat	Potential to Occur within the Allotment	Potential Impacts	Species Justification
Long-legged myotis (<i>Myotis volans interior</i>)	BLMS	Habitat usually ponderosa pine and higher elevations	Low – preferred habitats are not present within these allotments	None - low grazing unlikely to be harmful to this species	No Effect – grazing will not affect habitat. No further analysis required
Yuma myotis (<i>Myotis yumanensis</i>)	BLMS	Uncommon seasonal visitor to desert, grassland, woodland, and riparian areas from 4,000 – 7,000 ft. Roost in buildings, caves and crevices.	Low – this species could occur within suitable habitats throughout the analysis allotments	None – low grazing unlikely to be harmful to this species	No Effect – grazing will not affect habitat. No further analysis required
Big free-tailed bat (<i>Nyctinomops macrotis</i>)	BLMS	Summer resident; prefers coniferous and mixed woods. Can also be found in p-j woodlands, and desert communities. Roosts on rocky cliffs, caves, rock fissures, bridges and buildings	Low – this species could occur within suitable habitats throughout the analysis allotments	None – low grazing unlikely to be harmful to this species	No Effect – grazing will not affect habitat. No further analysis required
Ferruginous hawk (<i>Buteo regalis</i>)	BLMS	Rare to uncommon transient and winter migrant. Nest sites include trees, ledges, large rock outcrops and low cliffs in sage brush valleys and rolling grasslands	Moderate – this species could occur within suitable habitats throughout the analysis allotments.	Low – moderate; loss of prey base in heavily grazed areas.	Analysis is required. See below for species discussion.
Whooping crane (<i>Grus americana</i>)	F-Exp Non-Ess	Breed in marshes and uses surrounding habitat.	None – suitable habitat is not present	None – no habitat	Key habitat or species does not occur in analysis area. No further analysis required

Table 7. TE&S Wildlife Species for Rio Puerco Field Office Grazing Allotments

Species	Status	Habitat	Potential to Occur within the Allotment	Potential Impacts	Species Justification
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	FT	Found in canyons, mixed conifer forests, pine-oak woodlands and riparian areas	None – suitable habitat is not present	None – no habitat	Key habitat or species does not occur in analysis area. No further analysis required
SW willow flycatcher (<i>Empidonax traillii extimus</i>)	FE	Nesting habitat includes shrubs and trees in willow thickets, shrubby mountain meadows, and deciduous woodlands along streams and lakes	None – suitable habitat is not present	None – no habitat	Key habitat or species does not occur in analysis area. No further analysis required
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	FC	Open woodlands, streamside willow and alder grooves.	None – suitable habitat is not present	None – no habitat	Key habitat or species does not occur in analysis area. No further analysis required
NM meadow jumping mouse (<i>Zapus hudsonius luteus</i>)	FC	Inhabits narrow grass-forb-willow streamside riparian habitat along permanent waterways and wet meadows in river floodplains	None - Suitable habitat is not present	None – no habitat	Key habitat or species does not occur in analysis area. No further analysis required
Goat peak pika (<i>Ochotona princeps nigrescens</i>)	BLMS	Species confined to Jemez Mtns on patches of large talus slopes in alpine zones above 9,000 ft.	None – the allotment areas is outside of the species range	None – no habitat	Key habitat or species does not occur in analysis area. No further analysis required
White-faced ibis (<i>Plegadis chihi</i>)	BLMS	Inhabits shoreline and marsh habitats that border open water, desert riparian; deciduous woodland marsh and grasslands.	None – suitable habitat is not present	None – no habitat	Key habitat or species does not occur in analysis area. No further analysis required

Table 7. TE&S Wildlife Species for Rio Puerco Field Office Grazing Allotments

Species	Status	Habitat	Potential to Occur within the Allotment	Potential Impacts	Species Justification
Northern goshawk (<i>Accipiter gentilis</i>)	BLMS	Prefer closed canopy coniferous forests. Found in ponderosa pine, mixed conifer and spruce-fir forests. Nests are located in large trees.	None – suitable habitat is not present	None – no habitat	Key habitat or species does not occur in analysis area. No further analysis required
Harlequin duck (<i>Histrionicus histrionicus</i>)	BLMS	Prefers undisturbed, low gradient mountain streams with dense shrubby vegetation	None – suitable habitat is not present	None – no habitat	Key habitat or species does not occur in analysis area. No further analysis required
Pale Townsend's big-eared bat (<i>Corynorhinus (Plecotus) townsendii pallescens</i>)	BLMS	Occurs widely throughout all habitats.	Moderate – this species could occur within suitable habitats throughout the analysis allotment	None – low grazing unlikely to be harmful to this species	No Effect – grazing will not affect habitat. No further analysis required
Burrowing owl (<i>Athene cunicularia hypugaea</i>)	BLMS	Typically nest in abandoned burrows of prairie dogs, ground squirrels, foxes, and badgers in grassland, open shrubland and woodland communities	High. Suitable habitat exists within the analysis allotment	Low- moderate; loss of prey base in heavily grazed areas; loss of nesting habitat to prairie dog control	Analysis is required. See below for species discussion.
Jemez Mountains salamander (<i>Plethodon neomexicanus</i>)	FP	Occurs in mixed conifer habitat with abundant rotted logs and surface rocks.	None – suitable habitat is not present	None – no habitat	Key habitat or species does not occur in analysis area. No further analysis required
Rio Grande silvery minnow (<i>Hybognathus amarus</i>)	FE	The Rio Grande silvery minnow is found in the middle Rio Grande, from Cochiti Dam to the headwaters of Elephant Butte Reservoir.	None – suitable habitat is not present	None – no habitat	Key habitat or species does not occur in analysis area. No further analysis required

Table 7. TE&S Wildlife Species for Rio Puerco Field Office Grazing Allotments

Species	Status	Habitat	Potential to Occur within the Allotment	Potential Impacts	Species Justification
Rio Grande cutthroat trout (<i>Oncorhynchus clarki virginalis</i>)	FC	Encompasses all waters presently capable of supporting trout in the Rio Grande drainage	None – suitable habitat is not present	None – no habitat	Key habitat or species does not occur in analysis area. No further analysis required
Fathead chub (<i>Platygobio gracilis</i>)	BLMS	Rio Grande River	None – suitable habitat is not present	None – no habitat	Key habitat or species does not occur in analysis area. No further analysis required

Affected Environment for Species Carried Forward for Analysis

Loggerhead Shrike (*Lanius ludovicianus*)

Loggerhead shrikes are a year round resident of New Mexico but are considered a rare visitor in Sandoval County (BISON-M). They inhabit open shrubland and shrubby grasslands usually 2,800-7,500 ft. in elevation.

Breeding occurs in May-July. Nest habitat includes small trees and shrubs, nests are often reused every year and if the nest is destroyed then the pair usually re-nests. Territory radius is approximately 400-600M.

Prey items include large insects and occasionally small reptiles and mammals. Shrike frequently impale prey on thorns or barbed wire, this behavior serves to hold prey for tearing as shrikes lack talons.

Threats include lack of nesting site availability and loss of open feeding habitat (NMDGF 2005).

Ferruginous hawk (*Buteo regalis*)

Ferruginous hawks inhabit open country, primarily prairies; sagebrush, saltbush-greasewood shrubland, periphery of Piñon-juniper and other woodland, and desert. In Sandoval County, they are considered a summer resident, although they are listed as rare to uncommon in the state (BISON-M). Generally they avoid areas of intensive agriculture or human activity.

Nest site selection depends upon available substrates and surrounding land use. Ground nests typically are located far from human activities and on elevated landforms in large grassland areas (Natureserve). Lone

or peripheral trees are preferred over densely wooded areas when trees are selected as the nesting substrate (Natureserve). Tree-nesting hawks seem to be less sensitive to surrounding land use, but they still avoid areas of intensive agriculture or high human disturbance (Natureserve). Easily disturbed by human presence during breeding season and could easily abandon nest, particularly if disturbance occurs in the early stages of nesting (Natureserve)

Mammals are the primary prey (jackrabbits, ground squirrels, and pocket gophers, etc.) although birds, amphibians, reptiles, are also taken. Vulnerability of prey is an important factor in habitat suitability, such that Ferruginous Hawks avoid dense vegetation that reduces their ability to see prey (Howard and Wolfe 1976, Wakeley 1978, Schmutz 1987). Conversion of large areas of dense shrublands to grasslands may locally benefit Ferruginous hawks. Poisoning of prey species may be a threat both directly to hawks eating poisoned animals and indirectly through reduction of prey base, especially at prey concentration areas such as prairie dog colonies (Natureserve).

