ENVIRONMENTAL ASSESSMENT
NM-020-03-017

for the Esperanza Allotment, # 561
and Rio Nutrias Allotment, # 579

Analysis of Allotment Management Plan
for Grazing Permit Renewal

MAY 2003

U.S. Department of the Interior
Bureau of Land Management
Taos Field Office

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SECTION 1

PURPOSE AND NEED

INTRODUCTION

Background

The Esperanza Allotment (#561) and the Rio Nutrias Allotment (#579) are located 8 miles west of the Village of Cebolla in Rio Arriba County, New Mexico. Together these allotments comprise approximately 11,000 acres that include 9,240 acres managed by the Bureau of Land Management (BLM), 1,240 acres of state land, and 480 acres in private ownership (refer to Maps 1 and 2). The Rio Nutrias Allotment is bounded on the north by a portion of the Rio Nutrias, and the Rio La Cebolla passes through the southern edge of the Esperanza Allotment. The lower portion of the Esperanza Allotment is located within the Rio Chama Wilderness Study Area.

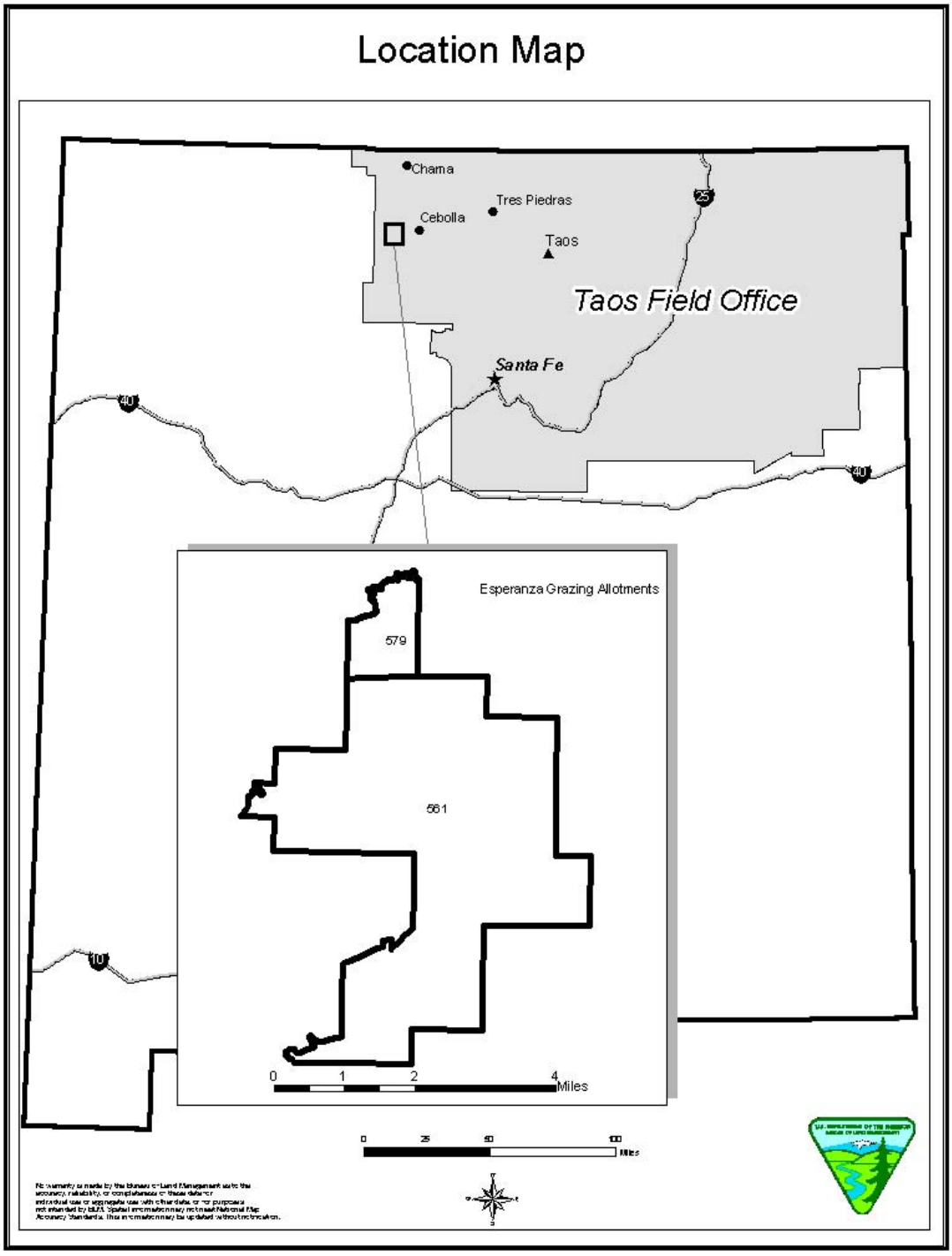
Within the area of analysis, elevations range from 6,500 to 7,600, with piñon-juniper, big sagebrush and ponderosa pine habitat. Annual precipitation averages 16 inches per year.

In the early 1950s, most of the acreage (except steep slopes, canyons, and wooded ridgetops) was plowed and seeded with crested wheatgrass. In addition, fire has been completely suppressed, and grazing by livestock and elk has removed the necessary fuels to carry fire. Combined with these factors, the allotments have highly erosive soils and invasion by sagebrush and other woody species. Both allotments have experienced a decline in species diversity, moderate to severe erosion, and overall reduced productivity.

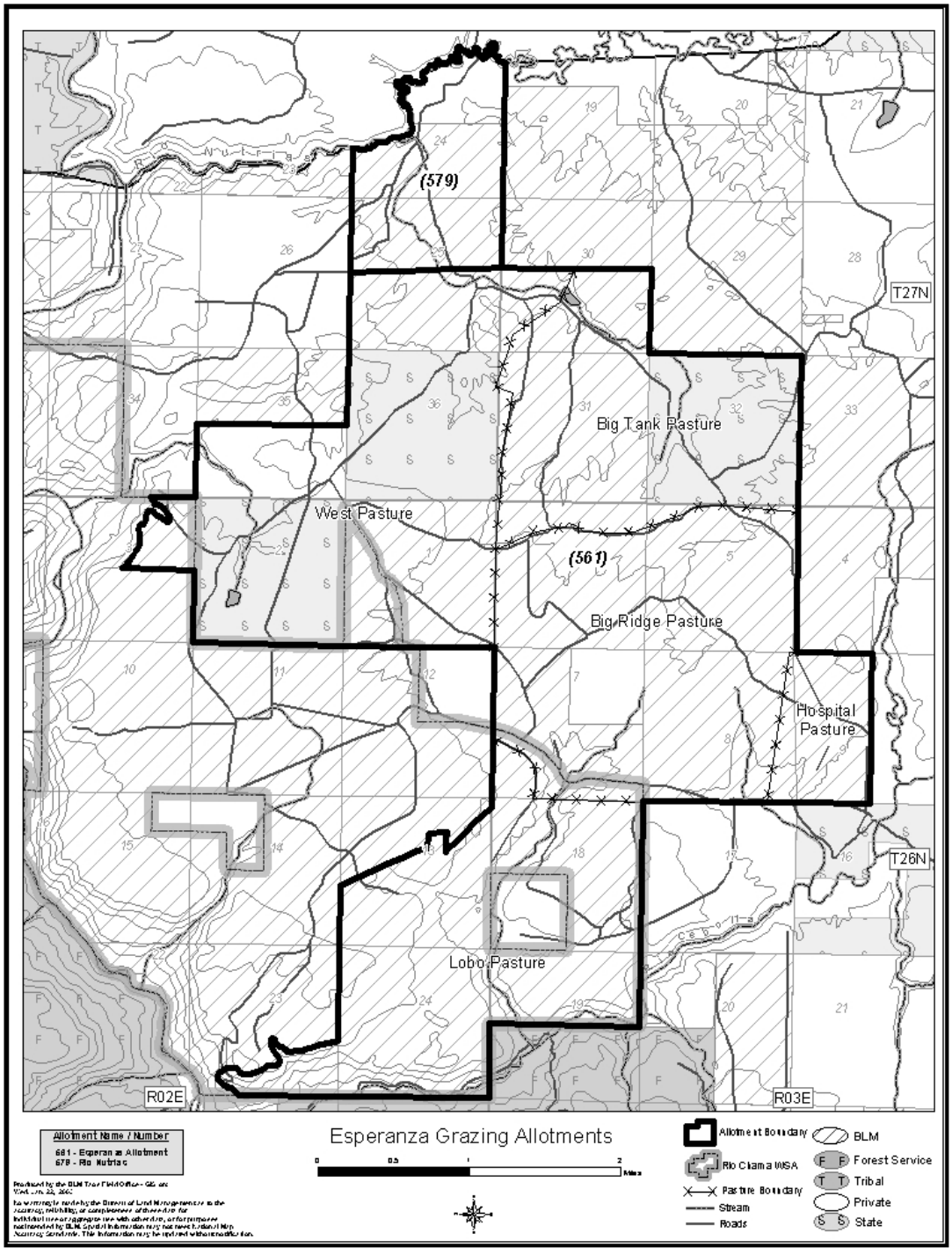
The analysis of Allotment Management Plan, (AMP) the subject of this Environmental Assessment (EA), is a result of recommendations made in the Analysis Interpretation and Evaluation (AIE) and EA process associated with the permit renewal for the Esperanza and Rio Nutrias Allotments. Several issues/concerns were identified within the AIE process and the AMP addresses those issues. This AMP is a result of 3 years of effort by the permittees, the New Mexico Environment Department, the New Mexico State Land Office, the Natural Resources Conservation Service, and the BLM.

Purpose and Need

As a result of the (AIE) associated with the permit renewal process and Title 43 of the Code of Federal Regulations (CFR), Part 4110.3, a new (AMP) for the Esperanza and Rio Nutrias Allotments is needed for the following reasons.


Location Map
Chama
Tres Piedras
Cebolla
Taos
Taos Field Office
Santa Fe
25
40
40
Esperanza Grazing Allotments
579
561
0
1
2
4
Miles
10
0
25
50
100
Miles

MAP 1


(579)
T27N
Big Tank Pasture
West Pasture
(561)
Big Ridge Pasture
Hospital Pasture
T26N
Lobo Pasture
R02E
R03E
Allotment Name / Number
681 - Esperanza Allotment
678 - Rio Nutrias
Esperanza Grazing Allotments
Allotment Boundary
BLM
Rio Chama WSA
Forest Service
Pasture Boundary
Tribal
Stream
Private
Roads
State

MAP 2

- To address the allotment concerns brought forward in the AIE,
- To implement improvements associated with a Clean Water Act (CWA), Section 319 (h) grant awarded to the Esperanza Association, and
- To enable the BLM to issue a new 10-year grazing permit.

This action is taken in accordance with the Taylor Grazing Act of 1934, the National Environmental Policy Act of 1969, the Federal Land Management Policy Act of 1976, the Public Rangelands Improvement Act of 1978, the Taos Resource Management Plan (USDI, BLM 1988), and Title 43 of the Code of Federal Regulations. The grazing permit and the proposed AMP would be effective for a period of 10 years.

Goal of the Allotment Management Plan (Proposed Action)

The goal for the AMP was developed in several meetings with the permittees. It is to maintain family and community stability, open space, a clean environment, and recreational opportunities by balancing wildlife and domestic livestock values, providing education for the public, protecting cultural resources, and restoring and protecting the watershed.

Issues and Concerns Common to All Pastures

These include excessive erosion, encroachment of big sagebrush, lack of herbaceous understory, and uneven utilization of forage by livestock (greater utilization in some areas, light or none in other areas of a pasture).

Resource Objectives

To reach the goal of the AMP, the following resource objectives must be achieved.

- Maintain or increase cool-season and native species throughout the allotments.

- Reduce erosion and sediment loads entering the Lobo Canyon, Rio Cebolla, Rio Chama and Rio Nutrias.

- Restore vegetation in riparian areas and promote recovery of native riparian species.

- Improve species composition (shrubs vs. herbaceous vegetation) to enhance rangeland resources and wildlife habitat.

- Establish a monitoring plan that addresses vegetation, water quality, and soil issues.

- Improve livestock distribution throughout the allotments.

- Move livestock from pastures when utilization levels reach 50 of annual production percent on key forage species or the allotted time has been reached.

SECTION 2

PROPOSED ACTION AND ALTERNATIVES

BACKGROUND

The stocking levels and rotation schedules are used at present and would be followed under the Proposed Action and No Action.

Type of Livestock

Cow/Calf Pairs

Seasons of Use and Numbers:

C=Cattle

Esperanza Allotment Permittees		Season of Use
El Sueño del Corazon	153C	05/01-10/31
Charlie Chacon	103C	05/01-10/31
Lupe Griego	92C	06/07-10/31
Total Cattle	348C	

Rio Nutrias Allotment Permittee		
Lupe Griego	92C	05/01-06/06

Total Acres:

All acreages are estimates derived from Geographic Information Systems (GIS).

WSA= Wilderness Study Area

Esperanza Allotment #561:

	Acreage
BLM	6,700
State	1,893
Private	631
Allotment Total	9,224

Acreage by Pasture:

West Pasture		WSA Acreage
BLM	1,192	256

Private	313	0
State	1,253	0
Total	2,758	256

Big Tank Pasture

BLM	1,023
Private	0
State	640
Total	1,663

Big Ridge Pasture

BLM	2,072	93
Private	156	0
State	0	0
Total	2,278	93

Hospital Pasture

BLM	390
Private	0
State	0
Total	390

Lobo Pasture

BLM	2,023	2,021
Private	162*	0
State	0	0
Total	2,185	2,021

Total WSA acreage within allotment Esperanza Allotment # 561 2,370 *Private land located within the WSA.

Rio Nutrias Allotment #579:

	Acreage
BLM	613
Private	171
Total	784

Pastures:

Esperanza Allotment 5, Rio Nutrias Allotment1

Grazing System:

Esperanza Allotment
Five pasture deferred rotation

Rio Nutrias Allotment

One pasture, spring grazing. The animals from the Rio Nutrias allotment are mixed into the Esperanza herd approximately one month into the grazing season on the Esperanza Allotment.

PROPOSED ACTION

The Proposed Action is to implement the new Allotment Management Plan (AMP—refer to Appendix A) for the Esperanza Allotment, including the actions and proposed improvements associated with the plan.

Grazing Management

The Esperanza Allotment is operated under a 5-pasture, deferred rotation grazing system, while the Rio Nutrias Allotment is limited to spring grazing. Throughout all of the pastures, the following livestock management actions would be taken to address the issues brought forward in the AIE, and would be used in conjunction with the proposed projects to benefit the resource. Best Management Practices (BMPs) would be incorporated within the grazing schedule and included in managing the allotment. BMPs may include but are not limited to the following actions:

- Range Analysis, Allotment Management Plans, Grazing Permit System and Annual Operating Plans,
- Controlling Livestock Numbers and Season of Use,
- Controlling Livestock Distribution, and
- Protection of Wetlands and Riparian Areas.

A more detailed description of these BMPs can be found in the Water Quality section of this EA.

Livestock would be used to remove decadent vegetation which will allow for new vegetative growth. Concentrating livestock in areas for a short time after seed shatter (opening) will incorporate seed into the soil. This would be accomplished either through placement of mineral supplements or by actual herding of the animals into or through an area. Soils and soil moisture at each site would be examined before such concentrated grazing was prescribed. Time and utilization constraints would be adhered to.

If done properly, these actions would reduce the amount of decadent plant material and incorporate it into the soil, allowing for soil disturbance and implantation of seeds. If the concentration of animals was applied at the wrong time or at high intensity for an extended period of time, damage to the resources would likely occur.

Livestock would be moved from pastures when utilization levels reached 50 percent on annual production on key forage species, or when the allotted time was

reached. (An exception would be made when livestock were used to achieve vegetation manipulation objectives. This action would have to be approved by the authorized officer of the BLM in advance.) Mineral supplement and herding should be used to draw animals into underutilized areas. The grazing prescriptions (deferred rotation, mineral supplements, and herding) would be assisted by and used with the following improvements listed by pasture to achieve the resource objectives.

Proposed Improvements

Refer to Maps 3 and 4 for the location of projects. Proposed projects by pasture are as follows.

Lobo Canyon Pasture

The AIE process brought forth the following resource issues within the Lobo Canyon Pasture. Both the east and west sides of the canyon have rill formation, water flow patterns, and gullies with active erosion and head cuts. Big sage dominates the west side with little herbaceous understory, and the riparian area within the pasture has been rated as non-functional. The actions listed below would be taken to address these issues.

- Treat private portion of pasture with aerial application of herbicide (Spike, 160 treatable acres) in SW 1/4 of Section 18. Possibly apply prescribed burn within Wilderness Study Area in Section 24 and portions of Sections 13 and 19.

- Reestablish and enhance riparian vegetation by implementing grazing Best Management Practices (BMPs) and by planting willow and narrow-leaf cottonwood.

- Establish 2,000 feet of pipeline from the Prospect Well in the Big Ridge Pasture, and extend the boundary of the Lobo Pasture by installing 1.25 miles of four-strand fence (wildlife compatible) outside the Wilderness Study Area (WSA), (refer to Map 3). A trough will be installed within the new boundary of Lobo Pasture.

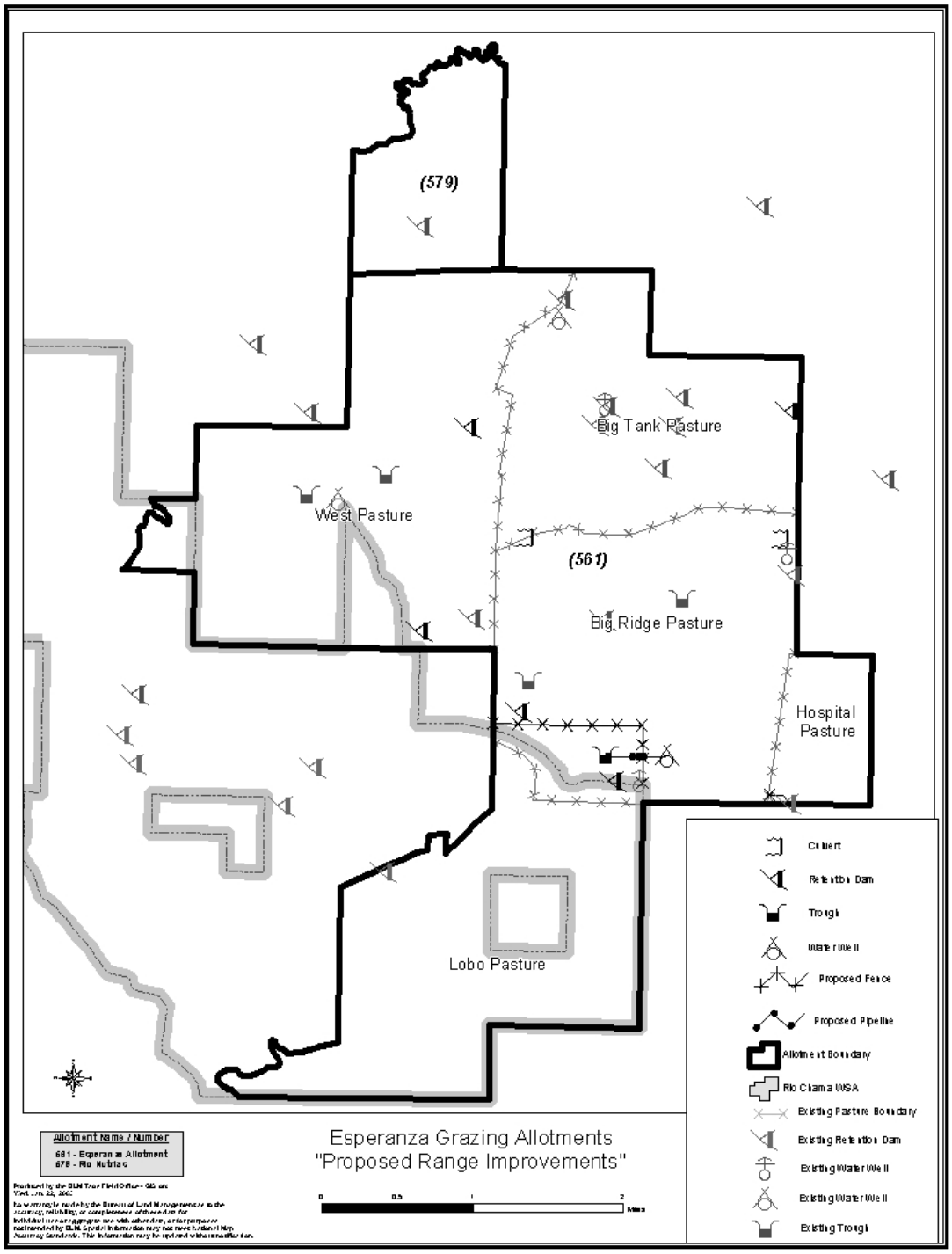
West Pasture

Resource issues within the West Pasture are the dominance of big sagebrush, a greatly reduced herbaceous vegetative component, and livestock distribution. The actions listed below would be taken to address these resource issues.

