

## DECISION RECORD

### DOI-BLM-NM-P010-2015-0055-EA

Proposed Decision: It is my decision to implement the BLM-Preferred Alternative as described in DOI-BLM-NM-P010-2015-0055-EA and to issue permits for the allotments analyzed in this document. The mitigation measures identified in the environmental assessment (EA) have been formulated into terms and conditions that will be attached to the grazing permit. This decision incorporates, by reference, those conditions identified in the attached EA. A summary table follows:

Allotment Number	Allotment Name	Acres of Public Land	% Public Land	Animal Units Authorized	Class of Livestock	Animal Unit Months
63075	Milagro Hill	901	58	6	Cattle	75
63175	Jakes Spring	661	25	20	Cattle	243
<b>Totals</b>		<b>1562</b>		<b>26</b>		<b>318</b>

Rationale: Based on the rangeland health assessments (RHAs) and previous monitoring, resource conditions on this allotment are sufficient and sustainable to support the level of use outlined in the term grazing permit.

The Proposed Action will be in compliance with the 1997 Roswell Resource Management Plan and Record of Decision, the 2008 Special Status Species Resource Management Plan Amendment (2008 RMPA), 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> Street, 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 Arnold** \_\_\_\_\_

\_\_\_\_\_ 5-28-2015

Kyle Arnold  
Assistant Field Manager, Resources

Date

**DOI-BLM-NM-P010-2015-0055-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 Proposed 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 term grazing permits on Allotment 63075 and Allotment 63175.
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 term 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 allotments have been generally limited to inspections ahead of livestock or recreational related activities, such as water well locations, fences and pipelines. Many areas of the allotments have been generally inventoried for cultural resources. The existing cultural data for the allotments and adjacent areas seems to be a good example of what can be reasonably expected to occur in the remainder of the allotments. 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. Page 25-27 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 allotments 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 10 of the EA describes the conformance with land use plans and relationships to statutes, regulations, or other plans.

**APPROVED:**

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Kyle S. Arnold  
Assistant Field Manager, Resources

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Date

# United States Department of the Interior Bureau of Land Management

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Environmental Assessment DOI-BLM-NM-P010-2015-0055-EA

## Issuance of Term Grazing Permits on Milagro Hill, Allotment Number 63075 And Jakes Spring Allotment Number 63175

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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  
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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

### 1.1 Introduction

This environmental assessment is limited to the effects of issuing a new grazing lease on allotment 63075 Milagro Hill and allotment 63175 Jakes Spring. 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 grazing permits on the allotments, it does so within the context of overall BLM management goals. Allotment management activities would have to be coordinated with projects intended to achieve those other goals. For example, a vegetation treatment designed to enhance watershed condition or wildlife habitat may require rest from livestock grazing for one or more growing seasons. Requirements of this type would be written into the permit as terms and conditions. To qualify for a grazing permit the 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. The current allotment 63075 lies inside of the Roswell Grazing District and is considered to be a “Section 3 allotment”. The permittee was leasing the private land in the north pasture (T9S, R9E, Sec 10). The permittee no longer has the private land lease. He has proposed to split the allotment into two allotments. Allotment 63075 would have 900 acres of public land in T9S, R9E, Sec 19, 20, 21, 29, 30. The public land north of the pasture fence would become part of the Jakes Spring allotment (63175). This would include 661 acres of public land in T9S, R9E, Sec 3, 9, 15, 17, 21, 22.

The public land within the Milagro Hill allotment is located in the 130500031001-North Mill Arroyo watershed, and the Jakes Spring allotment is located in the 130500030507-Cottonwood Creek watershed in Lincoln County. The allotments are about 10 miles southwest of Carrizozo, along US Hwy 54. See Location Map. Elevations range from about 5,650 feet on the south end of allotment 63075 Milagro Hill to 5,200 feet along the northwestern boundary of allotment 63175 Jakes Spring.