Grazing provides benefits by reducing vegetative cover and making prey more visible (Wakeley 1978, Konrad and Gilmer 1986). Kantrud and Kologiski (1982) found highest densities of Ferruginous hawks in heavily grazed areas in the northern Great Plains. These areas provided a combination of grazing and soil type (typic borolls) that resulted in abundant prey populations. Livestock, however, can weaken nest trees by excessive rubbing or trampling (Houston 1982, Olendorff 1993). Bock et al. (1993) suggested negative response to grazing in shrubsteppe habitats, based on the ground cover requirements of their prey.

Burrowing owl (*Athene cunicularia hypugaea*)

Burrowing owls are year round residents of New Mexico but are only considered a spring and summer resident in Sandoval County (BISON-M). Preferred habitat includes open shrubland and grassland. These owls occur in a variety of vegetative communities ranging from disturbed areas to climax grassland and are tolerant of human activity.

Burrowing owls do not dig their own burrow and are dependent on other burrowing mammals. They use abandoned prairie dog, ground squirrel, fox, badger and similar burrows as well as ground holes in road cuts for nesting. Feed diurnally primarily on large insects (especially in warmer months) and concentrates around vicinity of nest burrow; while nocturnal foraging efforts are primarily in areas with high small mammal abundance (NatureServe).

Primary threat is habitat loss, due to intensive agriculture practices; habitat degradation via control of burrowing mammals, and habitat fragmentation (NatureServe). Johnson and Anderson (2002) found that moderate to heavy grazing benefited burrowing owls using grasslands but that overgrazing and over stocking of cattle may decrease any benefits and lead to detrimental effects.

Migratory Birds

On January 10, 2001 President Clinton issued Executive Order 13186 “Responsibilities of Federal Agencies to Protect Migratory Birds” directing Federal agencies to comply with Migratory Bird Treaty Act (MBTA).

New Mexico Partners in Flight (PIF) identifies physiographic areas and high priority migratory bird species by broad habitat types. They also developed a list of priority breeding bird species by habitat type. The US Fish and Wildlife Service released its Birds of Conservation Concern 2008 report (USDI 2009). The environmental assessment for this project uses information from both the New Mexico PIF website (<http://www.hawksaloft.org/pif.shtml>) and the Birds of Conservation Concern Report for the Southern Rockies/Colorado Plateau Bird Conservation Region (BCR) #16 for the migratory bird analysis. The New Mexico PIF highest priority list of species of concern by vegetation type and the BCR #16 species list will be used to determine which species will be analyzed in this analysis.

The following list describes habitats found on the Rio Puerco grazing allotments and the migratory birds that are typically found in these habitats such as: Mountain chickadee, Black-billed magpie, red-breasted nuthatch, white-breasted nuthatch, Western bluebird, Sage thrasher, Bendire's thrasher, Sage sparrow, Scaled quail, Ash-throated flycatcher, Gray flycatcher, MacGillivray's warbler, Rock wren, Black-throated sparrow, Green-tailed towhee, and Brewer’s sparrow. No surveys have been conducted specifically within these allotments for this proposal to determine presence but these species have the potential of occurring within these habitats.

Piñon-Juniper Woodland

Piñon-juniper woodland habitat type is found throughout the state above desert or grassland vegetation and below pine forest, ranging from 4,500 to 7,500 in elevation. Table 7 lists the migratory bird species that may occur within this habitat in the Rio Puerco Allotments and the likely effects on those species.

Table 7 Species of migratory birds that may occur in Piñon -Juniper Woodland habitat within the Rio Puerco Allotments, and likely effects on those species

Species	FWS /PIF	Important Features and Life History Considerations	Effects
Ferruginous Hawk	FWSP F	Needs close proximity to high quality grasslands in NM. Encountered in grasslands and other open habitats at lower elevations (2,800-5,500') and open to dense stands of shrubs and low trees at middle elevations (5,000-7,500'). Prefers forest edge or mature, isolated, flat-topped junipers, with thick support branches for nest in NM Highly sensitive to human disturbance Prey mainly small to medium-sized mammals in NM	Grazing will not affect habitat
Gray Flycatcher	PIF	Prefers open Piñon-juniper forest, often with interspersed ponderosa Shrub cover cannot be too dense; prefers approximately 60% Logging and fire may create new habitat after several years	Grazing will not affect habitat

Great Basin Desert Shrubland/Grass Habitat Type

This habitat occurs in northwestern New Mexico from western Bernalillo and Sandoval counties to the Colorado border. It also occurs in western Taos and eastern Rio Arriba Counties. Big sagebrush (*Artemisia tridentata*) communities with significant grass cover are considered to be part of the Great Basin vegetation type. Tree junipers may also occur here. Other sagebrush species that occur with big sagebrush include black sage (*Artemisia arbuscula*) and bigelow sage (*Artemisia bigelovii*). Table 8 lists the migratory bird species that may occur within this habitat in the Rio Puerco Allotments and the likely effects on those species.

Table 8. Species of migratory birds that may occur in Great Basin Desert Shrubland/Grass Habitat Type within the Rio Puerco Allotments, and the likely effects on those species

Species	FWS / PIF	Important Features and Life History Considerations	Effects
Burrowing Owl	FWS	In habits open grasslands, especially prairie, plains and savanna. Optimum habitat typified by short vegetation and presence of fresh small mammal burrows.	Moderate to heavy grazing benefits burrowing owls using grasslands.
Loggerhead Shrike	PIF	Shrub component within grassland habitat is critical. Nest height above-ground depends on shrub height. Shrubs with spines or barbed wire fence useful for impaling prey before eating. Diet consists of birds, insects, and small mammals.	Grazing will not affect habitat
Sage Thrasher	PIF	Sagebrush obligate species that prefers sage-dominated grasslands and shrubby arid lands. Prefers nesting substrates larger than 70 cm (2.2'), with minimal bare ground present. Nests are placed in areas of dense shrubland with a concealing vegetative canopy cover.	Grazing will not affect habitat
Bendire's Thrasher	PIF/ FWS	Prefers relatively open grassland with large scattered shrubs and/or trees (junipers or sagebrush are usually present); may use dense vegetated washes or riparian areas. Breeds in relatively open, degraded grasslands with a moderate to dense shrub component. Nests are typically placed 2 feet to 5 feet in height above the ground in semidesert shrubs or trees.	Grazing will not affect habitat
Sage Sparrow	PIF	Prefers semi-open habitat with tall (3-7 feet), evenly spaced, large canopy shrubs of big sagebrush either alone or interspersed with butterbush, saltbush, shadscale, rabbitbrush or greasewood, occasionally in sagebrush-juniper habitat	Grazing will not affect habitat

Cultural Resources

Cultural resources within Sandoval County range from Paleoindian residential and special activity sites; through many kinds of Archaic residential and special activity sites; the full range of Ancestral Puebloan sites; colonial Spanish sites; Navajo, Apache and Ute sites; and later Hispanic and Anglo sites, including homesteads. More complete information can be found in A Class II Cultural Resources Inventory of the Southern Portion of the Chaco Planning Unit, McKinley and Sandoval Counties, New Mexico by Alan R. Dulaney and Steven G. Dosh, published in 1981 by the Bureau of Land Management; A Class I and Class II Survey of the Rio Puerco Grazing Area by Cheryl L. Wase, prepared in 1982 and on file at the Rio Puerco Field Office; and Prehistory of the Middle Rio Puerco Valley, Sandoval County, New Mexico edited by Larry L. Baker and Stephen R. Durand, published in 2003 by the Archaeological Society of New Mexico.

Brandy Allotment

BLM and Museum of New Mexico ARMS electronic records for the Brandy Allotment (#10) were reviewed in July, 2012. The 12,245 acre allotment includes 11,296 acres of public land. These records reflect 32 cultural resources inventories totaling about 348 acres of intensive inventory and 826 acres of reconnaissance on the public land in this allotment: 19 inventories for mineral exploration and development; 3 inventories for range management activities; 3 inventories for electrical distribution lines; 2 inventories for road construction and maintenance; 2 inventories for recreational activities; 1 inventory for a community waterline; 1 reconnaissance for a land exchange; and 1 reconnaissance for a grazing environmental impact statement. Ten sites have been recorded on public land in the allotment: 1 undated lithic scatter; 1 undated hearth; 2 undated rock art sites; 1 undated agricultural feature; 2 Navajo corrals; 1 Historic artifact scatter; 1 Historic livestock facility; and 1 Historic rock shelter or hunting blind.

Cultural resources that are especially vulnerable to the effects of grazing are not particularly likely to be found on public land in the Brandy Allotment (#10).

Señorito Allotment

BLM and Museum of New Mexico ARMS electronic records for the Señorito Allotment (#19) were reviewed in June, 2012. The 1,563 acre allotment includes 303 acres of public land. These records reflect 9 cultural resources inventories totaling about 59 acres of intensive inventory and 11 acres of reconnaissance on the public land in this allotment: 3 inventories for mineral exploration and development; 1 inventory for an airstrip; 3 inventories for range management activities; 1 inventory for road construction and maintenance; and 1 reconnaissance for fuelwood thinning and treatment. Five sites have been recorded on public land in the allotment: 1 Archaic lithic scatter; 1 Ancestral Puebloan residential site; and 3 Historic residential sites.