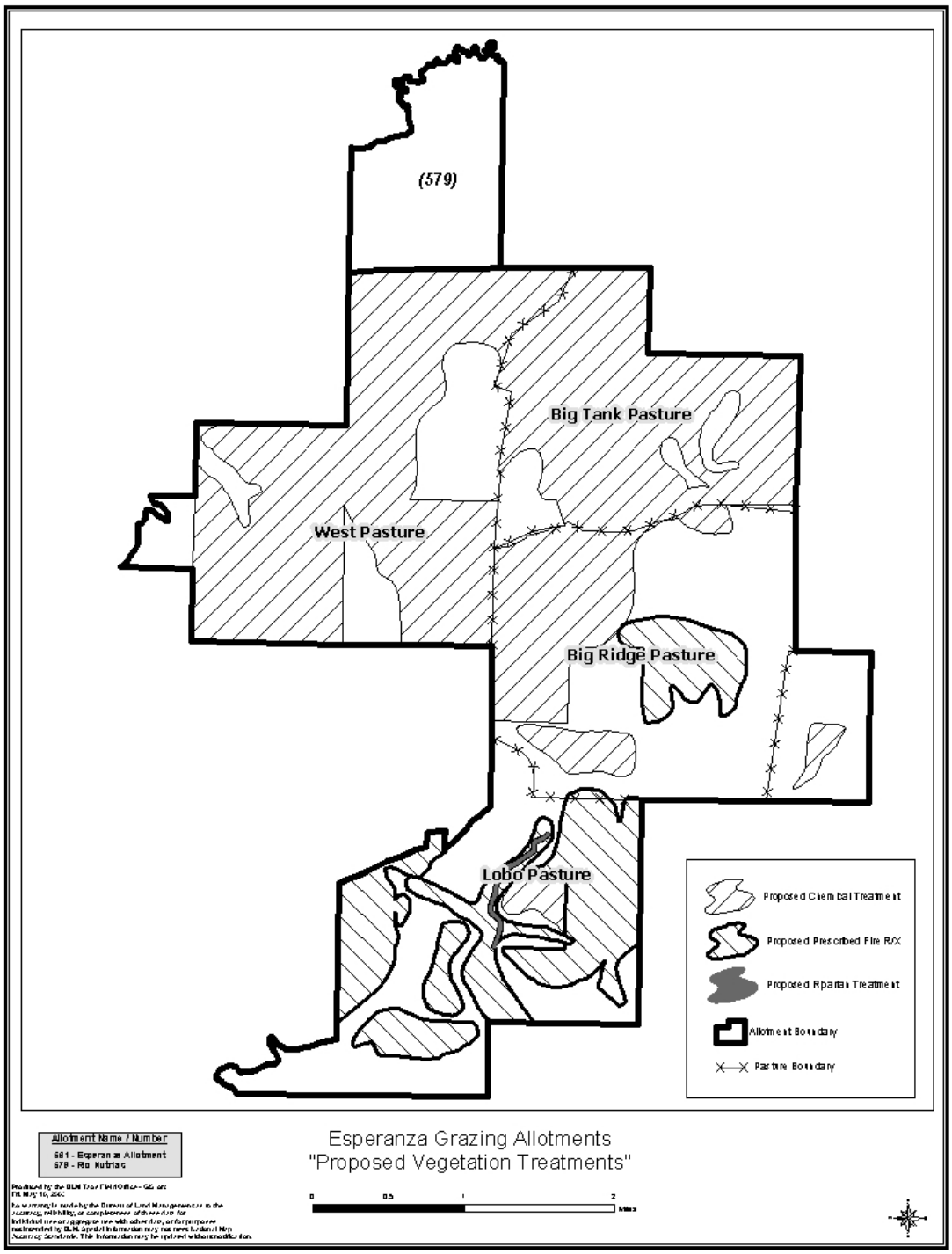
- Apply Spike treatment in the non-WSA portions of Section 1, and Sections 2, 36 and S1/2, Sections 35 (private parcel) and 25.

- Complete water pipeline and drinkers.

- Build one earthen dam (SW1/4 SE ¼, Section 1).


(579)
Big Tank Pasture
West Pasture
(561)
Big Ridge Pasture
Hospital Pasture
Lobo Pasture
Culvert
Retention Dam
Trough
Water Well
Proposed Fence
Proposed Pipeline
Allotment Boundary
Rio Chama WSA
Existing Pasture Boundary
Existing Retention Dam
Existing Water Well
Existing Water Well
Existing Trough
Allotment Name / Number
681 - Esperanza Allotment
679 - Rio Nutrias
Esperanza Grazing Allotments
"Proposed Range Improvements"
0
0.5
1
2
Miles

MAP 3


(579)
Big Tank Pasture
West Pasture
Big Ridge Pasture
Lobo Pasture
Proposed Chemical Treatment
Proposed Prescribed Fire R/X
Proposed Riparian Treatment
Allotment Boundary
Pasture Boundary
Allotment Name / Number
681 - Esperanza Allotment
678 - Rio Nutrias
Esperanza Grazing Allotments
"Proposed Vegetation Treatments"
0
0.5
1
2
Miles

MAP 4

Hospital Pasture

Resource issues within the Hospital Pasture are erosion-associated, resulting from the plowing and seeding of crested wheatgrass and the reinvasion of big sagebrush. The actions listed below would be taken to address these resource issues.

- Apply Spike treatment to 160 acres (SW1/4, Section 9).
- Build rock and brush structures to rehabilitate gullies and address erosion.
- Build stock pond enclosure (approximately .25 mile of fence) 4 strand wildlife compatible.
- Do controlled burn on Big Ridge within Hospital pasture.

Big Ridge Pasture

The AIE process brought forth the following issues in the Big Ridge Pasture. Establishment of crested wheatgrass has broken the surface of the soil and induced more erosion. Invasion of big sagebrush has reduced the herbaceous vegetation component, and therefore native herbaceous species need to be stimulated. The actions listed below would be taken to address these resource issues.

- Do vegetation treatment (Spike or prescribed burn) in Sections 6, 7, and 8.
- Do controlled burn of sagebrush parks on "Big Ridge" which extends into the Hospital Pasture.
- Build rock and brush dams; reseed to stop gully erosion throughout the pasture.
- Build one earthen dam (SW1/4 NW1/4, Section 7).
- Clean one existing earthen dam. (NW1/4 SE1/4, Section 8 and NE 1/4, Section 5).
- Develop a water well at Prospect Well hole (SE 1/4 SW ¼, Section 8); complete pipeline from well and establish drinkers.
- Build a fence within Big Ridge Pasture (but outside the WSA) to extend the north boundary of the Lobo Pasture and allow livestock to use a drinker.
- Place two culverts on Big Ridge Road (NW 1/4 NW1/4, Section 6 and NE1/4 NE1/4, Section 5) and grade turnouts on roads to stop erosion.
- Develop springs where feasible.

Big Tank Pasture

Resource issues within the Big Tank pasture are soil-related (erosion in the northwest portion, flow patterns, gullies present and active) and vegetation-related (plant litter greatly reduced, dead and decadent plants, and pedestaling of plants). The actions listed below would be taken to address these resource issues.

- Apply Spike treatment in Sections 31,32, and S1/2, Section 30.
- Controlled burn on ridge-top parks (160 acres, S1/2, Section 31 and NW1/4, Section 6).
- Grade turnouts on roads and place culverts to stop road-caused erosion.
- Complete Dawson Pipeline and drinker (NE1/4 SW1/4, Section 30).
- Clean two earthen dams (NE1/4 SE1/4, Section 30).
- Clean and reseed Big Tank in year three.
- Develop springs where feasible.

All Pastures

Areas that have been treated with herbicides would receive at least 2 years of rest before grazing resumed. Burned areas would be deferred until ground cover was adequately established. Managed grazing would resume in all areas at levels that would ensure maintenance of native grass and a natural grassland ecosystem, and protection of soils and water quality. These conditions would be demonstrated by achieving sufficient percent of ground cover, stage of plant maturity, plant density, and diversity of species.

NO ACTION ALTERNATIVE

Continued livestock grazing management under the old AMP would result in the loss of monies associated with the CWA 319 grant. The amount of sedimentation entering the Rio Cebolla and the Rio Nutrias would remain the same or increase. Projects would not be coordinated and would be installed only when funds became available through normal appropriations.

ALTERNATIVES CONSIDERED BUT NOT ANALYZED

The following alternatives were considered but not analyzed for the reasons discussed.

No Grazing Alternative

Implementing the No Grazing Alternative would exclude all domestic livestock grazing from the allotments. This would cause the loss of the AUMs to the association, creating a financial burden because of the need to seek alternative pasture for their livestock. Grazing is authorized in the Taylor Grazing Act of 1934, the Federal Land Management Policy Act of 1976 and the *Taos Resource Area Resource Management Plan*. Therefore, this is not a viable alternative.

Intensive Grazing Management

Intensive grazing management would require the use of removable electric fence and a full-time crew to move the fence, pump and haul water, ride the allotment, and herd the animals daily. The costs associated with these measures would exceed the revenues generated on the allotment, so this alternative is not analyzed.

SECTION 3

AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

GENERAL SETTING

The Esperanza and Rio Nutrias Allotments lie approximately 10 miles west of Cebolla, New Mexico. Elevations vary from 6,500 to 7,500 feet. This allotment is divided into five pastures, while the Rio Nutrias Allotment consists of one pasture (refer to Map 6).

Rolling hills dominate the north portion, with piñon-juniper on the ridges, and sagebrush and grasslands on the sides of the ridges and in the flats. The southern part of the Esperanza allotment is dominated by large canyons, with sagebrush on the benches above the canyons and ponderosa pine within the canyons. A county road crosses the allotments from the southeast to the northwest.

Topographic features of the Esperanza Allotment are rolling hills, bluffs, ridges, and steep canyons in the southern portion. A large portion of the allotment was plowed and reseeded with crested wheatgrass in the late 1950s and early 1960s.

Some of the proposed actions within the new AMP would occur within all five pastures. Where effective, projects will be addressed jointly. Specific projects and locations would be addressed where needed.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

No Areas of Critical Environmental Concern (ACECs) lie within the Esperanza or Rio Nutrias Allotment. Therefore, no ACECs would be affected by implementation of the Proposed Action or the No Action Alternative.

WILDERNESS/WILDERNESS STUDY AREAS

Small portions of the West Pasture, Big Ridge Pasture and all of the Lobo Pasture of the Esperanza Allotment are located within the Rio Chama Wilderness Study Area (WSA), which comprises approximately 2,370 acres. Issues related to Visual Resource Management (VRM) are addressed below. Improvements under the Proposed Action that may affect the WSA are discussed in the following section.

Big Ridge and West Pastures

Only small portions of the WSA are located within the boundaries of the Big Ridge (93 acres) and West Pastures (256 acres). The improvements in the Big Ridge and West Pastures under the **Proposed Action** would be located outside the WSA boundary. These improvements

may be seen from the WSA and are addressed in the VRM section below, as well as in the discussion of residual and cumulative impacts.

Grazing of domestic livestock is considered a "grandfathered" use on public lands if it occurred before the passing of the Wilderness Act in 1976. Livestock grazing has occurred in the area since the 1700s.

Under **the No Action Alternative,** these improvements would not be installed, or would be put in without the guidance of an AMP. This may cause the loss of funds available for the projects. The projects would not be coordinated or evaluated in a comprehensive manner.

Lobo Canyon Pasture

All of this pasture is located within the WSA (2,021 acres). Under the **Proposed Action,** the private parcels within the Lobo Canyon Pasture would be treated with Spike. This would include the SW1/4 of Section 18, T 26 N., R., 3 E. The private land within the WSA is not under the control of the federal government. The effects of the proposed herbicide treatment and prescribed burns on public lands are evaluated in the *Environmental Impact Statement, Vegetative Treatment on BLM Lands in the Thirteen Western States*, (USDI, BLM, 1991).

Grazing of domestic livestock is considered a "grandfathered" use on public lands if it occurred before the passing of the Wilderness Act in 1976. Livestock grazing has occurred in the area since the 1700s.

Scheduled duration of grazing within the Lobo Pasture is 21 days. Livestock are present in the WSA for that period of time, with associated activity in gathering them when needed. Depending on the individual, this may be a favorable or unfavorable experience. If an individual was raised in a pastoral lifestyle, livestock on the land are familiar and accepted. To other individuals, livestock are not part of the natural environment and should not be out on the land. These impacts would continue under both the **Proposed Action** and the **No Action Alternative**.

Under the **Proposed Action,** a fence would be installed outside the WSA to extend the north boundary of the Lobo Canyon Pasture an include a drinker and pipeline from the Prospect Well in Big Ridge pasture. A pipeline from the Prospect Well would be established in the north part of Lobo Pasture outside the WSA. This would provide an alternative water source outside the WSA and reduce the livestock pressure on the riparian area on the private parcel and BLM within the WSA. The action would concentrate livestock in the area of the new drinker for a short period of time. Under the **No Action Alternative** these improvements would not be installed.

The structures and improvements located on the private parcel in the Lobo Pasture under the Proposed Action would affect the visual quality of the WSA. The extension of the north boundary fence of the pasture would be visible from the WSA. The purpose of installing the extension would be to relieve pressure on the riparian area within the canyon and allow for the reestablishment of the riparian vegetation.

WILD AND SCENIC RIVERS

The lower portion of the Esperanza Allotment extends down to within 1/4 mile of the Rio Chama Wild and Scenic River. This area has been deemed unsuitable for grazing because of riparian concerns and the slope of the canyon walls. Cattle are not allowed to graze in these areas; animals found there would be considered in trespass **under either alternative.** A foot trail from the Rio Chama travels up Cebolla Canyon into Lobo Canyon and loops around to Navajo Peak. This is addressed in the Recreation section below.

AIR QUALITY

Federal actions must comply with air quality regulations and state implementation plans. Areas within the state of New Mexico are classified into two categories, non-attainment and attainment. The Esperanza and Rio Nutrias Allotments fall within an air quality attainment area and are not subject to conformity requirements.

If the soils were dry, the gathering and movement of livestock in and out of the allotments and between pastures would affect local air quality for the duration of the of the movement; a period of a few hours near the drives. Air quality also would be affected by the personnel and equipment used when installing improvements for the duration of the installment process. The movement of livestock and maintenance of facilities would continue under both the **Proposed Action** and the **No Action Alternative**.

SOILS

Soils in the Esperanza Allotment are as follows (refer also to Map 5).

Orlie fine sandy loam: 1-8% slopes, consisting of brown fine sandy loam, brown clay loams, and light brown sandy clay loam. Plant species associated with these soils are Western wheatgrass, Indian ricegrass, needle-and-thread grass, galleta, big sagebrush, and blue grama grass.

Berryman Ruson association: 1-8% slopes, consisting of light brownish gray silt loam, and light brownish gray silty clay loam. Plant species associated with the complex are Western wheatgrass, alkali sacaton, squirreltail, mutton grass, big sagebrush, and blue grama grass.

Ruson complex: consists of light brownish gray silt loam, light brownish gray silty clay loam, and grayish brown clay. Plants associated are Western wheatgrass, alkali sacaton, and big sagebrush.

Calandar gravelly loam: 5-35% slopes, consisting of brown gravelly loam, grayish brown clay, very pale brownish clay and weathered shale. Plants associated are Gambel oak, Junegrass, mutton grass, big sagebrush and piñon-juniper.

Teremote-Ruson association: 1-8% slopes, consisting of brown loam. Plants associated are Western wheatgrass, Indian ricegrass, galleta, needle-and-thread grass and piñon-juniper.

Ruson: consists of brown clay loam. Plants associated are Western wheatgrass, alkali sacaton, squirreltail, and big sagebrush.

Menefee Channey loam: 2-35% slopes, consisting of a light brownish gray loam. Plants associated are piñon-juniper, Western wheatgrass, squirreltail, Junegrass, big sagebrush.

El Predo silt loam: 1-5% slopes, consisting of pale brown silt loam, and light yellowish brown silty clay loam. Plants associated are Western wheatgrass, galleta, Indian ricegrass, big sagebrush, and Gray's rabbitbrush.

Tinaja-Rock outcrop: 45-75% slopes, consisting of brown, extremely gravelly loam, light brown very cobbly sandy clay loam. Plants associated are piñon-juniper, blue grama grass, muttongrass, mountain mahogany, and ponderosa pine and Douglas fir at higher elevations (*Soil Survey of Rio Arriba County*, USDA Soil Conservation Service).

The Rio Nutrias Allotment lies directly north, adjacent to the Esperanza Allotment. The soils are Tinaja-Rock outcrop on 45-75% slopes, El Predo silt loam on 1-5% slopes, and Berryman Ruson association on 1-8% slopes as described above. Elevations in the allotment vary from 6,800 to 7,100 feet. The higher elevations are in the northeast and southwest portions of the allotment, which are split by a drainage that flows to the northwest into the Rio Nutrias.

CRYPTOGAMIC CRUSTS

Depending on the author, the role of cryptogamic crusts is either beneficial or detrimental to soils, the water cycle and flora. Trampling associated with livestock grazing can either be destructive or have a benefit on cryptogamic crusts, depending on the amount and duration of the grazing. Results can be very site- and soil-specific.

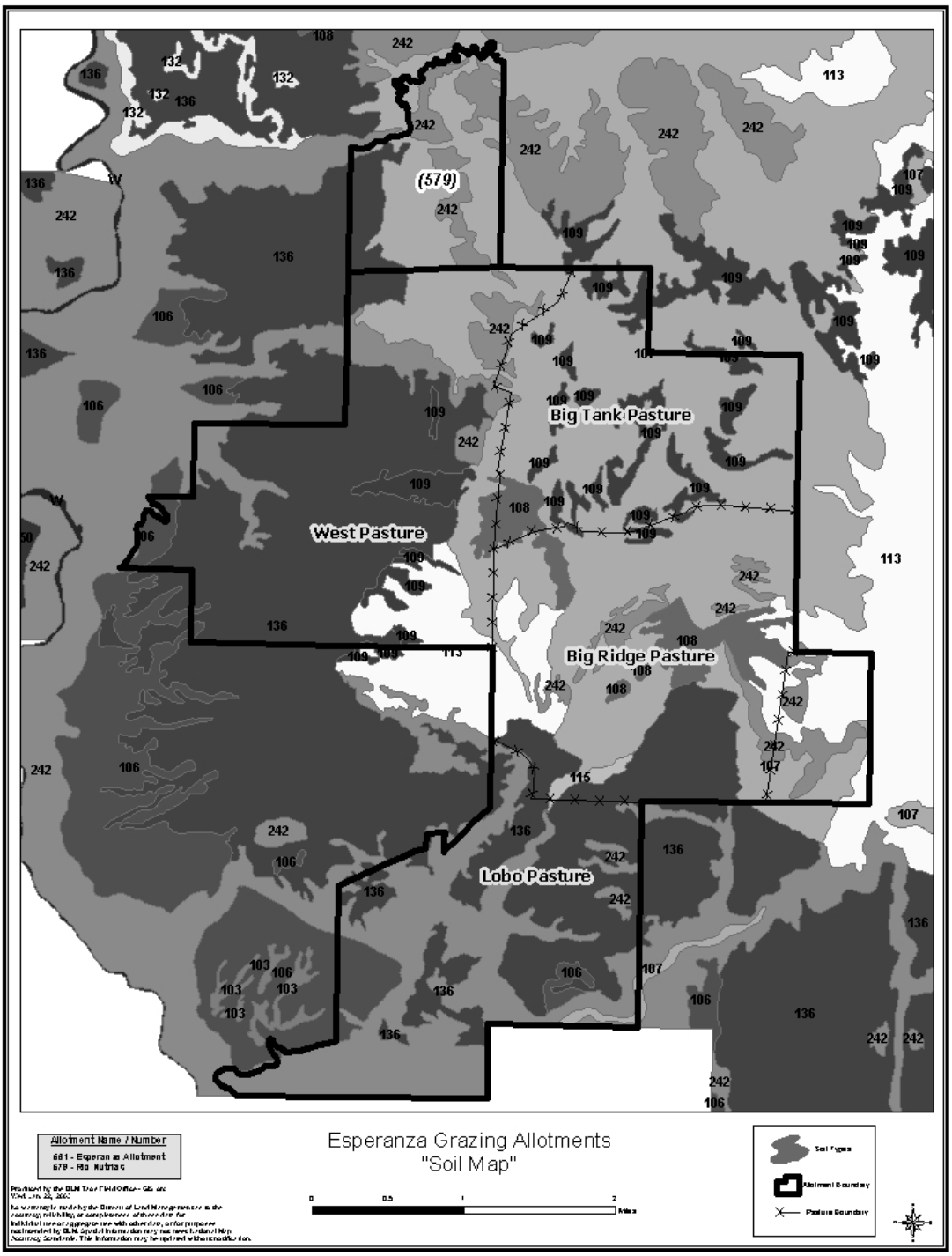
No specific studies have been done addressing the effects of livestock grazing on the cryptogamic crusts of this allotment. However, BLM staff did a rapid assessment and found problems with the soils. Much of the soil disturbance has come from the establishment of crested wheatgrass and other poor management practices. An in-depth analysis of cryptogamic crusts can be found in *Biological Soil Crusts: Ecology and Management*, Technical Reference 1730-2 (USDI, BLM 2001).

