

## DECISION RECORD

### DOI-BLM-NM-P010-2016-0016- EA

Proposed Decision: It is my decision to implement the BLM-Preferred Alternative as described in DOI-BLM-NM-P010-2016-0016-EA and to issue a permit/lease for the allotment analyzed in this document. The mitigation measures identified in the EA have been formulated into terms and conditions that will be attached to the grazing permit/lease. This decision incorporates, by reference, those conditions identified in the attached Environmental Assessment. A summary table follows:

Allotment Number	Allotment Name	% Public Land	Livestock Number	Class of Livestock	Animal Unit Months
63063	Barbary Hills	38	1159	Cattle	5285
63063	Barbary Hills	38	30	Sheep	27
63063	Barbary Hills	38	35	Horse	160

See Attached Maps.

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 permit/lease.

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/ Kyle S. Arnold  
Kyle Arnold  
Assistant Field Manager

03/24/2016  
Date

## DOI-BLM-NM-P010-2016-0016-EA

### FINDING OF NO SIGNIFICANT IMPACT:

I have determined that the BLM Preferred Alternative (Alternative A), as described in the Environmental Assessment (EA) will not have any significant impact, individually or cumulatively, on the quality of the human environment. Because there would not be any significant impact, an environmental impact statement is not required. The NEPA handbook (p. 83) indicates that the FINDING OF NO SIGNIFICANT IMPACT (FONSI) must succinctly state the reasons for deciding that the action will have no significant environmental effects. It also recommends that the FONSI address the relevant context and intensity factors.

In making this determination, I considered the following factors:

1. The activities described in the BLM Preferred Alternative (Alternative A) do not include any significant beneficial or adverse impacts (40 CFR 1508.27(b)(1)). The EA includes a description of the expected environmental consequences of issuing a 10 year term grazing permit on Allotment 63063.
2. The activities included in the proposed action would not significantly affect public health or safety (40 CFR 1508.27(b)(2)).
3. The proposed activities would not significantly affect any unique characteristics (40 CFR 1508.27(b)(3)) of the geographic area such as prime and unique farmlands, caves, wild and scenic rivers, designated wilderness areas or wilderness study areas.
4. The activities described in the proposed action do not involve effects on the human environment that are likely to be highly controversial (40 CFR 1508.27(b)(4)).
5. The activities described in the proposed action do not involve effects that are highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b)(5)).
6. My decision to implement these activities does not establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration (40 CFR 1508.27(b)(6)).
7. The effects of issuing a ten year permit would not be significant, individually or cumulatively, when considered with the effects of other actions (40 CFR 1508.27(b)(7)). The EA discloses that there are no other connected or cumulative actions that would cause significant cumulative impacts.
8. I have determined that the activities described in the proposed action will not adversely affect or cause loss or destruction of scientific, cultural, or historical resources, including those listed in or eligible for listing in the National Register of Historic Places (40 CFR 1508.27(b)(8)). Cultural resource surveys in the allotment have been generally limited to inspections ahead of oil and gas related activities, such as well locations and pipelines. Many areas of the allotment have been generally inventoried for cultural resources. The existing cultural data for the allotment and adjacent areas seems to be a good example of what can be reasonably expected to occur in the remainder of the allotment. No site-specific situations are known to exist where current grazing practices conflict with cultural resource preservation and management. Some mitigation is included in the proposed action to protect cultural resources from grazing practices, such as: "In the event that grazing practices are determined to have an adverse effect on cultural resources within the allotment, the BLM, in consultation with the permittee, will take action(s) to mitigate or otherwise negate the effects. This may include but is not limited to installing physical barriers

to protect the affected cultural resources, relocating the livestock grazing practice(s) that is (are) causing the adverse effect(s), or any other treatment as appropriate. Pages 16-17 of the EA describe the affected environment and impacts of the proposed action and alternatives on cultural resources.

9. The proposed activities are not likely to adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (40 CFR 1508.27(b)(9)). Within the allotment there are no known populations of threatened and endangered species, or designated critical habitat within the allotment.

10. The proposed activities will not threaten any violation of Federal, State, or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)). Page 5 of the EA describes the conformance with land use plans and relationships to statutes, regulations, or other plans.

**APPROVED:**

/s/ Kyle S. Arnold  
Kyle S. Arnold  
Assistant Field Manager, Resources

03/24/2016  
Date

# United States Department of the Interior Bureau of Land Management

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Environmental Assessment DOI-BLM-NM-P010-2016-0016-EA

## Renewal of Term Grazing Lease on Barbary Hills Allotment 63063

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U.S. Department of the Interior  
Bureau of Land Management  
Pecos District  
Roswell Field Office  
2909 West Second Street  
Roswell, NM 88201-2019  
Phone: (575) 627-0272  
FAX: (575) 627-0276

Roswell Field Office

### Confidentiality Policy

Any comments, including names and street addresses of respondents, you submit may be made available for public review. Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.



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# 1.0 Purpose and Need for Action

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## 1.1 Introduction

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This environmental assessment is limited to the effects of issuing a new grazing lease on allotment 63063 Barbary Hills. 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 lease on the allotment, 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 or lease as terms and condition.

The qualifications for a grazing lease are found in 43 Code of Federal Regulation (CFR) Section 4100 §4110.2-1(a). The authorized officer shall find land or water owned or control by an applicant to be base property if: (1) It is capable of serving as a base of operation for livestock use of public lands within a grazing district; or (2) It is contiguous land that is capable of being used in conjunction with a livestock operation which would utilize public lands outside of a grazing district. Allotment 63063 lies outside of the Roswell Grazing District and is considered to be a Section 15 allotment. The applicant owns private property that is contiguous to the public land in the allotment.

The public land within the Barbary Hills allotment is located in Lincoln County. It is about 6 miles south of US Highway 70, along Skeen Road. See Location Map. Elevations range from about 5,500 feet above sea level on the ridges to 5,000 feet along the canyon bottoms.

The climate is semi-arid with normal annual temperatures ranging from 20<sup>0</sup>F to 95<sup>0</sup>F, with possible extremes of 29 below zero to 103 degrees Fahrenheit. Average annual precipitation is approximately 13-16 inches in the form of rainfall and snow.

Preparing Office:

Pecos District, Roswell Field Office  
2909 W. Second Street  
Roswell, NM 88201

## **1.2 Purpose and Need for Action**

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The purpose of issuing a new grazing lease would be to authorize livestock grazing on public range on Allotment #63063 Barbary Hills. When authorizing livestock grazing on public range, the Bureau of Land Management (BLM) must conduct a site-specific NEPA analysis before issuing a lease 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 lease on each allotment. The leases 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.

