

## FINDING OF NO SIGNIFICANT IMPACT/RATIONALE

### DOI-BLM-NM-P010-2010-179-EA

FINDING OF NO SIGNIFICANT IMPACT: I have reviewed this environmental assessment including the explanation and resolution of any potentially significant environmental impacts. I have determined the proposed action will not have significant impacts on the human environment and that preparation of an Environmental Impact Statement (EIS) is not required.

Rationale for Recommendations: The proposed action would not result in any undue or unnecessary environmental degradation. The proposed action will be in compliance with the 1997 Roswell Resource Management Plan and Record of Decision and the 2001 New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management.

/s/ J H Parman  
 J H Parman  
 Assistant Field Manager, Resources

12/17/10  
 Date

Proposed Decision: It is my decision to implement the proposed action as described in DOI-BLM-NM-P010-2010-179-EA and to issue permits or leases for allotments analyzed in this document. The mitigation measures identified in the attached EA have been formulated into terms and conditions that will be attached to the grazing permits or leases. This decision incorporates, by reference, those conditions identified in the attached Environmental Assessment. A summary table follows:

<b>Table 1. Animal Units/Animal Unit Months</b>							
Allotment Number	Allotment Name	Acres of Public Land	Percent Public Land	Animal Units Authorized	Animal Unit Months Authorized	Livestock	Livestock Number
64044	5 Mile	6061	26%	2	6	Horse	2
64044	5 Mile	-	26%	395	1232	Cattle	395
64045	Blue Water	3331	44%	105	554	Cattle	105
65021	Haystack Mtn.	4379	43%	178	918	Cattle	178
65062	Slash G.	3430	40%	125	600	Cattle	125
65062	Slash G.	-	40%	1	5	Horse	1
65083	Kings Place East	3443	61%	50	366	Cattle	50
65091	Rat Camp	8102	71%	191	1627	Cattle	191
65091	Rat Camp	-	71%	6	51	Horse	6
64041	Hobbs Canyon	10,640	52%	388	2421	Cattle	388
64041	Hobbs Canyon	-	52%	2	12	Horse	2
64050	Milner Lake	4775	63%	83	627	Cattle	83
64050	Milner Lake	-	63%	2	15	Horse	2
<b>Totals</b>		<b>45,611</b>		<b>1568</b>	<b>8,885</b>		<b>1568</b>

Rationale: Based on the rangeland health assessments (RHAs) and previous monitoring, resource conditions on these allotments are sufficient and sustainable to support the level of use outlined in the term grazing permits or leases.

The Proposed Action will be in compliance with the 1997 Roswell Resource Management Plan and Record of Decision and the 2001 New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management.

If you wish to protest this proposed decision in accordance with 43 CFR 4160.2, you are allowed 15 days to do so in person or in writing to the authorized officer, after the receipt of this decision. Please be specific in your points of protest.

The protest shall be filed with the Field Manager, Bureau of Land Management, 2909 West 2<sup>nd</sup>, Roswell, NM 88201. This protest should specify, clearly and concisely, why you think the proposed action is in error.

In the absence of a protest within the time allowed, the above decision shall constitute my final decision. Should this notice become the final decision, you are allowed an additional 30 days within which to file an appeal for the purpose of a hearing before the Interior Board of Land Appeals, and to petition for stay of the decision pending final determination on the appeal (43 CFR 4.21 and 4.410). If a petition for stay is not requested and granted, the decision will be put into effect following the 30-day appeal period. The appeal and petition for stay should be filed with the Field Manager at the above address. The appeal should specify, clearly and concisely, why you think the decision is in error. The petition for stay should specify how you will be harmed if the stay is not granted.

/s/ J H Parman  
J H Parman  
Assistant Field Manager, Resources

12/20/10  
Date

ENVIRONMENTAL ASSESSMENT

GRAZING AUTHORIZATIONS

For

ALLOTMENTS 64044, 64045, 65021, 65062, 65083, 65091, 64041, 64050

(See Map for Location)

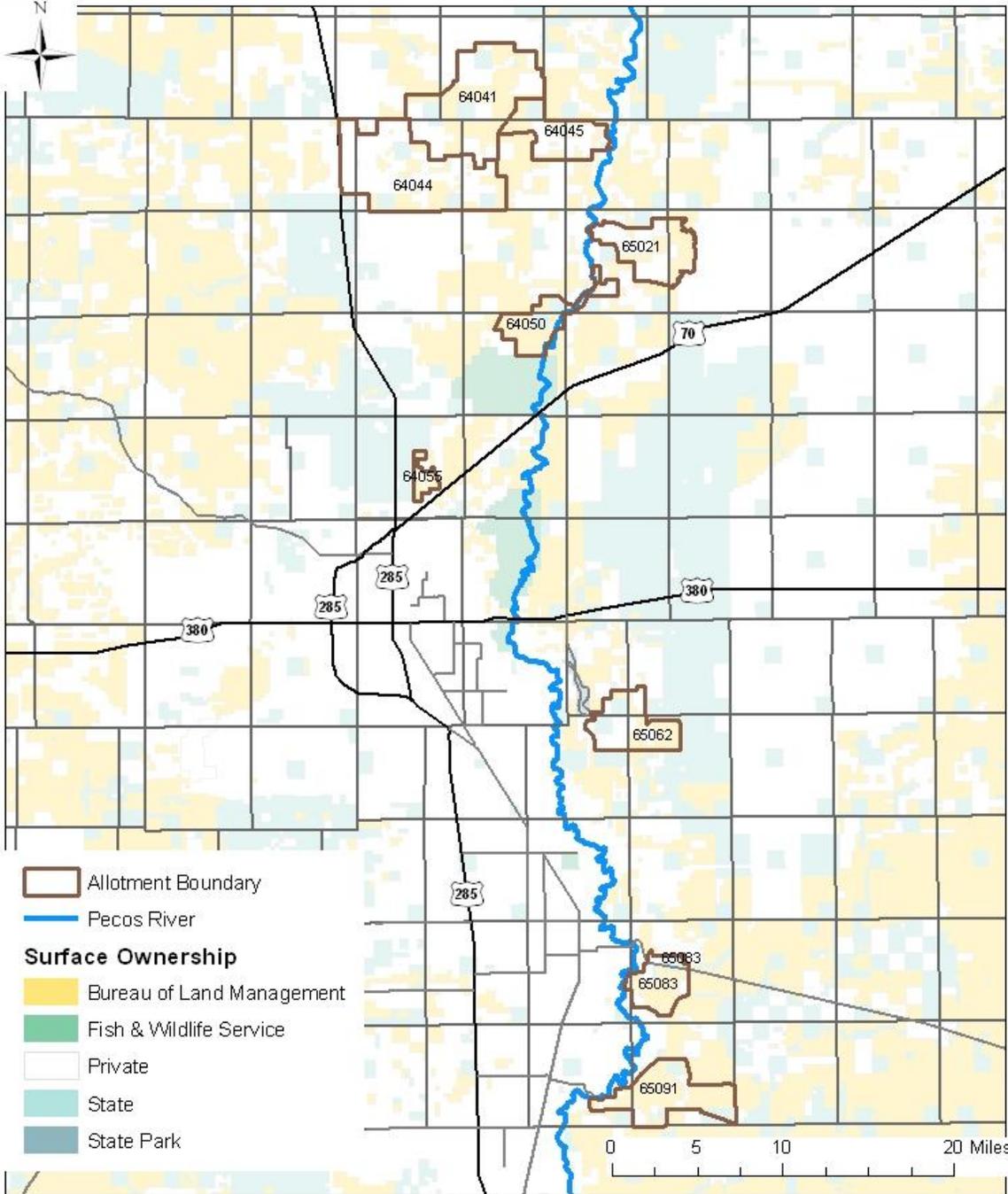
DOI-BLM-NM-P010-2010-179-EA

September 17, 2010

U.S. Department of the Interior  
Bureau of Land Management  
Roswell Field Office  
Roswell, New Mexico



# EA Allotments



-  Allotment Boundary
-  Pecos River
- Surface Ownership**
-  Bureau of Land Management
-  Fish & Wildlife Service
-  Private
-  State
-  State Park

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by the BLM. Spatial information may not meet National Map Accuracy Standards. This information is subject to change without notification.

## **I. BACKGROUND**

### **Purpose and Need for the Proposed Action**

The purpose of issuing a new grazing permit would be to authorize livestock grazing on public range on Allotments 64044, 64045, 65021, 65062, 65083, 65091, 64041, and 64050. When authorizing livestock grazing on public range, the Bureau of Land Management (BLM) must conduct a site-specific NEPA analysis before issuing a permit to authorize livestock grazing. This environmental assessment fulfills the NEPA requirement by providing the necessary site-specific analysis of the effects of issuing a new grazing permit on these allotments. The permit would be needed to specify the types and levels of use authorized, and the terms and conditions of the authorization pursuant to 43 CFR §§4130.3, 4130.3-1, 4130.3-2, and 4180.1.

The scope of this environmental assessment is limited to the effects of issuing a new grazing permit on these allotments. Over time, the need could arise for subsequent management activities which relate to grazing authorization. These activities could include vegetation treatments (e.g., prescribed fires, herbicide projects), range improvement projects (e.g., fences, water developments), and others. Future rangeland management actions related to livestock grazing would be addressed in project-specific NEPA documents as they are proposed.