FIRE AND HERBICIDE TREATMENTS

A more detailed analysis of these actions can be found in the *Environmental Impact Statement, Vegetative Treatment on BLM Lands in the Thirteen Western States*, (USDI, BLM 1991). The information provided below is a brief summary derived from this source.

Prescribed Fire

Prescribed burning techniques allow managers to perform burns under pre-established conditions. Prescribed fires usually are staged under burning conditions that not only mitigate or limit adverse impacts to soils, but also actually improve soil conditions. Prescribed burning affects soils primarily by consuming litter; organic soil layers, dead down and woody fuels, and vegetative cover. Fire may alter soil chemical properties, nutrient availability, post-fire soil temperature, microorganic populations and their activity rates, physical properties, wettability, and erosion.


Big Tank Pasture
West Pasture
Big Ridge Pasture
Lobo Pasture
(579)
Esperanza Grazing Allotments
"Soil Map"
Allotment Name / Number
681 - Esperanza Allotment
679 - Rio Nutrias
Soil Types
Allotment Boundary
Pasture Boundary

MAP 5

Soils Index for Map 5

Symbol	Soil Name
10	SPARANK-SAN MATEO SILT LOAMS, SALINE, SODIC, 0 TO 3 PERCENT SLOPES
102	MENEFEE-NALIVAG COMPLEX, 8 TO 25 PERCENT SLOPES
103	ORLIE FINE SANDY LOAM, 1 TO 8 PERCENT SLOPES
106	AMAL SILT LOAM, 2 TO 8 PERCENT SLOPES
107	BERRYMAN-RUSON ASSOCIATION, 1 TO 8 PERCENT SLOPES
108	PENEY-RANSECT ASSOCIATION, 1 TO 20 PERCENT SLOPES
109	CALENDAR GRAVELLY LOAM, 5 TO 35 PERCENT SLOPES
11	FRUITLAND SANDY LOAM, 0 TO 3 PERCENT SLOPES
110	VESSILLA-MENEFEE-ORLIE COMPLEX, 1 TO 30 PERCENT SLOPES
113	TEROMOTE-RUSON ASSOCIATION, 1 TO 8 PERCENT SLOPES
115	MENEFEE CHANNERY LOAM, 2 TO 35 PERCENT SLOPES
117	CHAMITA LOAM, 0 TO 2 PERCENT SLOPES
118	HESPERUS-PASTORIUS-CHAMITA COMPLEX, 0 TO 5 PERCENT SLOPES
119	ROQUES-NUSMAG CLAY LOAMS, 1 TO 8 PERCENT SLOPES
12	PINAVETES LOAMY SAND, 0 TO 3 PERCENT SLOPES
125	HOGG-MARA LOAMS, 2 TO 12 PERCENT SLOPES
127	ROMBO-WIGGLER COMPLEX, 5 TO 25 PERCENT SLOPES
129	NUSMAG-TOTTLES CLAY LOAMS, 0 TO 3 PERCENT SLOPES
130	TOPETAUL-HOGG COMPLEX, 3 TO 25 PERCENT SLOPES
132	STOUT-ROCK OUTCROP-CARJO COMPLEX, 5 TO 20 PERCENT SLOPES
133	CARRICK SILT LOAM, 1 TO 4 PERCENT SLOPES
136	ELPEDRO SILT LOAM, 1 TO 5 PERCENT SLOPES
137	YATA-EODY LOAMS, 50 TO 80 PERCENT SLOPES
140	ESPIRITU-WAUQUIE ASSOCIATION, 35 TO 60 PERCENT SLOPES
141	CAPILLO-CARJO-VAMER COMPLEX, 3 TO 25 PERCENT SLOPES
142	PINAVETES LOAMY SAND, 3 TO 12 PERCENT SLOPES
145	DERMALA-ROSCED COMPLEX, 20 TO 60 PERCENT SLOPES
146	PARIDA-PALACID VERY GRAVELLY SANDY LOAMS, 10 TO 40 PERCENT SLOPES
147	DERMALA-CHIMAYO COMPLEX, 20 TO 50 PERCENT SLOPES
148	CHITA LOAM, 0 TO 5 PERCENT SLOPES
149	YARTS SANDY LOAM, 1 TO 4 PERCENT SLOPES
151	RAZITO-FRUITLAND COMPLEX, 1 TO 5 PERCENT SLOPES
170	SEDILLO COBBLY LOAM, 0 TO 5 PERCENT SLOPES
173	OELOP FINE SANDY LOAM, 1 TO 5 PERCENT SLOPES
18	ABIQUIU-PERALTA COMPLEX, 0 TO 3 PERCENT SLOPES
180	OELOP LOAM, 0 TO 5 PERCENT SLOPES
182	OELOP SANDY LOAM, 5 TO 8 PERCENT SLOPES
190	SEDILLO LOAM, 0 TO 3 PERCENT SLOPES
20	MENEFEE-VESSILLA-ROCK OUTCROP COMPLEX, 5 TO 35 PERCENT SLOPES
200	KATLON SILT LOAM, 25 TO 45 PERCENT SLOPES
201	LOBAT-ABREU GRAVELLY LOAMS, 15 TO 60 PERCENT SLOPES
203	NABOR-ELBUCK COMPLEX, 5 TO 35 PERCENT SLOPES
206	ANGOSTURA-GROMES COMPLEX, 5 TO 35 PERCENT SLOPES
207	GROMES-ROCK OUTCROP COMPLEX, 15 TO 40 PERCENT SLOPES
208	ESS-CROFTSHAW COMPLEX, 3 TO 20 PERCENT SLOPES
209	CRUBAS-BYWELL-CROFTSHAW COMPLEX, 0 TO 15 PERCENT SLOPES
21	WERLOG CLAY LOAM, 0 TO 1 PERCENT SLOPES
210	ROCK OUTCROP-BRACOS COMPLEX, 40 TO 80 PERCENT SLOPES
211	ANGOSTURA COBBLY LOAM, 15 TO 40 PERCENT SLOPES
214	QUIMERA-VAMER VERY CHANNERY CLAY LOAMS, 10 TO 35 PERCENT SLOPES
215	SARAGOTE-ESS COMPLEX, 2 TO 8 PERCENT SLOPES
216	ANGOSTURA VERY COBBLY SANDY LOAM, 15 TO 45 PERCENT SLOPES
22	JOCITY-GILCO COMPLEX, 1 TO 3 PERCENT SLOPES
220	ROCK OUTCROP-VESSILLA-MENEFEE COMPLEX, 15 TO 45 PERCENT SLOPES
228	SUPOSO-BRYCAN COMPLEX, 1 TO 6 PERCENT SLOPES
23	GILCO SANDY CLAY LOAM, 0 TO 3 PERCENT SLOPES

230	BADLAND
24	JOCITY SANDY CLAY LOAM, 0 TO 1 PERCENT SLOPES
240	RIVERWASH
241	FLORITA-ROCK OUTCROP COMPLEX, 15 TO 45 PERCENT SLOPES
242	TINAJA-ROCK OUTCROP COMPLEX, 45 TO 75 PERCENT SLOPES
243	PENISTAJA FINE SANDY LOAM, 2 TO 8 PERCENT SLOPES
244	SCHOLLE-SILVER LOAMS, 1 TO 5 PERCENT SLOPES
245	MAIA-MANZANO COMPLEX, 0 TO 5 PERCENT SLOPES
246	PENA GRAVELLY SANDY LOAM, 2 TO 15 PERCENT SLOPES
247	WENOTA SILTY CLAY LOAM, 1 TO 6 PERCENT SLOPES
248	HAGERMAN-SILVER FINE SANDY LOAMS, 2 TO 7 PERCENT SLOPES
249	LOSMARIOS EXTREMELY COBBLY SANDY CLAY LOAM, 10 TO 35 PERCENT SLOPES
30	SAN MATEO SANDY LOAM, 0 TO 3 PERCENT SLOPES
302	PUYE GRAVELLY SANDY LOAM, 3 TO 15 PERCENT SLOPES
31	GOBERNADOR-ORLIE ASSOCIATION, 0 TO 8 PERCENT SLOPES
34	ALCALDE CLAY, 0 TO 3 PERCENT SLOPES
39	FRUITLAND SANDY LOAM, 3 TO 5 PERCENT SLOPES
40	PINITOS-MENEFEE-VESSILLA COMPLEX, 2 TO 20 PERCENT SLOPES
401	CHIMINET-ROCK OUTCROP ASSOCIATION, 5 TO 40 PERCENT SLOPES
407	TOTAVI GRAVELLY LOAM, 1 TO 8 PERCENT SLOPES
42	WALREES-ABIQUIU COMPLEX, 0 TO 2 PERCENT SLOPES
50	STOUT-KUNZ SANDY LOAMS, 5 TO 15 PERCENT SLOPES
54	CAPILLO SILT LOAM, 0 TO 8 PERCENT SLOPES
60	SPARHAM CLAY LOAM, 0 TO 3 PERCENT SLOPES
61	COLOMEX GRAVELLY SILT LOAM, 0 TO 3 PERCENT SLOPES
64	DULA LOAM, 0 TO 2 PERCENT SLOPES
65	DOSLOMAS LOAM, 0 TO 3 PERCENT SLOPES
66	ENCICADO SILTY CLAY LOAM, 0 TO 3 PERCENT SLOPES
69	LINDRITH-ROYOSA COMPLEX, 2 TO 7 PERCENT SLOPES
70	SPARHAM CLAY LOAM, SALINE, SODIC, 0 TO 3 PERCENT SLOPES
704	CHRISHALL GRAVELLY LOAM, 1 TO 15 PERCENT SLOPES
710	CALAVERAS-PALON VERY GRAVELLY SANDY LOAMS, 40 TO 80 PERCENT SLOPES
711	LAVENTANA COBBLY LOAM, 15 TO 40 PERCENT SLOPES
719	ALANOS VERY COBBLY LOAM, 15 TO 50 PERCENT SLOPES
80	ORLIE-NALIVAG ASSOCIATION, 2 TO 8 PERCENT SLOPES
802	REDONDO GRAVELLY SANDY CLAY LOAM, 5 TO 25 PERCENT SLOPES
803	RUSBACH COBBLY SANDY LOAM, 40 TO 80 PERCENT SLOPES
9	PINAVETES-FLORITA COMPLEX, 2 TO 10 PERCENT SLOPES
DAM	DAM
W	WATER

The degree to which these characteristics are affected in the short term depends on the ignition technique used, dead fuel, live fuel organic layer, and soil moisture at the time of burning, thickness and packing of litter layers, depth and duration of heat penetration into organic and soil layers, as well as maximum temperature attained at different depths within the profile, soil type, and soil texture.

Nutrient losses from the site and post-fire erosion are closely related to topography, remaining plant cover, frequency and area of bare soil, and the timing and severity of post-fire precipitation events with respect to litterfall and vegetative recovery.

Changes in soil properties, including soil nutrients, caused by burning usually include an increase in soluble nitrogen, phosphorus, potassium, sulfur, magnesium, sodium, and calcium, and an increase in soil pH, which means a decrease in soil acidity.

The percentage of nitrifying bacteria in soil that are killed depends on the depth and duration of soil heating, which varies significantly among fires.

The most important factors determining whether significant amounts of post-fire erosion would occur are the amount of residual vegetation and organic matter remaining, the rate and amount of vegetative recovery, the timing of the vegetative recovery with respect to season, severity of precipitation events, and slope.

Sagebrush

Most chemical and soils effects in sagebrush as a result of prescribed fire are limited to the areas beneath sagebrush plants where most of the litter has been consumed. These are the only areas where sufficiently high temperatures are generated to heat associated soils to any significant depth. The main concern when burning is the post-fire possibility of wind and water erosion.

Piñon-Juniper

Soil properties affected by the burning on piñon-juniper communities include reduced infiltration rates and increase the amounts of phosphorus, potassium, nitrogen, and carbon for the first year following debris pile burns. Overland flow from burned areas contained greater amounts of potassium and phosphorus than found in unburned areas. Broadcast burning of chained and/or manually cut juniper is the best way to manage the site to prevent rapid takeover by small residual surviving juniper.

Coniferous/Deciduous Forest (Ponderosa Pine)

The effect of burning on forest soils is closely related to the varying fire temperatures that are possible. Burning consumes organic matter on top of the soil and may consume some of that in the soil surface (Fowells and Stephenson 1933), although prescribed burning can be conducted to minimize duff removal (Fuller *et al.* 1955) and heat penetration into soil.

Organic matter reduction is correlated to the reduction in total nitrogen on the forest floor. Nitrogen accumulation occurs in the top 2 inches of forest soils post-burn (Wells, et al. 1979), although Campbell, *et al*. (1977) report lower potassium levels in soil of burned areas than in unburned control plots. Prescribed burning apparently does not alter soil microorganism populations to the extent that soil metabolic processed would be impaired (Jorgensen and Hodges 1971). Rather, the increase of soil temperatures could enhance soil metabolic processes by causing increased rates of nutrient cycling and nitrogen availability because of more decomposition and nitrogen fixing.

Severe burning generally occurs only when levels of moisture in fuel, duff and soil are low. In most cases, prescribed fires would not be done under these circumstances.

The main influence on forest soil physical properties is to decreases soil permeability to water. Light burning only slightly affects the physical properties (Fuller, *et al.* 1955). If consumption of heavy fuels such as forest slash occurs, fires may decrease soil aggregates and porosity and increase bulk density for up to 4 years (Holechek, *et al.* 1989). Also, some forest soils may develop a temporary resistance to wetting (Holechek, *et al.* 1989) on sites where soil heating was concentrated beneath burning accumulations of heavy fuels.

Temporary increases in overland water flow and erosion may result where severe fires denude soil cover and change soil physical properties (Hendricks and Johnson n.d.; Holecheck, *et al.* 1989). Dry ravel, the gravity-induced movement of soil particles, can increase after a fire, with the amount critically related to the steepness of slope, the amount of vegetative and organic cover remaining, and the rate of vegetation recovery (B. Clark, personal. communication 1989). However, BLM prescribed-fire plans are written with prescriptions that mitigate these negative moisture regimes, ensure the maintenance of residual organic cover, and/or result in fairly rapid vegetative recovery.

Chemical Treatments

Granular formulations release herbicides into the soil's plant root zone with subsequent chemical uptake and absorption by targeted plants. Removal of solid stands of vegetation by chemical treatment may result in short-term, insignificant increases in surface erosion that would diminish as vegetation reoccupied the treated site.

Although herbicides would not alter a soil's physical properties, they may have indirect effects on soil microorganisms. Depending on the application rate and soil environment, herbicides can either stimulate or inhibit soil organisms. Herbicide application rates would be adjusted to prevent soil organism mortality.

The **Proposed Action** would provide vegetation manipulation (prescribed burns, herbicides, or mechanical treatments) and better distribution of livestock, improving ground cover and infiltration. The combined effects of the **Proposed Action** would be expected to

improve the herbaceous ground cover and soil stability. Therefore, greater soil and soil moisture would be retained on site.

Under the N**o Action Alternative**, soils would continue to decline because of the lack of ground cover to hold the material in place. This is the result of overabundant sagebrush and reduced herbaceous vegetation.

WETLANDS/RIPARIAN AREAS

Alkali springs are located in the Big Ridge and Big Tank Pastures, and in arroyos of both the Esperanza and Rio Nutrias Allotments. Some are used by livestock, while others are not. A fresh-water spring is located in the Lobo Pasture in the bottom of Lobo Canyon on private land. Portions of the allotment extend to the Cebolla canyon rim. In 1998 a fence was constructed in Lobo canyon on the property line below the private parcel of land in Section 18, T. 26 N. R. 3 E. to protect the riparian area on federal land from livestock grazing.

Under the **No Action Alternative**, livestock and wildlife (elk) impacts to the springs would continue. Wildlife would affect the area throughout the year.

Under the **Proposed Action,** measures to protect and enhance the riparian area on the private parcel in Lobo Canyon would be taken. Management of the riparian area would conform to the BLM's *Southwest Willow Flycatcher Management Plan 1998*.

The permittee would have part-time use of the riparian area for grazing purposes. The area below the fence would not be used until the riparian vegetation has recovered. Recovery would be indicated by, but not limited to, the following criteria: upward trend in quantity of surface water flows; quantity of riparian vegetation, and stabilization of streambanks.

Springs in the other pastures would be surveyed and, if feasible, developed, with livestock being excluded from the spring aprons. Water-gathering devices would be installed and the water piped away from the springs into a trough. Development of the springs would provide an adequate volume of water for cattle. The cattle and wildlife would then move on instead of just standing at the water holes waiting for water.

FLOODPLAINS

Livestock grazing is excluded from the Rio Cebolla drainage by the fence in Lobo Canyon. The Rio Nutrias crosses the Rio Nutrias Allotment on private land. Under both the **Proposed Action and No Action Alternative,** livestock would continue to graze the Rio Nutrias during the early spring. There is no affect to floodplains under either alternative.

WATER QUALITY

The Esperanza and Rio Nutrias Allotments lie within New Mexico drainage basin number 13020102, which is comprised of 1,948,997 acres. The two allotments, which total 10,008 acres in size, account for 1 percent of the total acreage of the basin.

Under the **No Action Alternative**, portions of pastures within the allotments would continue to decline and contribute to sedimentation to Rio Chama watershed at an above-normal rate. Big sagebrush would continue to dominate, contributing to the decline of herbaceous vegetation without some form of disturbance (fire, herbicide, or mechanical).

Under the **Proposed Action**, measures would be taken to increase the herbaceous vegetation and ground cover and decrease the amount of erosion, resulting in improved water quality. Best Management Practices (BMPs) would be applied and incorporated into the AMP. Below is a partial list of the BMPs.

Best Management Practices

Best Management Practices (BMPs) are schedules of activities, prohibitions of certain practices, implementation of maintenance procedures, or other measures or practices approved by the New Mexico Environment Department (NMED) or a designated management agency to prevent or reduce the pollution of waters of the State. BMPs include, but are not limited to, structural and nonstructural controls, changes in management practices, and operation and maintenance procedures. BMPs can be applied before, during and/or after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters (Proposed NM Water Quality Standards, 1988).

Range Analysis, Allotment Management Plan, Grazing Permit System, and Permittee Operating Plan--The goal is to manage rangelands through integrated resource management and ensure they are meeting Resource Management Plan (RMP) objectives. Allowable use level was set to meet the objectives of the RMP. Corrective action is taken if a permittee does not comply with grazing permit conditions. There is an AMP for the allotment.

Controlling Livestock Numbers and Season of Use--The goal is to safeguard water and soil resources under sustained forage production, and to manage forage utilization by livestock to maintain healthy ecosystems for all resource objectives. In addition to proper stocking rate and season of use specified in the grazing permit, BLM staff make periodic field checks to identify needed adjustments in season and livestock numbers. Checks include: range readiness evaluations (to ensure that the soil is not too wet and that sufficient forage growth has occurred); stock counts (to ensure that only permitted livestock enter the allotment); forage utilization measurements (to provide data for grazing use patterns and improved livestock distribution); assessment of rangeland (to verify soil and vegetative condition and trend); and assessment of streambanks (to ensure banks are not being degraded and contributing sediment to water courses). Livestock numbers and seasons of use may be changed annually to reflect current climatic condition.

Controlling Livestock Distribution--The goal is to manage sustained forage production and forage utilization by livestock, while protecting soil and water resources and maintaining healthy ecosystems for wildlife and other resources. Livestock use within allotments is typically not uniform due to variations in topography, water availability, vegetation type and condition. Several techniques (e.g., herding, mineral placement, electric fence, hauling of water) are used to achieve proper distribution, or to decrease the impact on areas that are sensitive or would naturally be overused. Livestock distribution practices are carried out by the permittee under the direction and review of the BLM.

Protection of Wetlands and Riparian Areas--The goal is to avoid adverse impacts, including impacts to water quality, associated with disturbance or modification of wetlands. The disturbance may be grazing, spring development, ORV use or any other activity. The BLM recognizes the beneficial values of wetlands and riparian areas and takes action to minimize destruction, loss or degradation of wetlands and riparian areas. Wetland values are considered and evaluated as an integral part of the project planning process. Any applicable Clean Water Act Section 404 permitting or notification process required by the Army Corps of Engineers is followed.

The effects of the BMPs under the **Proposed Action** would be improved water quality and reduction of sediment entering the drainages and the Rio Chama. Under the **No Action Alternative**, some BMPs would be implemented while others may not. Sediment loads would remain the same or increase over time due to a decline in resource condition.

A more detailed analysis of the effects of prescribed fire and herbicide applications on water quality can be found in the *Environmental Impact Statement, Vegetative Treatment on BLM Lands in the Thirteen Western States*, (USDI, BLM 1991). The brief summary provided below is derived from this source.

Prescribed Fire

This measure may increase stream nutrients, stormflows, and sediment loads. In general, the amount of increase depends on fire severity. Underburns and grassland burns would be light to moderate. Underburns would not affect water quality, and grassland burns would affect it for only a few weeks until the grass grew back. These burns would not significantly affect stormflows (*Ibid*.).