## **1.3 Decisions to be Made**

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The Decisions to be made upon the completion of this Environmental Assessment are: to issue a grazing lease and authorize grazing on Allotment 63063, Barbary Hills; to authorize the level of grazing on this allotment and to authorize the classes of livestock grazing on the allotment.

## **1.4 Conformance with Applicable Land Use Plan(s)**

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The proposed action conforms to the 1997 Roswell Approved Resource Management Plan (RMP) and Record of Decision; 2008 Special Status Species Resource Management Plan Amendment (2008 RMPA), 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.

## **1.5 Relationship to Statutes, Regulations or Other Plans**

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The proposal to issue the livestock grazing lease 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.); Federal Cave Resources Protection Act of 1988.

## **2.0 Proposed Action and Alternative(s)**

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### **2.1 Proposed Action**

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The BLM is proposing to issue a grazing lease on the allotment.

If the proposed action is selected, the decision will be implemented to offer a new term grazing lease on the allotment at the end of the protest & appeal period.

<b>Allotment Number</b>	<b>Allotment Name</b>	<b>% Public Land</b>	<b>Livestock Number</b>	<b>Class of Livestock</b>	<b>Animal Unit Months</b>
63063	Barbary Hills	38	1159	Cattle	5285
63063	Barbary Hills	38	30	Sheep	27
63063	Barbary Hills	38	35	Horse	160

See Attached Maps.

## **2.2 Alternatives Considered by Not Analyzed in Detail**

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

## **2.3 No Grazing Alternative**

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Under this alternative, a new grazing lease would not be issued for this allotment. 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 allotments, approximately 166 miles of new fences would be required to exclude grazing on the federal land.

## **3.0 Affected Environment, Environmental Consequences, and Cumulative Impacts**

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During the analysis process, the interdisciplinary team considered several resources and supplemental authorities. The interdisciplinary team determined that the resources discussed below would be affected by the proposed action.

The following resources or values are not present or would not be affected by the authorization of livestock grazing on these allotments: Cultural Resources, Native American Religious Concerns, Visual Resources, Threatened and Endangered Species, Special Status Species, Riparian Wetlands, Public Health and Safety, Realty, Prime or Unique Farmland, Minority/Low Income Populations, Hazardous or Solid Wastes, Wild and Scenic Rivers, and Wilderness.

Cultural resources 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. Prior to authorizing range improvements, a Class III Cultural Survey must be completed ensuring cultural resources will not be affected. There are several known cultural resources within these allotments. Affected resources and the impacts resulting from livestock grazing are described below.

### **3.1 Soil/Water/Air**

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#### **3.1.1 Climate**

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##### **Affected Environment**

Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. GHG's and the potential effects of GHG emissions on climate are not regulated by the EPA, however climate has the potential to influence renewable and non-renewable resource management.

Greenhouse gases, 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 GHG's 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 will 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 permitted allotment 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.

### **Impacts from the No Action (Proposed Action) Alternative Direct and Indirect 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 are 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.

## **Impacts from the No Grazing Action Direct and Indirect Impacts**

There will be no direct or indirect impacts to climate if a no grazing action is selected.

### **Cumulative Impacts of All Alternatives**

The incremental impact of issuing a grazing permit/lease on climate 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.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on climate resources 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.

### **Mitigation Measures and Residual Impacts**

A rangeland health assessment has been completed and the allotments met the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

#### **3.1.2 Soils**

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##### **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, Southern Part (USDA Soil Conservation Service 1980) and online at <http://websoilsurvey.nrcs.usda.gov/app/>. The soil map units represented in the project area are:

Ector-Rock outcrop complex, 0 to 9 percent slopes (EcC) Runoff is rapid and the medium of water erosion is moderate and soil blowing is slight. Rock outcrop is rapid.

Ector-Rock outcrop complex, 9 to 30 percent slopes (EcD) Runoff is rapid and the hazard of water erosion is moderate and soil blowing is slight.

Pecos-Dev association, 0 to 5 percent slopes (PH) Runoff is medium or slow and the hazard of water erosion is moderate and soil blowing is slight.

The Soil Conservation Service, now the Natural Resource Conservation Service (NRCS), has surveyed the soils in Lincoln County. Complete soil information is available in the Soil Survey of Lincoln County, New Mexico, (USDA Soil Conservation Service 1983) and online at <http://websoilsurvey.nrcs.usda.gov/app/>. The soil map units represented in the project area are:

Darvey Asparagus association, gently sloping, 0 to 5 percent slopes (8) Permeability of the Darvey soil is moderate. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high. Permeability of the Asparagus soil is moderately slow. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

Deama very cobbly loam, 0 to 15 percent slopes (11) Permeability is moderate. Runoff is rapid and the hazard of water erosion is high. The hazard of soil blowing is slight.

Deama-Rock outcrop association, very steep 15 to 50 percent slopes (14) Permeability is moderate. Runoff is rapid and the hazard of water erosion is high. The hazard of soil blowing is slight.

Ector-Rock outcrop association, moderately sloping (17) Permeability of the Ector soil is moderate. Runoff is rapid and the hazard of water erosion is high and the hazard of soil blowing is slight.

Ector-Rock outcrop association, moderately steep (18) Permeability of the Ector soil is moderate. Runoff is rapid, and the hazard of water erosion is high and the hazard of soil blowing is slight.

### **Impacts from the No Action (Proposed) Alternative Direct and Indirect Impacts**

Under the No Action – Alternative A, the Proposed Alternative, 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 Alternative A, 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.

### **Impacts from the No Grazing Action Direct and Indirect Impacts**

Under 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.

### **Cumulative Impacts of All Alternatives**

The incremental impact of issuing a grazing permit/lease on soil 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; water well development, 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. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts would be eliminated to soil resources, 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.

Cumulative long term monitoring data reflect the soils are being adequately protected.

## **Mitigation Measures and Residual Impacts**

A rangeland health assessment has been completed and the allotment meets the Standards for Public Land Health. Continued rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion.

### **3.1.3 Air Quality**

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#### **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 allotment is in an area that 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.

Air quality in the region is generally good, with winds averaging 10 to 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.

#### **Impacts from the No Action (Proposed) Alternative Direct and Indirect 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 Alternative A than 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 standards. 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. 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 National Ambient Air Quality Standard (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.

### **Impacts from the No Grazing Action Direct and Indirect Impacts**

There will be no direct or indirect impacts to air quality if a no grazing action is selected.

### **Cumulative Impacts of all Alternatives**

The incremental impact of issuing a grazing permit/lease on air 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.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on air resources 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.