Cultural resources that are especially vulnerable to the effects of grazing are not particularly likely to be found on public land in the Señorito Allotment (#19).

Arroyo Empedrado Allotment

BLM and Museum of New Mexico ARMS electronic records for the Arroyo Empedrado Allotment (#36) were reviewed in June, 2012. The 4,482 acre allotment includes 3,507 acres of public land. These records reflect 9 cultural resources inventories totaling about 15 acres of intensive inventory and 876 acres of reconnaissance on the public land in this allotment: 3 inventories for mineral exploration and development; 2 inventories for range management activities; 1 inventory for a community waterline; 1 inventory for general cultural resource management; 1 inventory for recreational activities; and 1 reconnaissance for a grazing environmental impact statement. Nine sites have been recorded on public land in the allotment: 2 undated lithic scatters; 1 undated structural feature; 4 Navajo residential sites; and 2 Historic mining sites.

Cultural resources that are especially vulnerable to the effects of grazing are not particularly likely to be found on public land in the Arroyo Empedrado Allotment (#36).

Cerro Cuate Allotment

BLM and Museum of New Mexico ARMS electronic records for the Cerro Cuate Allotment (#41) were reviewed in June, 2012. The 3,886 acre allotment includes 2,606 acres of public land. These records reflect 6 cultural resources inventories totaling about 50 acres of intensive inventory on the public land in this allotment: 2 inventories for mineral exploration and development; 1 inventory for wind energy development; 1 inventory for recreational activities; and 2 inventories for community waterlines. Three sites have been recorded on public land in the allotment: 2 Ancestral Puebloan special use sites; and 1 Historic homestead.

Cultural resources that are especially vulnerable to the effects of grazing are not particularly likely to be found on public land in the Cerro Cuate Allotment (#41).

Wilson Canyon Allotment

BLM and Museum of New Mexico ARMS electronic records for the Wilson Canyon Allotment (#61) were reviewed in July, 2012. The 2,031 acre allotment includes 1,231 acres of public land. These records reflect 11 cultural resources inventories totaling about 91 acres of intensive inventory on the public land in this allotment: 4 inventories for mineral exploration and development; 1 inventory for wildlife management activities; 2 inventories for range management activities; 2 inventories for road construction and maintenance; and 2 inventories a prescribed burn. Four sites with 7 components have been recorded on public land in the allotment: 1 undated lithic and ceramic scatter; 2 Archaic lithic scatters; 1 Ancestral Puebloan artifact scatter; 1 Navajo residential site; 1 Historic railroad bed; and 1 Historic residential site.

Cultural resources that are especially vulnerable to the effects of grazing are not particularly likely to be found on public land in the Wilson Canyon Allotment (#61).

South San Luis Allotment

BLM and Museum of New Mexico ARMS electronic records for the South San Luis Allotment (#70) were reviewed in July, 2012. The 1,267 acre allotment includes 928 acres of public land. These records reflect 4 cultural resources inventories totaling about 25 acres of intensive inventory on the public land in this allotment: 4 inventories for mineral exploration and development. No sites have been recorded on public land in the allotment. Sites recorded in surrounding allotments generally include a variety of lithic scatters, water control devices, and historic livestock facilities.

Cultural resources that are especially vulnerable to the effects of grazing are not particularly likely to be found on public land in the South San Luis Allotment (#70).

Tejon Allotment

BLM and Museum of New Mexico ARMS electronic records for the Tejon Allotment (#120) were reviewed in September, 2012. The 24,263-acre allotment includes 60 acres of public land. These records reflect that there have been no inventories and no sites recorded on the public land in the allotment. However, 10 cultural resources inventories totaling about 4,173 acres of intensive inventory have occurred in the remainder of the allotment: 4 inventories for mineral exploration and development; 2 inventories for general cultural resource management; and 4 inventories for land exchange. Seventy-nine

sites have been recorded in the allotment: 2 undated structural features; 1 undated hearth; 6 undated lithic scatters; 2 undated ceramic and lithic scatters; 1 Paleoindian lithic scatter; 3 Archaic lithic scatters; 7 Ancestral Puebloan artifact scatters; 46 Ancestral Puebloan residential sites; 2 Ancestral Puebloan quarry sites; 1 Ancestral Puebloan hearth and ceramic scatter; 1 Historic residential site; 1 Historic artifact scatter; and 6 Historic mining sites.

Cultural resources that are especially vulnerable to the effects of grazing are not particularly likely to be found on public land in the Tejon Allotment (#120).

Ysidro Wash Allotment

BLM and Museum of New Mexico ARMS electronic records for the Ysidro Wash Allotment (#25418) were reviewed in September, 2012. The 2,560-acre allotment is comprised entirely of public land. These records reflect 16 cultural resources inventories totaling about 287 acres of intensive inventory on the public land in this allotment: 13 inventories for mineral exploration and development; 2 inventories for dam maintenance; and 1 inventory for recreational activities. One site has been recorded on public land in the allotment: a historic petroglyph panel with an associated hearth.

Cultural resources that are especially vulnerable to the effects of grazing are not particularly likely to be found on public land in the Ysidro Wash Allotment (#25418).

American Indian Uses

Brandy Allotment

There is no specific information about American Indian uses of the public land in the Brandy Allotment. It is within the traditional use area claimed by the Pueblo of Jemez, the Pueblo of Zia, and the Navajo Nation (Torreon Chapter).

Señorito Allotment

There is no specific information about American Indian uses of the public land in the Señorito Allotment. It is within the traditional use area claimed by Jemez Pueblo, the Jicarilla Apache Nation, and the Navajo Nation (Torreon Chapter).

Arroyo Empedrado Allotment

There is no specific information about American Indian uses of the public land in the Arroyo Empedrado Allotment. It is within the traditional use area claimed by the Navajo Nation (Torreon Chapter, Whitehorse Lake Chapter).

Cerro Cuate Allotment

There is no specific information about American Indian uses of the public land in the Cerro Cuate Allotment. It is within the traditional use area claimed by the Pueblo of Zia and the Navajo Nation (Torreon Chapter).

Wilson Canyon Allotment

There is no specific information about American Indian uses of the public land in the Wilson Canyon Allotment. It is within the traditional use area claimed by Jemez Pueblo, the Jicarilla Apache Nation, and the Navajo Nation (Torreon Chapter).

South San Luis Allotment

There is no specific information about American Indian uses of the public land in the South San Luis Allotment. It is within the traditional use area claimed by the Navajo Nation (Torreon Chapter).

Tejon Allotment

There is no specific information about American Indian uses of the public land in the Tejon Allotment. It is within the traditional use area claimed by San Felipe Pueblo, Santo Domingo Pueblo, and the Jicarilla Apache Nation.

Ysidro Wash Allotment

There is no specific information about American Indian uses of the public land in Ysidro Wash Allotment. It is within the traditional use area claimed by the Navajo Nation (Torreon Chapter).

Environmental Consequences of the Proposed Action

Livestock Grazing/Rangeland Health Standards and Guidelines

Proposed Action: Permitted AUM levels and season of use would remain the same for all eight allotments. There are additional stipulations being added to the terms and conditions of the permits to improve livestock distribution, reduce grazing intensity and to continue to promote biotic integrity, soil stability, and hydrologic function on the allotments. Specifically, livestock utilization levels would be added to the terms and conditions of the permits. This adaptive management strategy would allow for rest and recovery of the allotments as well as critical adjustments to overall grazing intensity, therefore conditions will begin to maintain/transition towards desired levels as recovery occurs.

No Action: Under this alternative current grazing management would continue without changes to the terms and conditions of the permits

No Grazing: Under this alternative, livestock grazing would no longer be authorized on the public lands within the eight grazing allotments. All applications to graze livestock on the allotments would be denied. Any livestock found on the public lands within the allotment would be in trespass. The planning documents for the Field Office would be amended to show the change in use of these lands. The allotment would be classified as “closed to grazing” and all allocated AUM’s would be set aside for other resource uses. Unauthorized use would be dealt with administratively as needed without the assistance of permittees.

Noxious Weeds and Invasive Native Species

The proposed action is expected to sustain or improve soil conditions, soil fertility and vegetative conditions on the allotment. Therefore, the threat of new introductions and or distribution of existing populations would be minimized. Invasive plant stipulations would be part of all authorized grazing activities allowing for a reduced risk of introduction of new species as well as spread of existing populations.

No Action Alternative: Under this alternative the potential for weed infestations would remain the same as under current livestock management.

No Grazing Alternative: Weeds would continue to spread at the current rates and livestock management practices would not contain any additional stipulations to reduce the risks of introduction and or spread of invasive species.