Chemical Applications

Herbicides could enter streams during treatment through accidental direct application or drift, or after treatment through surface or subsurface runoff. To pollute the water, they must be present in the water at concentrations high enough to impair water quality at a point of use. Drift of herbicides into surface water would depend on the application method, existence of buffer zones, and weather. Drift potential would be least for ground-applied pellets and greatest for aerially applied fine droplets.

Large storms rarely produce high concentrations because herbicides are diluted by large water volumes, while small storms may not produce enough flow to move herbicides into streams. Therefore, intermediate storms often produce higher concentrations of pesticides in streams relative to the other two situations because the resulting streamflow is sufficient to move the herbicides but not large enough to substantially dilute them.

The amount of herbicide available for movement from the site of application with surface or infiltration water would be determined in part by the herbicide's persistence. Herbicide persistence is usually expressed in terms of "half-life." This is the typical length of time needed for one-half of the total amount applied to break down the substances that are no longer of toxicological concern. While an herbicide's soil half-life in practice is influenced by local conditions such as soil type and climate, it is useful for describing the relative rates at which various herbicides are broken down in the soil. The half-life of Tebuthiuron is 360 days, with a range of 13-450 days.

Groundwater contamination occurs when herbicides move with the infiltrating water through the soil profile to the water table. The closer the water table is to the surface, the more likely that it may become contaminated. In some situations, herbicides that are tightly bound to the soil may only move a few inches from the point of application regardless of the amount of infiltrating water, whereas in other situations herbicides have been shown to move many feet.

Surface runoff can carry herbicides mixed in water or bound to eroding soil. The severity of herbicide runoff depends of several factors, many of which influence the rate of water infiltration into the soil. These include the grade or slope of an area, the texture and moisture content of the soil, the amount and timing of rainfall and the presence of vegetation or plant residues.

After treatment, herbicides may move through the soil and into underlying groundwater aquifers by leaching. To pollute ground water, they must then mover laterally at concentrations high enough to impair water quality at a point of use. Key factors affecting peak concentration are herbicide properties, soil depth to water table, and distance to the point of use. Applied at typical rates, herbicides should never occur in ground-water supplies at concentrations exceeding a small fraction of EPA's most stringent drinking-water standards.

The purpose of both prescribed fire and herbicide application is to reduce the amount of sagebrush and piñon-juniper and increase the amount of herbaceous vegetation (grasses and

forbs) within the allotment. Under the **No Action Alternative,** the burns and herbicide application would be done without the guidance of a coordinated plan for the action or may not be done at all. The effect of this would be the continued decline of the watershed due to erosion and sediment loads. Under the **Proposed Action**, the herbicide and burns would reduce the amount of water uptake by the shrubs and trees and increase the amount of ground cover. After the establishment of better ground cover, these treatments would allow for more infiltration of water into the soil and reduce the amount of erosion and sediment coming off the allotments.

PRIME OR UNIQUE FARMLAND

No prime or unique farmland exists within the area managed by the Taos Field Office. Therefore, the **Proposed Action and No Action Alternative** would have no effect on this resource.

VEGETATION

Ridges and arroyos dominate the northern portions of the allotments. The majority of both the allotments were seeded to crested wheatgrass between 1955 and 1957. Sagebrush and some piñon-juniper have begun to reinvade these seedings. Native vegetation has remained on some ridges in the allotments. (Refer to the plants associated with the soils described above.)

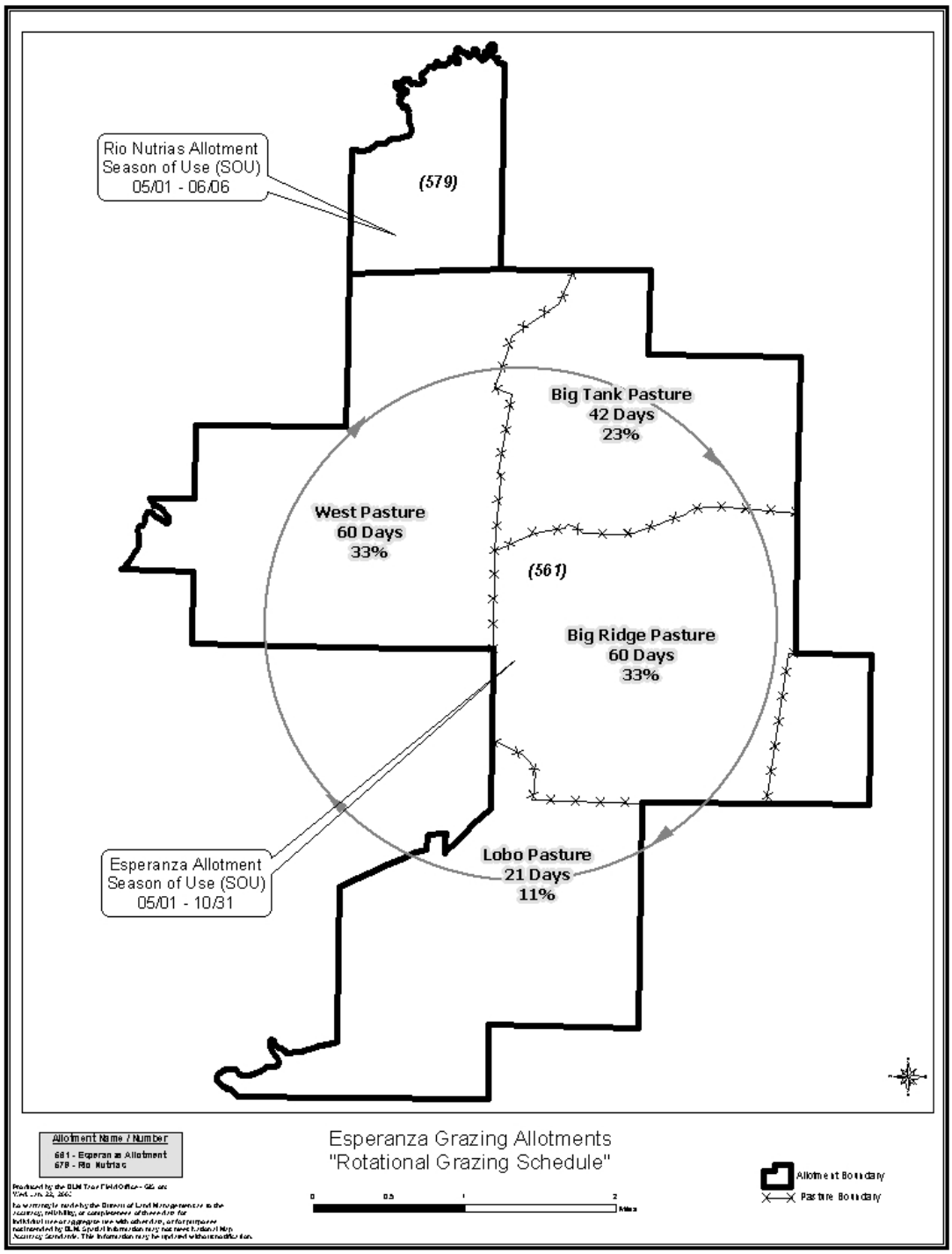
Grazing System

A deferred rotational grazing system is currently in place and would continue under both the **Proposed Action and No Action Alternative**. The season of use and numbers of cattle were provided in the background section of this EA. The average number of days cattle graze each pasture of the Esperanza Allotment is listed below. (Refer also to Map 6.)

Pasture	No. of Days	% of Time in Allotment
West	60	33
Big Tank	42	23
Big Ridge	60	33
Lobo Canyon	21	11
Totals	183	100

A deferred rotational grazing system would continue under the new AMP. The total number of grazing days on the allotment is 183. The maximum amount of time livestock would be in one pasture is 60 days, or 33 percent of the total. The grazing season begins May 1st and ends on October 31st. Greenup in the area may start as early as the end of March or as late as May15th, and usually ends in mid October, depending on temperature and available soil moisture.

Forage utilization is the amount of vegetative material removed by grazing from the current year's growth. The rotational grazing schedule would allow for either last year's growth to be removed and this year's new growth to come up, or regrowth of vegetation after the livestock have been removed from a pasture during that year. The second-to-last pasture and the last pasture grazed would receive 50 percent utilization of this year's growth. Depending on the year and the schedule of the individual pasture in the rotation, some pastures would receive as little as 10 percent utilization. Exceptions to this would be where drought, long cold springs or early winters affect the growing season of the vegetation.


Rio Nutrias Allotment
Season of Use (SOU)
05/01 - 06/06
(579)
Big Tank Pasture
42 Days
23%
West Pasture
60 Days
33%
(561)
Big Ridge Pasture
60 Days
33%
Esperanza Allotment
Season of Use (SOU)
05/01 - 10/31
Lobo Pasture
21 Days
11%
Allotment Name / Number
681 - Esperanza Allotment
679 - Rio Nutrias
Esperanza Grazing Allotments
"Rotational Grazing Schedule"
Allotment Boundary
Pasture Boundary

MAP 6

Effects of Livestock Trampling/Stocking Density

The effects of livestock trampling on vegetation can be beneficial or detrimental, depending on intensity, timing, and duration. Livestock can breakdown old oxidized vegetation and trample the organic material into the soil. They can also remove old vegetation and stimulate new growth. Depending on the timing, browsing can stimulate new growth. If stocking densities are too high or an area is grazed at the wrong time, livestock can cause damage to plants and reduce their vigor. Livestock grazing would continue under both the **Proposed and No Action** Alternatives.

Proposed Improvements

The proposed improvements would have an impact on the vegetation at the site of installation. Where necessary vegetation and soil would be removed, leveled, or shaped to accommodate the improvement. The development of water sources would cause concentration of animals in those areas. Fences would restrict animal movements and could increase animal impacts to vegetation if livestock began to trail along the fence.

Prescribed Fire

A more detailed analysis of the effects of prescribed fire can be found in the *Environmental Impact Statement, Vegetative Treatment on BLM Lands in the Thirteen Western States* (USDI, BLM 1991). The brief summary provided below is derived from this source.

Prescribed burning is used for one or more of the following seven purposes: to manage unwanted plants, especially woody species that compete with herbaceous species for water, nutrients, and space; to remove excessive litter accumulation in some herbaceous species that may ignite, smolder for a long time, and kill herbaceous species growing points; to modify species composition; to enhance herbaceous productivity; to manage plant community structure; to improve quantity and quality of wildlife habitat; and to reduce fire hazard from surface fuel buildup.

The use of fire affects the productivity of plants and has a significant effect on plant competition. In areas where prescribed burning is not used, plant communities may be affected by increased plant competition. The extent of these impacts depends upon numerous interacting factors that determine the ultimate response of a particular ecological system to fire. These factors include weather conditions before and after a burn; time of year (whether plants are growing or dormant); physical features of the site; particular species; plant life form (shrub, grass, tree, and so forth); method of reproduction, stage of maturity and vigor; amount of fuel available and its moisture content; severity and intensity of the burn; rate of fire spread; flame length; depth and duration of heat penetration into organic and soil layers; and frequency of fires. Pre-fire and post-fire management techniques also have an effect on the composition and productivity of plant communities.

Fire can have a significant effect on post-fire plant productivity. Productivity may significantly decrease during the initial post-fire recovery period, then increase after 1 or more years. Productivity may increase after the first growing season. Total productivity may not change significantly, but it can shift among classes of plants on the site, such as from conifers that are killed by fire to shrubs, grasses and forbs. Total vegetative productivity may actually decrease but shift from less desirable to more desirable species, as from woody plants to grasses and forbs. Immediate productivity increases are usually more likely if significant amounts of vegetative reproduction or regeneration occur, rather than if the site must reestablish from seed.

Fire has a significant effect on plant competition by changing numbers and species of existing plants, altering site conditions, and inducing a situation in which many plants must reestablish on a site. In the post-fire situation, established perennial plants that are recovering usually have an advantage over plants that are developing from seed, because they can take up water and nutrients from an existing root system, while seedlings must develop a new root system. Sprouting plants may develop a crown that can shade out other plants or limit their growth.

On sites that are not burned, some species may have a competitive advantage. For example, junipers can take up increasing amounts of soil water in sagebrush/grass communities they have invaded and eventually exclude most other species because of moisture limitations. Grass production tends to decrease as sagebrush cover increases, again because of competition for water. In the absence of fire, young stands of conifers that develop under mature overstories of ponderosa pine compete with the mature trees for moisture and nutrients, weakening them and making them susceptible to insects and disease. Depending upon the site, prescribed fire or fire in combination with other treatments is the most efficient and ecologically sound way to manage these plant communities.

If burning occurs in close association with heavy use of the plant community by livestock or wildlife, either before or after the burn, plant recovery may be delayed or prevented because heavy pre-fire use may deplete plant carbohydrate reserves. Heavy post-fire use of perennial plants in the first growing season after a fire is likely to cause the most harm, particularly in arid and semi-arid communities. Livestock and wildlife are often attracted to burned areas because of increased palatability, availability, and earlier spring greenup that often occurs on burned rangelands and grasslands.

Sagebrush. The effect of fire on grasses in the sagebrush analysis region depends upon the growth form and how season of burning influences soil moisture and other environmental and prescribed burning conditions. Many of the dominant grass species of the sagebrush analysis region are fairly fire resistant and can produce new shoot growth even after moderate-to-high-severity burns.

Ponderosa Pine. The understories of ponderosa pine, Douglas fir and western larch communities are all adapted to fire. Some later successional species that may have become established because of fire exclusion might not be favored, but the natural shrub, forb, and grass associates of these species would recover by sprouting from seeds stored in the forest soil

organic layer (duff) after fire. The exact response varies by fire prescription, season, moisture condition, and plant species, a topic that would be covered in a site specific environmental assessment. (A burn plan would be developed.)

Chemical Methods

Annual plants are generally more sensitive than perennial plants to chemical treatments because they have limited food storage organs, and annual plant populations are greatly reduced if plants are killed before producing seed. Perennials are most sensitive when exposed to herbicides during periods of active growth. Exposure to herbicides during active growth and before plants became reproductive also would have the greatest negative effect on populations of many annuals. The ability of annual or perennial plants to maintain viable seeds in the soil for several years reduces their susceptibility to herbicides. Control of some sites may open the community to dominance by annuals.

Tebuthiuron, a broad-spectrum herbicide, has a long period of activity in the soil and may be more effective than 2,4-D in controlling sagebrush. However, tebuthiuron may damage grasses and other desirable plants. In Oregon, tebuthiuron application rates (1.8 lb a.e./acre) sufficient to control sagebrush (more than 90 percent mortality) decreased production of perennial grasses 2 years after application. Tebuthiuron (1lb a.e. / acre) caused chlorosis but did not reduce cover of perennial grasses such as Western wheatgrass, Junegrass, and needlegrasses in Wyoming (Whitson and Alley 1984). In that study, blue grama, cheatgrass and prickly pear were tolerant of Tebuthiuron at rates of up to 1lb a.e./acre. On sagebrush and horsebush sites in Idaho, grass production increased or stayed the same, respectively, after tebuthiuron (0.5 to 1lb a.e./acre) application (Murray 1988). Initial decreases in perennial grass production should probably be expected after most tebuthiuron applications. Application of high rates of tebuthiuron (1lb a.e./acre) may decrease perennial grasses and allow annual grasses, as well as rabbitbrush, which is tolerant of tebuthiuron, to increase (Clary et al. 1985).

Tebuthiuron may damage and reduce production of desirable and undesirable shrubs associated with sagebrush. Woody, succulent, and herbaceous plants vary in their sensitivity to tebuthiuron, and it is less effective on clayey than on sandy soils because of its soil adsorptivity. Additional, extensive testing of tebuthiuron is necessary to determine the sensitivity of different species on different sites and more accurately determine vegetation responses to this herbicide. In general, it should be expected that sagebrush would be more damaged than many associated shrubs and grasses at moderate tebuthiuron application rates of 0.5 to 1 lb a.e./ acre.

Most of the soils in the project area are silty to clayey with moderate to low infiltration rates. Under the **Proposed Action** the rate of application of Tebuthiuron is 0.5 lb a.e/acre. At this ratio little effect to the grass component is expected. There will be an expected affect on the shrub and tree component on the allotment. Under the N**o Action Alternative** the herbicide would not be applied.

NOXIOUS WEEDS

Isolated musk thistle plants occur on the Esperanza Allotment. Bull thistle is found along the roadsides within .25 mile. Knapweed is found along roads leading to the allotment. One known population of leafy spurge (on private lands) is within .75 mile of the allotment. The site is under treatment. Any time livestock are grazed in other areas and then returned to the allotment or fed non-certified feed; there is a risk of introducing exotic or noxious plant species to the allotment.

Neither the **Proposed Action** with weed prevention activities taken, nor the N**o Action Alternative** would pose additional risks of introduction or spread of noxious weeds beyond those already occurring. Machinery used for building and developing springs, building fences and rock dams, and cleaning out existing structures would be cleaned before entering the project area.

CULTURAL RESOURCES

Very little data exists concerning the prehistoric or historic cultural resources within this allotment or the West Unit in general. Most work has centered on the Rio Chama to the west, where Gallina, Anasazi and ranching sites have been found. Two linear surveys have documented five lithic scatter sites on Allotment 561, four of undetermined age and affiliation and one Late Archaic.

Under the **Proposed Action and No Action Alternative,** grazing intensity would remain at current levels. Continued grazing in these allotments could impact cultural resources in two ways. First grazing could cause some trampling of artifacts and features. Second, natural erosion due to ground disturbance could damage sites. No impacts are known to be occurring to cultural resources within the allotment, and grazing impacts would likely remain low under these alternatives. All proposed range projects that include earth-disturbing activities would be inventoried for cultural resources, and any sites located would be avoided or mitigated.

Aerial broadcasts of herbicide, all proposed in the first year, would require no survey, but subsequent broadcast burns would require a reconnaissance survey. Intensive survey would be required for fence building; tree and shrub planting; construction, repair, and cleaning of tanks, earth dams, or rock and brush dams; and construction of pipelines, drinkers, culverts, and turnouts.

A reconnaissance inventory for cultural resources would be carried out within and along the rims of Lobo Canyon. The canyon bottom should be walked, especially looking for structural or overhang sites. Selected portions of the rims can also be examined. All encountered sites would be recorded, and a survey report completed. Ownership is a combination of public and private land, so permission should be obtained from the owner of the inholding to survey the same areas and have a more complete understanding of possible human use. If sites are located that are especially vulnerable to grazing, then they would be protected from grazing through fencing or other methods.

AMERICAN INDIAN CONCERNS

No areas of concern have been identified within these allotments. As part of the EA process, tribes within the Field Office have been given the opportunity to provide information on any areas of concern.

WILDLIFE

Wildlife is abundant and diverse throughout the area. A wide range of large and small mammals can be found, including the big game species Rocky Mountain elk, mule deer, black bear and mountain lion, as well as various bat species, skunk, fox, coyote, bobcat, turkey, squirrels, chipmunks, pocket gophers, Gunnison's prairie dogs, various mice and rat species, porcupine, cottontail and jackrabbit. Avian species are varied and include, among others, turkey vulture, pinon jay, Western meadowlark, mourning dove, black-billed magpie, and mountain chickadee. Various reptiles, amphibians and insects can also be found in this habitat.

Under the **proposed action** and **no action** alternatives, there may be competition between elk or deer and livestock in limited areas in the Spring on crested wheatgrass, depending on climatic conditions. There will be disturbance by people and machinery during construction, monitoring and repairing of facilities. However, the improvements are designed to increase forage and water for both wildlife and livestock and, ultimately, decrease competition for and damage to these limited resources.

THREATENED OR ENDANGERED SPECIES

To determine presence or absence of sensitive, threatened or endangered plant and wildlife species in the project area, information was obtained from U.S. Fish and Wildlife Service *Federal Endangered, Threatened, Proposed, Candidate, and Species of Concern for Rio Arriba County, New Mexico*; New Mexico Department of Game and Fish *New Mexican Wildlife of Concern for Rio Arriba County*; and New Mexico Rare Plant Technical Council *New Mexico Rare Plants in Rio Arriba County*.

Plants

Neither the New Mexico Rare Plant Technical Council nor the U.S. Fish and Wildlife Service lists any plants as threatened or endangered. Each is either considered rare or a species of concern by the state of New Mexico or a species of concern by the U.S. Fish and Wildlife Service. Because no threatened or endangered plant species are found in Rio Arriba County, the proposed action will have no adverse affects on threatened or endangered plants.

Invertebrates

Neither the New Mexico Department of Game and Fish nor the U.S. Fish and Wildlife Service lists any invertebrate species as threatened or endangered in Rio Arriba County. Therefore, the

proposed action will have no adverse affects on threatened or endangered invertebrates.

New Mexico silverspot butterfly (*Speyeria nokomis nitocris*) USFWS/Species of Concern: The New Mexico silverspot butterfly inhabits wet areas such as alpine meadows, seeps and sloughs. It is found only in areas of sufficient moisture to support a healthy violet crop. The sub-species *nitocris* is found in the mountains of northern New Mexico. Because the proposed project site does not support a violet crop, the New Mexico silverspot butterfly will not be found in the project area. Therefore, the proposed project will have no affect on the species.