Though this environmental assessment specifically addresses the impacts of issuing a grazing permit on these allotments, it does so within the context of overall BLM management goals. Allotment management activities would have to be coordinated with projects intended to achieve those other goals. For example, a vegetation treatment designed to enhance watershed condition or wildlife habitat may require rest from livestock grazing for one or more growing seasons. Requirements of this type would be written into the permit as terms and conditions.

### **Conformance with Land Use Planning**

The proposed action conforms to the 1997 Roswell Approved Resource Management Plan (RMP) and Record of Decision; and the 2000 New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management and Record of Decision as required by 43 CFR 1610.5-3.

### **Relationships to Statutes, Regulations, or Other Plans**

The proposal to renew the livestock grazing permit on this allotment is in conformance with the 1994 Environmental Impact Statement for Rangeland Reform; the Federal Land Policy and Management Act of 1976 (FLPMA) (43 U.S.C. 1700 et seq.); the Taylor Grazing Act of 1934 (TGA) (43 U.S.C. 315 et seq.); the Public Rangelands Improvement Act of 1978 (PRIA) (43 U.S.C. 1901 et seq.), and the Federal Cave Resource Protection Act of 1988..

## **II. PROPOSED ACTION AND ALTERNATIVES**

### **No Action (Proposed Action) - Current Livestock Management**

The proposed no action is to issue a ten-year permit to graze cattle and horses on all allotments. Current permitted use is based on long-term monitoring and rangeland conditions. Additionally rangeland health assessments have been completed and all allotments meet the Standards for Public Land Health. See Table 1 below for details of the individual allotments.

<b>Allotment Number</b>	<b>Allotment Name</b>	<b>Acres of Public Land</b>	<b>Percent Public Land</b>	<b>Animal Units Authorized</b>	<b>Animal Unit Months Authorized</b>	<b>Livestock</b>	<b>Livestock Number</b>
64044	5 Mile	6061	26%	2	6	Horse	2
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There would be no changes from current livestock management as conducted by the permittee, or to existing range improvements already in place. Future projects or activities identified by the permittee or the BLM can still be considered for implementation. Rangeland monitoring would continue on the allotment and changes to livestock management would be made as necessary. If new information surfaces that livestock grazing is negatively impacting other resources, action would be taken to mitigate those impacts.

### **No Grazing Alternative**

Under this alternative a new grazing permit would not be issued for these allotments. No grazing would be authorized on federal land on this allotment under this alternative. Under this alternative and based on the land status pattern within the allotment, many miles of new fences would be required to exclude grazing on the federal land.

### **Alternatives Considered But Not Analyzed**

Grazing with reduced numbers – BLM considered authorizing grazing with reduced numbers on these allotments. Grazing with reduced numbers would produce impacts similar to the proposed action. Additionally, these allotments meet the Standard for Public Land Health and monitoring studies do not indicate changes are necessary. Therefore, BLM will not analyze this alternative.

### **III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS**

#### **General Setting**

These allotments are located in the Pecos River watershed, in Chaves County, New Mexico, North and South of Roswell, NM. See Location Map.

Elevations range from about 3450 feet in the Northern allotments down to about 3000 feet along the Southern allotments.

The climate is semi-arid with normal annual temperatures ranging from 20<sup>0</sup>F to 95<sup>0</sup>F at Bitter Lake National Wildlife Refuge. Average annual precipitation is approximately 12.6 inches, primarily as rainfall. Annual precipitation has ranged from 3.11 inches to 21.08 inches.

#### **Affected Resources**

The following resources or values are not present or would not be affected by the authorization of livestock grazing on these allotments: Areas of Critical Environmental Concern, Cultural Resources, Native American Religious Concerns, Visual Resources, Prime or Unique Farmland, Minority/Low Income Populations, Hazardous or Solid Wastes, Wild and Scenic Rivers, and Wilderness. Affected resources and the impacts resulting from livestock grazing are described below.

#### **Vegetation**

##### Affected Environment

The allotments are comprised of several vegetation community types arranged in a mosaic over the allotments. Grasslands, shrubs, and half shrub communities dominate. There are small inclusions of Mixed Shrub Malpais (MSM) and Drainages, Draws and Canyons (DDC) associated with the draws running through the allotments. General objectives or guidelines for each vegetation community are described in the Roswell Approved RMP and Record of Decision (BLM 1997) and the Roswell Draft RMP/EIS (BLM 1994).

Grassland and mixed desert shrub (MDS) communities are intermixed with all community types. Sand dropseed, three-awn, black grama, burrograss, blue grama, sideoats grama, vine mesquite, New Mexico feather grass, burrograss, and tobosa are common throughout the allotments. Alkali sacaton is the dominant species in the bottomlands. Shrub communities contain catclaw mimosa, creosote, mesquite, ephedra, white thorn acacia, and skunkbush.

The DDC Community is comprised of the major drainages crossing the allotments, including the Pecos River which is the largest drainage. The Rangeland Health Assessments indicate a problem with invasive plants, most notably mesquite, creosote, and salt cedar. The Rangeland Health Assessments for these allotments can be viewed by the public at the website: [www.blm.gov/nm/st/en/fo/Roswell\\_Field\\_Office/roswell\\_document\\_library.html](http://www.blm.gov/nm/st/en/fo/Roswell_Field_Office/roswell_document_library.html)

Rangeland monitoring studies have been established in key areas within the allotments. Table 2 below lists the key areas, identified by the vegetation ID number, within each allotment as well as the ecological site associated with each key area. These permanent sites are used to track vegetation changes and to determine proper stocking rates.

<b>Table 2.</b>		
<b>ALLOTMENT NAME AND NUMBER</b>	<b>KEY AREA</b>	<b>ECOLOGICAL SITE</b>
64044—5 Mile	183, 187	Loamy CP-2
	184, 186, 185	Sandy SD-3
	182	Loamy SD-3
64045—Bluewater	095, 096	Loamy SD-3
	097	Sandy SD-3
65021—Haystack Mtn.	063, 064, 058, 059, 052, 062, 060, 061	Sandy SD-3
	056, 057	Deep Sand SD-3
65062—Slash G	109, 106, 107, 105, 266, 104, 103	Loamy SD-3
	110	Shallow SD-3
	108	Upland SD-3
65083—Kings Place East	286	Loamy SD-3
	165, 285, 166, 164	Sandy SD-3
	287	Shallow Sandy SD-3
	284	Shallow SD-3
65091—Rat Camp	180	Shallow SD-3
	181, 179, 175, 182	Loamy SD-3
64041—Hobbs Canyon	176, 172	Loamy CP-2
	175, 173, 174	Loamy SD-3
64050—Milner Lake		

The description for these ecological sites was developed by the Soil Conservation Service (now referred to as the National Resource Conservation Service) in their ecological site guides. Ecological site descriptions are available for review at the Roswell BLM office, any Natural Resources Conservation Service office or accessed at [www.nm.nrcs.usda.gov](http://www.nm.nrcs.usda.gov). From 1978 to 1999 agencies were using the traditional range condition methodology to depict range condition. This compared collected rangeland monitoring information with the potential vegetation community in terms of species composition by weight. The rating is based on a scaled of 0 to 100 with 100 being the actual representative site.

In 1999 the National Resource Conservation Service (NRCS) revised the methodology for comparing the existing vegetation community with the potential vegetation community and to aid in the determination of ecological condition. This methodology is called the Similarity Index (SI). The BLM is currently incorporating this revision into the monitoring and evaluation processes. The SI compares existing vegetation data (collected from rangeland monitoring) with the potential vegetation community described in the NRCS ecological site guide for that site. The index is based on a scaled of 0 to 100 with 100 being the actual representative site. The index takes into account vegetation species present and the relative amount of production for each species when compared to the potential for the range site.

The Roswell Field Office is currently in the process of integrating the revised methodology into current monitoring and evaluation processes. The traditional range condition rating method (used from 1980 to 1998) is retained for comparison purposes. The percent bare ground and rock found on the allotments fall within the parameters established by the RMP/EIS for these

vegetative communities. Copies of the monitoring data and the analysis of the data are available at the Roswell Field Office.

Rangeland Health Assessment data has been collected in fiscal years 2004 thru 2010. Analysis of the Rangeland Health Assessments indicates that all three indicators (biotic, hydrology, and soils) have been met for all allotments. For a detailed analysis please refer to the actual data sheets listed at the above web address or the web address below. The long-term vegetative production, ground cover and trend data for these allotments are also available at the following website address: <http://nm.blm.gov/rfo/index.htm>.

Noxious and Invasive Weeds: Noxious weeds affect both crops and native plant species in the same way, by out-competing for light, water and soil nutrients. Losses are attributed to decreased quality and quantity of agricultural products due to high levels of competition from noxious weeds and infestations. Noxious weeds can negatively affect livestock productivity by making forage unpalatable to livestock thus decreasing livestock productivity and potentially increasing producer's feed costs. Salt cedar is the only known noxious weed to exist within these allotments, most notably along the Pecos River.

#### Environmental Impacts

Under the proposed no action the vegetation in the Grassland community would continue to be grazed and trampled by domestic livestock as well as other herbivores. The area has been grazed by livestock since the early part of the 1900's, if not longer. Ecological condition and trend is expected to remain stable and/or improve over the long term at the permitted number of livestock.