Soil

The proposed action would increase vegetative cover and litter amounts on the allotments where changes are proposed. Corresponding increases in infiltration and reduction in runoff would be expected. As such, this would maintain or decrease the soil loss potential on these allotments. Some localized soil compaction would occur where livestock congregate in limited areas, such as around waters or supplement barrels. The proposed action would result in maintaining, or progressing toward meeting, the Standards for Rangeland Health, particularly the Upland Sites standard.

No Action Alternative: Under this alternative soil stability would remain the same as would current livestock management practices.

No Grazing Alternative: This alternative would allow for the greatest production and retention of vegetative cover, litter, and root mass, which would facilitate greater improvement in infiltration and reduction surface runoff than the proposed action.

Vegetation

The proposed action is expected to improve soil conditions, soil fertility and vegetative conditions on the allotment. The proposed action would add additional terms and conditions to the permit that would include:

1. Salt and/or mineral supplements for livestock would be located no closer than 1/4 mile from water sources. Use of nutritional supplements (not forage) would be encouraged to improve the ability of cattle to utilize forage in the winter months and to improve livestock distribution across the allotment.
2. Maximum allowable use levels would be established as follows:
 - Key forage species: 50% use of the current year's growth.

This use level is necessary to allow desirable key herbaceous species to 1) develop above ground biomass for protection of soils, 2) to contribute to litter cover, and 3) develop roots to improve carbohydrate storage for vigor, reproduction, and improve/increase desirable perennial cover.

- Perennial shrubs, half-shrubs and forbs: 40% use on current annual production.

This use level is necessary to allow desirable perennial key browse species to develop woody stature able to withstand the pressure of grazing use.

No Action Alternative: Under this alternative vegetation production would continue to decrease and the composition would continue to transition to sub-dominant species such as shrubs (sagebrush, broom snakeweed). Furthermore, this would increase the potential for non-native vegetation to invade the site.

No Grazing Alternative: This alternative is expected to allow for the greatest production of vegetative cover, litter, and root mass, which facilitates improvement in soil structure, soil fertility and vegetative condition. Litter would be available to reduce surface runoff and to facilitate infiltration of moisture into the soil profile.

Wildlife

Proposed Action: Livestock impact wildlife in a variety of ways: by their presence, through behavioral impacts, and by their use of forage species. Behavioral impacts resulting from inter-specific encounters (including human and livestock) are difficult to quantify, as they vary by species and by type of interaction. Wildlife currently present on the allotments have, to varying degrees, acclimated to the presence of livestock and associated human disturbances. Impacts to wildlife and habitat components include, but are not limited to; cover and forage removal, soil disturbance and erosion, reduction of fine fuels available to carry fire (altered fire regime), addition of artificial water, food and mineral sources; habitat fragmentation, changes in overland and channel flow regimes, and long-term vegetative community conversion.

Current livestock presence and management dictates habitat condition relative to the stable state vegetative community that has developed on each site as a result of the long term grazing impacts. Issuing the permits under the proposed action would not result in an increase or decrease in wildlife density or diversity from the current level in the foreseeable future. Rather, it would perpetuate the current level of habitat impact and current population levels.

Fences can impede big game movement and pose the risk of entanglement. The BLM has developed fence height and wire spacing specifications designed to reduce the potential for any new fences constructed on public land to impact wildlife. All of the fences within the allotments surveyed had 3 to 4 strands of barbed wire, it was not noted whether the fences on any of the allotments had smooth wire either at the top or the bottom of the fence. The fences examined during the field trip for this analysis pre-dated the stipulations and varied in height, number of wires, wire spacing and distance from the ground to the bottom wire strand. However, the fences conform to the general existing situation in the region. No new fences are proposed and any future needed fence would be analyzed separately. Maintenance of existing systems would be completed to current BLM standards.

The provision of artificial water sources benefits some species. Many species that have adapted to the arid climate either don't require water on a regular basis, or not at all, and derive no benefit. Other species may be negatively impacted by habitat fragmentation resulting from the high use areas around waters or non-indigenous species being able to occupy the area because of the water source. Any open top storages and troughs that might be present are a drowning risk to small mammals and birds, especially to juveniles and during migration. BLM policy requires waters on public lands to include a wildlife escape ramp or floating device (16 sq. ft. minimum). As long as the permittee is in compliance, this potential source of mortality is essentially eliminated.

Implementation of the proposed action was analyzed for impacts that would occur to Threatened, Endangered and Sensitive wildlife species (as discussed below).

There is no quantified data to measure or estimate impacts of forage removal as a result of the proposed action to wildlife on these allotments.

Within the allotments considered in this EA, issuing a permit to graze livestock would *not* have a measurable impact on wildlife populations at more than the immediate local level because of the regional and long-term scale of habitat impacts. Permit associated human disturbance is low on public land and the continuation of this disturbance would have no impact.

No Action Alternative: The effects of this alternative would be similar to that of the proposed action. Selection of the no action alternative would not likely result in measurable changes to regional population levels of any T, E & S species because of the presence of livestock related impacts in surrounding areas and over the region.

No Grazing Alternative: A decision to not issue permits to graze public land would have few direct impacts to TES species on these allotments. Grazing permit associated human disturbance is quite low on public land and the cessation of this disturbance would have little to no impact. Species susceptible to cowbird parasitism may benefit from the removal of livestock concentration areas.

In the long term, the no graze alternative would be expected to favor loggerhead shrikes as interspace between shrubs becomes occupied with herbaceous species. In the span of the permit, there would likely not be a measurable change in loggerhead shrike use of the area.

Indirect impacts would occur through time, depending on the site, with changes in habitat. Species tied to, or that benefit from, dense herbaceous cover would benefit on sites where grass cover increased (loggerhead shrike).

Threatened, Endangered and Sensitive Species

Loggerhead Shrike (*Lanius ludovicianus*)

Proposed Action

Loggerhead shrikes could occur on any of the allotments where grassland or open shrub and woodland savannah habitat persist. The potential for the proposed action to impact this species indirectly is through forage removal and subsequent change of grassland communities, which are limited within the area being covered by this EA. Habitat that presently exists on the allotments is the result of long term grazing impacts. Forage removal at levels expected under the proposed action would not change the amount of habitat currently available to this species or make prey unavailable. Human disturbance associated with

the proposed action would be of low magnitude and frequency. The potential for direct impacts through human disturbance associated with the proposed action is negligible.

According to Bock et al (1992) Loggerhead shrikes are "unresponsive" or show "mixed responses" to grazing. Changes in location, timing and intensity of grazing could still decrease the predictability of habitat suitability (Luukkonen 1987). Consequently, active grazing regimes should be maintained at the nest site, or if stock use is rotated between fields, there should be adjacent fields so that foraging activity will require minimal changes. Herbaceous vegetation that is allowed to grow too tall or woody vegetation that becomes too dense eliminates the area as potential foraging habitat. Thorny shrubs, barbed-wire fences, and other objects suitable for impaling prey are also significant features of habitat that should be maintained (Nature Preserve). These activities would not be expected to have an impact on this species or habitat.

The implementation of the proposed action has potential to impact individual shrike. However, it would not have a measurable negative effect to their populations.

Cumulative Effects

Beyond the direct/indirect effects addressed associated with proposed activities under the proposed action, there are no activities that are reasonably certain to occur within the allotments that would result in cumulative effects to habitat for shrike.

No action alternative: Under this action conditions currently found on the allotments for shrike would remain the same; therefore the direct, indirect, and cumulative effects of this alternative would be similar to those described above for the proposed action.

No grazing alternative: The aforementioned data showed that grazing impacts on the shrike are equivocal; therefore the direct, indirect, and cumulative effects of a no grazing alternative would not likely greatly improve habitat, the number, or density of shrike on the allotments.

Determination

The proposed activities on these grazing allotments may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population (MIH). This determination is based on the management strategies that will maintain forage utilization at conservative use levels, and maintaining good to excellent range conditions within key areas necessary for cover for prey species.

Ferruginous hawk (*Buteo regalis*)

Proposed Action

The implementation of the proposed action has potential to impact individual hawks. As mentioned above, livestock, can weaken nest trees by excessive rubbing or trampling (Houston 1982, Olendorff 1993). Bock et al. (1993) suggested a negative response to grazing in shrubsteppe habitats, based on the ground cover requirements of their prey. However, in many cases these areas provided a combination of grazing and soil type (typic borolls) that resulted in abundant prey populations. Therefore the proposed action would likely have little to no direct or indirect negative effect on ferruginous hawks.

Cumulative Effects

Beyond the direct/indirect effects addressed associated with proposed activities under the proposed action, there are no activities that are reasonably certain to occur within the allotments that would result in cumulative effects to habitat for hawks.

No action alternative: Under this action conditions currently found on the allotments for hawks would remain the same; therefore the direct, indirect, and cumulative effects of this alternative would be similar to those described above for the proposed action.