Fish

The New Mexico Department of Game and Fish and the U.S. Fish and Wildlife Service list the following species of fish as threatened, endangered, sensitive, or a species of concern. All of the fishes occur in river systems in the state. The proposed project site contains no perennial streams. Therefore, none of the fish species listed below will occur at the project site, and the proposed project will have no affect on any of the species.

Rio Grande cutthroat trout (*Oncorhynchus clarki virginalis*): USFWS/Species of Concern; NM/Sensitive

Rio Grande sucker (*Catostomus plebeius*): USFWS/Species of Concern

Roundtail chub (*Gila robusta*): USFWS/Species of Concern; NM/Endangered

Rio Grande chub (*Gila pandora*): NM/Sensitive

Amphibians

The New Mexico Department of Game and Fish has listed one amphibian as endangered and one as threatened in Rio Arriba County. The U.S. Fish and Wildlife Service lists these same amphibians as a candidate species for protection and as a species of concern. Neither species will be found at the proposed project site. Therefore, the proposed project will have no affect on threatened or endangered amphibians in the state of New Mexico.

Boreal western toad (*Bufo boreas boreas*) USFWS/Candidate Species; NM/Endangered: *Bufo boreas* lives in high-elevation lakes, slow-moving streams, and marshy areas. In New Mexico, it has been found only in three lakes in north-central Rio Arriba County in the San Juan Mountains. The dry habitat of the proposed project cannot support the species if it still exists in the state. Therefore, the proposed project will have no affect on the species in New Mexico.

Jemez Mountains salamander (*Plethodon neomexicanus*) USFWS/Species of Concern; NM/Threatened: The Jemez Mountains salamander is endemic to the Jemez Mountains of New Mexico where it lives in a coniferous forest habitat. It cannot be found nor can it exist in the habitat of the proposed project area. Therefore, the proposed project will have no affect on this species.

Reptiles

Neither the New Mexico Department of Game and Fish nor the U.S. Fish and Wildlife Service lists any reptile species as threatened or endangered in Rio Arriba County. Therefore, the proposed action will have no adverse affects on threatened or endangered reptiles.

Birds

The New Mexico Department of Game and Fish lists three species of birds as sensitive, four species as threatened, and four as endangered for Rio Arriba County. The U.S. Fish and Wildlife Service lists five species of birds as species of concern, two as threatened, one as proposed threatened, one as a candidate species, and two as endangered in Rio Arriba County. The proposed action will have no adverse affects on any of the threatened or endangered birds listed by the state and federal government.

Northern goshawk (*Accipter gentiles*) USFWS/Species of Concern; NM/Sensitive: Northern goshawk occurs in coniferous forests and woodlands throughout New Mexico. It prefers to nest in large trees near fields or wetlands in remote areas. It preys on other birds and mammals. The proposed project site does not have the tree cover preferred by Northern goshawks for nesting and hunting. This species will not be present at the proposed project site, and the proposed project will have no affect on the species.

Boreal owl (*Aegolius funereus*) NM/Threatened: Boreal owl occupies boreal and subalpine forests. In New Mexico, the population is restricted to the subalpine forests of the San Juan, Sangre de Cristo, and Jemez Mountains characterized by subalpine firs and englemann spruce. It roosts in trees, nests in mature or old growth forests and forages in forests in the winter and summer. Because the proposed project site is not located in subalpine forests, boreal owl will not be present at the proposed project site, and the project will have no affect on the species.

Baird's sparrow (*Ammodramus bairdii*) USFWS/Species of Concern; NM/Threatened: This grassland sparrow is a rarely reported migrant in New Mexico found mainly on the eastern plains and southern lowlands. It does not breed in New Mexico but may winter in some areas. It occupies a habitat of undisturbed or reclaimed grass prairies with scattered shrubs. Because of its rare migratory presence in New Mexico and the lack of adequate habitat at the proposed project site, Baird's sparrow would be unlikely to occur at the project site. Therefore, the proposed project will have no affect on the species.

Mountain plover (*Charadrius montanus*) USFWS/Proposed Threatened; NM/Sensitive: In spite of its name, the Mountain plover avoids montane landscapes and nests primarily in short-grass prairie and semi-desert sites. It breeds in New Mexico and winters primarily in California, Arizona and Mexico. It returns to its breeding grounds in late March and April. Mountain plover prefers areas of disturbance, such as cattle grazing or prairie dog activities. The proposed project site is not located in a short-grass prairie; however, suitable habitat may be present in the project area. Due to the mobility of the species and the temporary nature of the proposed

projects, it is unlikely the proposed action will have an affect on the species.

Black tern (*Chlidonias niger*) USFWS/Species of Concern: Black tern does not breed nor winter in New Mexico. The U.S. Fish and Wildlife Service lists it as a species of concern for Rio Arriba County because it is a migrant. It is an inhabitant of marshes, ponds, lakes and streams. In migration, it can be found along rivers, marshes and lakes. Black terns are found near water between 2,800 and 7,500 feet above mean sea level, especially in cottonwoods that occur where there is sufficient moisture for a narrow band of trees and shrubs or where conditions provide sufficient permanent moisture for emergent plants. It is unlikely that the species would be found in the riparian areas of the project site; therefore, the proposed action will have no affect on the species.

Yellow-billed cuckoo (*Coccyzus americanus*) USFWS/Candidate: The yellow-billed cuckoo breeds in New Mexico along the river valleys of the San Juan, Rio Grande, Pecos, Canadian, San Francisco, and Gila Rivers. It winters in South America. It begins to arrive at its breeding grounds in mid- to late-May. In arid areas such as New Mexico, its nests are restricted to trees in river bottoms, ponds, swamps, or damp thickets. It is unlikely that the yellow-billed cuckoo would nest in the riparian areas found in the project area, therefore, the proposed project will not affect the species.

Southwestern willow flycatcher (*Empidonax traillii extimus*) USFWS/Endangered; NM/Endangered: The Southwestern willow flycatcher is restricted to river corridors in the arid west. It prefers moist, shrubby areas with standing or running water. In the desert Southwest, it breeds exclusively along wooded desert streams. There is no habitat for this species in the Rio Nutrias allotment. Within the Esperanza allotment, the Lobo Canyon pasture is currently classified as long-term potential habitat which does not contain all the necessary components to sustain a single pair of flycatchers. This area currently needs approximately 4-10 years in order to obtain more habitat structure. Within this pasture, fencing of the riparian habitat was completed on September 21, 1998, to protect riparian vegetation from grazing. The exclusion of livestock below the fence during the growing season will allow for an increase in the riparian vegetation. The proposed action will have no affect to this species.

American peregrine falcon (*Falco peregrinus anatum*) USFWS/Species of Concern; NM/Threatened: In New Mexico, the American peregrine falcon breeds in mountain areas and migrates throughout the state. It prefers to nest in high cliff ledges, potholes, or small caves near water and abundant prey. It also will nest in large trees and occasionally the ledges of tall buildings. The New Mexico Fish and Game Department down-listed the sub-species from endangered to threatened in 1996. In 1999, the federal government down-listed the sub-species to a species of concern. The proposed project site may contain the mountain habitat capable of supporting the species, however, the proposed project will have no affect on the species.

Arctic peregrine falcon (*Falco peregrinus tundrius*) USFWS/Species of Concern: The Arctic peregrine falcon is a rare migrant in the state of New Mexico. The species winter in South America and typically migrates through eastern and middle America bypassing New Mexico. Because the species does not reside in New Mexico and only rarely migrates through the state, it

is highly unlikely that it would ever be found at the proposed project site. Therefore, the proposed project will have no affect on the species.

Bald eagle (*Haliaeetus leucocephalus*) USFWS/Threatened; NM/Threatened: The bald eagle has a breeding range associated with aquatic habitats with forested shorelines or cliffs. New Mexico serves more as a wintering site than a breeding habitat for the species. The bald eagle typically breeds in old-growth forests adjacent to water. Its perching habitat includes the presence of tall trees near foraging areas. Except for riparian areas, it roosts primarily in tall trees in conifer forests in the west. The bald eagle does not breed in the area of the proposed project site, however, it may use it as a wintering site. Because there are no known nest sites, nor any vegetative removal which would affect roosting sites, it is unlikely the proposed action will have an affect on the species.

White-tailed Ptarmigan (*Lagopus leucurus altipetens*) NM/Endangered: The white-tailed ptarmigan is the smallest grouse in North America. In New Mexico, the population consists of a small endemic population and an introduced population in the Pecos Wilderness. The species is a ground nesting herbivore that inhabits alpine areas at and above timberline. The southern limit of its range in North America is in northern New Mexico. The proposed project site does not contain habitat capable of supporting white-tailed ptarmigan. Therefore, the proposed project will have no affect on the species.

Interior least tern (*Sterna antillarum*) USFWS/Endangered; NM/Endangered: The interior least tern breeds along coastal beaches and interior waterways in North America and winters in Central and South America. In New Mexico, it nests only in the area of the Bitter Lake National Wildlife Refuge in Chaves County. It can occasionally be found at wetlands in 14 additional counties in New Mexico, including Rio Arriba. The least tern nests on the ground, typically on sites that are sandy and relatively free of vegetation. Such areas as sandbars are used in rivers. In New Mexico and other parts of the southern Great Plains, alkali flats are selected as nesting areas. It appears that terns will usually not nest in areas of greater than 20% cover, although some vegetation may be necessary for protection to chicks from sun and predators. The proposed project site does not support the habitat necessary for the least tern. Therefore, the least tern will not be present in the project area, and the project will have no affect on the species.

Mexican spotted owl (*Strix occidentalis lucida*) USFWS/Threatened; NM/Sensitive: The Mexican spotted owl is generally restricted to forest mountain ranges and deep canyons. It has a strong affinity for old growth or complexly structured forests. Its breeding and wintering range are the same. It nests in tree cavities and cliff potholes and ledges. The proposed project site is not located within old growth mountain forests or deep canyons. Critical habitat has been designated by the USFWS (SRM-NM-10) which lies partially within the Esperanza allotment. However, the necessary habitat features do not exist for either nesting or foraging habitat within the Esperanza allotment for the Mexican spotted owl. No projects are proposed within the boundaries of SRM-NM-10, therefore, the Mexican spotted owl will not be present in the project area, and the project will have no affect on the species.

Mammals

The New Mexico Department of Game and Fish lists fourteen species of mammals as sensitive, three species as threatened, and two as extirpated in Rio Arriba County. The U.S. Fish and Wildlife Service lists four species of mammals as species of concern, one as threatened, and one as endangered in Rio Arriba County. The proposed action will have no adverse affects on any of the threatened or endangered mammals listed by the state and the federal government.

Ringtail (*Bassariscus astutus*) NM/Sensitive: Ringtails occupy rocky areas and cliffs in grasslands and woodlands. Females den in cliffs, under rocks, in stumps, or in hollow logs. The ringtail is rarely found more than one quarter of a mile from water. The species is more common in the southern half of New Mexico, but it is present in Rio Arriba County. The project area does contain habitat for the ringtail, however, it is unlikely that ringtail would be affected and, therefore, the project should have no affect on the species.

Gunnison's prairie dog (*Cynomys gunnisoni*) NM/Sensitive: Gunnison's prairie dog inhabits grasslands in northern and western New Mexico. It occurs from low valleys up to meadows in montane forests. It is present in the Upper Rio Grande River valley and the project area. The encouragement of herbaceous vegetation should benefit the species and there are no prairie dog burrows in the sagebrush flats currently occupying the majority of the project area. Because prairie dogs are unlikely to be present throughout much of the project area, the proposed project will have no affect to beneficial affect on Gunnison's prairie dog.

Spotted bat (*Euderma maculatum*) NM/Sensitive: The spotted bat has been found in 11 locations in New Mexico, all west of the Rio Grande River. It is found in a wide variety of habitats, including riparian zones, woodlands and forests. The bats appear to reside in rock cliffs, seek shelter in rock crevices and hibernate in caves. The proposed project site does provide some cliff and/or cave habitat. It is possible the spotted bat could forage or migrate through the project area, and may reside there, however, it is unlikely that the proposed project would have an affect on the species.

White-tailed jack rabbit (*Lepus townsendii campanius*) NM/Sensitive: In New Mexico, the white-tailed jack rabbit has only been found in the sage plains of the northern Rio Grande Valley near Taos and in the high grasslands of the San Juan Mountains. Although rare in New Mexico, it is common in Colorado. The proposed project site lies south of the northern range of the white-tailed jack rabbit and the proposed project site may contain the necessary hiding cover required by the species. However, it is unlikely the species will be found at the proposed project site, and the proposed project will have no affect on the species.

Southwestern otter (*Lutra canadensis sonorae*) USFWS/Species of Concern; NM/Extirpated: The New Mexico Department of Game and Fish lists the Southwester otter as extirpated in New Mexico. The only specimen preserved from New Mexico was captured near Cliff, New Mexico, on the Gila River. This species will not be found at the proposed project site, and the project will have no affect on the species.

Canada lynx (*Lynx canadensis*) USFWS/Threatened: The Canada lynx reaches its southern most range in the Colorado Rockies near the New Mexico border. It lives in spruce-fir, subalpine forest where its primary prey, the snowshoe hare, is abundant. It lives in heavy timber regions of the high mountains away from humans. The Canada lynx will not be found near the proposed project site. Therefore, the proposed project will have no affect on the species.

Yellow-bellied marmot (*Marmota flaviventris*) NM/Sensitive: The yellow-bellied marmot is found in the San Juan and Sangre de Cristo Mountains from meadows in spruce-fir forests to above timberline. There have been some reports of the species foraging in pinon-juniper woodlands as low as 6,000 feet above mean sea level, but it generally occurs at elevations of 10,000 feet above mean sea level and higher. It uses rockslide areas and boulders as shelters and vantage points. The proposed project area does not offer the high altitude meadow and rock habitat where yellow-bellied marmot is found. Therefore, the proposed project will have no affect on the species.

American marten (*Martes americana origenes*) NM/Threatened: The American marten occurs in the spruce-fir forests and alpine habitats of the San Juan and Sangre de Cristo Mountains. The species prefers old-growth forests with an understory of fallen logs and stumps. The proposed project area does not provide the habitat for American marten and the species will not be found in the project area. Therefore, the proposed project will have no affect on the species.

Black-footed ferret (*Mustela nigripes*) USFWS/Endangered; NM/Extirpated: The New Mexico Department of Game and Fish lists the black-footed ferret as extirpated in the state of New Mexico. The black-footed ferret is the most endangered mammal in North America. There are few actual records of black-footed ferrets in New Mexico and no verified records have been provided in recent years. Black-footed ferret will not be found at the proposed project site, and the proposed project will have no affect on the species.

Western small-footed myotis bat (*Myotis ciliolabrum melanorhinus*) NM/Sensitive: The western small-footed myotis bat occurs from deserts to the edge of the spruce-fir zone in New Mexico. Evidence suggests that it is primarily an inhabitant of caves and rock crevices. Although the western small-footed myotis would not likely find roosting habitat at the proposed project site, it could possibly forage in the area at night. Given that the project work will occur during the day, it is unlikely that the proposed project would have an affect on the species.

Long-eared myotis bat (*Myotis evotis evotis*) NM/Sensitive: The long-eared myotis bat is found in coniferous forests at moderate elevations. It is most common in ponderosa pine woodlands, but it is also found in pinon-juniper woodlands and subalpine forests. The animals use day roosts in tree cavities, under loose bark, and in buildings. These sites as well as caves and mines are used for night roosts. The long-eared myotis feeds over water and along the margins of vegetation. Although the species would not likely find roosting habitat at the proposed project site, it could possibly forage in the area at night. Given that the project work will occur during the day, it is unlikely that the proposed project would have an affect on the species.

Long-legged myotis bat (*Myotis volans interior*) NM/Sensitive: The long-legged myotis bat is

an aerial forager commonly found in montane forests. Although the majority of the specimens collected in New Mexico have been taken from the Ponderosa pine zone and above, some have been taken from grasslands. It is present in the state from May to September. This bat roosts in a variety of sites including trees, buildings, crevices in rock faces, and even fissures in the ground in evenly eroded areas. Caves and mines do not appear to be important as day roosts, but are used as night roosts if available. Although the species would not likely find roosting habitat at the proposed project site, it could possibly forage in the area at night. Given that the project work will occur during the day, it is unlikely that the proposed project would have an affect on the species.

Yuma myotis bat (*Myotis yumanensis yumanensis*) NM/Sensitive: The Yuma myotis bat is a water-surface forager that is found near permanent watercourses. The species occurs from 4,000 to 8,000 feet above mean sea level. These bats roost by day in rock crevices, buildings, caves and mines, and in swallows' nests. Night roosts typically are in buildings, under ledges, or similar shelters. Because it is a water-surface forager and no permanent watercourse is present at the proposed project site, it is unlikely that the Yuma myotis bat would forage within the proposed project areas. The project site contains limited possible roosting sites and the proposed construction would affect none of these. Therefore, the proposed project will have no affect on the species.

Big free-tailed bat (*Nyctinomops macrotis*) NM/Sensitive: The big free-tailed bat is not commonly seen nor widely distributed in New Mexico. It roosts in crevices in sandstone and lava cliffs. Given its roosting habits and limited distribution, it is unlikely the big free-tailed bat will be found in the proposed project area, and the proposed project will have no affect on the species.

Goat Peak pika (*Ochotona princeps nigrescens*) USFWS/Species of Concern; NM/Sensitive: Ochotona princeps lives in rocky areas such as talus or boulder-strewn slopes above timberline at elevations from 8,000 to 13,000 feet above mean sea level. The species feeds on grasses and herbs and lives in large colonies. The subspecies, Ochotona princeps nigrescens lives in the Jemez Mountains in lava rocks and is distinguished from other pikas by its dark pelt. The Goat Peak pika will not be found in the proposed project area, which lacks the high altitude rocky habitat favored by the species. Therefore, the proposed project will have no affect on the species or subspecies.

Heather vole (*Phenacomys intermedius intermedius*) NM/Sensitive: The heather vole is found only in the Sangre de Cristo and San Juan mountains at high altitudes at or above timberline. Therefore, the heather vole will not be found at the proposed project site and the proposed project will have no affect on the species.

Pale Townsend's big-eared bat (*Plecotus townsendii pallescens*) USFWS/Species of Concern (listed as Corynorhinus townsendii); NM/Sensitive: The Townsend's big-eared bat roosts and hibernates in caves, rock shelters, and mines and is the only New Mexican bat that can be found year round in the state. The species is limited by the presence of suitable shelters. There may be suitable shelters for roosting or hibernating for the Townsend's big-eared bat in the proposed

project area and it is possible that this species could forage at the project site. However, it forages at night and none of the proposed action would interfere with its ability to forage or potential roost or hibernacula sites. Therefore, the proposed project will have no affect on the species.

Western spotted skunk (*Spilogale gracilis*) NM/Sensitive: The Western spotted skunk is the smallest skunk on the continent. It occurs in rocky or brushy areas and is often found in foothills, canyons, and along streams and bottomlands. It dens in brush piles, hollow logs, snags, and the burrows of other animals. The project area may contain suitable habitat for this species, however, it is not common to the area and is more frequently found in the western part of the state. Therefore, it is unlikely that the proposed project will have an affect on the species.

Red fox (*Vulpes vulpes*) NM/Sensitive: The red fox is primarily a montane species found in the Sangre de Cristo and San Juan mountains of northern New Mexico. It prefers to inhabit areas of reasonable rainfall and vegetation that support rodent populations. The proposed project may contain the montane habitat typically associated with red fox in New Mexico, however, it is unlikely the proposed project will have any affect on the species.

New Mexico meadow jumping mouse (*Zapus hudsonius luteus*) USFWS/Species of Concern; NM/Threatened: The New Mexico meadow jumping mouse is endemic to New Mexico and Arizona and is found in the San Juan, Sangre de Cristo, Jemez and Sacramento mountains. It is also found in areas of the Rio Grande valley and along the Rio Chama. The New Mexico meadow jumping mouse is restricted to mesic habitats. It prefers permanent streams, moderate to high soil moisture, and dense and diverse streamside vegetation consisting of grasses, sedges, and forbs. Such habitats were characterized by wet meadows in the Jemez Mountains, while they included the edges of permanent ditches and cattail stands in the Rio Grande valley. The project area may contain habitat for the New Mexico meadow jumping mouse, however, it is unlikely that the species would be found at the proposed project sites. Therefore, the project should have no affect on the species.

Conclusion

The threatened and endangered species survey determined that no state or federally listed threatened or endangered species are likely to be found at the proposed project site. It also determined that the proposed action will likely have little to no affect on any of the species listed by the state or federal government as rare, sensitive, proposed, candidate, or species of concern.

Livestock are excluded from the lower parts of Lobo Canyon and all of Cebolla Canyon and, therefore, would not impact habitat of any species that might be found in these habitat types under **all alternatives**. Under the **no action** alternative, livestock grazing would continue and habitat condition would remain the same. Under the **proposed action**, there would be a reduction in the amount of sagebrush and an increase in the herbaceous plant component in different pastures, benefiting those species that prefer this type of vegetation.