Upland sites would reflect a static ecological condition trend at the existing permit level. Some grassland areas would remain static due to a high composition of mesquite, creosote, and broom snakeweed. In the long term, upland vegetation would continue to improve in all pastures from the implementation of a rest-rotation system.

Range monitoring data indicate that the vegetation is sustainable to meet multiple resource requirements and forage at the permitted use level under the Proposed Action and Alternative II. Data indicate that livestock grazing is compatible with vegetation cover and composition objectives. In addition to the upward trend in ecological condition, monitoring data show the vegetative resources have been improved and sustained since monitoring began in 1981.

Under the No Grazing Alternative, no impacts to vegetation resources would occur on public lands from authorized livestock grazing. Vegetation cover would increase over the long term in some areas. Grasslands in the uplands would increase in cover and composition, but composition would be tempered by invasive species somewhat dominating the shrub component. Alkali sacaton in the bottomlands would, in the short term, increase in cover and composition but would then taper off in the long term, becoming decadent from the lack of standing vegetation removal by grazing.

## Soils

### Affected Environment

The Soil Conservation Service, now the Natural Resource Conservation Service (NRCS), has surveyed the soils in Chaves County. Complete soil information is available in the Soil Survey of Chaves County, New Mexico, Northern Part (USDA Soil Conservation Service 1980). The soil map units represented in the project area are:

Alama-Poquita association, 0 to 3 percent slopes (ACA) Permeability of the Alama soil is moderately slow. Runoff of the unit soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high. Permeability of the Poquita soil is moderate. Runoff of the unit soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high.

Alama-Reeves, moist association, 0 to 3 percent slopes (ARA) Permeability of the Alama soil is moderately slow. Runoff is medium, and the hazard of water erosion is moderate and the hazard of soil blowing is high.

Bascom-Ratliff association, 0 to 7 percent slopes (BCB) Permeability of the Bascom soil is moderate. Runoff of the soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high. Permeability of the Ratliff soil is moderate. Runoff of the soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high.

Berino-Bluepoint complex, hummocky, 0 to 5 percent slopes (BPB) Permeability of the Berino soil is moderate. Runoff of the soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is moderate. Permeability of the Bluepoint soil is rapid. Runoff of the soil is slow and the hazard of water erosion is slight and the hazard of soil blowing is very high.

Faskin-fine sand, 0 to 2 percent slopes (FaA) Permeability of the Faskin soil is moderate. Runoff of the unit soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high. Permeability of the Malmstrom soil is moderately rapid. Runoff of the unit soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high.

Faskin-Roswell complex, 0 to 5 percent slopes (FRB) Permeability of the unit soil is moderate. Runoff of the unit soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high.

Glendale silt loam, 0 to 1 percent loam (GbA) Permeability of this Glendale soil is moderately slow. Runoff is medium, and the hazard of water erosion is moderate and the hazard of soil blowing is high.

Glendale-Pecos Harkey association, 0 to 1 percent slopes (GPA) Permeability of the Glendale soil is moderately slow. Runoff of the unit soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high. Permeability of the Pecos soil is very slow. Runoff of the unit soil is rapid and the hazard of water erosion is high and the hazard of soil blowing is high. Permeability of the Harkey soil is very moderate. Runoff of the unit soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high.

Hollomex-Gypsum land-Alama, dry complex, 0 to 25 percent slopes (HKD) Permeability of the Hollomex soil is moderate. Runoff of the Hollomex soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high. Gypsum land consists of stratified beds of hard gypsum at a depth of 12 inches. Permeability of the Alama Soil is moderately slow. Runoff of the Alama Soil soil is medium and the hazard of water erosion is moderate and soil blowing is high.

Hollomex-Reeves-Milner, dry loams, 0 to 3 percent slopes (HMA) Permeability of the Hollomex soil is moderate. Runoff of the Hollomex soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high. Permeability of the Simona soil is moderate. Runoff of the Simona soil is medium and the hazard of water erosion is medium and soil blowing is high.

Hollomex, moist-Milner-Reeves, moist loams, 0 to 8 percent slopes (HRB) Permeability of the unit soil is moderate. Runoff of the unit soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high.

Pajarito-Bluepoint complex, hummocky, 0 to 5 percent slopes (PBB) Permeability of the Pajarito soil is moderately rapid. Runoff is medium, and the hazard of water erosion is moderate and the hazard of soil blowing is high.

Pecos silty clay loam 0 to 1 percent slopes (PeA) Permeability of the Pecos soil is very slow. Runoff is rapid, and the hazard of water erosion is high and the hazard of soil blowing is high.

Poquita loam, 0 to 3 percent slopes (PpA) Permeability of the Poquita soil is moderate. Runoff is slow to medium, and the hazard of water erosion is slight to moderate and the hazard of soil blowing is high.

Ratliff Redona association, 0 to 2 percent slopes (RBA) Permeability of the Ratliff soil is moderate. Runoff of the Ratliff soil is slow and the hazard of water erosion is slight and the hazard of soil blowing is high. Permeability of the Redona soil moderate. Runoff of the Redona soil is slow and the hazard of water erosion is slight and soil blowing is high.

Redona-Canez association, loam surface, gently undulating, 0 to 2 percent slopes (RKA) Permeability of the Redona soil is moderate. Runoff is medium, and the hazard of water erosion is moderate and the hazard of soil blowing is moderate. Permeability of the Canez soil is moderate. Runoff is medium, and the hazard of water erosion is moderate and the hazard of soil blowing is moderate.

Reeves, moist-Milner-Hollomex, moist association, 0 to 3 percent slopes (RNA) Permeability of the Reeves soil is moderate. Runoff of the Reeves soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high. Permeability of the Milner soil moderate. Runoff of the Milner soil is medium and the hazard of water erosion is moderate and soil blowing is high.

Sotim-Berino association, 0 to 2 percent slopes (SMA) Permeability of the Sotim soil is moderately slow. Runoff of the Sotim soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high. Permeability of the Berino soil moderate. Runoff of the Berino soil is medium and the hazard of water erosion is moderate and the hazard to soil blowing is high.

Torriorthents-Philder-Rock outcrop association, 0 to 30 percent slopes (TPD) Permeability of the Torriorthents soil is moderately rapid. Runoff of the soil is medium to rapid and the hazard of water erosion and soil blowing is high. Permeability of the Philder soil is moderate. Runoff of the soil is rapid and the hazard of water erosion and soil blowing is high.

Tucumcari loam, 0 to 2 percent slopes (TuA) Permeability of the Tucumcari loam is moderately slow. Runoff is medium, and the hazard of water erosion is moderate and the hazard of soil blowing is high.

Ustifluvents, 0 to 2 percent slopes (USA) Permeability of the soil is slow to moderate. Runoff of the unit soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is high.

The Soil Conservation Service, now the Natural Resource Conservation Service (NRCS), has surveyed the soils in Chaves County. Complete soil information is available in the Soil Survey of

Chaves County, New Mexico, Southern Part (USDA Soil Conservation Service 1980. The soil map units represented in the project area are:

Alama loam, 0 to 3 percent slopes (Aa) Runoff soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is slight.

Holloman-Gypsum land complex, 0 to 3 percent slopes (Hp) Runoff of the Holloman unit soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is severe.

Berino-Pintura complex, 0 to 15 percent slopes (Bf) Runoff of the Berino soil is very slow and the hazard of water erosion is slight and the hazard of soil blowing is moderate. Runoff of the Cacique soil is slow and the hazard of water erosion is slight and the hazard of soil blowing is moderate.

Holloman-Gypsum land complex, 3 to 5 percent slopes (HrC) The gently sloping Holloman soils are in depressions. The undulating Gypsum land is on small very low knolls. Runoff of the Holloman unit soil is medium and the hazard of water erosion and soil blowing are moderate. For the Gypsum land runoff is rapid, the hazard of water erosion is moderate, and the hazard of soil blowing is severe.

Pecos silty clay loam, 0 to 1 percent slopes (Pe) Runoff is slow. The hazard of erosion is slight.

Reeves Holloman association, 0 to 5 percent slopes (RI) Runoff is medium and the hazard of water erosion and soil blowing are moderate.

Russler silty clay loam, 0 to 3 percent slopes (Ru) Runoff is medium. The hazard of water erosion is moderate and soil blowing is slight.

Torriorthents, Very Steep, 30 to 80 percent slopes (TOF) Runoff is very rapid. The hazard of water erosion is severe.

Tencee-Sotim association, 0 to 9 percent slopes (TS) For Tencee soil the hazard of water erosion is moderate and the hazard of soil blowing is slight. For Sotim soil the hazards of water erosion and soil blowing are moderate. Runoff is medium.

### Environmental Impacts

Under the Proposed Action, livestock would remove some of the cover of standing vegetation and litter, and compact the soil by trampling. If livestock management were inadequate, these effects could be severe enough to reduce infiltration rates and increase runoff, leading to greater water erosion and soil losses (Moore et al. 1979, Stoddart et al. 1975). Producing forage and protecting the soil from further erosion would then be more difficult. The greatest impacts of removing vegetation and trampling would be expected in areas of concentrated livestock use, such as trails, waters, feeders, and shade.

Under the Proposed Action rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion. Low/moderate forage quality plants provide protection to the soils resource. Cumulative long-term monitoring data reflect the soils are being adequately protected.