No grazing alternative: The direct, indirect, and cumulative effects of a no grazing alternative would not likely greatly improve habitat, the number, or density of hawks on the allotments. There may be, over time, a slight increase in the forage for prey species that could improve the prey base for the species. Other positive or negative effects would be minimal.

Determination

The proposed activities on these grazing allotments **may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population (MIIH)**. This determination is based on the management strategies that will provide the woody and herbaceous vegetation for cover, maintaining forage utilization at conservative use levels, and maintaining good to excellent range conditions within key areas necessary for cover for prey species.

Burrowing Owl (*Athene cunicularia hypugaea*)

Proposed Action

This species may occur on all of the allotments considered in this EA. Forage removal at levels consistent with the proposed action would not make habitat or prey unavailable to burrowing owls, but it may. Direct threats may include trampling of burrows, and overgrazing; while indirect threats may include a decrease the available forage for their prey (large insects and small mammals), thus making prey scarce and avoidance of the grazing animal. However, these owls appear to be affected only minimally by grazing animals. In addition, human disturbance associated with the proposed action would be of low magnitude and frequency.

The implementation of the proposed action has potential to impact individual burrowing owls. However, it would not likely have a measurable negative effect to their populations.

Cumulative Effects

Beyond the direct/indirect effects addressed associated with proposed activities under the proposed action, there are no activities that are reasonably certain to occur within the allotments that would result in cumulative effects to the burrowing owl.

No action alternative: Under this action conditions currently found on the allotments for owls would remain the same; therefore the direct, indirect, and cumulative effects of this alternative would be similar to those described above for the proposed action.

No grazing alternative: The direct, indirect, and cumulative effects of a no grazing alternative may slightly improve habitat conditions for the owl and its prey species. If additional forage were available, there would be a greater chance of increased populations of rodents and large insects that owls may use for their prey base.

Determination

The proposed activities on these grazing allotments **may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population (MIIH)**. This determination is based on the management strategies that will provide the woody and herbaceous vegetation for cover, and maintaining forage utilization at conservative use that would be beneficial to burrowing owl habitat and species.

Migratory Landbirds

Please see tables 7 and 8 in the in Description of the Affected Environment portion of this document for effects to migratory landbirds from the proposed action.

Direct and Indirect Effects

Cultural Resources

Direct and Indirect Effects of Proposed Action

The direct and indirect effects to the cultural resources expected in these allotments, including traditional cultural properties, of limited numbers of domestic livestock grazing on public rangelands are expected to be slight. Direct impacts to sites such as site disturbance could result from the construction of grazing-related improvements such as fences and watering systems. These projects, which would require additional NEPA compliance, would also create indirect impacts if they concentrated livestock or vehicular traffic in sensitive areas. These impacts would be mitigated by following the practices listed in Appendix III.

Cumulative Effects

Long-term impacts from continued livestock grazing would consist of some trampling of artifacts and features, and perhaps some increased surface erosion from ground disturbance.

Direct and Indirect Effects of the No Action Alternative

Under the No Action Alternative, the effects to cultural resources, including traditional cultural properties are expected to be the same as those for the Proposed Action.

Direct and Indirect Effects of the No Grazing Alternative

Under the No Grazing Alternative, whatever slight impacts to cultural resources now result from limited numbers of domestic livestock grazing on public rangelands would be eliminated. However, activities associated with constructing livestock enclosure fences on fixed public land boundaries could disturb cultural resources. The cattle and game trails and roads that often develop along fence lines could further disturb cultural resources. These impacts would be mitigated by following the practices listed in Appendix III.

Cumulative Effects

No cumulative effects to cultural resources would be anticipated as a result of the No Grazing Alternative.

American Indian Uses

Direct and Indirect Effects of the Proposed Action

No direct impacts to American Indian uses resulting from continued grazing in these allotments have been identified. However, any proposals for grazing-related development such as fence lines, spring developments, etc. or other proposals with the potential to affect traditional cultural practices would be closely coordinated with the affected tribes (see Appendix III).

Cumulative Effects

No cumulative effects to American Indian uses would be anticipated under the Proposed Action.

Direct and Indirect Effects of the No Action Alternative

Under the No Action Alternative, the effects to American Indian uses are expected to be the same as those for the Proposed Action.

Direct and Indirect Effects of the No Grazing Alternative

Under the No Grazing Alternative, no impacts to American Indian uses are anticipated, except where enclosure fences are constructed, which could present physical barriers on traditional pilgrimage routes.

Cumulative Effects

No cumulative effects to American Indian uses would be anticipated under the No Grazing Alternative.

Cumulative Impacts

Cumulative impacts are impacts on the environment that result from the incremental impact of an action, when added to other past, present and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. They can result from individually minor but collectively significant actions taking place over a period of time.

Cumulative effects of livestock grazing have been assessed in the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management Environmental Impact Statement (2001). Additional cumulative impacts from the proposed action are addressed in more detail in the Rio Puerco Resource Management Plan Environmental Impact Statement (1989).

Cumulative impacts include not only those identified as pertaining to the proposed action and/or the no-action alternative, but those actions planned or occurring in the environment of the project area which have impacts on the human environment. A general discussion of past, present, and reasonably foreseeable future actions follows as they pertain to the major issue of rangeland and habitat health.

Past Actions

Past activities occurring on and near the allotments include livestock and wildlife grazing, recreation, hunting, mining, interstate highway travel, and construction of the allotment boundary fence, pasture fences, pipelines, troughs, roads, and earthen reservoirs. Minerals and salt have been distributed in various areas, to influence livestock movement.

Present Actions

Present activities include various types of recreation, road travel, woodcutting, piñon nut gathering, mining, livestock grazing and associated livestock management activities. These activities are associated with some degree of ground disturbance and erosion. Some taking of part of the animal population (deer, elk, etc.) would occur, due to hunting.

Reasonably Foreseeable Future Actions

There are no anticipated increases, woodcutting, piñon nut gathering, or OHV use in the area in the reasonably foreseeable future. In addition to brush treatments to restore native vegetation, the Rio Puerco Field Office will treat invasive plant species throughout the allotments in order to maintain watershed and native plant health.

A new resource management plan and environmental impact statement (RMP/EIS) is currently being developed for the Rio Puerco Field Office BLM area. All future land management activities within the allotments would be in coordination with this planning document.

Cultural Resources

In general, the effects to cultural resources as a result of grazing have already taken place. Ancestral Puebloan sites have long been reduced to mounds and do not have standing walls that would be vulnerable to the effects of grazing. Historic homesteads from the early part of the twentieth century are deteriorating naturally and few still have standing walls that could be damaged by cattle. Long-term impacts to cultural resources from continued livestock grazing would consist of some trampling of artifacts and features, and perhaps some increased surface erosion from ground disturbance.

No cumulative effects to cultural resources would be anticipated as a result of the No Grazing alternative.

American Indian Uses

No cumulative effects to American Indian Uses would be anticipated under either the Proposed Action or the No Grazing Alternative.

Cumulative Impacts Summary

Cumulative effects were assessed in terms of how the alternatives would add to the past, present, and reasonably foreseeable future activities, within and around the analysis area. Existing conditions reflect the past and present actions that have occurred on the analysis area.

Past activities occurring on and near the allotments include livestock and wildlife grazing, recreation, hunting, interstate highway travel, and construction of the allotment boundary fences, roads, construction of a major pipeline and water developments. Minerals, salt and molasses licks have been distributed in various areas, to influence livestock movement.

Present and reasonably foreseeable activities include various types of recreation, hunting, wildlife habitat enhancement projects, livestock grazing and associated livestock management activities. These activities are associated with some degree of ground disturbance and erosion. Some taking of part of the animal population (elk, deer etc.) would occur, due to hunting.

If the proposed action were implemented, rangeland conditions would be expected to remain static or improve, and no new impacts would be expected. Implementation of the proposed action would not result in any substantial cumulative impacts.

If the no action alternative were implemented, rangeland conditions would be expected to improve on some range sites. Implementation of this action would not result in any substantial adverse cumulative environmental impacts.

Socio-economic Effects

The proposed action and the No Action Alternative as outlined in this document are not anticipated to alter the socio-economic conditions for the permittee. Should the No Grazing Alternative be adopted, socio-economic impacts would occur. If all BLM grazing was eliminated in the Field Office, the economic impacts may be insignificant for permittees/ lessees who have 25 AUMs or less. However, the significance of losing the use of public lands for grazing could be high for those who depend on public lands for a great part of their total AUMs. The permitted or leased AUMs may be used by live-stock operators to help secure operation loans. Also, the AUMs contribute to the value of the private lands at the time of sale. Loss of AUMs on public lands can have a profound impact on property value if the operation is no longer a viable economic unit without them.

A major component of a permittee's income comes from ranching in the Field Office. This is true for all but the smallest ranches that may produce more income from outside sources. An elimination of BLM grazing would have a direct effect upon personal income. Even with large cuts in income, most ranchers would continue ranching in the short term. One of the major determining factors in how long an operation can sustain itself through depreciation, deferred maintenance, or use of equity capital is the operator's current debt load.