Livestock are excluded from the lower parts of Lobo Canyon and all of Cebolla Canyon and would not impact the habitat of those species found in these areas under **all alternatives.** The upland habitat was greatly altered when the reseeding projects were completed in the 1950s. Under the **No Action Alternative,** livestock grazing would occur and habitats would remain the same. Under **Proposed Action,** the amount of sagebrush would be reduced and the herbaceous plant component of different pastures would increase, benefiting those species that prefer this type of vegetation.

SOCIAL AND ECONOMIC CONDITIONS

Livestock use in the area dates to the 1600s. The **No Action Alternative** would allow the permittees to continue operations as they exist. The **Proposed Action** would include the projects and plans developed from CWA 319 funds. These projects would allow for better distribution of livestock and reduce the amount of time the owners would have to devote to moving livestock. Over the long term, these projects would reduce extra expenses for additional feed.

Neither the **Proposed Action** nor the **No Action Alternative** would likely result in impacts that would occur disproportionately to low-income groups, minorities or Indian tribes.

RECREATION/CASUAL USES

Recreation and Visual Resource Management–Lobo Pasture

The *Taos Resource Management Plan* (RMP; USDI, BLM 1988) designated 6,680 acres near the Rio Chama as a Special Management Area (SMA). The SMA overlaps with part of the 5,232 acres recommended as suitable for wilderness through the *New Mexico Statewide Wilderness Study* (1988). The Chama Wilderness Study Area (WSA) will be managed under the *Interim Management Policy for Lands Under Wilderness Review* (H-8550-1, 1995) until the Congress makes a decision on the recommendation.

The objectives for the SMA as stated in the RMP are to focus on wilderness qualities, wildlife and aquatic habitat, and education of visitors in boating safety and low-impact camping. The area will be managed for Visual Resource Management (VRM) Class I objectives, to provide a semi-primitive, non-motorized experience for visitors. Fires will have limited suppression, and no surface disturbance will be allowed. The RMP states that the area is closed to ORV use. All or parts of Sections 3, 23 and 24 of the Lobo Pasture lie within the SMA (refer to Map 2).

Under the Interim Management Policy, motorized or mechanized use in the WSA is restricted to existing ways established before the Federal Land Policy and Management Act of 1976.

The wilderness intensive inventory for the Navajo Peak area (1980) identified outstanding opportunities for solitude, due in part to dense ponderosa and varied topographic features. Other values include opportunities for hiking, wildlife viewing, fishing, camping, boating, and the beauty of vistas overlooking Chama Canyon. A foot trail from the Rio Chama travels up Cebolla Canyon into Lobo Canyon and loops around to Navajo Peak.

Ponderosa pine and piñon also extend partially from the rim of Lobo Canyon, which has tan and orange columnar walls, a riparian area, and lichen-covered rocks. Class I objectives, the most restrictive of the VRM program, apply to the WSA. Class I objectives aim "to preserve the existing character of the landscape" but allow natural changes (BLM Handbook 8410-1, 1986). "The level of change to the characteristic landscape should be very low and must not attract attention." A semi-primitive, non-motorized experience would provide the following: non-motorized access on primitive trails, a natural area where human change mimicked nature and was removed from the sights and sounds of human activity such as roads, limited occurrence of social encounters, opportunities for challenge with only minimal and rustic facilities, and a subtle management presence. All or parts of Sections 1, 3, 13, 18, and 19 of the Lobo Pasture lie within the WSA (refer to Map 2). Recreation activities in this pasture are infrequent and would include hiking from Cebolla Canyon, and ATV use and hunting in the open range.

Recreation and Visual Resource Management–Other Pastures

This open range can be characterized as sparsely vegetated pasture of limited diversity and much exposed soil. The area has occasional structures such as: roads, fencelines, and water catchments. Recreational activity is infrequent and probably limited to hunting.

VRM objectives for this area were not identified in the *Taos Resource Management Plan* (1988). However, BLM staff conducted a VRM inventory for the project and recommend applying interim Class IV objectives. Class IV objectives allow major modification of the existing landscape, a high level of change, and activities that dominate the view. However, effort should be made to minimize visual impacts (BLM Handbook 8410-1, 1986).

RESIDUAL IMPACTS

Several specific treatments and projects are part of the **Proposed Action** under the new AMP. These include spring development, riparian protection fences, revegetation of a riparian area, culverts placed in roads, rock and brush structures, earthen dams, cleanout of existing earthen structures, development of the Prospect Well, completion of waterlines, cattleguard installation, prescribed fire and herbicide applications. Residual impacts of these actions are discussed below.

Spring Development--Lobo Canyon

All activities related to spring development within Lobo Canyon would occur on private land. Fences built to exclude livestock from the riparian area may impede the movement of elk

and deer in the area. However other fences exist throughout the area, and the wildlife have been able to deal with them.

Springs Outside Lobo Canyon

The purpose of developing these springs is to better distribute livestock within a pasture and the allotment. The springs outside Lobo Canyon would require cleaning out, placement of water-gathering devices (gravel, perforated culverts), installation of pipe to carry the water to a location away from the spring apron, exclusion of livestock from the spring apron area by fencing, and establishment of a water trough away from the spring area.

Residual effects may be the drying up of the spring if water gathering is too effective or the flow is limited at certain times of the year. Vegetation would increase within the spring apron in the short term (3 to 5 years). The increased vegetation and water would draw more wildlife into the area of the springs. Livestock would concentrate in the area of the trough while in the pasture; wildlife would also use the troughs throughout the year. The concentration of the animals near the troughs would increase deposition of animal wastes there.

Riparian Area Protection and Revegetation

Riparian area protection either through fences or grazing schedules would increase the amount of vegetation within the area. Supplementing the natural revegetation with planting of poles and saplings would increase the recovery time for the riparian areas. The increased vegetation would slow the water passing through the channel and trap more sediment, increasing the amount of ground water in the area. The added vegetation would attract more wildlife to the area.

Development of the Prospect Well

The Prospect Well is an abandoned uranium exploratory drill hole located in the Big Ridge Pasture. Water from the well should be sampled to determine if contaminants are present. Development of the hole would require placement of a submersible well pump in the existing hole, followed by construction of a pipeline to a storage tank located on a ridge to the northwest. Pipelines would be developed from the storage tank to different parts of the Big Ridge and Lobo Pastures, where troughs would be placed along and at the ends of the pipelines.

The residual impacts associated with this well development would be caused mostly by the trenching of the pipelines to the storage tank and water troughs. This would involve removing vegetation and soil along the pipelines and in the area of the storage tank and troughs. Proper reclamation efforts for both the soil and vegetation in these locations may change the character of the area, depending on the species that come back into the disturbed areas. Increased activity by both animals and humans would occur in the areas where the waters were placed as the result of water being available and the need to maintain the facilities.

Earthen Dams

The expected life of the earthen dams is 15 to 20 years. The residual impact of developing these dams would be the disturbance of the soil and vegetation in the area. This would allow for establishment of both annual and perennial vegetation, surface water being available to all animals, the increase of animal activity in the vicinity of the dams, the reduction of sediment traveling down the water course, and development of waterfowl resting points. The construction of new earthen dams would take place under the **Proposed Action,** but not under the **No Action Alternative**.

Cleanout of Existing Earthen Structures

The residual effects of cleaning out existing structures would be the removal of the sediment from the area above the dam, removal of any vegetation from this area, and reconstruction of the dam to previous specifications. The soil disturbance would provide for establishment of plant species in the fill removed and the disturbed areas around the dam. These actions would take place under both the **Proposed Action** and the **No Action Alternative**.

Rock and Brush Structures Within Drainages

Development of the rock and brush structures in gullies and drainages would cause the deposition of sediment behind or above the structure and would reduce the amount of sedimentation entering the larger watercourses. The sediment would provide an area where vegetation could develop. The establishment of vegetation in the sediment would allow for more infiltration of moisture into the soil. The structures themselves may become habitat for smaller forms of wildlife, which could increase the activity of other species in the area. The construction of rock and brush structures would take place under the **Proposed Action,** but not under the **No Action Alternative**.

Culverts Placed Within Existing Roads and Turnouts

The installation of culverts along existing roads would provide for better access across the allotment, reduce impoundment of water, and allow for easier access when maintenance was needed. All specifications for road and culvert construction would conform to the BLM-NMSO 9113 Roads Policy, Standards and Procedures (01/18/89).

Turnouts would reduce the volume and velocity of water along roadways and decrease the amount of soil transported from a site. These actions would take place under both the **Proposed Action** and the **No Action Alternative**.

Installation of Cattleguards

The residual effects of installing cattleguards would be the increased speed of vehicular traffic. The benefit would be the reduced chance that gates would be left open and cattle would drift between pastures. These structures would need to be maintained and would add an

additional workload and the presence of people to conduct the work. These actions would take place under both the **Proposed Action** and the **No Action Alternative**.

Residual Effects of Cattle Grazing

The residual effects of grazing cattle would include the removal of vegetation, the increase of nutrient cycling caused by forage harvest, the actual impact of the animals' hooves (which could either compact or break up the soils, depending on the amount of soil moisture and soil type), the deposit of animal wastes, and cattle being visible on the land (which may be favorable or unfavorable, depending on the viewer). Cattle would be concentrated near water sources while they were in the various pastures. Proper management would reduce the negative impacts and increase the beneficial aspects of cattle grazing. These actions would take place under both the **Proposed Action** and the **No Action Alternative**.

CUMULATIVE IMPACTS

This portion of the EA addresses the effects of past, present, and future actions within the project area, how those combined actions would affect both the natural and human resources associated with the proposed project over time; and the possible stresses that would affect the proposed project. These effects would be manifested in both direct and indirect actions associated with the **Proposed Action** and the **No Action Alternative**. As was stated previously, the expected life of the AMP is 10-15 years. The plan would apply to Cebolla Mesa west of Cebolla, New Mexico and would encompass the area between the Rio Nutrias, Rio Cebolla and Rio Chama at the west end of the mesa.

Past Practices

Past practices that have affected the natural and human resources within the watersheds of the Rio Cebolla and Rio Nutrias and on Cebolla Mesa are ranching, forest logging, attempts to farm small portions of the area, large areas plowed and seeded with crested wheatgrass, development of roads and pipelines, uranium exploration, and use of herbicides (Spike) to control sagebrush.

Present Activities

Present activities in the area include farming, ranching, recreational activities, hunting, wood and rock gathering, construction of housing developments, road maintenance, and sightseeing.

Future Activities

Expected future activities would include all of those listed above, but to a greater degree as populations grew in the area.

Direct and Indirect Effects, Resources Affected

Several specific actions would be taken as a result of selection of the **Proposed Action** and implementation of the Esperanza AMP, including application of herbicides, prescribed fire, development of existing well hole, establishment of pipelines, development of earthen dams, existing earthen dam cleanouts, installation of culverts and turnout ditches on roads, livestock grazing, and riparian development. The implementation of these actions would lead to both direct and indirect effects on the following resources: soils, vehicular traffic, surface water, groundwater, vegetation, wetlands, ecological systems, cultural resources, socioeconomic conditions, resident and migratory wildlife, and recreation. All would contribute to cumulative effects within and outside of the allotment, as summarized following this section.

Herbicides

Herbicide (Spike) was applied to portions of the allotment in 1985. The effect of this application was approximately 80 % reduction in sagebrush in the areas where it was applied. The herbicide is expected to have about the same efficacy as the previous treatments on the vegetation. Tebuthiuron has a soil half-life of 340 days, varying from 13-450 days (USDI, BLM 1988). It has been 17 years since the last application of herbicide; over 9 times the estimated soil full life of the herbicide. No water or soil samples have been gathered to determine the residual effects of the herbicide application, if any.

The recommended application rate is expected to have minimal to no impact on the other resources within the area. Herbicides have been applied to other ranches in the area, but without quantifiable data on the water sources, it would be difficult to assess the cumulative effects. The direct effect would be the removal of about 80 percent of the current stands of herbaceous vegetation, sagebrush and other shrubs. The indirect effect would be an increase in grass and forb cover in the years after the application of the herbicide.

Prescribed Fire

Because of the fuel loading within the proposed burn sites, the outcome of the prescribed burns would be expected to be a mottled or mosaic effect. That is, certain areas would burn and other areas would not burn. Depending on the weather factors and the resulting intensity of the burn, there would also be differing results. The direct results of the fire would be removal of the vegetation affected by the fire. The indirect results would be the short-term input of ash and nutrients into the soil and overland into the drainage systems.

Development of Well Hole and Pipelines

The direct effects of development of the well hole and the pipelines would be increased erosion in the short term. The indirect effects would be distribution of livestock throughout the allotment, reducing their impact on soils and vegetation near the few existing water sources.

Earthen Dams and Earthen Dam Cleanouts

The direct and indirect effects of the construction of new earthen dams and clean outs would be the removal of the earth from the storage area, followed by placement to develop the dam and other associated features. Water and sediment would accumulate within and above the earthen dams. This accumulation would cause a reduction of the sediment flowing into the rivers. For the 10 to 15-year life of the structures, a supply of water would exist for terrestrial and avian wildlife when weather provided sufficient moisture for impoundment.

Livestock Grazing

The direct and indirect effects of livestock grazing would be the cycling of nutrients through the animals. This would included the direct effect of the harvesting of the forage, and two indirect effects, the deposition of animal wastes and the transportation of seeds in the waste material. Depending on the intensity of stocking, the breaking down of old plant material and the disturbance of the soil surface would also be direct effects.

Culverts and Turnouts

The direct effects of the culverts would be the removal of water from the uphill side of roads, resulting in reduced damage to the roads during wet periods and better access to the allotment. The turnouts would dissipate the energy of the water moving down the sides of the roads and spread the water back out onto the land next to the road. Both projects would reduce the amount of sediment moving into the watercourses.

Riparian Development

The direct and indirect effects of the riparian development would be the increase of vegetation through natural regeneration, and by willow and pole plantings. Both would trap and hold sediment. The deposition of sediment would increase the plant and animal diversity in the riparian areas.

Recreation/Visual Resource Management

Impacts to recreation and visual resource management and to the Navajo Peak Trail would not occur except if access were briefly limited during implementation of treatments.

Stresses

A portion of the cumulative analysis of a project is to analyze the effects of various stresses on the resource and how the proposal either contributes to or reduces them. The stresses must be characterized, followed by identification of how the resources respond to the stresses over time and space.

Characterize the stresses affecting the resources, ecosystem and human communities.

Stresses that affect the vegetative resources include drought; wildfire; long, cold spring weather; intense thunderstorms; early winters; and heavy snows. The influence of special interest groups and political pressures also affect the management of natural resources by increasing the amount and duration of documentation, the need to deal with conflicting views on the appropriate use of public lands, and delay in implementing projects on the ground.

How do the identified resources respond to change and capacity to withstand stress?

Drought

Drought affects natural resources by causing a decline in the production of forage and water available to all animals that depend on the resources of the Cebolla Mesa. It is hoped that through the guidance and flexibility of the AMP, drought can be planned for, and the permittees would be able to respond to protect the resource. Usually the livestock owners run cattle at reduced numbers or for a shorter grazing period, or both, to adjust to drought.

Wildfire

Currently the wildfire potential on the mesa is limited due to the sparseness of the vegetation and fuel loading capacities. The prescribed fire proposed in the plan would reduce the amount of sagebrush and piñon-juniper, and increase the herbaceous vegetative component. The increase in the herbaceous component would reduce erosion of soils and sediment in the watercourses.

Long, Cold Springs

Long, cold springs put stress on animals by delaying the greenup of an area. This delay reduces the quality and quantity of forage available. The cold may also cause the death of young livestock and wildlife.

Intense Thunderstorms

Intense thunderstorms can cause overland flow of water and high-water events in arroyos and stream courses, which may remove loosely secured vegetation, soil, and debris. The purpose of the new AMP (**Proposed Action**) is to mitigate some of the stresses placed on the environment by ensuring that adequate ground cover would be present to dissipate the effects of drought and high-intensity precipitation events (rain and heavy snow).

Cumulative Impacts--Summary

All the above activities have contributed and/or will continue to contribute to erosion from the uplands and sedimentation in the watercourses of the area, although the BLM does not have quantification of the amount of erosion. A monitoring plan associated with the NMED

work proposal for the CWA 319 grant is expected to provide data at the end of the project period. It is hoped this data can be used to adjust the specific projects proposed under future allotment management plans.

Possible resources that could be affected by the **Proposed Action** and **No Action Alternative** are soils, vehicular traffic, surface water, groundwater, vegetation, wetlands, ecological systems, resident and migratory wildlife.

The combination of the ranching, farming, plowing, seeding, and development of roads and pipelines has contributed to the displacement of soil and increased soil erosion within the AMP area. No gaging stations exist on the Rio Cebolla or Rio Nutrias where information could be gathered to determine the actual amount being delivered into the Rio Chama. In some areas the soils have passed erosion thresholds and will never be able to be brought back due to the bare rock now in place (e.g., the top of the mesa on the east side of Lobo Canyon). Vegetation response to past overgrazing and exclusion of fire has led to a dominance of sagebrush and the encroachment of piñon-juniper species.

Through better resource management, implementation of the AMP would result in improved vegetation (density, composition, production), the reduction of sedimentation, and an increase in the amount of herbaceous vegetation (grasses and forbs) . Increased ground cover would allow for more soil and water to be retained on site.

The improvement of the existing roads, installation of turnouts and cattleguards would increase the speed of the traffic in the area and reduce the amount of erosion coming from the roads. Over the long term, the cattleguards should reduce the amount of unauthorized livestock use from gates being left open by sightseers or casual traffic in the area. Road maintenance would temporarily increase soil disturbance, but if done properly would reduce the flow and amount of erosion.

With the development of new earthen structures and cleanout of existing structures, more surface water would become available to both wildlife and livestock. This surface water would attract animals to the area for the life of the structures. The structures would also allow for more penetration of surface water into the ground, replenishing groundwater supplies.

The combined cumulative effects of all of the proposed actions within the project area would be to increase ground cover, increase water infiltration, provide more groundwater, and reduce sediment entering the Rio Chama drainage.

SECTION 4

CONSULTATION AND COORDINATION

Individuals, Groups and Agencies Consulted

The BLM has consulted with the following individuals, groups and agencies during the development of this Proposed Action and EA.

Grazing Permittees
El Sueño del Corazon
Charlie Chacon
Gerald Chacon
Lupe Griego
Anthony Griego
Mary Ann McGraw--New Mexico Environment Dept.
New Mexico Dept. of Game & Fish

List of Preparers

Linus Meyer, Range Management Specialist, BLM Taos Field Office
Valerie Williams, Wildlife Biologist, BLM Taos Field Office
Tami Torres, Outdoor Recreation Planner, BLM Taos Field Office
Russ Nyland, Archeologist, BLM Taos Field Office
Natural Resources Conservation Service, Rio Arriba County

Individuals and organizations who notified the Taos Field Office and requested to be "Interested Publics" under 43 CFR 4100 will receive a copy of this EA.

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BUREAU OF LAND MANAGEMENT

FINDING OF NO SIGNIFICANT IMPACT (FONSI)
AND
DECISION RECORD (DR)

Proposal: The Bureau of Land Management (BLM) proposes to issue a new grazing permits on the Esperanza #561 and Rio Nutrias #579 allotments under the guidance of a new Allotment Management Plan (AMP). The allotments are located approximately 10 miles west of Cebolla, New Mexico on the Cebolla Mesa. The AMP incorporates projects funded by Section 319 of the Clean Water Act.

Within this permit and AMP the BLM authorizes the grazing of 348 cattle for a period from May 01, through October 31 of each year on approximately 10,000 acres of public, state and private lands as detailed out within the AMP. The Environmental Assessment (EA) also authorizes the construction of projects associated with the new AMP.

Finding of No Significant Impact (FONSI): A through analysis of environmental impacts has been conducted and based on that analysis, I have determined that impacts will not be significant. Therefore, an Environmental Impact Statement (EIS) is not required.

Decision: It is my decision to select the Proposed Action alternative, authorizing the grazing of 348 cattle as detailed in the AMP.

Rational for the Decision: My decision to authorize this action is based on the following rationale:

- The proposed activities conform to existing laws, regulations, and management plans.
- The major resource issues identified through an interdisciplinary review have been addressed in analysis and considered in the decision. Impacts of the activities to be authorized are not significant.
- There are no adverse impacts to federally listed threatened or endangered plant or animal species or cultural resources.

_____ _____

Ron Huntsinger Date
Taos Field Office Manager

Appendix A
Allotment Management Plan

ALLOTMENT MANAGEMENT PLAN
FOR
ESPERANZA ALLOTMENT # 561

January 2003

INTRODUCTION:

This plan is a result of the Analysis Interpretation and Evaluation (AIE) and Environmental Assessment (EA) process associated with the permit renewal for the Espranza and Rio Nutrias Allotments. The AIE recommended development of a new Allotment Management Plan (AMP). Several issues/concerns were identified within the AIE process and the AMP will attempt to address those issues. This AMP is a result of 2 years of effort by the permittees, New Mexico Environmental Department, the New Mexico State Lands Office, Natural Resource Conservation Service, and the USDI Bureau of Land Management.

Goal of the Allotment Management Plan

To maintain family and community stability, open space, a clean environment and recreation opportunities by balancing wildlife and domestic livestock values, providing education for the public, protecting cultural resources, restoring and protecting the watershed.