Under the No Grazing Alternative, any adverse impacts from livestock grazing would be eliminated. However, it is possible that removing grazing animals from an area where they were a natural part of the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similar to those of overgrazing in some respects.

## **Watershed – Hydrology**

### Affected Environment

The watershed and hydrology in the area is affected by land and water use practices. The degree to which hydrologic processes are affected by land and water use depends on the location, extent, timing and the type of activity. Factors that currently cause short-lived alterations to the hydrologic regime in the area include livestock grazing management, recreational use activities, groundwater pumping and also oil and gas developments such as well pads, permanent roads, temporary roads, pipelines, and powerlines.

### Environmental Impacts

Livestock grazing management and range improvement projects can result in long term and short term alterations to the hydrologic regime. Peak flow and low flow of perennial streams, ephemeral, and intermittent rivers and streams would be directly affected by an increase in impervious surfaces resulting from the construction of the well pad and road. The potential hydrologic effects to peak flow is reduced infiltration where surface flows can move more quickly to perennial or ephemeral rivers and streams, causing peak flow to occur earlier and to be larger. Increased magnitude and volume of peak flow can cause bank erosion, channel widening, downward incision, and disconnection from the floodplain. The potential hydrologic effects to low flow is reduced surface storage and groundwater recharge, resulting in reduced baseflow to perennial, ephemeral, and intermittent rivers and streams. The direct impact would be that hydrologic processes may be altered where the perennial, ephemeral, and intermittent river and stream system responds by changing physical parameters, such as channel configuration. These changes may in turn impact chemical parameters and ultimately the aquatic ecosystem.

Long-term direct and indirect impacts to the watershed and hydrology would continue for the life of the livestock grazing management and range improvement projects and would decrease once reclamation of the range improvement projects has taken place. Short term direct and indirect impacts to the watershed and hydrology from access roads that are not surfaced with material would occur and would likely decrease in time due to reclamation efforts.

Under the Proposed Action rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the hydrologic regime. Low/moderate forage quality plants provide protection to the soils resource and hydrologic regime. Cumulative long-term monitoring data reflect the hydrologic regime is being adequately protected.

Under the No Grazing Alternative, any adverse impact from livestock grazing management and range improvement projects would be eliminated. However, it is possible that removing grazing animals from an area where they were a natural part of the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similar to those of overgrazing in some respects.

## **Floodplains**

### Affected Environment

Portions of the grazing allotments are located in the 100-year floodplain of ephemeral streams. Portions of grazing allotment numbers 65091 and 64050 are located on the 100-year floodplain of the Pecos River. For administrative purposes, the 100-year floodplain serves as the basis for floodplain management on public lands. It is based on Flood Insurance Rate Maps prepared by

the Federal Emergency Management Agency (1983) which describes a Zone A as the “Area of the 100-year flood”. Current development on the floodplain consists of two-track roads and several miles of boundary fence in the area.

### Environmental Impacts

Surface disturbance from the development of surface facilities and buried pipelines can result in impairment of the floodplain values from removal of vegetation, removal of wildlife habitat, impairment of water quality, decreased flood water retention and decreased groundwater recharge. Under the Proposed Action rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the floodplain values. Low/moderate forage quality plants provide protection to the floodplain values. Cumulative long-term monitoring data reflect the floodplain values are being adequately protected.

Under the No Grazing Alternative, any adverse impact from livestock grazing would be eliminated. However, it is possible that removing grazing animals from an area where they were a natural part of the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similar to those of overgrazing in some respects.

### **Water Quality**

#### Affected Environment – Surface Water

The Pecos River which is a perennial river is located on public land on portions of grazing allotment number 64050. Ephemeral streams occur on Public Land on these allotments.

#### Environmental Consequences – Surface Water

Direct impacts to surface water quality would be minor, short-term impacts during stormflow. Indirect impacts to water-quality related resources, such as fisheries, would not occur.

#### Affected Environment - Ground Water

Fresh water sources are in the Quaternary Shallow Aquifer. Depth to water in nearby wells in the shallow aquifer ranges from 5 to 350 feet (New Mexico Office of the State Engineer data).

#### Environmental Impacts – Ground Water

The proposed action would not have a significant effect on ground water. Livestock would be dispersed over the allotment, and the soil would filter potential contaminants.

Under the Proposed Action rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect surface and groundwater. Low/moderate forage quality plants provide protection to the surface and groundwater. Cumulative long-term monitoring data reflect the surface and groundwater are being adequately protected.

Under the No Grazing Alternative, any adverse impact from livestock grazing would be eliminated. However, it is possible that removing grazing animals from an area where they were a natural part of the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similar to those of overgrazing in some respects.

## Wildlife

### Affected Environment

The area of analysis is inclusive of three contiguous grazing allotments and five disjunct allotments, all east of Highway 285 and generally with the Pecos Valley landscape. The range of wildlife habitat include open, gently undulating grasslands above the terrace of the Pecos River grading to more broken and hilly terrain with numerous drainages leading to the Pecos River as elevations decrease toward the river. The allotments provide a variety of habitat types for terrestrial wildlife species. The diversity and abundance of wildlife species in the area is due to the presence of a mixture of grassland habitat, mixed desert shrub vegetation, and a number of large drainages leading to the Pecos River.

Numerous avian species use the area during spring and fall migration, including non-game migratory birds. Common bird species are mourning dove, mockingbird, white-crowned sparrow, black-throated sparrow, blue grosbeak, northern oriole, western meadowlark, Crissal thrasher, western kingbird, northern flicker, common nighthawk, loggerhead shrike, and roadrunner. Raptors include northern harrier, Swainson's hawk, American kestrel, and occasionally golden eagle and ferruginous hawk. Common mammal species using the area include mule deer, pronghorn, coyote, gray fox, bobcat, striped skunk, porcupine, raccoon, badger, jackrabbit, cottontail, white-footed mouse, deer mouse, grasshopper mouse, kangaroo rat, spotted ground squirrel, and woodrat. A variety of herptiles also occur in the area such as yellow mud turtle, box turtle, eastern fence lizard, side-blotched lizard, horned lizard, whiptail, hognose snake, coachwhip, gopher snake, rattlesnake, and spadefoot toad.

The following table provides a brief description of main wildlife and habitat concerns on the allotments. The first four are west of the Pecos River, the remaining four are east of the river from north to south.

TABLE 3.		
Allotment Number	Allotment Name	Description
64044	Five Mile	Relatively large allotment about 10 miles in length east-west; numerous pastures. Open rolling mesquite grasslands with Shannon Draw heading east toward the Pecos River; habitat shows impact from oil and gas developments along the east side of the ranch. Public land scattered throughout ranch. Water developments associated with livestock grazing management enhance wildlife habitat. Potential habitat for desert mule deer and pronghorn antelope.
64041	Hobbs Canyon	Another large allotment adjacent to and northeast of Five Mile. Open mesquite grasslands; a major pipeline ROW and County Road bisects the allotment; mesquite control implemented on several pastures in recent years. Huggins Draw (dry) is the major drainage in the north portion of the ranch. Oil and gas impacts in the northeast. Allotment has larger blocks of public land. Water developments associated with livestock grazing management enhance wildlife habitat. Habitat conditions improving for pronghorn antelope.

64045	Bluewater	Smaller contiguous allotment east of Hobbs Canyon with the same major pipeline ROW bisecting the ranch. Rolling mesquite grasslands in the west half grading to grassy slopes, the Pecos River breaks, and ending just above river floodplain. Not considered a riparian allotment as east boundary ends at floodplain boundary. Has impacts from oil and gas development. Limited potential habitat improvement due to scattered tracts of public land over the majority of the allotment.
64050	Milner Lake	Hilly mixed shrub grasslands grading to an upper terrace of the Pecos River, river breaks, and a significant portion of the Pecos River and associated floodplain. Solid public land pattern. Two major pipeline ROWs bisect the allotment. Scattered oil and gas activity, including a few floodplain wells. Mesquite control implemented on several pastures in recent years. Milner Lake is a habitat feature on the allotment but is actually dry and invaded with saltcedar. This is considered a riparian allotment due to the Pecos River located along the east boundary. Further improvement can be accomplished along east boundary by developing a riparian pasture, controlling saltcedar, conducting prescribed fire and other habitat improvement techniques. Numerous terrestrial and aquatic wildlife resources along the river corridor.
65021	Haystack Mountain	Situated between the Pecos valley breaks to the east and the Pecos River to the west. The major drainage is Sand Creek originating at the escarpment and heading west to the river. Public lands are well-blocked along the base of the escarpment with numerous drainages interconnecting upland habitats to the Pecos floodplain, a mixture of grassland habitat and mixed desert shrub vegetation, and the steep and rocky escarpment. Major pipeline ROWs bisect the allotment, oil and gas developments occur, and recent mesquite control projects have been conducted. There are no public lands along the river. This is not considered a riparian allotment. Rough terrain along the base of the escarpment and the variety of vegetation structure provide key habitat for desert mule deer.
65062	Slash G	Predominately a gently undulating grassland upland, above and including the escarpment overlooking the Pecos river bottomlands. Land generally slopes west and northwest toward drainages leading to Dimmitt and Lea Lake area. Well-blocked public lands mostly in the flatter west half of the allotment. Oil and gas development increasing on the east half. Potential habitat for pronghorn antelope in the more open grasslands.
65063	King Place East	Situated east and above the Pecos River floodplain with undulating terrain characteristic of the breaks between uplands and the river valley. Public lands are well-blocked. Long Arroyo is a major drainage along the east and south portion of the allotment. A blend of both mesquite and shinnery oak can be found on the allotment. Grassland habitat degraded by mesquite invasion, including the arroyo bottom. Recent treatments for mesquite have been conducted. Water developments associated with livestock grazing management enhance wildlife habitat. Potential habitat for desert mule deer and upland game.
65091	Rat Camp	Similarly situated on the landscape as King Place East with numerous drainages trending north-northwest. Public lands are well-blocked. Oil and gas development in the east portion of the allotment. Grassland habitat degraded by mesquite invasion, including the arroyo bottom. Recent treatments for mesquite have been conducted. The west portion of the allotment does not include Pecos River and is not considered a riparian allotment. Potential habitat for desert mule deer and upland game.