### **Mitigation Measures and Residual Impacts**

A rangeland health assessment has been completed and the allotment meets the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

## **3.1.4 Watershed Hydrology**

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### **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 power lines.

## **Impacts from the No Action (Proposed) Alternative**

### **Direct and Indirect 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 range improvement projects. 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 Alternative A, the Preferred Alternative, 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.

## **Impacts from the No Grazing Action**

### **Direct and Indirect Impacts**

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.

## **Cumulative Impacts of all Alternatives**

The incremental impact of issuing a grazing permit/lease on watershed hydrology 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.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on watershed hydrology resources 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.

## **Mitigation Measures and Residual Impacts**

A rangeland health assessment has been completed and the allotment meets the Standards for Public Land Health. Continued rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion.

### **3.1.5 Floodplains**

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#### **Affected Environment**

Portions of the grazing allotment are located in the 100-year floodplain. 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, water pipelines and boundary fence in the area.

#### **Impacts from the No Action (Proposed) Alternative Direct and Indirect 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.

#### **Impacts from the No Grazing Action Direct and Indirect Impacts**

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.

#### **Cumulative Impacts of All Alternatives**

The incremental impact of issuing a grazing permit/lease on floodplain 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.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on floodplain resources 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.

## **Mitigation Measures and Residual Impacts**

A rangeland health assessment has been completed and the allotment meets the Standards for Public Land Health. Continued rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion.

### **3.1.6 Water Quality - Surface**

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#### **Affected Environment**

No perennial surface water is found on the Public Land on this allotment. Ephemeral stream occur on public land on this allotment.

#### **Impacts from the No Action (Proposed) Alternative Direct and Indirect Impacts**

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

#### **Impacts from the No Grazing Action Direct and Indirect Impacts**

There will be no direct or indirect impacts to surface water quality if a no grazing action is selected.

#### **Cumulative Impacts of all Alternatives**

The incremental impact of issuing a grazing permit/lease on surface water 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.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on surface water resources 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.

## **Mitigation Measures and Residual Impacts**

A rangeland health assessment has been completed and the allotment meets the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

### **3.1.7 Water Quality - Ground**

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#### **Affected Environment**

Fresh water sources are located in the shallow San Andres Aquifer. The approximate depth to water in area ranges from 300 to 600 feet in the shallow San Andres Aquifer (New Mexico Office of the State Engineer Data).

#### **Impacts from the No Action (Proposed) Alternative Direct and Indirect Impacts**

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 and Alternative B, the Preferred Alternative, 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.

#### **Impacts from the No Grazing Action Direct and Indirect Impacts**

There will be no direct or indirect impacts to ground water quality if a no grazing action is selected.

#### **Cumulative Impacts of all Alternatives**

The incremental impact of issuing a grazing permit/lease on groundwater 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.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on groundwater resources 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.

## **Mitigation Measures and Residual Impacts**

A rangeland health assessment has been completed and the allotment meets the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

## **3.2 Archaeology**

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### **3.2.1 Cultural and Historical Resources**

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#### **Affected Environment**

The allotment 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.

Concerning cultural resources, grazing has the potential for impacts. The Roswell Field Office reviews the local office and New Mexico Cultural Resources Information System (NMCRIS) databases for every grazing permit or leasing action at all levels of NEPA. Seven cultural resource inventories have been conducted within the grazing allotment, including six linear surveys (BLM surveys include 92-054A, 99-024A, 10-010A, 12-022A, and 12-037) and two block surveys, and numerous archaeological sites were identified.

#### **Impacts from the No Action Alternative Direct and Indirect Impacts**

Using the amount of surveys and sites as a representative sample for distribution within the allotment, impacts to cultural resources are not anticipated.

#### **Impacts from the No Grazing Action Direct and Indirect Impacts**

There will be no impacts to cultural resources if the No Grazing Action alternative is selected; however, cultural resource inventories will be required for any new fence line construction.

### **Cumulative Impacts of all Alternatives**

Cultural resources are not usually adversely affected by livestock grazing, although concentrated livestock activity, such as around livestock water troughs, can have the potential to adversely affect cultural resources. A review of locational data does not indicate that any trough locations are close to cultural resources.

### **Mitigation Measures and Residual Impacts**

There are no mitigation measures or residual impacts at this time.

## **3.2.2 Native American Religious Concerns**

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### **Affected Environment**

Native American groups may have places that can be described as Traditional Cultural Properties (TCPs) or sacred sites that are important to their religions or cultures. The BLM uses the New Mexico Department of Cultural Affairs list of tribes/nations/pueblos concerned for individual counties to determine which of these groups may have concerns for the area. Additionally, the BLM conducts tribal consultation for many projects while preparing planning documents, such as, the Resource Management Plan and Resource Management Plan Addendums. To date, the areas to be affected have not been identified by interested tribes as being of tribal concern.

### **Impacts from the No Action Alternative Direct and Indirect Impacts**

Based on a review of BLM's existing information, there will be no impacts.

### **Impacts from the No Grazing Action Direct and Indirect Impacts**

Based on a review of BLM's existing information, there will be no impacts.

### **Cumulative Impacts of all Alternatives**

Based on a review of BLM's existing information, there will be no cumulative impacts.

### **Mitigation Measures and Residual Impacts**

There are no mitigation measures or residual impacts at this time.

## 3.3 Range

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### 3.3.1 Vegetation

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#### **Affected Environment**

The allotment is comprised of a piñon-juniper vegetation community with inclusions of mixed desert shrub and grassland communities. Perennial and annual forb production fluctuates widely from year to year. 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).

The primary consideration in listing range sites under the piñon-juniper community type is topography influenced by higher hills and mountains with juniper, pinon or mountain mahogany in the description of the potential plant community.

The pinon/juniper community type is typically found in the mountain slopes and rolling foothills in the west half of the resource area. Smaller areas are scattered in the lower elevations, intermingled with the shortgrass habitat type. Slopes range from 15 to 75 percent, averaging 20 to 30 percent. The average elevation is from 4,500 feet to 7,500 feet.

The majority of the community type occurs at Fort Stanton, where an intermingling of several other habitat types can be found. These include the riparian/wetland, drainages/draws/canyons and grassland types. The overstory is dominated by oneseed juniper, pinon pine, and alligator juniper. Ponderosa pine can be found in protected canyons bottoms and along the Rio Bonito. The shrubby understory includes wavyleaf oak, little leaf sumac, mountain mahogany, algerita and fourwing saltbush. Forbs and grasses are represented by such species as wild buckwheat, sagewort, greenthread, sideoats grama, blue grama, creeping muhly, wolftail, fescue and wheatgrass.