Location and Land Status

The Esperanza Allotment is located approximately 10 miles west of the village of Cebolla in Rio Arriba County, New Mexico. Portions of the allotment lie in four different townships:

T. 26 and 27 N., R. 2 and 3 E.,: N.M.P.M.

Land Status	Acres	AUMs	% of AUMs
Federal	6,611.72	1,720	82
State	1,899.36	298	14
Private	479	76	4
Uncontrolled*	160	0	0
Total	9,150.08	2,094	100

* Uncontrolled lands are private lands located within an allotment that are not in control of the permittee.
Please see attached map.

Physical Description:

Access:
A county road crosses the allotment going from Southeast to Northwest. Recently cattleguards have been put in all fences that cross the county road within the allotment. This road in impassable after extended periods of precipitation.

Topography:
Elevations in the allotment vary from 6,500 to 7,500 feet above sea level. The allotment is comprised of rolling hills in the north and steep canyons in the south.

Soils/Vegetation:
Soils in the allotment are: Orlie fine sandy loam 1-8% slopes, which consists of brown fine sandy loam, brown clay loams, and light brown sandy clay loam; plant species associated with these soils are western wheatgrass, indian ricegrass, needle and thread grass, galleta, big sagebrush, and blue grama. Berryman Ruson association 1-8% slopes, the Berryman complex consists of light brownish gray silt loam, and light brownish gray silty clay loam, plant species associated with the association are western wheatgrass, alkali sacaton, squirrel tail, mutton grass, bigsage, and blue grama grass. The Ruson complex consists of light brownish gray silt loam, light brownish gray silty clay loam, and grayish brown clay; plants associated are western wheatgrass, alkali sacaton, and bigsage brush. Calandar gravelly loam 5-35% slopes which consists of brown gravelly loam, grayish brown clay, very pale brownish clay and weathered shale; plants associated are gambels oak, junegrass, mutton grass, bigsage brush and pinyon/juniper. Teremote-Ruson association 1-8% slopes, Teremote soils consist of brown loam; plants associated are western wheat grass, Indian ricegrass, galleta, needle and thread grass and pinyon/juniper. Ruson consist of brown clay loam; plants associated are western wheatgrass, alkali sacaton, squirrel tail, and bigsage brush. Menefee Channey loam 2-35% slope, which consists of a light brownish gray loam; plants associated are pinyon/jujniper, western wheatgrass, squirrel tail, junegrass, bigsage brush. El Predo silt loam 1-5% slopes, which consists of pale brown silt loam, and light yellowish brown silty clay loam; plants associated are western wheatgrass, galleta, Indian ricegrass, bigsage brush, and gray's rabbit brush. Tinaja-Rock outcrop: 45-75% slopes which consists of brown extremely gravelly loam, light brown very cobbly sandy clay loam; plants associated are pinyon/juniper, blue grama grass, mutton grass, mountain mahogany, and ponderosa pine and douglas fir at higher elevations. (Soil Survey of Rio Arriba County USDA Soil Conservation Service) Physical features are rolling hills, bluffs, ridges, and steep canyons in the south of the allotment. A large portion of the allotment was plowed and reseeded with crested wheat grass in the late 1950s and early 1960s.
Climate:
Average precipitation is about 16 inches per year. With the majority falling during the summer monsoonal showers and with winter snows. There are large variations in the amount of

precipitation received each year during the growing season and the length of the growing season.

Improvements:

Existing:

Allotment Number	Imp Number	Type	Name	Location
00561	601471	0	F Dawson Reseeding 1	23 0260N 0030E 008 SW
00561	601521	3	Dawson Fence	23 0260N 0020E 002 SWSE
00561	601580	2	F Dawson Res	23 0270N 0030E 030 NESW
00561	601795	1	F Dawson Reseeding 2	23 0260N 0030E 009 NW
00561	602214	1	F Dawson Seeding	23 0260N 0030E 005 0000
00561	602328	1	A&K Hibner Rim Fe	23 0260N 0020E 024 NE
00561	602356	1	F Dawson Seeding	23 0270N 0030E 031 0000
00561	602443	1	Dawson Seed	23 0260N 0020E 001 0000
00561	602553	3	Dawson Seeding Fence	23 0260N 0020E 001 NWNW
00561	602670	3	Dawson Hibner Rim Fe	23 0260N 0020E 013 NENE
00561	604270	3	Violet Dawson Well	23 0270N 0030E 030 SESW
00561	604285	2	Dawson Corral	23 0270N 0020E 030 NESW
00561	604286	2	Dawson Pasture Fence	23 0260N 0030E 005 NW
00561	604287	2	Dawson BDRY Fence	23 0260N 0020E 006 0000

Allotment Number	Imp Number	Type	Name	Location
00561	604288	2	Dawson BABB Fence	23 0270N 0020E 025 SWSW
00561	604334	3	Dawson Hibner Fence	23 0260 0020E 012 0000
00561	604335	2	Dawson NE Fence	23 0260N 0020E 025 0000
00561	604336	3	Hager Sec 8 Fences	23 0260N 0030E 008 0000
00561	604461	3	Esperanza C.G. #2	23 0270N 0020E 035 NESE
00561	605192	3	Alkali Spring	23 0270N 0030E 031 NWSE
00561	605193	3	Hope Reservoir	23 0260N 0030E 005 SENE
00561	605194	3	Salt Spring	23 0260N 0030E 005 NENE
00561	605195	3	Lone Tree Spring	23 0260N 0030E 007 SESE
00561	605196	3	Hospital Reservoir	23 0260N 0030E 008 SESE
00561	605197	3	Juniper Well	23 0260N 0030E 008 SWSW
00561	605736	3	Big Ridge Graslan TR	23 0260N 0030E 005 NENE
00561	606040	3	Big Mill C.G.	23 0260N 0020E 001 NWNW
00561	606637	2	Hospital Exclosure	23 0260N 0030E 009 SWSW
00561	606764	3	Esperanza P.L.	23 0260N 0020E 035

Resource Objectives:

- Maintain or increase cool season species through out the allotment
- Reduce erosion and sediment loads entering the Lobo Canyon, Cebolla Creek, Rio Chama and Nutrias.
- Restore vegetation in riparian areas and promote recovery of native riparian species
- Remove noxious vegetative species to enhance rangeland grasses and wildlife habitat
- Establish a monitoring plan that includes vegetation and water quality issues.
- Improve livestock distribution throughout the allotment.

Qualifications:

The Esperanza association operates a cow/calf operation with the following preference allocations on the Esperanza Allotment.

Esperanza Allotment	Active	Total
El Sueno del Corazon	766	766
Charlie Chacon	517	517
Lupe Greigo	437	437
Allotment Total	1,720	1,720 AUMs

Grazing System:

A deferred rotational grazing system currently exists on the Esperanza Allotment where the cattle are rotated through 4 pastures. Grazing begins on May 01, and goes through October 31 or 6 months. Average Number of days per pasture are:

West	60 days
Big Tank	42 days
Big Ridge	60 days
Lobo Canyon	21 days

Proposed Projects/Improvements:

Proposed projects by pasture are:

Lobo Canyon

The information gathered in the Analysis, Interpretation and Evaluation (AIE) process brought forth the following resource issues within the Lobo Canyon pasture. Both the east and west sides of the canyon had rill formation, waterflow patterns, and gullies with active erosion and head cuts. Big Sage dominates the west side with little herbaceous understory and the riparian area within the pasture was rated as non-functional. The actions listed below will be taken in an effort to address the issues within the AIE report.

- Treat private portion of pasture with aerial application of herbicide (Spike, 160 treatable acres) in SW 1/4 of Section 18. Possibly apply prescribed burn within Wilderness Study Area in Section 24 and portions of Sections 13 and 19..

- Reestablish and enhance riparian vegetation by implementing grazing Best Management Practices (BMPs) and by planting willow and narrow-leaf cottonwood.

- Establish 2,000 feet of pipeline from the Prospect Well in the Big Ridge Pasture, and extend the boundary of the Lobo Pasture by installing 1.25 miles of four-strand fence (wildlife compatible) outside the Wilderness Study Area (WSA), (refer to Map3: EA). A trough will be installed within the new boundary of Lobo Pasture.

Big Ridge Pasture

The AIE brought forth the following issues in the Big Ridge pasture. Establishment of Crested Wheatgrass seedings in the past had broken the surface of the soil inducing more erosion, envasion of big sage brush has reduced the herbeacous component and native species need to be stimulated. The actions listed below will be taken in an effort to address these resource issues.

- Vegetation treatment (Spike or prescribed burn) in Sections 6, 7, and 8.

- Controlled burn of sagebrush parks on Big Ridge and in the Hospital pasture

- Build rock and brush dams; reseed to stop gully erosion throughout the pasture

- Build one earthen dam (SW 1/4 of NW 1/4 of Section 7)

- Clean two existing earthen dams. (SW 1/4 of SE 1/4 of Section 8 and NE 1/4 of Section 5)

- Develop water well at Prospect well Prospect well(SE 1/4 of SW 1/4 of Section 8); complete pipeline off of well and establish drinkers.

- Place three culverts on Big Ridge road (NW 1/4 of NW1/4 of Section 6 and NE 1/4 of the NE1/4 of Section 5) and grade turnouts on roads to stop erosion.

Big Tank Pasture

Resource issues within the Big Tank pasture are soil erosion in the northwest portion, flow patterns, gullies present and active, plant litter greatly reduced, dead and decadent plants, and pedestalling of plants. The actions listed below will be taken in an effort to address these resource issues.

- Spike treatment in Sections 31,32, and south half of Section 30.
- Controlled burn on ridge top parks (160 acres, South ½ of Section 31 and NW 1/4 of Section 6).
- Grade turnouts on roads and place culverts to stop road caused erosion
- Complete Littlemill , pipeline and drinker (NE 1/4 of the SE 1/4 of Section 30)
- Clean two earthen dams (NE 1/4 of the SE 1/4 of Section 30)
- Clean and reseed Big Tank in year 3.

West Pasture

Resource issues within the West pasture are the domnance of Big Sagebrush, greatly reduced herbeacous component and livestock distribution. The actions listed below will be taken in an effort to address these resource issues.

- Cattleguard by installation by Rio Arriba County
- Spike treatment in sections 1,2,and 36 and the south half of Sections 35 (private parcel) and 25.
- Complete water pipeline and drinkers
- Build one earthen dam (NE 1/4 of the SE 1/4 of Section 1)

Hospital Pasture

Resource issues within the Hospital pasture are erosion associated with the previous plowing and

seeding of Crested Wheatgrass and the reinvasion of Big Sagebrush. The actions listed below will be taken in an effort to address these resource issues.

- Spike treatment 160 acres (SW1/4 of Section 9)

- Build rock and brush structures

Within All Pastures

Areas that have been treated with herbicides will need two years of rest before they will be grazed. Herbicides will be applied in the Fall of the year to decrease the possible translocation of the chemical off site by high intensity precepitation events.
Where fiesable Prescribe Fire and Prescribed Natural Fire (PNF) will be used to maintain and improve areas of vegetation treatment. Burned areas will require a minimum of 2 years rest and will only be grazed after the herbaceous vegetation has recovered. Exceptions to this maybe use of livestock after seed shatter to imprint seed.
Where possible an emphasis will be placed on use of native seeds when reseeding or reclaiming areas after disturbance.

Utilization levels:

Key Forage Species:

Native:		
Indian Ricegrass	Oryzyposis hymenoides	Orhy
Western Wheatgrass	Agropyron smithii	Agsm
Galleta	Hiliaria jamesii	Hija
Introduced:		
Crested Wheatgrass	Agropyron crestatum	Agcr

Livestock will be moved from pastures when utilization levels reach 50% on key forage species or when the allotted time has been reached. Exceptions: Livestock may be used to achieve prescribed animal impact objectives. This action will have to be approved by the authorized officer in advance and will be done to achieve vegetation manipulation objectives. Mineral supplement and herding should be used to draw animals into underutilized areas.
Animals will not be allowed to "comeback" on pastures after they have been grazed these animals will be considered to be in trespass if found in pastures other than the scheduled pasture to be grazed.

Flexibility:

Many factors influence livestock operations. There will be times during the grazing cycle when deviations may be necessary.

Routine Events: All waters and fences will be inspected and be in operational condition in the pastures prior to movement of livestock into the pastures. One week will be allowed for livestock to be moved from one pasture to the other. Gates will not be left open for cattle to drift between the pastures at this time. During pasture rotations pastures will be cleaned of cattle and moved to the next pasture and gates are to remain closed during the moves, except when livestock are being moved through the gates. A "clean sweep" will be conducted on those pastures vacated.

Unforseen conditions: The following deviations do not need prior approval, however notification to the Toas Field Office is required within 3 days after the deviation has been made.

A. Movement from a pasture where poisonous plants exists.
B. Movement from a pasture where repairs of facilities such as water or fences are needed.
C. Movement from a pasture due to fire damage to grazing area.
D. Emergency feeding of livestock due to unforseen weather conditions (heavy snow).

Actions needing prior approval

A. Increase above authorized AUMs.
B. Change in class of Livestock
C. Altering Grazing cycle
D. Entering Allotment (Range Readiness Criteria & BMPs)

Best Management Practices

Best Management Practices (BMPs) are schedules of activities, prohibitions certain practices, implementation of maintenance procedures, or other measures or practices approved by the New Mexico Environment Department (NMED) or a designated management agency to prevent or reduce the pollution of waters of the State. BMPs include, but are not limited to, structural and nonstructural controls, changes in management practices, and operation and maintenance procedures. BMPs can be applied before, during and after pollution producing activities to reduce or eliminate the introduction of pollutants into receiving waters (from 1998 proposed NM Water Quality Standards)

Range Analysis, Allotment Management Plan, Grazing Permit System, and Permittee Operating Plan - The objective is to manage rangelands through integrated resource management and ensure they are meeting Resource Management Plan (RMP) objectives. Allowable use level was set to meet the objectives of the RMP. Corrective action is taken if a permittee does not comply with grazing permit conditions. There is an AMP for the allotment.

Controlling Livestock Numbers and Season of Use - The objective is to safeguard water and soil resources under sustained forage production and to manage forage utilization by livestock to maintain healthy ecosystems for all resource objectives. In addition to proper stocking rate and season of use specified in the grazing permit, periodic field checks are made to identify needed adjustments in season and livestock numbers. Checks include: Range readiness evaluations to assure that the soil is not too wet and that sufficient forage growth has occurred: stock counts to assure that only permitted livestock enter the allotment: forage utilization measurements to provide data for grazing use patterns and improved livestock distribution: assessment of rangeland to verify soil and vegetative condition and trend: and assessment of streambanks to assure banks are not being degraded and contributing sediment to water courses. Field checks and measurements are made periodically by the BLM. Livestock numbers and seasons of use may be changed annually to reflect current climatic condition.

Controlling Livestock Distribution - The objective is to manage sustained forage production and forage utilization by livestock while protecting soil and water resources and maintaining healthy ecosystems for wildlife and other resources. Livestock use within allotments is typically not uniform due to variations in topography, water availability, vegetation type and condition. Several techniques are used to achieve proper distribution, or lessen the impact on areas which are sensitive or which would naturally be overused. Livestock distribution practices are carried out by the permittee under the direction and review of the BLM.

Protection of Wetlands and Riparian Areas - The objective is to avoid adverse impacts, including impacts to water quality, associated with disturbance or modification of wetlands. The BLM recognizes the beneficial values of wetlands and riparian areas and will take action to minimize destruction, loss or degradation of wetlands and riparian areas. Wetland values are considered and evaluated as an integral part of the project planning process. Any applicable Clean Water Act Section 404 permitting or notification process required by the Army Corps of Engineers shall be followed.

Monitoring:

Monitoring will be accomplished through a cooperative effort by the New Mexico Environment Department, the permittees and the BLM. The allotment will be divided into two different areas to be monitored Uplands and Riparian/Instream. Below is a breakdown of the monitoring

:

methods.

Upland:
- Trend Transects
- Photo Points
- Soils monitoring for Spike
- Soil Movement
- Utilization
- Actual Use Statements

Riparian:
- Greenline
- Photopoints
- Rosgen Type (Stream Morphological Segements)
- Temperature
- Sediment (Pebble Count)
- Turbidity
- Dissolved Oxygen
- PH
- Stream Discharge

The aforementioned methods will be conducted in accordance with the protocols set down in the following manuals and programs. Copies of the manuals may be viewed at the BLM Taos Field Office or are available from the sources of issue.

RIPARIAN AREA MANAGEMENT, GREENLINE RIPARIAN-WETLAND MONITORING, Technical Reference 1737-8, 1993, Cagney, Jim, U.S. Department of Interior, Bureau of Land Management, Service Center, P.O. Box 25047, Denver, CO 80225-0047

QUALITY ASSUANCE PROJECT PLAN for WATER QUALITY MANAGEMENT PROGRAMS 2000, Surface Water Quality Bureau, New Mexico Environment Department & Scientific Laboratory Division, New Mexico Health Department, March 29, 2000.

SAMPLING VEGETATION ATTRIBUTES, Interagency Technical Reference, Cooperative Extension Service, U.S. Department of Agriculture Forest Service, Natural Resource Conservation Service Grazing Land Technology Institute, and U.S. Department of Interior Bureau of Land Management 1996. USDI Bureau of Land Management National Applied Resource Sciences Center.

RANGE, RIPARIAN, EROSION and WATER QUALITY, and WILDLIFE MONITORING

FOR RANCHERS in NEW MEXICO, Allison, Christopher D., Baker, Terrael T. "Red", Boren, Jon C., and Fernald, Alexander "Sam" G., New Mexico State University Collage of Agriculture May 2001

ENDANGERED AND THREATENED WILDLIFE AND PLANTS; FINAL DESIGNATION OF CRITICAL HABITAT FOR MEXICAN SPOTTED OWL, Final Rule. 50 CFR Part 17, USDI, Fish and Wildlife Service, Federal Register Notice, Vol 66, No 22. February 1, 2001.

Outreach

Field days will be scheduled with schools and interested publics to demonstrate the conservation practices being carried out on the Esperanza Allotment.

APPENDIX A.

Table: Project implementation: Esperanza Allotment

PASTURE	YEAR 1	YEAR 2	YEAR 3
Lobo Canyon	Fence Riparian Area, Establish Greeline transects in Lobo and Cebolla canyons, supply alterative water to Lobo pasture, establish range trend monitoring on uplands, and conduct water quality monitoring spring, summer and fall. Chama Valley water coalition meetings. Submit .	Willow Planting (April) using school kids. Water coalition meeting. Submit .	Riparian and Upland monitoring. Informational signing
Big Ridge	Spike Treatment in Fall of Year, Develop	Controlled Burn, Rock and Brush	Informational Signing

PASTURE	YEAR 1	YEAR 2	YEAR 3
	Prospect well and pipeline.	Dams, Clean two earthen Dams and place Culverts.	
Big Tank	Spike treatment and prescribed burn, Fall of the year. Design clean out of Big Tank Then clean and reseed tank area.	Grade Culverts	Informational Signing
West	Spike in Fall of year, install cattleguard	Clean out earthen dam and build new one	Informational Signing
Hospital Pasture	Spike treatment in Fall	Rock and Brush structures	Informational Signing

Appendix B

Esperanza Grazing Association
Proposal Quality Assurance Plan
For Work Plan 99-S

Project Description

The Esperanza Grazing Association in cooperation with the Bureau of Land Management and New Mexico State Land Office proposes to use Section 319 Funds and its own funds to put in place several best management practices that would significantly reduce sedimentation to the Rio Nutrias and Rio Cebolla, and ultimately to the Rio Chama in Northern Rio Arriba County. The project would help to clean water in the Rio Nutrias and Rio Cebolla by reducing sediment load from natural storm events. Both of these stream systems flow into the Rio Chama Wilderness Area.

The Esperanza Grazing Association allotment is comprised of mostly BLM land (6700 acres), some state land (1893 acres), and a small private holding (631 acres). This area has long been recognized as containing highly erodible soils and soil types.

The project will use a livestock and wildlife water distribution system, riparian protection and enhancement, brush control to enhance soil-stabilizing grasses, road improvements to reduce erosion, and soil erosion control structures. A significant education effort will be completed involving the region's ranching communities and youth.

Monitoring Objectives

The goals of the monitoring plan are to

Vegetation – Assess and determine change in vegetation over time in riparian areas and on upland sites.

Water Quality - Determine if project implementation results in improved water quality.

Soils – Determine if project implementation is reducing soil movement and loss.

Outreach – Improve knowledge and understanding of resource protection and water quality by ranchers, land management agencies, and users of public land.

Riparian Monitoring Objectives. What changes do we want to see.
Expansion of the riparian areas up and down canyon
Increase in bank storage
Restoration of floodplain function
Overall increase in riparian vegetation
Restore meanders to an incised stream
Reduction in sediment and bottom deposits
Moderate temperature fluctuation

Upland Monitoring Objectives: What changes do we want to see:
Increase soil-stabilizing vegetation –
Vegetation trends as a result of BMP implementation
Species composition of the uplands
Bare ground, woody litter
% Cover of young trees, forbs and grasses

Soils Monitoring Objectives:
Pesticide Residue – spike
Soil movement
Sharpness of cuts

Armoring of banks
Reduced headcuts
Amount of retention of soil on upland sites overall

Measures of Success

Sampling Analysis and Design

Incorporate the existing plot locations and establish new locations. We will expand existing data collection at transect locations to include soil loss and photopoints. We will establish two new ripariona monitoring locations.