In accordance with NEPA Guidance on Environmental Justice analyzes, "Agencies should consider the composition of the affected area, to determine whether minority populations, low-income populations,

or Indian tribes present in the area are affected by the proposed action, and if so whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes.” The guidance further states as a goal the preservation of important historic, cultural, and natural aspects of our natural heritage, and maintain whenever possible, an environment which supports diversity and a variety of individual choices. CEQ regulations under 40 CFR part 433(b) (4) define “effect” or “impact” to include ecological...aesthetic, historic, cultural, economic, social or health, whether direct, indirect or cumulative.

Greater than 50% of the authorized operators under the analyzed Field Office are Hispanic ranchers of Spanish decent dating back to the European entry into the New World in the Southwestern part of the United States+. Adopting the No Grazing alternative would have an obvious disproportional social, economic, historic and cultural effect on a minority population. Given the current economic and social climate for the Hispanic minority livestock industry, the No Grazing alternative would likely be viewed as one more step in forcing small Hispanic family ranchers out of business. It could be expected that widespread resentment toward BLM policies would grow and persist for the foreseeable future.

Proposed Mitigation Measures

The Operating Procedures and Terms and Conditions in Appendix II serve as appropriate mitigation and are reference in the proposed action. No additional mitigation is proposed based on this environmental analysis. Items in Appendix III would be included as part of the term grazing permit for the proper management of livestock on the public lands within the six allotments

Suggested Monitoring

Rangeland monitoring data would continue to be gathered for the allotments. Data would be used to determine if livestock management practices are in conformance with the Guidelines and achieving the Standards for Rangeland Health as well as other multiple use objectives for the allotment. Monitoring studies may include cover, key forage plant method for utilization, ecological condition, weed detection and identification, repeat photography, and professional observations. If a future monitoring assessment results in a determination other than “Meeting the Standard” for the Standards for Rangeland Health, the grazing permit would be reissued subject to revised terms and conditions. Baseline data collection may be conducted associated with future watershed assessments.

Prior to authorizing annual grazing use, monitoring may be conducted to determine forage availability, grazing use areas and range readiness. Following the grazing period, monitoring may be conducted to determine overall utilization levels and grazing use patterns.

Consultation and Coordination

The Pueblo of Jemez, the Pueblo of Zia, the Pueblo of San Felipe, the Pueblo of Santo Domingo, the Jicarilla Apache Nation, and the Navajo Nation (Torreon Chapter, Whitehorse Lake Chapter), the Navajo Traditional Cultural Program, and the Navajo Nation Historic Preservation Department were consulted on for this environmental assessment.

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Appendix I

Summary of Evaluations and Determinations by Allotment

Arroyo Empedrado Allotment

Standard #1: Upland Sites

Conclusion: Standard Achieved

The data at four trend plots shows that cover is at what is recommended by the ESD to ensure adequate soil stabilization, and appropriate permeability rates within the ecological site. Monitoring data collected on the allotment indicates that soil loss or degradation is not occurring at this point in time. Although rills and gullies were absent, some water flow patterns and pedestals were present but only slightly across the landscape. Slight wind-scouring was also observed, resulting in litter movement. These indicators of erosion are likely due to natural soil movement due to the sand content within the makeup of the soil matter. The ESD for the trend plots 1 and 2 is R035XA130NM which is described as a site *“Grasses are dominant accounting for approximately 80-90 percent of the total annual production. Grass cover is somewhat patchy. Rock fragments account for a large proportion of ground cover. Shrubs and a few juniper and pinyon are scattered across the site. Evidence of erosion such as pedestalling of grasses, rills, and gullies is infrequent.”* The monitoring site reflects these conditions as described. Trend plot 3 is a R036XB006NM ecological site which is described as *“This is a grassland site with scattered shrubs throughout the site. Forbs are conspicuous when in bloom but otherwise comprise a minor component.”* The monitoring reflects these conditions as described however, the reduction in frequency of primary grammanoid species such as western wheatgrass and needle and thread grass is a result of past historical grazing pressure and drought throughout the western United States which resulted in a decrease of primary grasses, mainly cool season species. Trend plot 4 is a R036XB010NM ecological site which is described as *“Grass and litter cover is uniform with few large bare areas present. Shrubs are common with canopy cover averaging fifteen percent. Evidence of erosion such as pedestalling of grasses, rills and gullies is infrequent.”* Conditions at the trend plot are as described but the site has a reduced herbaceous component. Native perennial grasses both primary and secondary species are present at the site in reduced frequency but none occurred within the monitoring transect. The presence of the native primary and secondary grass species within the allotment indicates that the allotment appears to be functioning within the parameters as described within the ecological site descriptions. Overall the soils are productive, stable and in a sustainable condition within the capability of the ecological site.

Standard #2: Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species

Conclusion: Standard Achieved

In general the Hydrologic Function and nutrient cycling show reference conditions as described within the ESD throughout a majority of the allotment. Primary plant species such as western wheatgrass and sideoats grama are present but in reduced frequency when compared to secondary species. These primary grammanoid species are desirable/preferred species by livestock and wildlife and are decreasers within a range site as a result of herbivory. The current vegetative composition of both primary and secondary

native species within the allotment is appropriate for the range site and is conducive to allow the hydrologic cycle and energy flow that will support productive and a diverse native biotic community. There are no threatened and or endangered species within the allotment at this time.

Brandy Allotment

Standard #1: Upland Sites

Conclusion: Standard Achieved

The data at all four trend plots shows that cover is adequate to ensure soil stabilization, and appropriate permeability rates within the ecological site. The ESD describes the Historical Climax Plant Community (HCPC) as “*A grass-shrub mixture with scattered juniper and pinyon trees characterizes the plant community on these sites. Forbs are most prominent in spring and summer months of adequate soil moisture.*” The monitoring site reflects these conditions as described. However, the reduction in frequency of primary grammanoid species is a result of past historical grazing pressure and drought throughout the western United States which resulted in a decrease of primary grasses, mainly cool season species. The presence of the native secondary grass species within the allotment indicates that the allotment appears to be functioning within the parameters as described within the ecological site descriptions. Overall the soils are productive, stable and in a sustainable condition within the capability of the ecological site.

Standard #2: Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species.

Conclusion: Standard Achieved

In general the Hydrologic Function and nutrient cycling show reference conditions as described within the ESD throughout a majority of the allotment. However Line Point Intercept Cover data collected at Trend Plot 1, 2 and 3 indicates that primary plant species, such Indian ricegrass (*Achnatherum hymenoides*), and New Mexico feathergrass (*Hesperostipa neomexicana*) are significantly reduced in the community. The ecological site description states that the production range of both of these species should range from 85 lbs/acre in low production years and 128 lbs/acre in high production years or years with above average moisture These cool season grammanoid species are desirable/preferred species by livestock and wildlife and are decreasers within a range site as a result of herbivory. These species were observed within the allotment but did not occur within the established monitoring site. The current vegetative composition of secondary native species within the allotment is appropriate for the range site and is conducive to allow the hydrologic cycle and energy flow that will support productive and a diverse native biotic community. There are no threatened and or endangered species within the allotment at this time.

Cerro Cuate Allotment

Standard #1: Upland Sites

Conclusion: Standard Achieved

The data at both trend plots shows that cover is adequate to ensure soil stabilization, and appropriate permeability rates within the ecological site. The ESD describes the Historical Climax Plant Community (HCPC) as “*This grassland site is dominated by alkali sacaton. Shrubs are scattered and a few oneseed juniper are found. Forbs are a minor component.*” The monitoring site reflects the conditions as described for a community that is approaching its HCPC. The ESD states that “*Inadequate management of the site results in the deterioration of the potential plant community. Alkali sacaton, sideoats grama, black grama, and fourwing saltbush decrease. Plants that increase includes galleta, blue grama, cane and silver bluestem, broom snakeweed, and annuals.*” The presence of preferred grass species described

above though in reduced frequency within the allotment indicates that the allotment appears to be functioning within the parameters as described within the Ecological Site Descriptions. Overall the soils are productive, stable and in a sustainable condition within the capability of the ecological site.

Standard #2: Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species

Conclusion: Standard Achieved

The current vegetative composition of native species within the allotment is appropriate for the range site and is conducive to allow a hydrologic cycle and energy flow that will support a productive and a diverse native biotic community. Though the frequency of desirable native primary graminoid species is less than what is recommended in the ESD at TP-2 the presence of the primary species within the allotment and the monitoring plot is an indicator that the allotment appears to be functioning within the parameters as described within the Ecological Site Descriptions. This allotment will be monitored on a regular basis to ensure an upward trend in rangeland health. Rest and/or livestock reductions may be needed in the future for optimum rangeland health. There are no threatened and or endangered species within the allotment at this time.