Approximately 29 percent (143) of the wildlife species in the resource area use this community type. Faunal diversity is high, reflecting the vegetational and structural diversity of the pinon/juniper complex contribution to the diversity of wildlife species.

In the Grassland Community Type the primary consideration in listing range sites under this community type is the flat to moderately rolling topography with 75 percent and higher composition of grasses in the description of potential plant community.

Grassland is the climax vegetative aspect for large portions of the resource area. The grassland community type is the most widespread. It can be further subdivided into grass rolling upland, grass hill, grass flat, and mesquite grassland subtypes, depending on topographic relief or seral stage. In many areas the subtypes may overlap. For the purpose of the RMP, the subtypes are grouped into the grassland community type. Vegetation is primarily dominated by warm season short- and midgrasses. Large areas of grassland climax communities have dropped in successional stage due to misuse and have become a dis-climax mixed shrub community.

The grass rolling uplands is the predominant shortgrass habitat subtype in the resource area. It is found on broad, nearly level or gently undulating plains to rolling hills at elevations between 3800 feet to 5000 feet. Slopes are 0 to 9 percent. Vegetation is dominated by blue grama, black grama, galleta, tobosa, sideoats grama, dropseeds, muhlys, threeawns, burrograss and fluffgrass.

Woody shrub species are scarce but include mesquite, fourwing saltbush, wolfberry, sumac, and cactus species such as yucca and cholla. Invasions of broom snakeweed, a halfshrub, is common in some areas.

Forbs are a minor component of the subtype except following periods of rainfall. Ground cover may be too sparse in much of this subtype to provide the cover requirements of certain small mammals or ground-nesting birds.

Grass hills are found primarily on hills, low mountains, or lower foot slopes of higher mountains. Slopes are rolling to steep and average about 25 percent. Elevations range from 4500 feet to 6000 feet. Short- and mid-grasses dominate this subtype, including hairy grama, fluffgrass, three-awn, and red lovegrass. Shrubs, halfshrubs and cacti include little leaf sumac, beargrass, ocotillo, hedgehog cactus, cholla and broom snakeweed. The structured diversity of the vegetation in this subtype provides more diverse bird nesting habitat than adjacent grasslands. This is the preferred habitat for mule deer, which also use the brushy draws for browse and cover.

The grass flats subtype occurs on nearly level to gently sloping upland plains as broad swales between uplands, or as isolated pockets in shallow depressions, playas, along drainages or in sinks. These areas receive significant runoff from adjacent sites, which produces more dense and taller vegetation. Vegetation is dominated by mid- and tall-grasses with occasional shrubs or half shrubs. The primary grasses are tobosa and galleta, which may occur on large expanses between upland sites, and alkali and giant sacaton, which usually are found along drainages or in depressions. Shrubs sparsely associated with the sacaton type are mesquite and fourwing saltbush. A few scattered yuccas or cholla may be interspersed in the tobosa swales. Forb diversity and abundance is low due to the density of the grass cover.

The mesquite grassland type could best be described as a dis-climax stage in a desert shortgrass climax. The mesquite invasion results from disturbance of natural successional processes. The type is generally located between the grassy plains and the Pecos River, including the breaks adjacent to the floodplain. Terrain is level to gently undulating with slopes generally less than 5 percent, or hummocky with numerous sand dunes scattered throughout the area. The elevation varies from 3,000 feet to 6,000 feet.

Mesquite is found on most soil types, but the main invasion occurs on sandy soils. The predominant shrub is honey mesquite, which has invaded what at one time was a shortgrass dominated type. Few other shrub species are associated with mesquite, although some creosote, yucca and Opuntia occur.

Vegetation is dominated by black grama, blue grama, dropseed, muhly, tobosa and galleta, fluffgrass, and alkali sacaton on undulating terrain, with higher percentages of dropseed, three-awn and muhly on sandy sites. Halfshrubs include sand sage and broom snakeweed. Forbs may be abundant following periods of rainfall.

The Rangeland Health assessment notes some invasive plants, most notably juniper, and mesquite with scattered pockets of cholla. The Rangeland Health assessment for this allotment can be viewed at the Roswell Field Office.

The description for these ecological sites was developed by the Soil Conservation Service (now referred to as the Natural 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 current times agencies are 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.

Rangeland Health Assessment data was collected in fiscal year 2014. Analysis of the rangeland health assessments indicates that all three indicators (biotic, hydrology, and soils) have been met for the allotment.

### **Impacts from the Proposed (No Action) Alternative Direct and Indirect Impacts**

Under the Proposed Alternative, the vegetation in the allotment will 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/lease level. Some grassland areas would remain static due to the influence of juniper, mesquite and cholla. In the long term, juniper or mesquite treatments may be necessary to ebb the encroachment onto historical grassland sites.

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. Data indicate that livestock grazing is compatible with vegetation cover and composition objectives. In addition to the static trend in ecological condition, monitoring data show the vegetative resources have been maintained and sustained since monitoring began in 1981.

### **Impacts from the No Grazing Alternative Direct and Indirect Impacts**

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 juniper or mesquite somewhat dominating the shrub component. Spike dropseed 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.

### **Cumulative Impacts**

The incremental impact of issuing a grazing lease 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. Cattle grazing combined with drought conditions will continue to decrease native vegetation root structure increasing soil erosion and loss of wildlife habitat. 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 action is the authorization of livestock grazing on these allotments. The cumulative impacts to these allotments and adjacent allotments are insignificant.

## **Mitigation Measures and Residual Impacts**

Vegetation monitoring studies will continue if a new grazing lease was issued under the Proposed Alternative. Changes to livestock management would be made if monitoring data showed adverse impacts to the vegetation.

### **3.3.2 Livestock Grazing**

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#### **Affected Environment**

In the past, this allotment has been permitted to be grazed yearlong by cattle. The lease authorized 1,200 Animal Units (AUs). This is the equivalent of 13 head per section.

The allotments contain about 21,196 acres of public land (see Location Map) and 34,578 acres of private and state land. Public landownership is intermingled with private and state land. 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.

#### **Impacts from the Proposed (No Action) Alternative Direct and Indirect Impacts**

Under the No Action (Proposed) Alternative, 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 or in dry conditions would be scattered across the allotment.