Sampling is enough to show change but not statistically significant, which is why photo points are so important.

Sample Handling

Water Quality samples will be handled according to the NMED/SWQB QAPP
Inventory sheets and monitoring data sheets will be stored with the allotment file. EPA can request any data from BLM.

All records will be kept with the allotment file at BLM.

Monitoring Schedule

Trends will be read every three to five years
Photopoints annually
Riparian and water quality will continues to be montored yearly by permittees.
Thermographs will be installed for the life of the project.
Roagen once at beginning and once at end.

Quality Assurance

We are going to sample on the front end
All our staff members are trained to collect samples. We will calibrate instruments.
If we feel any sample collected may show invalid data we will re-sample.

Monitoring Staff

BLM Staff,

Permittees
NMED
NRCS

Reporting

Privide data in Quarterly Reports to NMED

References

Appendix B - Process Record

These documents include letters, maps and other documents relating to the issuance of the grazing permit on theEsperanza and Rio Nutrias Allotments. They are available for review at the Taos Field Office, 226 Cruz Alta Road, Taos, NM 87571, (505) 758-8851. Office Hours are 7:45 a.m. through 4:30 p.m. Mon-Fri.

#	DATE	DESCRIPTION	LOCATION
	1972-Present	Charlie Chacon permittee file	Taos Field Office
	1973	First Allotment Management Plan (AMP) developed	Taos Field Office
	1979-Present	Esperanza Allotment file	Taos Field Office
	1981	Second AMP developed for Esperanza Allotment	Taos Field Office
	1982	Soil Survey of Rio Arriba County, New Mexico	Taos Field Office
	1984-		

	Present	Rio Nutrias Allotment File	Taos Field Office
	1984-Present	Lupe Greigo Permittee File	Taos Field Office
	10-88	Taos Resource Area, Resource Management Plan	Taos Field Office
	1994	Third revision of AMP	Taos Field Office
	1997-Present	El Sueno del Corazon permittee file	Taos Field Office
	07-07-98	Public Meeting regarding Permit Renewal Process	Tres Piedras
	07-08-98	Public Meeting regarding Permit Renewal Process	Taos
	07-09-98	Public Meeting regarding Permit Renewal Process	Espanola
	07-20-98	Public Meeting regarding Permit Renewal Process	Las Vegas
	07-21-98	Public Meeting agenda and attendee list	Taos Field Office - NEPA Process File
	08-17-98-08-24-98	Letter requesting written notice of interested public status and replies received	Taos Field Office - NEPA Process File
	09-03-99	Analysis, Interpretation and Evaluation meeting for the Esperanza and Rio Nutrias Allotments	Taos Field Office

Appendix C
Analysis, Interpretation and Evaluation
(AIE)
for
Esperanza Allotment # 561
and
Rio Nutrias # 579

Preface:
The Rio Nutrias Allotment is located directly north of the Esperanza Allotment and is grazed by only one member of the Esperanza Grazing association, Lupe Griego (see Period of Use).

Permittees		El Sueno del Corazon # 301272 Lupe Greigo # 301041 Charlie Chacon # 301271
Livestock Use	Preference AUMs	Esperanza Allotment Active Total El Sueno del Corazon 766 766 Charlie Chacon 517 517 Lupe Greigo 437 437 Allotment Total 1,720 1,720 Rio Nutrias Allotment Lupe Greigo 97 97 Allotment Total 97 97
	Period of Use	Esperanza Allotment Season of Use El Sueno del Corazon 153C 05/01-10/31 Charlie Chacon 103C 05/01-10/31 Lupe Gerigo 92C 06/07-10/31 Total Cattle 348C Rio Nutrias Allotment Lupe Greigo 92C 05/01-06/06
	Kind of livestock	Cow/Calf
	Percent Public Land	El Sueno & Charlie Chacon Esperanza Allotment 83% Lupe Greigo Esperanza Allotment 83% Rio Nutrias Allotment 80 %
Allotment Profile	Physical Description	The **Esperanza Allotment** lies approximately 10 miles west of Cebolla, New Mexico. Elevations vary from 6,500-7,400 feet. Soils in the allotment are: Orlie fine sandy loam 1-8% slopes, which consists of brown fine sandy loam, brown clay loams, and light brown sandy clay

		loam; plant species associated with these soils are western wheatgrass, indian ricegrass, needle and thread grass, galleta, big sagebrush, and blue grama. Berryman Ruson association 1-8% slopes, the Berryman complex consists of light brownish gray silt loam, and light brownish gray silty clay loam, plant species associated with the association are western wheatgrass, alkali sacaton, squirrel tail, mutton grass, bigsage, and blue grama grass. The Ruson complex consists of light brownish gray silt loam, light brownish gray silty clay loam, and grayish brown clay; plants associated are western wheatgrass, alkali sacaton, and bigsage brush. Calandar gravelly loam 5-35% slopes which consists of brown gravelly loam, grayish brown clay, very pale brownish clay and weathered shale; plants associated are gambels oak, junegrass, mutton grass, bigsage brush and pinyon/juniper. Teremote-Ruson association 1-8% slopes, Teremote soils consist of brown loam; plants associated are western wheat grass, Indian ricegrass, galleta, needle and thread grass and pinyon/juniper. Ruson consist of brown clay loam; plants associated are western wheatgrass, alkali sacaton, squirrel tail, and bigsage brush. Menefee Channey loam 2-35% slope, which consists of a light brownish gray loam; plants associated are pinyon/jujniper, western wheatgrass, squirrel tail, junegrass, bigsage brush. El Predo silt loam 1-5% slopes, which consists of pale brown silt loam, and light yellowish brown silty clay loam; plants associated are western wheatgrass, galleta, Indian ricegrass, bigsage brush, and gray's rabbit brush. Tinaja-Rock outcrop: 45-75% slopes which consists of brown extremely

		gravelly loam, light brown very cobbly sandy clay loam; plants associated are pinyon/juniper, blue grama grass, mutton grass, mountain mahogany, and ponderosa pine and douglas fir at higher elevations. (Soil Survey of Rio Arriba County USDA Soil Conservation Service) Topographic features are rolling hills, bluffs, ridges, and steep canyons in the south of the allotment. A large portion of the allotment was plowed and reseeded with crested wheat grass in the late 1950s and early 1960s. The **Rio Nutrias Allotment** lies directly north, adjacent to the Esperanza Allotment. The soils are Tinaja-Rock outcrop; 45-75% slopes, El pedro silt loam; 1-5% slope, and Berryman Ruson association; 1-8% slopes as described above. Elevations in the allotment vary from 6,800-7,100 feet. The higher elevations are in the northeast and southwest of the allotment which are split by a drainage which flows to the northwest into the Rio Nutrias.

	Land Status Acreage	All acreage are estimates derived from GIS. WSA= Wilderness Study Area **Esperanza Allotment:** . BLM 6,700 State 1,893 Private 631 Allotment Total 9,224 Acreage by Pasture: West Pasture WSA Acreage BLM 1,192 256 Private 313 0 State 1,253 0 Total 2,758 256 Big Tank Pasture BLM 1,023 Private 0 State 640 Total 1,663

		Big Ridge Pasture BLM 2,072 93 Private 156 0 State 0 0 Total 2,278 93 Hospital Pasture BLM 390 Private 0 State 0 Total 390 Lobo Pasture BLM 2,023 2,021 Private 162* 0 State 0 0 Total 2,185 2,021 Total WSA acreage within allotment # 561 2,370 *Private land located within the WSA.
		Rio Nutrias Allotment BLM 613 Private 171 Total 784
	Management Objectives	Management objectives set forth in the 1993 Allotment Management Plan (AMP) were: 1. Maintain or increase the frequency of cool season species on the following transects: Big Ridge transect: Maintain current frequency of 43% on crested wheatgrass. Increase the frequency of the following native species by 2004: Oryzopsis hymenoides (Indian ricegrass) from 1% to 5%, Elytrigia smithii (Western Wheatgrass) from 3% to 10%.

		Big Tank transect: Maintain current frequency of 83% on crested wheatgrass. A new frequency transect will be established in the west and Hospital pastures and the Lobo Canyon pasture transect will be re-established. Transects will be read on 5 year intervals. 2. Improve livestock distribution throughout the allotment. Use patterns will be mapped annually and compared to previous use maps. Livestock distribution would be improved by decreasing the acreage in the slight (0-20% use) and heavy (61-80% use) categories and increasing the acreage in the moderate (31-60%) category. Use levels should be limited to 50% on key grass species
	Key Forage Species	Key Forage plants (established in the 1981 AMP): Agcr-Crested Wheatgrass Agsm-Western wheatgrass Eula-Winterfat Orhy-Indian ricegrass
	Grazing System	**Esperanza Allotment:** Five pasture rest rotation **Rio Nutrias:** One pasture, spring grazing. The animals from the Rio Nutrias Allotment are mixed into the Esperanza herd approximately one month into the grazing season on the allotment.
Management Evaluation	Actual Use	**Esperanza Allotment**: Actual Use although submitted regularly, was not pasture specific. **Rio Nutrias** Actual use has not been submitted regularly.
	Utilization	The utilization data that is available shows utilization to be moderate on grass species and heavy on winterfat. Specific areas within the pastures are receiving heavy use, others light

	Precipitation	Please see appendix 2
	Trend and Functionality	**Trend:** readings have not been consistent within the pastures. **Functionality:** On May 13 & 20, 1999 functionality assessments were done on the allotments used by the Esperanza grazing association; a brief description of the evaluation follows. **Esperanza Allotment:** Hospital Pasture: The majority of the pasture was plowed and seeded to crested wheatgrass. There is a large prairie dog town in the northeast of the pasture. The crested wheatgrass was being reinvaded by big sage brush. The overall rating of the pasture was functional at risk upward trend due to the vigor of the seeding. Big Tank Pasture: The whole northwest portion of the pasture showed signs of erosion; plant litter expected for the site was greatly reduced. Dead and decadent plants were common in the area. Soils within the pasture were rated as nonfunctional. Flow patterns were documented, pedestalling of plants was evident and gullies were present and active. The crested wheatgrass is not providing what the site needs. Fauna would increase with better plant diversity. The pasture was rated as non-functional due to the soils. Big Ridge Pasture: Soils were rated at static; flora at functional at risk, and fauna functional at risk static due to the seedings and vegetation manipulation. There were areas of native vegetation which should be stimulated. The pasture was rated as functional at risk static.

		West Pasture: Much of the BLM land in the west pasture is sagebrush with very little diversity in the underestory. Blue grama is the dominant
		grass species with Crested Wheatgrass being found within the sagebrush Livestock distribution within the allotment has been a problem in the past. Lobo Canyon Pasture: On both the east and west sides of the Lobo canyon there is evidence of rill formation, waterflow patterns, and gullies with active erosion and head cuts. Big sage dominates the west side with little herbaceous understory. The pasture's soils and vegetation were rated as nonfunctional. The spring located on private land in this pasture is the only base water which has remained viable throughout the evaluation period. This has caused the riparian area within Lobo Canyon to become degraded and non functional. **Rio Nutrias Allotment:** This allotment is grazed by one of the permittees prior to moving their animals in with the animals grazed by the other members of the Esperanza Grazing Association. Soils in the allotment were rated as functional at risk downward trend; this was due to the pedistalling of plants and gullies present with active erosion. Plants within the allotment were rated functional at risk downward trend due to the dominance of sagebrush and the limited amount of cool season herbaceous understory.
Issues, Conclusions and	**Issues:**	**Esperanza Allotment:** 1. Livestock rotation schedules have not been followed in the past. 2.

Recommendations		Portions of the allotment are within a Wilderness Study Area. 3. Waters within the allotment are not dependable. 4. Areas within three pastures are showing signs of severe soil erosion (headcuts). 5. Resident and migratory elk herds exist. 6. Livestock Trespass has been an issue in the past. 7. Three Allotment Management Plans have been prepared for the allotment in the past 30 years; under these plans certain portions of the allotment have declined in condition.
		8. Portions of the Lobo canyon pasture have been designated as long term potential habitat for the Southwest Willow Flycatcher. 9 One of the base waters is not functional. 10 There is a poor representation of cool season native species in certain pastures. 11. There are areas where big sage brush has dominated sites. 12. Communication and coordination issues between permittees have caused management problems in the past. **Rio Nutrias Allotment:** 1. Sage brush dominates sites within the allotment. 2. Soils within the allotment are not stable. 3. Cool season herbaceous species are at reduced numbers. 1992 was the first year this allotment was interfaced into the Esperanza Allotment plan.
	Conclusions:	The survey indicates that there are watershed problems in three of the 5 pastures in the Esperanza Allotment. Major head cuts in the Big Tank and Lobo Canyon pastures are due to the lack of sufficient herbaceous vegetation to hold the soil in place. These allotments have the best sources of water and the pastures which the cattle have "gone back into" because water has been unavailable in other pastures. The lack of following the rotation plan and the "gates being

		left open" has contributed to the decline of the soil and vegetative resource. The non functioning status of 2 of the base waters and the lack of completion of the pipeline and drinkers along the pipeline has caused the rotation to be broken. Management plans have not been adhered to. There are areas within the allotment which need to be burned or treated to improve the herbaceous component of the vegetation. After review of the Esperanza Allotment both on foot and horseback; the resident and migratory elk population does not appear to be a major competitor with the cattle. There maybe some
		competition in the early spring. As was stated previously, over the past 30 years there have been 3 AMPs developed for the Esperanza Allotment. Portions of the Esperanza and Rio Nutrias Allotments are in decline. Large amounts of time and money have been put into improvements which should have "helped" the allotment; yet it has still declined. This would lead to the conclusion that the management of the allotments has been poor. The lack of adherence to the rotation schedule, the base waters not being functional and going back on pastures has caused problems. Failure to maintain structures and gates being left open also contributed. The lack of cooperation and coordination within the association has not facilitated the operation of the allotments. There are several options or recommendations that could be put forward for corrections of the problems in the Esperanza and Rio Nutrias Allotments; the effectiveness of each would depend on the commitment of the permittee. Within the past few years there has been a rearrangement of association members. Some have withdrawn from the association and a new member was added. To the credit of the

		permittees, fence repairs have been made, a pipeline and water system designed and developed (it is not yet functional) and there has been an addition of a range rider within the past 2 years.
	Recommendations	Several options are available to the permittee below are three recommendations others may be brought up at the AIE meeting scheduled upon completion of this report. Option 1 Total closure of the allotment for a period of 2 to 5 years to allow the vegetation to reestablish and riparian areas to begin to recover. Option 2 closure of portions of the allotments use of electric fencing , water
		hauling and herding and change of the rotation schedule to accommodate the partial closures. Option 3 intensive management by hearding, placement of supplements, and use of hauling water to accomplish management objectives. Specific details would have to be worked out and incorporated into a working management plan
	AIE Meeting Decisions	An AIE meeting was held Sept. 3, 1999. Through negotiations at the meeting it was agreed to proceed with development of a new AMP incorporating the Section 319 Water Quality monies that were secured. Within the AMP intensive management areas will be determined and specific tactics (I.e. herding, fencing, or vegetation manipulation) will be used to achieve the objectives of the plan.

Prepared by:_____Date:_____
Lead Rangeland Management Specialist

Concurred by:_____Date:_____
Assistant Field Office Manager

Appendix A Precipitation:

Total yearly precipitation recorded at the El Vado NOAA station is shown in the following table. The 17 year precipitation average is 15.74 inches. The departure from the normal has been calculated by NOAA.

Year	Total Annual PPT.	Departure from Normal	Timing of PPT. Events
1981	14.73	.70	May, June, July, Aug, Oct
1982	18.01	3.98	Feb, July, Aug, Sept
1983	15.36	1.63	Aug, Oct, Nov, Dec
1984	16.18	2.45	June, Aug, Oct
1985	17.74	4.01	Mar, Apr, June, July, Aug, Sept, Oct
1986	22.36	8.63	Apr, June, July, Aug, Sept, Oct, Nov
1987	14.55	Missing Data	Aug.
1988	14.20	.47	Jan, June, July, Aug, Sept
1989	10.04	-3.69	Jan, July, Aug
1990	19.90	6.17	Apr, May, July, Aug, Sept, Dec
1991	15.12	1.39	Mar, July, Aug, Sept, Nov
1992	15.29	Missing Data	May, July, Aug, Dec
1993	14.66	.93	Feb, May, Aug, Oct, Nov
1994	17.01	1.90	Apr, May, Aug, Sept, Nov
1995	14.06	-1.05	Apr, Aug, Sept
1996	10.50*	Missing Data	June, Aug, Sept, Oct, Nov
1997	17.90	Missing Data	Jan, Apr, May

*Dec. was the only month in 1996 with missing data. June and November were the only months that did not have below normal ppt.

Appendix B

Estimated use from billing Rio Nutrias Allotment:
All AUMs associated with Greigo Opr# 301041

Year	Number	Season of Use	%PL	AUMs
1998	105	05/01-06/06	80	102
1997	68	05/01-05/31		55
1996	92	05/01-06/04		85
1995	79	05/07-06/15		83
1994	105	05/01-06/04		97
1993	105	05/01-06/04		97
1992	105	05/01-06/04		97
1991	20	05/01-10/31		97
1990	20	05/01-10/31		97
1989	20	05/01-10/31		97

Estimated use from billing Esperanza Allotment

Year	Number	Season of Use	%PL	AUMs
1998				
Lupe Greigo	105	06/07-10/31	83	421
Charlie Chacon BR	84	05/02-06/27		131
LB	84	06/28-06/29		05
WST	40	07/18-07/24		08
BT	40	07/25-09/18		61
WST	40	09/19-11/01		48

El Sueno	BR	145	05/02-06/28	229
	LB	145	06/29-07/18	79
	WST	145	07/19-07/25	28
	BT	145	07/26-09/19	222
	WST	145	09/20-10/01	47

1997

Lupe Greigo		68	06/01-06/15	28
		93	06/16-07/07	56
		107	07/08-10/31	339
Charlie Chacon		99	05/04-10/27	478

1996

Lupe Greigo		96	06/05-10/31	374
Ch. Chacon	BR	91	05/04-06/22	124
	BR	54	06/23/-6/24	03
	BR	04	06/25-11/02	14
I. Suazo		51	05/01-10/30	255
Claudio Chacon	BR	40	06/08-06/21	15
	BR	41	06/22-06/30	10
	LB	41	07/01-07/20	22
	WST	41	07/21-09/18	67
	BT	41	09/19-11/09	58
1995		79		
Lupe Greigo	BR	79	06/16-08/10	121
	LB	79	08/11-08/31	45
	WST	79	09/01-10/31	131
Ch. Chacon		38	05/01-05/06	06
		82	05/07- 05/09	07
		86	05/10-07/15	157
		37	07/16-10/15	93
I. Suazo	BT	35	05/01-06/12	41
	BR	34	06/13-08/31	55
	LB	34	08/11-08/31	19
	WST	34	09/01-10/31	83
Cl. Chacon		19	05/13-10/15	81

1994				
Lupe Greigo		105	06/05-10/31	427
Ch. Chacon	WST	77	05/01-06/26	120
	LB	77	06/27-08/27	130
	BR	77	08/28-10/15	103
	HP	77	10/16-10/23	17
I. Sauzo	WST	66	05/01-06/27	111
	LB	66	06/28-06/27	101
	LB	70	08/20-08/27	16
	BR	70	08/28-10/01	72
	HP	70	10/02-10/15	28
	HP	40	10/16-10/18	03
Cl. Chacon	WST	51	05/29-06/13	24
	LB	53	06/14-06/26	20
	LB	53	06/27-08/27	95
	BR	53	08/28-10/15	75
	HP	53	10/16-10/29	21
	HP	07	10/30-11/05	01
1993				
Lupe Greigo		105	06/05-10/31	427
Ch. Chacon		31	05/01-08/01	79
I. Sauzo		65	05/01-10/31	326
Cl. Chacon		75	05/01-10/31	377
1992				
Lupe Greigo		92	06/05-10/31	374
		13	06/05-10/31	53
Ch. Chacon		87	05/01-07/31	218
		09	05/01-07/31	23
		56	08/01-10/31	141
I. Sauzo		30	05/01-10/31	151
Cl. Chacon		50	06/04-10/31	205
1991				
Lupe Greigo		87	05/01-10/31	437
Ch. Chacon		87	05/01-06/30	145
I. Suazo		87	05/01-10/31	00
1990				

Lupe Greigo	92	05/01-10/31	462
C. Chacon	78	05/15-06/30	68
I. Suazo	87	05/01-10/31	00
Cl. Chacon	87	05/01-10/31	00
1989			
Lupe Greigo	92	05/01-10/31	462
C. Chacon	87	05/01-10/31	437
I. Sauzo	75	05/01-10/31	377
Cl. Chacon	87	05/01-10/31	437