### Environmental Impacts

Under the Proposed Action, livestock grazing management and range improvement projects designed with consideration for wildlife would generally enhance the quality of wildlife habitat. Vegetation condition, forage production, and habitat diversity would improve, and wildlife species distribution and abundance would increase.

Wildlife species depend directly on vegetation for habitat; so any change in the vegetation of a particular plant community is likely to affect the wildlife species associated with that community. Any change in community vegetation structure or composition is likely to be favorable to certain animal species and unfavorable to others. Therefore, any change in vegetation community structure or composition may affect resident wildlife populations. Effects on wildlife from vegetation management would be both positive and negative, depending on the species affected and the type of treatment used.

Chemical treatments, like mechanical methods, traditionally have been applied most frequently to decrease woody plants, and increase the production of grasses. The control of woody species, especially by selective herbicides, often results in the initial control of associated broadleaf forbs; both categories of plants contain species which may be important food for many different wildlife species. Chemical treatments can be designed to increase and decrease other vegetation components for the benefit or exclusion of different groups of wildlife species which are association with different types of habitat. Enhancing the structural diversity of vegetation by controlling shrubs and increasing understory species in a mosaic pattern should increase bird diversity. Some negative impacts can be lessened if the period of treatment avoids the bird nesting season and other critical seasons when loss of cover would be critical to wildlife; for example, during the critical reproductive periods (from April to June). After treatment of mesquite, the increase of forb and grass species would most likely lease to an increase in use of the treated areas by wildlife species

The construction of livestock waters in previously unwatered areas would promote increased wildlife distribution and abundance, but may potentially increase grazing pressure in those same areas. Short-term impacts of range improvement projects would be the temporary displacement of wildlife species during construction activities.

Under the No Grazing Alternative, there would no longer be direct competition between livestock and wildlife for forage, browse and cover. Wildlife habitat would moderately improve. The limitation for improvement would continue to be the existing invading species component (e.g., mesquite, snakeweed) affecting plant composition. Since livestock grazing would not be permitted, range improvement projects that benefit wildlife, such as water developments, would be abandoned. New range improvement projects that would also benefit wildlife habitat, such as brush control, may not be implemented because these projects are primarily driven and funded through range improvement efforts.

### **Special Status Species, Including Threatened and Endangered Species**

#### Affected Environment

Livestock grazing as a result of the grazing permit, may affect, but not likely adversely affect the bald eagle. With this determination, consultation with the US Fish and Wildlife Service is not required. It is expected that habitat and range condition would be maintained or improved by authorizing grazing conducive with vegetation production goals. Habitat for wintering bald eagles would not have significant negative impacts by livestock grazing since there is no presence of riparian habitats nearby, and no active or suitable nesting habitat. Positive impacts may result to

the bald eagle from the proposed action by increasing the amount of carrion during the late winter and early spring on sheep allotments in the vicinity.

Surveys have been conducted in New Mexico for the mountain plover in 1995, for the New Mexico Department of Game and Fish. No known breeding populations or wintering locales were found in the Roswell Field Office area. In addition, mountain plover surveys were conducted in 1998 at BLM selected sites by New Mexico Natural Heritage Program. No mountain plovers were observed at the sites. As mountain plovers prefer short vegetation and actually seek out grazed pastures, the cumulative impacts from grazing are not anticipated to adversely affect the bird. Grazing practices which maintain or improve ground cover to the greatest extent possible could decrease mountain plover habitat. The preferred alternative would continue to emphasize proper watershed management, but is unlikely to adversely affect this species or its habitat in the mixed desert shrub area.

Since no known wintering locales or breeding sites have been found and no known prairie dog towns are located within these allotments, proper grazing management is not likely to jeopardize, destroy or adversely modify the habitat for the mountain plover or the black-tailed prairie dog (the black-tailed prairie dog has been removed from the listing).

#### Environmental Impacts

Under any of the alternatives for the non-riparian allotments, there would be no change to habitat of special status species.

#### **Specific Analysis for Allotment 64050 Milner Lake**

The Pecos bluntnose shiner, Pecos gambusia and interior least tern are federally listed species that occur or have the potential to occur on the allotment. Federally proposed species include the Pecos pupfish and Pecos sunflower. The status and presence of these species in the RFO area are discussed in the following section.

Pecos Bluntnose Shiner (*Notropis simus pecosensis*) - Federal Threatened

#### Affected Environment

Historically, the Pecos bluntnose shiner inhabited the river from Santa Rosa to near Carlsbad, New Mexico. Currently, the subspecies is restricted to the river from the Fort Sumner area southward locally to the vicinity of Artesia, and seasonally in Brantley Reservoir (NMDGF 1988; USFWS 1992). Routine fish community monitoring conducted by the USFWS in the river between Sumner Dam and Brantley Reservoir show the fish remains generally abundant, especially in light of cooperative efforts between the Bureau of Reclamation and the USFWS to more closely mimic natural flows in the Pecos River.

There are two designated critical habitat areas on the Pecos River within the RFO area. The first is a 64-mile reach beginning about ten miles south of Fort Sumner (Township 1 North), downstream to a point about twelve miles south of the DeBaca/Chaves County line (Township 5 South). The allotment falls within, and is located at the terminus of this reach. The second reach is from Highway 31 east of Hagerman (Township 14 South), south to Highway 82 east of Artesia (Township 17 South). The primary threat to the Pecos bluntnose shiner appears to be the manipulation of flows in the Pecos River to meet irrigation needs, and the subsequent drying of the river channel (Hatch et al. 1985). High flows in the late winter-early spring before natural spring runoff appear to displace fish into marginal downstream habitats (including Brantley

Reservoir). Cessation of reservoir releases after spring runoff and before the advent of summer rains desiccates long stretches of the Pecos River. Maintenance of water levels within the Pecos River and its tributaries is beyond the management authority of the BLM.

In addition to the manipulation flows is the threat posed by non-native fish. The introduction and establishment of species such as the Arkansas River shiner offers direct competition with the Pecos bluntnose shiner. Livestock grazing does not appear to be a threat to the bluntnose shiner based on a review of the literature. Nor was grazing identified in the Pecos Bluntnose Shiner Recovery Plan as having the potential to adversely affect water quality, and thus the bluntnose shiner (USFWS 1992).

### Environmental Impacts

Section 303(d) of the federal Clean Water Act requires that the State identify those waters for which existing required pollution controls are not stringent enough to meet State water quality control standards. The State must then establish total maximum daily loads (TMDLs) for pollutants of these water-quality-limited stream segments.<sup>1</sup> The presence of critical habitat for the threatened Pecos bluntnose shiner raised the Pecos River to a priority one on the New Mexico 303(d) ranking system.

Segment 2207 (Pecos River from Salt Creek to Sumner Dam) had been listed for stream bottom deposits. Based on a review of historical data and their survey, however, the NMED (1998a) concluded there was no basis for conducting TMDLs on Segment 2207. The NMED (1998b) removed the segment of the Pecos River from the 1998-2000 303(d) list. NMED's decision to remove Segment 2207 from the 303(d) list bears directly on the Biological Opinion rendered by the USFWS on the Roswell Resource Management Plan. The USFWS cited the New Mexico Water Quality Control Commission's 305(b) report in their opinion. The report identified siltation, reduction of riparian vegetation, and streambank destabilization as among the probable causes for the Pecos River in the RFO area not supporting its designated use as a warm water fishery, and identified rangeland agriculture as a probable source of the nonsupport. Just as Segment 2207 was removed from the 303(d), the next 305(b) report will no longer list the segment as water quality-limited (Hogge 1998).

Under the Proposed Action, livestock grazing impacts to the Pecos bluntnose shiner would be negligible. Under No Grazing Alternative, no impacts from livestock grazing would occur. Based on the assessment of Pecos River water quality conducted by the NMED in 1997, it appears that the shiner would not be affected by poor water quality if a grazing permit were issued.

Pecos *Gambusia* (*Gambusia nobilis*) - Federal Endangered

### Affected Environment

The Pecos gambusia is endemic to the Pecos River Basin in southeastern New Mexico and western Texas. Historically, the species occurred as far north as the Pecos River near Fort Sumner, and south to Fort Stockton, Texas. Recent records indicate, however, that its native range is restricted to sinkholes and springs and their outflows on the west side of the Pecos River in Chaves County. In spite of population declines, the species remains locally common in

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<sup>1</sup> The TMDL is defined as "the greatest loading or amount of the pollutant that may be introduced into a watercourse or stream reach from all sources without resulting in a violation of water quality standards." The TMDL includes a margin of safety.

a few areas of suitable habitat. Populations on the BLNWR and the Salt Creek Wilderness Area constitute the key habitat of the species in the RFO area. On the refuge, the gambusia is primarily restricted to springs and sinkholes in the Lake St. Francis Research Natural Area.