The climate is semi-arid with normal annual temperatures ranging from 20<sup>0</sup>F to 95<sup>0</sup>F, extremes of 29 below zero to 103 degrees are also possible. 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

The purpose of issuing a new grazing permit would be to authorize livestock grazing on public range on Allotment #63075 Milagro Hill and Allotment #63175 Jakes Spring. The permits 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 Decision to be Made

The Decisions to be made upon the completion of this Environmental Assessment are: to issue Grazing permits which will authorize the grazing on Allotment 63075 Milagro Hill and 63175 Jakes Spring; to authorize the level of grazing on these allotments and to authorize the classes of livestock grazing on the allotments.

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

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

## 1.5 Relationship to Statutes, Regulations or Other Plans

The proposal to issue the livestock grazing leases on these allotments 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.

## 1.6 Scoping, Public Involvement, and Issues

The applicant relinquished the lease on the private property for the Jakes Spring allotment in 2015, and made his proposal to split the original allotment (63075 Milagro Hill) at that time. The owner of the private land has made application for the grazing on Allotment 63175 Jakes Spring. The Roswell Field Office Specialists have reviewed the request and determined that the action should be considered.

## 2.0 Proposed Action and Alternative(s)

The BLM is proposing to issue a grazing lease on each of the allotments.

If the proposed action is selected the Decision will be implemented to offer a new term grazing lease on each of the allotments at the end of the Protest & Appeal Period.

<b>Allotment Number</b>	<b>Allotment Name</b>	<b>Acres of Public Land</b>	<b>% Public Land</b>	<b>Animal Units Authorized</b>	<b>Class of Livestock</b>	<b>Animal Unit Months</b>
63075	Milagro Hill	901	58	6	Cattle	75
63175	Jakes Spring	661	25	20	Cattle	243
<b>Totals</b>		<b>1562</b>		<b>26</b>	<b>Cattle</b>	<b>318</b>

See Attached Maps.

### 2.1 Alternatives Considered by Not Analyzed in Detail

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.

### 2.2 No Grazing Alternative

Under this alternative a new grazing lease would not be issued for these allotments. No grazing would be authorized on federal land on these allotments under this alternative. Under this alternative and based on the land status pattern within the allotments, approximately 7 miles of new fences would be required to exclude grazing on the federal land.

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

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, Flood plains, Threatened and Endangered Species, Special Status Species, Wetland/Riparian, Recreation, Visual Resources, Prime or Unique Farmland, Minority/Low Income Populations, Public Health and Safety, Realty, Solid Mineral Resources, Fluid Mineral Resources, Hazardous or Solid Wastes, Wetlands, 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

#### **Climate**

##### **Affected Environment**

Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. 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 permit/lease 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 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 meet 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.

## **Soils**

### **Affected Environment**

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:

Gabaldon silt loam, 0 to 2 percent slopes (19): Permeability is moderate. Runoff is medium and hazard of water erosion is moderate, hazard of soil blowing is high.

Lithic Argulustolls-Rock outcrop association, extremely steep, 30 to 80 percent slopes (32): Permeability of the Lithic Argulustolls is moderate. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight. Rock outcrop consists of areas of exposed igneous bedrock. Surface runoff is rapid.

Malargo-Bluepoint association, hummocky, 0 to 8 percent slopes, (34): Permeability of the Malargo soil is moderate. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high. Permeability of the Bluepoint soil is rapid. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is very high.

Reflection-Malargo association, moderately sloping (68) The Reflection soil is very deep and well drained. Permeability of the Reflection soil is moderate. Available water capacity is very high. Runoff is medium and the hazard of water erosion is moderate. The hazard of soil blowing is high.

Tulargo-Andergeorge association, gently sloping (95) Permeability of the Tulargo soil is moderate. Runoff is medium, hazard of water erosion is moderate, and the hazard of soil blowing is high. Permeability of the Andergeorge soil is moderately rapid. Runoff is medium, and the hazard of water erosion is moderate, and the hazard of soil blowing is high.

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

#### **Direct and Indirect Impacts**

Under the No Action (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 the No Action Alternative, 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 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; 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 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.

## **Air Quality**

### **Affected Environment**

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

dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility.

The allotments are 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 10-16 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 temporary be directly impacted with pollution from enteric fermentation (ruminant livestock), chemical odors, and dust. Dust levels resulting from allotment management activities would be slightly higher under the Proposed Action 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 climate if a no grazing action is selected.