#### **Impacts from the No Grazing Alternative Direct and Indirect Impacts**

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 approximately 166 miles of new fence at an approximate cost of \$747,000.00 (\$4,500/mile). This expense would be borne by the private landowners. Range improvements on public land would not be maintained and the BLM would have to compensate the lessee 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 455 AUs (those attached to the public lands) to approximately 745 AUs. This would have an adverse economic impact on the lessees and Lincoln County would lose the tax revenue for the stock associated with the public lands.

#### **Cumulative Impacts**

The incremental impact of issuing a grazing permit/lease 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 the area, oil and gas activities on the uplands, rights-of-way crossing the area and recreational use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state or private lands.

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 activity began in the early part of the 20<sup>th</sup> century. These activities are still occurring today, and are expected to continue into the foreseeable future.

The analysis of cumulative impacts is driven by major resource issues. The proposed action is the authorization of livestock grazing on these allotments. The cumulative impacts to these allotments and adjacent allotments are insignificant.

### **Mitigation Measures and Residual Impacts**

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

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

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

### **3.3.3 Invasive, Non-Native Species**

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#### **Affected Environment**

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. Potential noxious weed species include musk thistle and Russian knapweed. There are no known populations of noxious weeds on this allotment.

### **3.4 Wildlife Biology**

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This large 57,700-acre allotment is located about 30 air miles southwest of Roswell, NM and is one of the most rugged limestone-based terrain in the Field Office area, the lower elevation foothills of the White and Capitan Mountains of south-central NM. It is roughly 10 miles wide by 12 miles long and straddles the Lincoln and Chaves County line and is the southwestern extent of the BLM grazing allotments in the Roswell Field Office.

Public access is extremely limited with only a single county road on the west boundary. Public lands are very fragmented although there are a few large parcels, most are surrounded by private lands with no continuous public access from one parcel to the next. Compounding the fragmented nature of public lands are the numerous pastures on the allotment, 36 in total ranging in size from the 9-acre East Trap to the 3,600-acre Twin Butte pasture. No one pasture is entirely public land.

Wildlife habitat management in the context of the fragmented nature of public land and extremely limited public access on the allotment is problematic at best. Fragmented public lands add to the complexity of analysis and the development of mitigation since most control over the use of public lands is predicated upon by private land and small amount of State Trust land interests which are under control of the allottee.

The analysis that follows is tempered by that fact and is a general description of the entire allotment due to the numerous pastures involved and the similarity of habitat across the allotment.

### 3.4.1 Wildlife

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#### **Affected Environment**

The varied topography, vegetation community types, natural and manmade habitat features, and location of the allotment on the landscape provide a diverse assemblage of terrestrial, aquatic and avifaunal wildlife species. Wildlife species diversity is high because of the elements above coupled with the size of the allotment.

Key economic wildlife species include mule deer, Barbary sheep, mourning dove and scaled quail, wild turkey, and various furbearers. Big game movement patterns and distribution is affected by net-wire fences associated with sheep ranching.

Common small mammal species using the area include 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.

Numerous migratory birds species utilize the areas including geese and ducks utilizing open irrigated pastures and various open water developments. Numerous avian species use the area during spring and fall migration, including non-game migratory birds. Raptors that utilize the area on a more seasonal basis include the Swainson's, red-tailed, and ferruginous hawk, American kestrel and great-horned owl.

A large number of herptile species occur throughout the landscape with species richness influenced by available habitat niches. The more common reptiles include the short-horned lizard, lesser earless lizard, eastern fence lizard, coachwhip, bullsnake, prairie rattlesnake, and western rattlesnake.

Because of the high diversity of habitats across the landscape encompassed by the two allotments, a general description of key habitats and species is presented by pasture, with most emphasis on those pastures with better-blocked parcels of public land.

A single pasture has received vegetation treatments to control high composition of invasive species such as mesquite and catclaw acacia due in part to improve rangeland conditions associated with livestock grazing. This was the Cherry Canyon Prescribed Burn. Wildlife population shifts in response to removal of brush species have occurred in treatment areas. Following treatments, a 2-growing season rest was implemented to allow for vegetation growth. No 'Restore New Mexico' Projects, particularly brush control with herbicides, have been conducted to date.

Range improvements are somewhat limited on the allotment with exception of pasture fences. Water developments are found mostly on the northern and southern portion of the allotment in the form of pipelines, storage facilities, windmills, powered wells, earthen tanks and troughs with benefits to numerous wildlife species in this semi-arid region.

Fences are a necessary part of managing livestock operations. Most fences were constructed when sheep grazing was prominent in the area. Currently, cattle are the predominant class of livestock with sheep still attached to the permit/lease. Horses are also on the permit/lease. Net-wire fence modifications to allow for wildlife movement remain a priority as a wildlife habitat enhancement technique for the allotment.

There are no permanent wetlands located on public lands within the allotment. Xeroriparian communities can be found in many draws and drainages. Main tree species that thrive in these areas include hackberry and black walnut, and in some large draws, cottonwood trees. The draws may also support vigorous growth of upland brush species that respond to greater supply of soil moisture such as little leaf sumac, apache plume, 4-wing saltbush, and mesquite. These areas provide a disproportionate diversity of wildlife species compared to the uplands. Typically, these areas are not segregated by fences and are a part of the larger pasture.

Most anthropogenic developments are associated primarily with ranching operations, fragmentation of habitat from developments is relatively low. Linear developments across the landscape include roads, pipelines, powerline rights-of-way, and fences. Point developments include livestock watering facilities, well developments, earthen tanks, old outbuildings, corrals and pens.

### **Impacts from the Proposed (No Action) Alternative Direct and Indirect Impacts**

Under the Proposed Action (No 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.

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. Maintenance and operation of existing waterings will continue to provide dependable water sources for wildlife, as well as livestock.

The permitted use as described in the Proposed Action (No Action) is not anticipated to have any adverse impacts to wildlife forage and availability. In general, livestock stocking rate adjustments have been made in the past to minimize the direct competition for those vegetative resources needed by a variety of wildlife species. Cover habitat for wildlife will remain the same as the existing situation. It is expected that no new impacts to wildlife habitat would occur from authorized livestock grazing with cattle.

A long term benefit to wildlife movement may occur as netwire fencing no longer needed and would eventually be replaced, in part or all, with 4-strand barbed wire/smooth wire fences and passes. Grazing permits which continue to authorize sheep animal units would continue to impact wildlife movement patterns, specifically for pronghorn antelope, due to the continued use of restrictive net-wire fencing.

Indirect impacts relate to changes in vegetation condition over time, the loss of wildlife species to range improvements constructed for livestock grazing operations and management, and harassment from human visitation in the area associated with livestock operations and maintenance of facilities. A shift from a balanced composition of grasses, shrubs and forbs for each of the habitat types from past grazing impacts has already occurred through the decades of grazing use on the landscape. Continued rangeland monitoring would be used to adjust livestock use to ensure the maintenance and improvement of existing habitat conditions and movement toward an upward trend in in vegetation condition for each habitat type found on the allotment.