Endangerment factors include the loss or alteration of habitat (e.g., periodic dewatering) and introduction of exotic fish species (e.g., mosquitofish). Potential impacts to habitat may also occur from surface disturbing activities at sinkholes or springs and their outflows.

#### Environmental Impacts

There would be no negative impacts to the Pecos gambusia from livestock grazing under any Alternative. No springs capable of providing yearlong habitat for the gambusia exist on BLM land within the allotment.

Interior Least Tern (*Sterna antillarum athalassos*) - Federal Endangered

#### Affected Environment

The interior least tern nests on shorelines and sandbars of streams, rivers, lakes, and man-made water impoundments. Records of breeding terns in New Mexico are centered around BLNWR where the species has bred regularly since it was first recorded in 1949. BLNWR is considered "essential" tern breeding habitat in the state. Besides BLNWR, the only known nesting habitat in the RFO area is an alkali flat due north of the refuge on public lands. These are small populations with only a few nesting terns.

Sporadic observations of least terns have been recorded elsewhere in the Pecos River valley. The tern may occur on public lands in Chaves County along the river because suitable nesting habitat is found on sites that are sandy and relatively free of vegetation (i.e., alkali flats). Approximately 44 potential nesting sites are found throughout the RFO area. Other potential habitat sites are saline, alkaline, or gypsiferous playas that occasionally hold water. However, ephemeral playas do not support fish, the main staple for terns.

Specific surveys for nesting least terns have been conducted in potential habitat along the Pecos River and playas by the New Mexico Natural Heritage Program under a Challenge Cost Share project. No other nesting terns have been found to date.

#### Environmental Impacts

There would be no impacts to the Interior least tern under any Alternative. Past habitat surveys found no breeding populations in potential nesting habitat that occurs as sand bars within the river channel.

Pecos (Puzzle) Sunflower (*Helianthus paradoxus*) - Federal Threatened

#### Affected Environment

The Pecos sunflower is found along alkaline seeps and cienegas of semi-desert grasslands and short-grass plains (4,000-7,500 ft.). Plant populations are found both in water and where the water table is near the ground surface.

In the RFO area, the sunflower is found in only a few areas outside of the BLNWR. In 1994, a new population was found growing on the margins of Lea Lake and its outflow at Bottomless Lakes State Park. Lloyd's Draw, east of the Pecos River, has the first known Pecos sunflower population on BLM land, which only became evident following a prescribed fire. Potential habitat also occurs on BLM land within the Overflow Wetlands Area of Critical Environmental Concern.

Potential habitat for the sunflower occurs on the allotment as low lying areas where the water table is near the ground surface. The low lying areas are not necessarily along the existing river channel, but in old channel courses and oxbows. These areas are now invaded by saltcedar growing in dense stands, which may prevent the viability of the Pecos sunflower. No Pecos sunflower populations have been found on the allotment to date. Endangerment factors include dewatering of riparian or wetland areas where the sunflower is found, surface disturbing activities, and excessive livestock grazing.

### Environmental Impacts

Under the Alternatives, potential habitat would remain in unsuitable condition for the Pecos sunflower if saltcedar were left untreated. Populations of the sunflower may become established following saltcedar control in certain areas.

### **Riparian/Wetland Areas**

Riparian areas are found along the 4.5 miles of the Pecos River on the allotment, primarily in the River West Pasture. Floodplain width ranges from about one-half mile to one mile on the allotment. The riparian vegetation community is tied to landform within the floodplain and is influenced by flooding intervals. The land form is comprised of exposed and stabilized river bars, the floodplain, and terraces. The river channel is moderately entrenched and slightly confined by the valley. Channel banks are relatively stable, but are actively being cut in some locations. This is most likely due to entrenchment of the channel rather than disturbance associated with land use activities. The channel material is primarily a sand/silt bed with small to medium debris. The stream gradient is relatively flat (0.25 percent).

Riparian vegetation along the river banks include pockets of Baltic rush, threesquare and cattail. Woody vegetation within the lower floodplain include seepwillow, coyote willow, saltcedar, and Russian olive. Alkali sacaton, alkali muhly, and inland saltgrass are the most common grass species. Common forb species include goldenrod, ragweed, Douglas rabbitbrush, prairie sunflower, and white sweetclover. Older cottonwood trees can be found in several areas and typically occur on higher elevation sandbars and terraces above the active floodplain. About 100 acres within the floodplain of the river is dominated by saltcedar growing in patches, strips, or dense thickets. About 48 acres support cottonwood trees with open canopies. Adjacent upland vegetation is mesquite/alkali sacaton shrubland which is encroaching into the floodplain.

In 1992, the BLM initiated a standard method to assess the functioning condition of riparian areas (BLM 1993). The method uses an interdisciplinary team to consider the interaction of the vegetation, landform/soils, and hydrology. Assessed areas can be classified as "proper functioning condition, functional at risk (upward or downward trend) or nonfunctional." Riparian areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is a result of an interaction among geology, soil, water, and vegetation (BLM 1993).

In June 1998, a BLM interdisciplinary team assessed the riparian area on the allotment (see Appendix 1). The riparian area on public land was in “proper functioning condition” as defined by the BLM (1993). Livestock were grazing the riparian area during the BLM assessment, and cow trailing and reductions in riparian vegetation were observed in limited areas. Plants, such as willows, were heavily browsed or trampled in spots.

Proper functioning condition was designed to be a quick, qualitative assessment of riparian health. However, it should not be construed as the sole measure of riparian health. Evaluating other resource values, such as watershed condition or wildlife habitat could require more detailed monitoring techniques. For example, quantitative assessments of riparian vegetation and community structure are needed to assess habitat quality for any given wildlife habitat component (e.g., browse condition for mule deer, ground cover for ground-nesting species).

### Environmental Impacts

Under the Proposed Action, livestock utilization of the floodplain and associated riparian areas along the Pecos River would continue on the allotment. The greatest vegetation impacts would occur at livestock concentration areas such as crossings, shaded areas along the river, and accessible banks and terraces. Some bank sloughing may occur from trampling. Regeneration of cottonwood trees would be hindered by livestock browsing on seedlings. Utilization of grass species such as alkali sacaton would be heavy within the floodplain and along the river due to annual, seasonal use of the area.

Alleviating grazing pressure would enhance ground cover and help establish preferred plant species, making habitat improvement projects more successful. Seasonal rest would improve vigor of riparian species and would allow for cottonwood regeneration. Reducing exotic species and seasonally grazing along the river would improve the overall health of the floodplain and riparian areas.

Under No Grazing, vegetation condition within the floodplain would moderately improve and riparian vegetation would greatly improve. Improvement would continue to be limited by reductions in flood flows, and existing exotic species that affect plant composition. Grasses would initially increase, but plant vigor could decline from lack of vegetation removal, making ground cover species rank. Since livestock grazing would not be permitted, range improvement projects such as brush control and exotic species control would be less likely to be implemented through the range program.

## **Air Quality**

### Affected Environment

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality, including seven nationally regulated ambient air pollutants. Regulation of air quality is also delegated to some states. Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility.

The area around the allotments is considered a Class II air quality area. A Class II area allows moderate amounts air quality degradation. The primary sources of air pollution are dust from blowing wind on disturbed or exposed soil and exhaust emissions from motorized equipment. Air quality in the area is generally good and is not located in any of the areas designated by the Environmental Protection Agency as “non-attainment areas” for any listed pollutants regulated by the Clean Air Act.

The allotments are in a Class II area for the Prevention of Significant Deterioration of air quality as defined by the federal Clean Air Act. Class II areas allow a moderate amount of air quality degradation. Air quality in the region is generally good, with winds averaging 10-16 miles per hour depending on the season. Peak velocities reach more than 50 miles per hour in the spring. These conditions rapidly disperse air pollutants in the region.

### Environmental Impacts

Air quality would temporarily be directly impacted with pollution from enteric fermentation (ruminant livestock), chemical odors, and dust. Dust levels resulting from allotment management activities would be slightly higher under the Proposed Action or Alternative II than the No Grazing Alternative. The cumulative impact on air quality from the allotment would be negligible compared to all pollution sources in the region.

The federal Clean Air Act requires that air pollutant emissions be controlled from all significant sources in areas that do not meet the National Ambient Air Quality Standard (NAAQS). The New Mexico Air Quality Bureau (NMAQB) is responsible for enforcing the state and national ambient air quality standards in New Mexico. Any emission source must comply with the NMAQB regulations (USDI, BLM 2003b). At the present time, the counties that lie within the jurisdictional boundaries of the Roswell Field Office are classified as in attainment of all state and national ambient air quality standards as defined in the Clean Air Act of 1972, as amended (USDI, BLM 2003b).