## **Cumulative Impacts of all Alternatives**

The incremental impact of issuing a grazing permit 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.

## **Watershed Hydrology**

### **Affected Environment**

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

### **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 the well pad and road. The potential hydrologic effects to peak flow is reduced infiltration where surface flows can move more quickly to perennial or ephemeral rivers and streams, causing peak flow to occur earlier and to be larger. Increased magnitude and volume of peak flow can cause bank erosion, channel widening, downward incision, and disconnection from the floodplain. The potential hydrologic effects to low flow is reduced surface storage and groundwater recharge, resulting in reduced baseflow to perennial, ephemeral, and intermittent rivers and streams. The direct impact would

be that hydrologic processes may be altered where the perennial, ephemeral, and intermittent river and stream system responds by changing physical parameters, such as channel configuration. These changes may in turn impact chemical parameters and ultimately the aquatic ecosystem.

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

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

## **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 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. 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.

## **Water Quality - Surface**

### **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 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.

## **Water Quality - Ground**

### **Affected Environment**

Fresh water sources are located in the Quaternary Shallow Alluvial Aquifer and the Unconfined San Andres Aquifer. The approximate depth to water in area ranges from 35 to 100 feet in shallow alluvial aquifer and 10 to 100 feet in the Quaternary Alluvial (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 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**

### **Cultural and Historical Resource**

#### **Affected Environment**

The allotments fall 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.

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

##### **Direct and Indirect Impacts**

Concerning cultural resources, grazing has the potential for impacts. The Roswell Field Office reviews the local office and NMCRIS databases for every grazing permit or leasing action at all levels of NEPA. In situations where sensitive sites lie within an allotment, site specific visits may be conducted to assess the presence of effects. Allotment 63075 has one survey and three historic sites, and allotment 63175 has two surveys and one historic site, reported in these allotments.

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

##### **Direct and Indirect Impacts**

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

#### **Cumulative Impacts**

There is no evidence that grazing activities at this intensity has adversely impacted any cultural resources; however, unforeseen impacts may occur.

## **Mitigation Measures and Residual Impacts**

There are no mitigation measures at this time.

### **Native American Religious Concerns**

#### **Affected Environment**

Native American groups may have places that can be described as Traditional Cultural Properties or other places 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 projects. To date, the areas to be affected by the current project have not been identified by interested tribes as being of tribal concern.

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

##### **Direct and Indirect Impacts**

The BLM conducts tribal consultation for many projects while preparing planning documents such as the Resource Management Plan and Resource Management Plan Addendums. A review of existing information indicates the proposed action is outside any known Traditional Cultural Property.

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

##### **Direct and Indirect Impacts**

There will be no direct or indirect impacts to Native American Religious Concerns if a no grazing action is selected.

#### **Cumulative Impacts**

There will be no cumulative impacts to Native American Religious Concerns (based on known and existing data).

## **Mitigation Measures and Residual Impacts**

There are no mitigation measures at this time.

## 3.4 Range

### Vegetation

#### Affected Environment

The allotments are comprised of one major vegetation community type arranged in a mosaic over the allotments. Mixed grasslands with interspersed shrubs and half shrubs; and grassland savannah communities dominate. 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 major community type is Grasslands, with inclusions of the Mixed Desert Shrub Community and the Draws, Drainages and Canyons Community.

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 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.

Typical Chihuahuan desert species such as sand dropseed, fluffgrass, three-awn, broom snakeweed, croton, four-wing saltbush, creosotebush, and mesquite dominate most of the land area of both allotments. Mesquite control has been conducted on a portion of both allotments with mostly an increase of four-wing saltbush as a result.

A unique vegetation community is a large block of Chihuahuan desert grasslands dominated by good stands of grass with scattered soaptree yucca growing to heights of five to six feet, and thinly scattered four-wing and mesquite. This key relic grassland type is found toward the southeast portion of Jake's Spring allotment. Milagro Hills is mostly a dry desert feature with creosote on the toe slopes with scattered mesquite and pockets of one-seed juniper on the west facing slope. On both allotments, drainages are deep and incised, subject to flash flooding and support species such as desert willow, Apache plume, rabbitbrush and scattered salt cedar. In general, mesquite and creosotebush have increased over the decades on sites that may have been more of a desert grassland and is now the dominate plant community.