## **Impacts from the No Grazing Alternative**

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.

This would be with the presumption that livestock use could be controlled on public lands. Realistically, wildlife habitat would be impacted in the same manner as there is no way to segregate the public land parcels on the allotment.

## **Direct and Indirect Impacts**

Same as the Proposed Alternative.

## **Cumulative Impacts**

The majority of land in this area is currently grazed by livestock, continuing a tradition and way of life that has been going on for at least 100 years. Authorizing livestock grazing on this allotment contributes to the overall cumulative impact of livestock grazing in the region but is diluted by the fact that this practice is historic use with vegetation changes having already shifted by livestock grazing and vegetation manipulation. With proper grazing management which considers wildlife needs, and maintenance of plant communities that support the variety of wildlife in the area, it is expected to be a positive cumulative impacts contribution of improving the condition of habitat through proper management.

As livestock grazing is the predominant land use over the landscape, most cumulative effects are added to this existing use. New developments such as oil and gas exploration and development, various energy-related rights-of-way, recreational use and other resource uses on the landscape likely contribute more to cumulative impacts than the long-standing livestock grazing impact.

## **Mitigation Measures and Residual Impacts**

The general mitigation for permitting of livestock grazing on public land includes an allocation of vegetation resources for wildlife habitat maintenance and a diversity of wildlife species. The following general mitigation measures are typically applied to associated livestock operational developments.

Implementation of a rest-rotation system

Non-Use during periods of drought

Installation of wildlife escape ramps in watering facilities

Yearlong supply of water at watering facilities

Modification of existing fences to enhance wildlife movement, especially netwire fences

Vegetation treatments to meet Desired Plant Community goals and objectives

Growing season rest after vegetation treatments

## **3.5 Recreation**

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### **Affected Environment**

The allotment provides 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, caving and photography are non-consumptive recreational activities that may occur. Dispersed recreation use in the allotment is low to moderate.

### **Impacts from the No Action (Proposed) Alternative Direct and Indirect Impacts**

Under Alternative A, game and non-game wildlife species would benefit in the long term through habitat improvements. It is expected that hunter success and wildlife viewing opportunities would be enhanced.

### **Impacts from the No Grazing Action Direct and Indirect Impacts**

Under 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.

### **Cumulative Impacts of All Alternatives**

Recreation resources are not usually adversely affected by livestock grazing.

### **Mitigation Measures and Residual Impact**

At this intensity, there are no mitigation measures; however, in situations where the allottee or members of the public feel there is recreational conflict, site specific visits may be conducted to assess the presence of effects.

## **3.6 Visual Resources**

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### **Affected Environment**

The setting presents an winter gray color pattern; and in warm months, with foliage, a gray to gray-green color pattern. Wide-area landscape tends to be horizontal in line and flat in form, with a smooth texture. The allotment is in a Class IV area for visual resources management. The objective of Class IV is to: "Provide for management activities which require major modification of the existing landscape character. Every attempt, however, should be made to reduce or eliminate activity impacts through careful location, minimal disturbance, and repeating the basic landscape elements.

## **Impacts from the No Action (Proposed) Alternative Direct and Indirect Impacts**

The basic landscape elements of form, line color and texture would not change within the allotment under any management alternative. Potential impacts to visual resources would be analyzed and mitigated as allotment management activities are proposed in the future.

## **Impacts from the No Grazing Action Direct and Indirect Impacts**

Same as Proposed Action

## **Cumulative Impacts of All Alternatives**

The analysis of cumulative impacts is driven by major resource issues. The proposed action is the authorization of livestock grazing on this allotment. The cumulative impacts to this and adjacent allotments are insignificant.

## **Mitigation Measures and Residual Impacts**

Mitigation Measures - There are no mitigation measures to be taken.

## **3.7 Cave and Karst**

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### **3.7.1 Cave and Karst Resources**

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#### **Affected Environment**

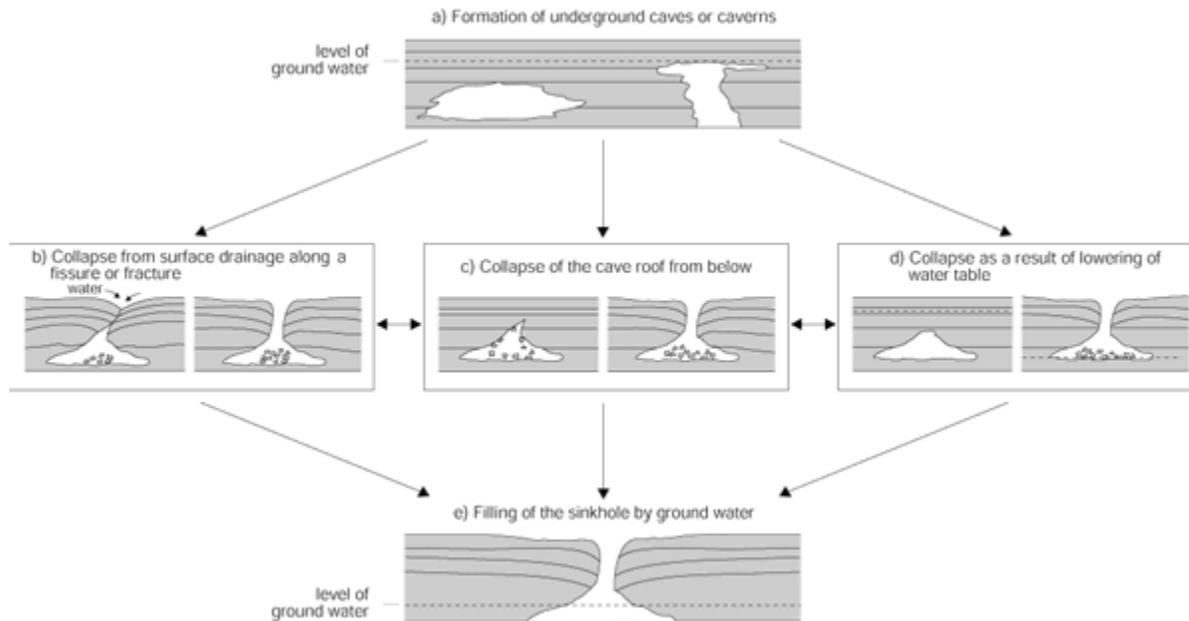
This proposed project is located in gypsum karst terrain, a landform that is characterized by underground drainage through solutionally enlarged conduits. Gypsum karst terrain may contain sinkholes, sinking streams, caves, and springs. Sinkholes leading to underground drainages and voids are common. These karst features, as well as occasional fissures and discontinuities in the bedrock, provide the primary sources for rapid recharge of the groundwater aquifers of the region.