The Environmental Protection Agency (EPA), on October 17, 2006, issued a final ruling on the lowering of the NAAQS for particulate matter ranging from 2.5 micron or smaller particle size. This ruling became effective on December 18, 2006, stating that the 24-hour standard for PM<sub>2.5</sub> was lowered to 35 ug/m<sup>3</sup> from the previous standard of 65 ug/m<sup>3</sup>. This revised PM<sub>2.5</sub> daily NAAQS was promulgated to better protect the public from short-term particle exposure. The significant threshold of 35 ug/m<sup>3</sup> daily PM<sub>2.5</sub> NAAQS is not expected to be exceeded under the proposed action.

## **Climate**

### Affected Environment

Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. Greenhouse gases (GHGs), including carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>), and the potential effects of GHG emissions on climate are not regulated by the EPA under the Clean Air Act. However, climate has the potential to influence renewable and non-renewable resource management. The EPA's Inventory of US Greenhouse Gas Emissions and Sinks found that in 2006, total US GHG emissions were over 6 billion metric tons and that total US GHG emissions have increased by 14.1% from 1990 to 2006. The report also noted that GHG emissions fell by 1.5% from 2005 to 2006. This decrease was, in part, attributed to the increased use of natural gas and other alternatives to burning coal in electric power generation.

The levels of these GHGs are expected to continue increasing. The rate of increase is expected to slow as greater awareness of the potential environmental and economic costs associated with increased levels of GHGs result in behavioral and industrial adaptations.

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007). However, observations and predictive models

indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

In 2001, the Intergovernmental Panel on Climate Change (IPCC) predicted that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National Academy of Sciences (2006) supports these predictions, but has acknowledged that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature would not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures.

A 2007 US Government Accountability Office (GAO) Report on Climate Change found that, "federal land and water resources are vulnerable to a wide range of effects from climate change, some of which are already occurring. These effects include, among others: 1) physical effects such as droughts, floods, glacial melting, and sea level rise; 2) biological effects, such as increases in insect and disease infestations, shifts in species distribution, and changes in the timing of natural events; and 3) economic and social effects, such as adverse impacts on tourism, infrastructure, fishing, and other resource uses." It is not, however, possible to predict with any certainty regional or site specific effects on climate relative to the proposed lease parcels and subsequent actions.

In New Mexico, a recent study indicated that the mean annual temperatures have exceeded the global averages by nearly 50% since the 1970's (Enquist and Gori). Similar to trends in national data, increases in mean winter temperatures in the southwest have contributed to this rise. When compared to baseline information, periods between 1991 and 2005 show temperature increases in over 95% of the geographical area of New Mexico. Warming is greatest in the northwestern, central, and southwestern parts of the state.

### Environmental Impacts

Climate change analyses are comprised of several factors, including greenhouse gases (GHGs), land use management practices, the albino effect, etc. The tools necessary to quantify climatic impacts from the Proposed Action is presently unavailable. As a consequence, impact assessment of specific effects of anthropogenic activities cannot be determined. Additionally, specific levels of significance have not yet been established. Therefore, climate change analysis for the purpose of this document is limited to accounting and disclosing of factors that may contribute to climate change. Qualitative and/or quantitative evaluation of potential contributing factors within the planning area is included where appropriate and practicable.

## **Livestock Management**

### Affected Environment

In the past, these allotments have been permitted to be grazed yearlong by cattle and horses.

The allotments contain Federal land (BLM), state land and private land (see Location Map). Current range improvement projects for the management of livestock include earthen tanks, wells, and several drinking troughs with associated pipelines, pasture and boundary fences and corrals.

The east boundary of allotment #64050 (Milner Lake) straddles the Pecos River.

### Environmental Impacts

Under the Proposed Action, livestock would continue to graze public lands within the allotments. Existing pasture configurations and water developments would remain the same. Livestock management would still follow the single-herd rotation system. The Pecos River will not be negatively affected by livestock grazing.

Under the No Grazing Alternative, there would be no livestock grazing authorized on public lands. The public lands would have to be fenced apart from the private lands or livestock would be considered in trespass if found grazing on public land (43 CFR 4140.1(b)(1)). Exclusion of livestock from the public land would require several miles of new fence at an approximate cost of \$4,500/mile. This expense would be borne by the private landowner. Range improvements on public land would not be maintained and the BLM would have to compensate the permittee if any of the improvements were cost shared at the time of their authorization.

Under the No Grazing Alternative, the overall livestock operation could be reduced by the number of AUs attached to the public lands. This would have an adverse economic impact on the permittee, the county and to the state.

Cumulative impacts of the grazing and no grazing alternatives were analyzed in Rangeland Reform '94 Draft Environmental Impact Statement (BLM and USDA Forest Service 1994) and in the Roswell Resource Area Draft RMP/EIS (BLM 1994). The no livestock grazing alternative was not selected in either document.

## **Recreation**

### Affected Environment

Recreational pursuits are considered to be either facility-based or dispersed. The Roswell Field Office Area offers opportunities in both categories. Dispersed recreation occurs throughout the approximately 1.5 million surface acres of public land in the Resource Area. Most of the visitation in the Field Office Area comes from dispersed recreational activities such as hunting, caving, fishing, sightseeing, Off Highway Vehicle Use, primitive camping, mountain biking, horseback riding and hiking. Hunting is the most popular outdoor sport on public land in southeast New Mexico. Hunting for big game, waterfowl, and upland birds is estimated to provide in excess of 267,122 visitor hours each year. Off Highway Vehicle designations for public land within these allotments are classified as "Limited" to existing roads and trails.

The allotments provide habitat for numerous game species including desert mule deer, pronghorn, mourning dove and scaled quail. Predator and feral pig hunting may occur on the allotment, as well as trapping for predators or furbearers. General sightseeing, wildlife viewing and photography are non-consumptive recreational activities that may occur. Rock collectors can find various minerals unique to the area, such as Pecos diamonds.

### Environmental Impacts

Game and non-game wildlife species could realize long-term benefits through the improvement of habitat. It is expected that hunter success and wildlife viewing opportunities would be enhanced.

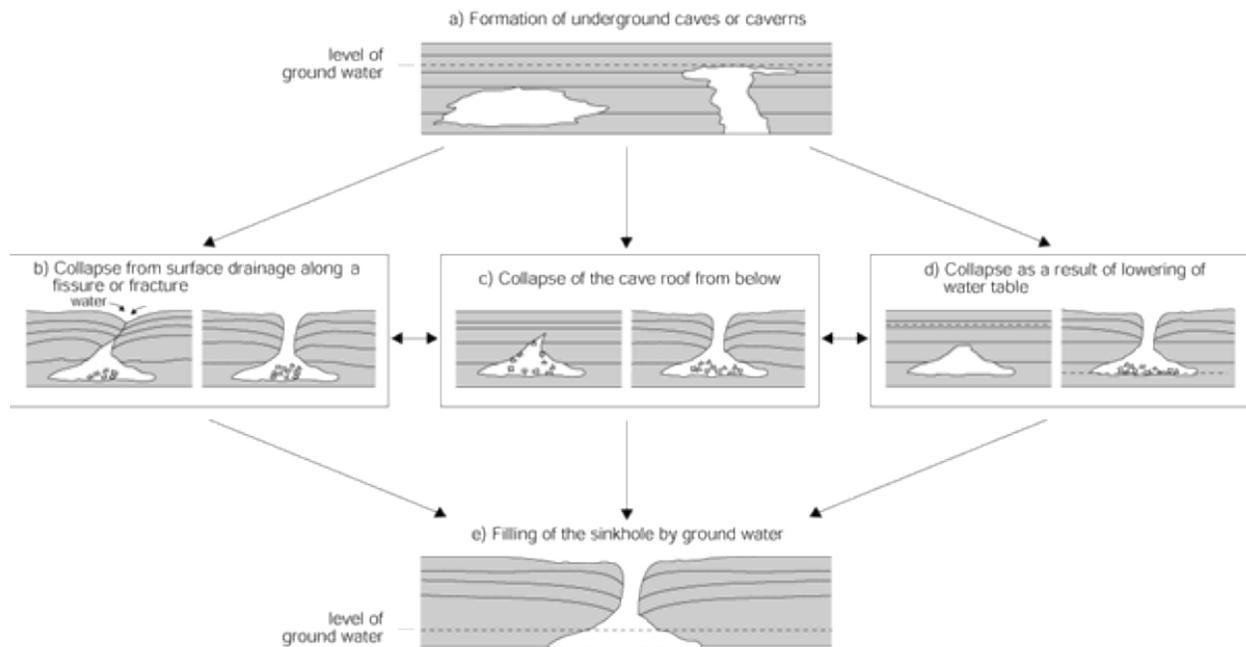
Under the No Grazing Alternative, no conflicts between ranching activities and recreational use would occur on public lands. Success of hunts and non-consumptive opportunities would remain

the same or slightly improve. Vandalism could still occur to range improvements. Conflicts with OHV use would continue.

## Caves and Karst

### Affected Environment

Caves and other karst features are derived from dissolved limestone and gypsum from which caves and sinkholes can form. Allotments 64041, 64044, 64045, 64550 and 64055 are located in areas of *High Cave-Karst Potential*. Allotments 64021, 65062, 64083, and 64091 are located in areas of *Medium to High Cave-Karst Potential*. Caves and other karst features been documented in or near each allotment. Some caves can be very lengthy gypsum “storm drain” caves. Most tend to be small limestone solutional caves in the San Andres Formation or gypsum caves and sinkholes located in the gypsum-clay interbeds of the Seven Rivers Formation. Seven Rivers Formation is unstable and most caves in it are risky to human entry. There have been catastrophic collapses of sinkholes, the best example being Chuck’s Hole.