The Rangeland Health assessment notes some invasive plants, most notably creosote, and mesquite with scattered pockets of snakeweed. The Rangeland Health assessment for these allotments can be viewed at the Roswell Field Office. Rangeland monitoring studies have been established in key areas within the allotments. These permanent sites are used to track vegetation changes and to determine proper stocking rates.

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 2011. Analysis of the rangeland health assessments indicates that all three indicators (biotic, hydrology, and soils) have been met for the allotment.

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

### **Direct and Indirect Impacts**

Under the No Action Alternative the vegetation in the Grassland community 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 level. Some grassland areas would remain static due to the influence of creosote, mesquite and snakeweed. In the long term, creosote 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 No Action (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 1983.

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

### **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 creosote 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**

Excluding livestock or reducing stocking rates could benefit vegetation in the short term, in those areas proposed for livestock grazing restrictions. Eliminating livestock grazing pressure would allow plants to regain vigor and would increase forage production in the short term. An overall increase in the density of vegetation could occur, followed by a subsequent increase in vegetative litter. In the long term, vegetative production would decline slightly as litter builds up and plants become decadent. Increased litter would indirectly benefit vegetation by slowing precipitation runoff and holding moisture on the ground for longer periods. Properly managed grazing would be beneficial because it stimulated plant growth in healthy vegetative communities.

## **Mitigation Measures and Residual Impacts**

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

## **Livestock Grazing**

### **Affected Environment**

In the past, these allotments have been permitted to be grazed yearlong by cattle. Generally there are only enough horses authorized to work stock. The permit authorized 27 Animal Units (AUs). This is the equivalent of 4 head per section.

The allotments contain about 1,702 acres of public land (see Location Map) and 2,659 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 No Action (Proposed) Alternative**

#### **Direct and Indirect Impacts**

Under the Proposed (No Action) 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 Action**

#### **Direct and Indirect Impacts**

Under 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 7 miles of new fence at an approximate cost of \$31,500.00 (\$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 No-Grazing Alternative, the overall livestock operation could be reduced by 11 AUs (those attached to the public lands) to approximately 16 AUs. This would have an adverse economic impact on the permittees 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 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.

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 mitigate 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.

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

### **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 these allotments.

### **3.5 Wildlife Biology**

Jake's Spring and Milagro Hills are adjoining allotments located within the Tularosa Basin, not far south of Carrizozo, NM. The allotments are situated between the valley floor marked by the Carrizozo lava Flows to the west and at the foothills of the White Mountains (Sierra Blanca) to the east. The Chihuahuan Desert biome predominates the drier, west-facing foothills of the White Mountains range. Both allotments are bound on the west side by the Union Pacific Railroad and U.S. Highway 54, a major restriction to movement to terrestrial wildlife species, and contributes to noise harassment from train and traffic and construction/maintenance activities on both transportation routes.

Because of its position on the landscape, a higher location above the valley floor and at the immediate foothills of the mountains, there is a mosaic of topographical features and vegetation types on the landscape. Parent material is mostly volcanic and deep draws are found on both allotments. The main drainages are Cottonwood Canyon, Rim Rock and Rock Canyon and Bull Gap Canyon. Elevation on the east boundary of Jakes's Spring allotment is about 5,400' and sloping down to 5,100' at the highway about three miles to the west. Milagro Hill (summit 5,693'), on the southern end of the allotments is the most striking habitat feature of the area in this arid environment. Milagro Hill comprises most of the public land on Milagro Hills allotment with elevation about 5,200' around the base and rising steeply about 400' at the summit. The southern boundary of the allotment follows the escarpment of Milagro Hills. The public lands are well-blocked on both allotments and intermingled with large blocks of State Trust lands.

There are three named springs associated with the area, Jake's Spring, Dalton Spring and Milagro Springs. None are located on public land. There are few livestock water developments and are located on private land. The area is generally undeveloped with exception to major roads such as the highway and two main county roads.