The BLM categorizes all areas within the Roswell Field Office as having either low, medium, high cave potential based on geology, occurrence of known caves, density of karst features, and potential impacts to fresh water aquifers. This project occurs within a High karst zone and is located within 1500 feet of known cave(s) or karst feature(s). A High karst zone is defined as an area in known soluble rock types and contains a high frequency of significant caves and karst features such as sinkholes, bedrock fractures that provide rapid recharge of karst aquifers, and springs that provide riparian habitat.

Unknown features may also exist. Due to these factors, this action is subject to mitigation measures designed to adequately protect known and potential cave/karst resources.

Sinkholes and cave entrances collect water and can accumulate rich organic materials and soils. This, in conjunction with the stable microclimate near cave entrances, support a greater diversity and density of plant life which provides habitat for a greater diversity and density of wildlife such as raptors, rodents, mammals, and reptiles.

The interior of the caves support a large variety of troglotic, or cave environment-dependent species. The troglotic species have adapted specifically to the cave environment due to constant temperatures, constant high humidity, and total darkness. Some of the caves in the area contain bat colonies. Many of the caves in this area contain fragile cave formations known as speleothems.



**Sinkhole Development** ([http://geoinfo.nmt.edu/tour/state/bottomless\\_lakes/home.html](http://geoinfo.nmt.edu/tour/state/bottomless_lakes/home.html))

**White Nose Syndrome and Identified Hibernacula**

Many Roswell Field Office caves are identified or potential hibernation sites and are optimum sites for White Nose Syndrome (WNS) establishment. Any karst area north of Roswell is subject to this situation. While WNS is still 500 miles from the area, it is still of great concern to the bat population in this area. White Nose Syndrome was first documented on hibernating bats at Howe caverns in 2006 in New York and by 2014 it had moved over 1300 miles across twenty eastern and southern states, and five Canadian provinces, and has killed well over 5 million bats. Infection is definitely bat-to-bat and humans are suspected of transporting the spores

<http://whitenosesyndrome.org/> & <http://static.whitenosesyndrome.org/sites/default/files/resource/wnshumantransmissionposter.pdf>

**Impacts from the Proposed Action Alternative**  
**Direct and Indirect Impacts**

Cave and karst features provide direct conduits leading to groundwater. These conduits can quickly transport surface and subsurface contaminants directly into underground water systems and freshwater aquifers without filtration or biodegradation. In addition, contaminants spilled or leaked into or onto cave/karst zone surfaces and subsurfaces may lead directly to the disruption, displacement, or extermination of cave species and critical biological processes.

In cave and karst terrains, rainfall and surface runoff is directly channeled into natural underground water systems and aquifers. Changes in geologic formation integrity, runoff quantity/quality, drainage course, rainfall percolation factors, vegetation, surface contour, and other surface factors can negatively impact cave ecosystems and aquifer recharge processes. Blasting, heavy vibrations, and focusing of surface drainages can lead to slow subsidence, sudden collapse of subsurface voids, and/or cave ecosystem damage.

BLM maintains up to date locations and surveys of known cave and karst features. Projects will be located away from these features whenever possible. Fences and pipelines will be routed around cave and karst features at an adequate distance to mitigate adverse impacts.

Highly sensitive cave and karst areas with critical freshwater aquifer recharge concerns may have a number of special surface and subsurface planning and construction requirements based upon the risk of adverse impacts created by a specific location or process.

### **Impacts from the No Action Alternative Direct and Indirect Impacts**

Under the No Action Alternative, no impacts to cave and karst resources would occur on public lands.

### **Cumulative Impacts**

The incremental impact of authorizing surface disturbing impacts on cave and karst resources must be analyzed in the context of impacts from cumulative actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in the area, oil and gas activities on the uplands, rights-of-way crossing the area and recreational use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state or private lands.

The analysis of cumulative impacts is driven by major resource issues. The proposed action is the construction of a fence on this allotment. The cumulative impacts to cave and karst resources from the construction of this project are minimal.

### **Mitigation Measures and Residual 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.

If new information surfaces that livestock grazing is negatively impacting cave and karst resources, action will be taken at that time to mitigate those impacts.

## **3.8 Geology**

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### **3.8.1 Paleontology**

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#### **Affected Environment**

The BLM manages paleontological resources for their scientific, educational, and recreational values in compliance with the Paleontological Resources Preservation Act (PRPA) of 2009. The PRPA affirms the authority for many policies the BLM has for managing resources, such as issuing permits for collecting and curating paleontological resources, and confidentiality of their locations. The law also defines prohibited acts, such as damaging or defacing paleontological resources, and establishes both criminal and civil penalties.

The BLM classifies geologic formations to indicate the likelihood of significant fossil occurrence (usually vertebrate fossils of scientific interest) according to the Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands (IM 2008-011). These classifications, Classes 1 to 5, determine the procedures to be followed prior to granting a paleontological clearance to proceed with a project.

#### **Impacts from the Proposed (No Action) Alternative Direct and Indirect Impacts**

The Proposed Action would not affect any known scientifically significant paleontological resources. However, surface disturbing activities and human access could produce unexpected discoveries and potential paleontological resource damage. Direct impacts could include damage or destruction during surface disturbing actions, with subsequent loss of information. Indirect impacts would include fossil damage or destruction by erosion due to surface disturbance.

#### **Cumulative Impacts**

While it is likely that there will be no significant cumulative impact from the proposed action, surface disturbing activities in this area may potentially have negative cumulative impacts on paleontological resources.

#### **Mitigation Measures and Residual Impacts**

If previously undocumented paleontological sites are encountered by the allottee, the allottee will immediately stop all surface disturbing activities in the immediate vicinity of the discovery. The allottee will then immediately notify the paleontological monitor (if required), or the BLM/RFO paleontology resource staff. It is necessary to protect fossil material and their geological context upon discovery during construction. The BLM would then evaluate the site. Should the discovery be evaluated as significant, it will be protected in place until mitigation measures can be developed and implemented according to guidelines set by the BLM. Mitigation measures such as data and fossil recovery may be required by the BLM to prevent impacts to newly identified paleontological resources.