Senorito Allotment

Standard #1: Upland Sites

Conclusion: Standard Achieved

The data at Trend Plot 1 shows that cover is adequate to ensure soil stabilization, and appropriate permeability rates within the ecological site. The ESD describes the Historical Climax Plant Community (HCPC) as “*the aspect of vegetation on this site is a shrub grass mixture characterized by mid-grasses, alkali sacaton and western wheatgrass. When the potential plant community deteriorates, there is a marked increase in relative abundance of shrubs, cacti, perennial and annual forbs.*” (ESD R036XB010) The monitoring site reflects the conditions as described for a community that is approaching its HCPC. However, the reduction in frequency of primary graminoid species is a result of past historical grazing pressure and drought throughout the western United States which resulted in a decrease of primary grasses, mainly cool season species. The presence of the native secondary grass species within the allotment indicates that the allotment appears to be functioning within the parameters as described within the Ecological Site Descriptions. Overall the soils are productive, stable and in a sustainable condition within the capability of the ecological site.

Standard #2: Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species

Conclusion: Standard Achieved

In general the Hydrologic Function and nutrient cycling show reference conditions as described within the ESD throughout a majority of the allotment. However Line Point Intercept Cover data collected at Trend Plot 1 indicates that primary plant species, such as Indian ricegrass (*Achnatherum hymenoides*), and western wheatgrass (*Pascopyrum smithii*) are significantly reduced in the community. The ecological site description states that the production range of these species should range from 53 lbs/acre in low production years and 105 lbs/acre in high production years or years with above average moisture for Indian ricegrass and 210 lbs/acre in low production years and 263 lbs/acre in years with above average precipitation for western wheatgrass. These cool season graminoid species are desirable/preferred species by livestock and wildlife and are decreasers within a range site as a result of herbivory. These

species were observed within the allotment but did not occur within the established monitoring site. The current vegetative composition of secondary native species within the allotment is appropriate for the range site and is conducive to allow the hydrologic cycle and energy flow that will support productive and a diverse native biotic community. There are no threatened and or endangered species within the allotment

South San Luis Allotment

Standard #1: Upland Sites

Conclusion: Standard Achieved

The data at the trend plot shows that cover is adequate to ensure soil stabilization, and appropriate permeability rates within the ecological site. The ESD describes the Historical Climax Plant Community (HCPC) as “*A grass-shrub mixture with scattered juniper and pinyon trees characterizes the plant community on these sites. Forbs are most prominent in spring and summer months of adequate soil moisture.*” The monitoring site reflects these conditions as described. However, the reduction in frequency of primary grammanoid species is a result of past historical grazing pressure and drought throughout the western United States which resulted in a decrease of primary grasses, mainly cool season species. The presence of the native secondary grass species within the allotment indicates that the allotment appears to be functioning within the parameters as described within the ecological site descriptions. Overall the soils are productive, stable and in a sustainable condition within the capability of the ecological site

Standard #2: Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species

Conclusion: Standard Achieved

The current vegetative composition of native species within the allotment is appropriate for the range site and is conducive to allow a hydrologic cycle and energy flow that will support a productive and a diverse native biotic community. The Ecological Site Description (ESD) further states that a Historic Climax Plant Community (HCPC) should be “*a grassland site with scattered shrubs throughout the site. Forbs are conspicuous when in the bloom but otherwise comprise a minor component*” The current composition by groups is listed in the tables above. *Bouteloua gracilis*, *Sporobolus* and *Pleuraphis jamesii* were the dominant herbaceous species on the monitoring sites. Though the frequency of desirable native primary grammanoid species is less than what is recommended in the ESD the presence of the species within the allotment is an indicator that the overall ecological condition within the community is functioning within the parameters of the ESD’s. There are no threatened and or endangered species within the allotment at this time.

Tejon Allotment

Standard #1: Upland Sites

Conclusion: Standard Achieved

The data at the trend plots shows that cover is adequate to ensure soil stabilization, and appropriate permeability rates within the ecological site. The ESD describes the Historical Climax Plant Community (HCPC) as “*The potential plant community of this site is a mixed grassland of warm and cool-season, bunch, stoloniferous, and rhizomatous perennial grasses. Woody species occupy a minor, but more important, part of this plant community. Forbs are a minor component of this site. However, during years of abundant spring and fall moisture, a large variety of forbs occur throughout this site.* “.Conditions at

TTP-1 reflects these conditions as described. The dominant grass species at TTP-1 is feathergrass and blue grama. The presence of preferred grass species both primary and secondary within the allotment along with the absence of rill/gulley or pedestalling of plants indicates that the allotment appears to be functioning within the parameters as described within the Ecological Site Descriptions. Overall the soils are productive, stable and in a sustainable condition within the capability of the ecological site.

Standard #2: Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species

Conclusion: Standard Achieved

In general the Hydrologic Function and nutrient cycling show reference conditions as described within the ESD throughout a majority of the allotment. Both primary and secondary plant species are present within the allotment. The ecological site description states *“The potential plant community of this site is a mixed grassland of warm and cool-season, mid and short perennial grasses. Woody species occupy a minor, but important part of this plant community. Few scattered oneseed junipers and pinyon pine may occur within some portions of the site’s geographic range. “These primary grammanoid species are desirable/preferred species by livestock and wildlife and are decreasers within a range site as a result of herbivory. The current vegetative composition of both primary and secondary native species within the allotment is appropriate for the range site and is conducive to allow the hydrologic cycle and energy flow that will support productive and a diverse native biotic community. There are no threatened and or endangered species within the allotment.*

Wilson Canyon Allotment

Standard #1: Upland Sites

Conclusion: (Standard Achieved).

The data at the trend plot shows that cover is adequate to ensure soil stabilization, and appropriate permeability rates within the ecological site. The ESD for WCTP-1 describes the Historical Climax Plant Community (HCPC) as *“Changes in composition to the historic plant community may occur in response to continuous heavy grazing. This is typified by a decrease in cool-season grasses such as New Mexico feathergrass, followed by a decrease in the more palatable warm-season grasses.”* The site reflects these conditions as described. However, the reduction in frequency of primary grammanoid species such as New Mexico feathergrass and sideoats gramma is a result of current, past, historical grazing pressure and drought throughout the western United States which resulted in a decrease of primary grasses, mainly cool season species. The presence of the native secondary grass species within the allotment along with the absence of rill/gulley or pedestalling of plants indicates that the allotment appears to be functioning within the parameters as described within the Ecological Site Description. The Overall the soils are productive, stable and in a sustainable condition within the capability of the ecological site.

Standard #2: Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species

Conclusion: (Standard Achieved).

In general the Hydrologic Function and nutrient cycling show reference conditions as described within the ESD throughout a majority of the allotment. Primary plant species such as New Mexico feathergrass and sideoats gramma are present but in reduced frequency when compared to secondary species. These primary grammanoid species are desirable/preferred species by livestock and wildlife and are decreasers

within a range site as a result of herbivory. The current vegetative composition of both primary and secondary native species within the allotment is appropriate for the range site and is conducive to allow the hydrologic cycle and energy flow that will support productive and a diverse native biotic community. There are no threatened and or endangered species within the allotment at this time.

Ysidro Wash Allotment:

Standard #1: Upland Sites

Conclusion: (Standard Achieved).

The data at all four trend plots shows that cover is adequate to ensure soil stabilization, and appropriate permeability rates within the ecological site. The ESD describes the Historical Climax Plant Community (HCPC) as “A grass-shrub mixture with scattered juniper and pinyon trees characterizes the plant community on these sites. Forbs are most prominent in spring and summer months of adequate soil moisture.” The monitoring site reflects these conditions as described. However, the reduction in frequency of primary grammanoid species is a result of past historical grazing pressure and drought throughout the western United States which resulted in a decrease of primary grasses, mainly cool season species. The presence of the native secondary grass species within the allotment indicates that the allotment appears to be functioning within the parameters as described within the ecological site descriptions. Overall the soils are productive, stable and in a sustainable condition within the capability of the ecological site.

Standard #2: Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species.

Conclusion: (Standard Achieved).

In general the Hydrologic Function and nutrient cycling show reference conditions as described within the ESD throughout a majority of the allotment. However Line Point Intercept Cover data collected at Trend Plot 1, 2 and 3 indicates that primary plant species, such Indian ricegrass (*Achnatherum hymenoides*), and New Mexico feathergrass (*Hesperostipa neomexicana*) are significantly reduced in the community. The ecological site description states that the production range of both of these species should range from 85 lbs/acre in low production years and 128 lbs/acre in high production years or years with above average moisture. These cool season grammanoid species are desirable/preferred species by livestock and wildlife and are decreasers within a range site as a result of herbivory. These species were observed within the allotment but did not occur within the established monitoring site. The current vegetative composition of secondary native species within the allotment is appropriate for the range site and is conducive to allow the hydrologic cycle and energy flow that will support productive and a diverse native biotic community. There are no threatened and or endangered species within the allotment.