### Environmental Impacts

Livestock grazing could be affected by the presence of karst features if livestock became entrapped in deep sinkholes, which has occurred with sheep grazing on karst land north of Roswell. This could be prevented by creating exclosures around identified karst features that pose a hazard to livestock. In the event that range improvement projects are proposed, the presence of karst features would be further analyzed in related environmental assessments. Project covers in the BLM volunteer program would keep BLM informed if they discover karst features that could be hazardous to livestock.

## **Cultural Resources**

### Affected Environment

The project falls within the Southeastern New Mexico Archaeological Region. This region contains the following cultural/temporal periods: Paleoindian (ca. 12,000-8,000 B.C.), Archaic (ca. 8000 B.C. –A.D. 950), Ceramic (ca. A.D. 600-1540) Protohistoric and Spanish Colonial (ca. A.D. 1400-1821), and Mexican and American Historical (ca. A.D. 1822 to early 20th century). Sites representing any or all of these periods are known to occur within the region. A more complete discussion can be found in *Living on the Land: 11,000 Years of Human Adaptation in Southeastern New Mexico An Overview of Cultural Resources in the Roswell District*, Bureau of Land Management published in 1989 by the U.S. Department of the Interior, Bureau of Land Management. A cultural resource inventory shall be conducted of the area of effect for the proposed project prior to any ground disturbing activities.

### Environmental Impacts

Cultural resources in this region are not usually adversely affected by livestock grazing. Although concentrated livestock activity such as around livestock water troughs can have adverse effects on the cultural resource. As such all livestock water troughs should not be located within 100 feet of a known archaeological site. Prior to authorizing range improvements, a Class III Cultural Survey must be completed thus ensuring cultural resources would not be affected. There are several known cultural resources within the allotment.

## **IV. CUMULATIVE IMPACTS**

A cumulative impact is defined in 40 CFR 1508.7 as:

the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The analysis of cumulative impacts focuses on the geographical area defined as the set of the allotments within the Pecos River watershed as illustrated on the attached map and listed under Table 1. The specific resources being impacted are limited to those that are most important in terms of impacts resulting from remedial actions needing to be implemented to improve current environmental conditions. The incremental impact of issuing grazing permits on these resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of-way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree. The analysis of cumulative impacts is driven by major resource issues. The proposed no action is the

authorization of livestock grazing on these allotments. The cumulative impacts to these allotments and adjacent allotments are insignificant.

The Proposed Action would not add incrementally to the cumulative impacts to threatened and endangered species, or to water quality. The conclusions, that impacts to these resources from grazing authorization would not be significant, are discussed in detail in Section III of the EA.

If the No Grazing Alternative were chosen, some adverse cumulative impacts would be eliminated, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotment would be less intensively managed.

While global and national inventories of GHG are established, regional and state-specific inventories are in varying levels of development. Quantification techniques are in development – for example, there is a good understanding of climate change emissions related to fuel usage; however measuring and understanding the effects are less comprehensive. Analytical tools necessary to quantify climatic impacts are presently unavailable. As a consequence, impact assessment of specific effects of anthropogenic activities cannot be determined.

Due to the absence of regulatory requirements to measure GHG emissions it is not possible to accurately quantify potential GHG emissions in the affected areas as a result of renewing grazing permits. Some general assumptions however can be made: livestock, operating vehicles to support livestock grazing, and vehicles transporting livestock contribute to GHG emissions.

The New Mexico Greenhouse Gas Inventory and Reference Case Projection 1990-2020 (Inventory) states agricultural activities, including manure management, fertilizer use and livestock, account for 7% of New Mexico's total GHG emissions. The Inventory estimates approximately 6.4 million metric tons GHG emission is projected by 2010 from all agricultural activities in the state. The Inventory states that GHG emissions from livestock, agriculture soil management and field burning were about 6.2 MMT of CO<sub>2</sub> equivalent in 2004. The Inventory makes the assumption that dairy cattle production would grow at the same rate as the general population and there would be no growth in the other categories within agriculture.

The lack of scientific tools designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts. However, potential impacts to natural resources and plant and animal species due to climate change are likely to be varied, including those in the southwestern United States. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened/endangered plants may be accelerated.

Due to loss of habitat or competition from other species whose ranges may shift northward, the population of some animal species may be reduced or increased. Less snow at lower elevations would likely impact the timing and quantity of snowmelt, which, in turn, could impact water resources and species dependant on historic water conditions. Forests at higher elevations in New Mexico, for example, have been exposed to warmer and drier conditions over a ten year period. Should the trend continue, the habitats and identified drought sensitive species in these forested areas and higher elevations may also be more affected by climate change.

## **V. MITIGATION MEASURES**

Vegetation monitoring studies would continue if a new grazing permit were issued under the Proposed Action. Changes to livestock management would be made if monitoring data showed adverse impacts to the vegetation.

If new information surfaces that livestock grazing is negatively impacting other resources, action would be taken at that time to mitigate those impacts.

For subsequent treatments, an evaluation for potential impacts to endangered species will be conducted prior to treatment. If any endangered plant species are found within the proposed treatment areas, the project will be designed to avoid impacts.

## **VI. RESIDUAL IMPACTS**

Residual impacts are direct, indirect, or cumulative impacts that would remain after applying the mitigation measures. Residual impacts following authorization of livestock grazing would be insignificant if the mitigation measures are properly applied.

## **VII. Socio-Economic Factors**

The proposed no action or Alternative II as outlined in this document is not anticipated to alter the socio-economic conditions for either the permittees or Chaves County. Should the no livestock grazing alternative be adopted, economic impacts would occur. Chaves County would lose tax revenues on approximately 848 head of livestock annually.

Under the no livestock grazing alternative, it would be the responsibility of the permittees to prevent livestock from grazing on the public lands. To accomplish this, the permittees would most likely have to construct fences to exclude the public land. Several mile of new fence would be needed at a cost of approximately \$994,500 (\$9,500/mile). BLM would also have to provide compensation to the permittees for their interest in authorized range improvements due to the exclusion of livestock grazing. These costs could be reduced or mitigated by land exchanges with either the state or the permittees to block up the public land.

## **IX. BLM Team Members**

Kyle Arnold - Rangeland Management Specialist  
Adam Ortega - Rangeland Management Specialist  
Shane Trautner - Rangeland Management Specialist  
Helen Miller- Rangeland Management Specialist  
Michael McGee - Hydrologist  
Rebecca Hill - Archaeologist  
Howard Parman – Environmental Coordinator  
Bill Murry – Outdoor Recreation Planner  
Mike Bilbo – Cave Specialist  
Dan Baggao – Wildlife Biologist  
Randy Howard - Wildlife Biologist  
Jerry Dutchover – Geologist  
John Simitz - Geologist  
Jared Reese- Natural Resource Specialist

## **X. PERSONS AND AGENCIES CONSULTED**

Chaves County Public Land Use Advisory Committee  
Mark Marley - Permittee  
New Mexico Department of Game and Fish  
New Mexico Energy, Minerals, and Natural Resources Department  
- Forestry and Resource Conservation Division  
New Mexico Environment Department - Surface Water Quality Bureau  
New Mexico State Land Office  
U.S. Fish and Wildlife Service - Ecological Services  
U.S. Fish and Wildlife Service - Fishery Resources Office

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**Bureau of Land Management, Roswell Field Office  
Environmental Assessment Checklist, DOI-BLM-NM-P010-2010-179-EA**

Resources	Not Present on Site	No Impacts	May Be Impacts	Mitigation Included	BLM Reviewer	Date
Air Quality			X	X	Hydrologist /s/ Michael McGee	10/18/2010
Soils			X	X		
Watershed Hydrology			X	X		
Floodplains			X	X		
Water Quality - Surface			X	X		
Water Quality - Ground			X	X	Hydrologist /s/ Michael McGee	10/18/2010
Cultural Resources		X			Archaeologist  /s/ Justin W. Peters	12NOV2010
Native American Religious Concerns	X					
Paleontology	X					
Areas of Critical Environmental Concern	X				/s/ J H Parman P&EC	9/22/10
Farmlands, Prime or Unique	X				/s/ Tate Salas Realty Specialist	9/28/2010
Rights-of-Way		X				
Invasive, Non-native Species			X	X	Helen C.J. Miller Range Mgmt Spec.	09/21/2010
Vegetation			X	X		
Livestock Grazing			X	X		
Wastes, Hazardous or Solid	X				/s/ Jared Reese Nat. Resource Spec.	10/29/10
Threatened or Endangered Species	X				/s/ D Baggao Wildlife Biologist	10/5/2010
Special Status Species			X	X		
Wildlife			X	X		
Wetlands/Riparian Zones			X	X		
Wild and Scenic Rivers	X				Bill Murry Outdoor Recn Planner	9/22/2010
Wilderness	X					
Recreation		X			Mike Bilbo Cave Specialist	11/19/2010
Visual Resources		X				
Cave/Karst			X	X		
Environmental Justice		X			/s/ Jared Reese Nat. Resource Spec.	10/29/10
Public Health and Safety		X				
Solid Mineral Resources		X			/s/ Jerry Dutchover	09/21/10
Fluid Mineral Resources		X			/s/ John S. Simitz Geologist	Sep 29, 2010