## **Impacts from the No Grazing Alternative**

### **Direct and Indirect Impacts**

The No Grazing Action would not affect any known scientifically significant paleontological resources. However, surface disturbing activities and human access during fence construction and cattle removal could produce unexpected discoveries and potential paleontological resource damage. Direct impacts could include damage or destruction during surface disturbing actions, with subsequent loss of information. Indirect impacts would include fossil damage or destruction by erosion due to surface disturbance.

### **Cumulative Impacts**

While it is likely that there will be no significant cumulative impact from the proposed action, surface disturbing activities in this area may potentially have negative cumulative impacts on paleontological resources.

### **Mitigation Measures and Residual Impacts**

If previously undocumented paleontological sites are encountered during construction of fencing to exclude grazing, by the proponent, the proponent will immediately stop all surface disturbing activities in the immediate vicinity of the discovery. The proponent will then immediately notify the paleontological monitor (if required), or the BLM/RFO paleontology resource staff. It is necessary to protect fossil material and their geological context upon discovery during construction. The BLM would then evaluate the site. Should the discovery be evaluated as significant, it will be protected in place until mitigation measures can be developed and implemented according to guidelines set by the BLM. Mitigation measures such as data and fossil recovery may be required by the BLM to prevent impacts to newly identified paleontological resources.

## 4.0 Supporting Information

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### 4.1 Tribes, Individuals, Organizations, or Agencies Consulted

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#### 4.1.1 List of Preparers

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Glen Garnand, Environmental & Planning Coordinator  
Harley Davis, Natural Resource Specialist  
Al Collar, Geologist  
Chris Bolen, Geologist  
Kyle Arnold, Rangeland Management Specialist  
Adam Ortega, Rangeland Management Specialist  
Emily Metcalf, Rangeland Management Specialist  
Helen Miller, Rangeland Management Specialist  
Laura Hronec, Archaeologist  
Michael McGee, Hydrologist  
Michael Bilbo, Outdoor Recreation Planner & Cave Specialist  
Knutt Peterson, Outdoor Recreation Planner & Cave Specialist  
Randy Howard, Wildlife Biologist  
Dan Baggao, Wildlife Biologist  
Phil Watts, GIS Specialist  
Tate Salas, Realty Specialist  
Ruben Sanchez, Realty Specialist  
Howard Parman, Program Manager, Pecos District

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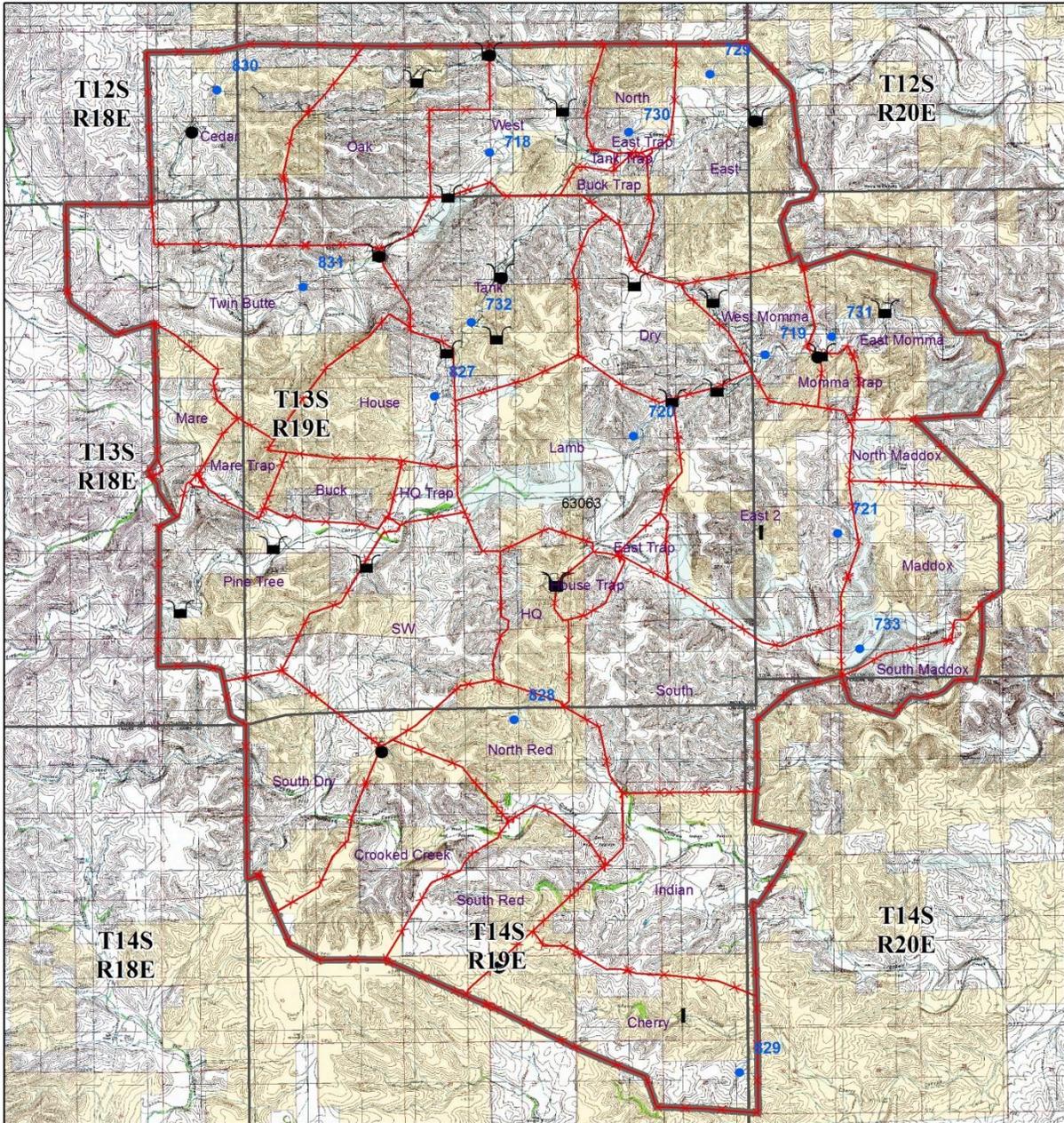
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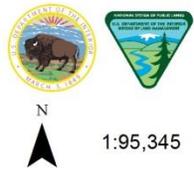
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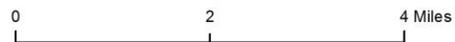
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### Allotment #63063 Barbary Hills



- Range Studies
- Fence
- Retention Dam
- Pipeline
- Storage Tank
- Trough
- Well with Storage
- Allotments
- BLM
- Private
- State



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