APPENDIX II

Fundamentals of Rangeland Health and Standards and Guidelines

The Standards and Guidelines for livestock grazing on Bureau of Land Management lands in New Mexico were approved in January 2001. The standards were written to accomplish the four fundamentals of rangeland health.

The fundamentals of rangeland health are basic components of healthy rangelands. The four fundamentals of rangeland health, as identified in 43 CFR 4180.1 are:

- Watersheds are in, or are making significant progress toward, properly functioning condition.
- Ecological processes are maintained, or there is significant progress toward their attainment.
- Water quality complies with, or is making significant progress toward achieving, state standards.
- Habitats of protected species are maintained or are making significant progress toward being restored.

Standards for public land health are expressions of the level of physical and biological condition or degrees of function required for healthy and sustainable lands, and define minimum resource conditions that must be achieved. The New Mexico Standards are:

- Upland Sites Standard:* Upland ecological sites are in a productive and sustainable condition within the capability of the site. Upland soils are stabilized and exhibit infiltration and permeability rates that are appropriate for the soil type, climate and landform. The kind, amount, and/or pattern of vegetation provide protection on a given site to minimize erosion and assist in meeting State and Tribal water quality standards.
- Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species Standard:* Ecological processes such as hydrologic cycle, nutrient cycle, and energy flow support productive and diverse native biotic communities, including special status, threatened, and endangered species appropriate to the site and species. Desired plant community goals maintain and conserve productive and diverse populations of plants and animals, which sustain ecological functions and processes.
- Riparian Sites Standard:* Riparian areas are in a productive, properly functioning, and sustainable condition, within the capability of that site. Adequate vegetation of diverse age and composition is present that will withstand high stream flow, capture sediment, provide for groundwater recharge, provide habitat and assist in meeting State and Tribal water quality standards.

Guidelines are practices, methods or techniques determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting those standards.

Assessments of rangeland health interpret the degree to which the integrity of the soil, biotic (vegetative), and hydrologic processes of rangeland ecosystems are sustained. An interdisciplinary team (ID team) conducts a field assessment(s) to examine the current soil site stability, biotic integrity, and hydrologic function attributes that are present on the allotment. Seventeen individual factors (indicators) are assessed to rate the soil, biotic and hydrologic attributes. These indicators are examined and assigned one of five condition categories based upon the degree of departure from the range site description. The possible degrees of departure range from “none to slight” to “extreme”.

A range site is a distinctive kind of rangeland which in the absence of abnormal disturbance and physical site deterioration has the potential to support a native plant community typified by an association of species capable of occupying the site. The Soil Conservation Service (now Natural Resource Conservation Service) developed range site descriptions based on relic areas and historical knowledge. A range site description identifies the soil characteristics, potential natural plant community, and potential cover by species, potential annual production, and other pertinent information for each site.

The interdisciplinary rangeland health assessment is used to determine if the site (watershed, allotment or pasture) meets the New Mexico standards and the fundamentals of rangeland health. The final determination of whether a site does or does not meet the New Mexico standards and fundamentals of rangeland health is based on 1) the degree of departure from the range site description for the soil site stability, biotic integrity, and hydrologic function attributes; 2) how well the site meets the definition of a fundamentally healthy site, as identified in 43 CFR 4180.1 and; 3) other information such as monitoring data. If an allotment, or a portion of the allotment, is determined to be in a condition that does not meet the New Mexico standards and /or the fundamentals of rangeland health, the causal factor(s) is identified. If current livestock management is determined to be a causal factor, the authorized officer is required to take appropriate management action, no later than the start of the next grazing year, to make significant progress towards achieving the fundamentals of rangeland health and New Mexico standards (43 CFR 4180.1 and 4180.1(c)).

APPENDIX III

STANDARD OPERATING PROCEDURES & TERMS AND CONDITIONS

STANDARD OPERATING PROCEDURES

These provide mitigating measures to decrease or eliminate potential environmental impacts. The following list includes some of the more important mitigating measures for managing livestock grazing on BLM lands administered by the Rio Puerco Field Office.

1. The BLM will continue to identify and inventory riparian areas. As these areas are inventoried, appropriate measures will be implemented to allow them to attain properly functioning condition. The BLM's Cooperative Agreements and standard stipulations will apply to any range improvement affecting riparian areas.
2. Before placing range improvements on BLM lands, the BLM will consult with the New Mexico Department of Game and Fish, and the U.S. Fish and Wildlife Service where special-status species are a concern.
3. The BLM will provide wildlife escape devices for installation by the permittee on new and existing livestock drinking troughs.
4. The BLM may modify existing fences located on or bordering BLM land to allow for easier wildlife movement.
5. The BLM will continue to identify and document cultural resources. Where vulnerable properties are found, appropriate mitigation will be completed. For every new range improvement project proposed, site-specific environmental analyses will be completed, including National Historic Preservation Act (NHPA) compliance before project development. NHPA procedures require full consideration of cultural resources, usually consisting of Class III inventory and avoidance of all Category 2 sites.
6. The BLM will continue to consult with Pueblo and Tribal governments regarding traditional American Indian cultural properties and uses.
7. All new range improvements will be built to BLM standards and stipulations.
8. Maintenance will be assigned by Administrative Decision in accordance with BLM policy when new Cooperative Agreements cannot be developed, or existing Cooperative Agreements cannot be amended, to provide maintenance of range improvements.
9. The BLM will identify and inventory piñon-juniper woodland areas where treatment is needed to reduce the crown canopy. As these areas are inventoried, appropriate measures will be implemented to allow them to enhance the long-term functioning conditions. The BLM's Cooperative Agreements and standard stipulations will apply to any range improvement.
10. Flexibility and deviations in livestock numbers, areas of use and periods of use may be determined on a seasonal or annual basis where such deviations are warranted. Authorization of deviation would not

prevent attainment of shared goals, the multiple-use objectives and the standards for grazing administration. Such deviations will require an application and written authorization from the authorized officer prior to grazing use.

11. If a future assessment results in a determination that changes are necessary for achieving the Standards and conforming to the Guidelines, the permit would be reissued subject to revised terms and conditions

TERMS AND CONDITIONS

Livestock grazing permits and leases contain terms and conditions to ensure conformance with Title 43 of the Code of Federal Regulations (CFR), Part 4100, while providing for the achievement of management and resource condition objectives for the BLM lands. Compliance with 43 CFR 4100 is a requirement for grazing on BLM-administered public lands.

1. Supplemental feeding shall be defined as providing cattle a small amount of high protein feed (containing at least 15-30% protein and provided at a rate of no more than 3 lbs./day/head) to assist cattle in the metabolism of dry forage. To use and place supplemental feed on BLM lands, the grazing permittee must make a written request for authorization from the BLM. Requests must state the type of supplemental feed, the amounts to be provided, the duration of placement, and the reasons for providing such feed on BLM lands. Current Rio Puerco Field Office policy states that any supplemental feed placed on BLM land will be certified as weed free. Enforcement of this policy is pending the New Mexico Department of Agriculture's establishment of a weed-free certification program for feeds and supplemental forage. Maintenance feeding of livestock with access to public lands is prohibited. Maintenance feeding shall be defined as providing livestock with feed to assist in meeting their basic caloric needs, provided at a rate of more than 3 lbs./day/head.
2. Mineral supplement, including salt, will not be placed within ¼ mile of water.
3. The Terms and Conditions specified in Cooperative Agreements for rangeland improvements will be followed.
4. Maximum allowable use levels would be established as follows: Key forage species: 50% use of the current year's growth; Perennial shrubs, half-shrubs and forbs: 40% use on current annual production.
5. Fenced wildlife waters including spring developments, catchments and pipeline drinkers are excluded from use by livestock.
6. Weed Prevention Schedule for Rio Puerco Field Office (RPFO)
 - When working in areas with noxious weeds, take reasonable measures to avoid spread of noxious weeds including: avoid driving through weed patches; equipment and vehicles should be cleaned before moving off site.
 - Seeding work will use species specified by the RPFO. All seed will be certified weed free.
 - The area will be monitored to determine the success of the revegetation. The monitoring of the revegetation will continue until successful.

- Supplemental feed will be certified weed free. Any permit allowing livestock on the site should have a stipulation that weed free feed be used. Require that all pack and saddle stock in Wilderness Study Areas, Areas of Critical Environmental Concern, Recreation Areas or sensitive areas use only certified weed free feed. Encourage the use of weed free feed in all areas.
- In allotments with infestations and weed free areas, control timing of animal movement to prevent movement from infested sites to non-infested sites after seed set. Avoid grazing any vegetative treatment site (brush control, sagebrush shaving, seeded sites or prescribed burn sites) until vegetation is well established.

APPENDIX IV

ALLOTMENT MAPS