## **Wildlife**

### **Affected Environment**

Game species occurring within the area include mule deer, occasional elk, mourning dove, and scaled quail. Small mammals include pocket mouse, deer mouse, white-footed mouse, woodrat, badger, skunk, jackrabbit, cottontail, coyote, and grey fox. Raptors that utilize the area on a more seasonal basis include the Swainson's, red-tailed, and ferruginous hawks, American kestrel, roadrunner, and great-horned owl. Numerous passerine birds utilize the grassland areas due to the variety of grasses, forbs, and shrubs. The most common include the Say's phoebe, mockingbird, horned lark, loggerhead shrike, and vesper sparrow.

The area supports a number of reptile species. The more common reptiles include the short-horned lizard, lesser earless lizard, eastern fence lizard, whiptail species, spiny lizard, coachwhip, bullsnake, prairie rattlesnake, and western rattlesnake.

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

### **Direct and Indirect Impacts**

Livestock grazing management and range improvement projects designed with consideration for wildlife may generally enhance the quality of wildlife habitat. The larger blocks of public land with legal public access could lend themselves to specific wildlife objectives and projects that could be incorporated into the grazing management operation.

Vegetation condition, forage production, and habitat diversity may improve, and wildlife species distribution and abundance may remain static or possibly increase depending on the grazing management regime. Livestock and wildlife would continue to compete for forage and browse, although the dietary overlap is not severe. Cover and other habitat requirements for wildlife will remain the same under the existing situation. With proper utilization levels there will be adequate cover and forage for wildlife species; resulting in sustainable wildlife populations for those species that occupy the area.

Because of the relative low numbers of livestock being proposed under the permit, the indirect effects are negligible because of the larger scale effects from past livestock grazing on the environment.

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

### **Direct and Indirect Impacts**

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 inability to control livestock use of the parcels because of the expense of segregating the lands with fencing, and legal access to administer parcels of public land. 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.

### **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 the two allotments 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.

### **Mitigation Measures**

General mitigation measures include, but not limited to, the following:

- Consider replacement of netwire boundary fences to wildlife-friendly 4-strand barbwire fences

## **3.6 Cave and Karst**

### **Affected Environment**

The BLM categorizes all areas within the Roswell Field Office as having either low, medium, high or critical 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 3.5 miles of 3 known caves or karst features. A High karst zone is defined as an area in known soluble rock types and contain 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 troglobitic, or cave environment-dependent species. The troglobitic 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.

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

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

### **Direct and Indirect Impacts**

By not approving project under the No Grazing Action, there would be no impact to cave and karst resources in the area.

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

Any cave or karst feature or karst-like feature, such as a blowhole or sinkhole, discovered by the co-operator/contractor or any person working on the co-operator/contractor behalf, on BLM-managed public land shall be immediately reported to the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate action(s). Any decision as to the further mitigation measures will be made by the Authorized Officer after consulting with the co-operator/contractor.

## **3.7 Geology**

### **Paleontology**

#### **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.

All paleontological resource stipulations will be followed as indicated in the COAs attached to the APD. These stipulations may include, but are not limited to, altering the location or scope of the project, permanent fencing or other physical, temporary barriers, monitoring of earth disturbing construction, project area reduction or specific construction avoidance zones, and fossil recovery. If the assessment of the proposed action indicates a reasonable expectation of adverse impacts to significant paleontological resources, a field survey will be necessary to properly document and recover any fossil material and associated data. Upon review, a determination for final project clearance and stipulations shall be issued by the BLM/RFO.

Most of the Jakes Springs allotment area is designated as a Class 2 area (Quaternary alluvium). Ground disturbing activities are not likely to disturb paleontological resources. The southwest area of the Jake Springs allotment is designated as a Class 3 area (Cretaceous Mancos Formation and Mesa Verde Group). Paleontological resources have been found in these geological units southwest of this allotment. Ground disturbing activities could disturb paleontological resources.

The Milagro Hill allotment includes areas designated as Class 1, 2, 3 and 4. The Class 1 and 2 (Tertiary igneous and Quaternary alluvium) areas are in the southeast portion of the allotment. Ground disturbing activities in these areas are not likely to disturb paleontological resources. The Class 4 (Quaternary eolian deposits, Santa Fe group) area is along U.S. Highway 54 in the southwest portion of the allotment. Documented material has been found in the Camp Rice, Tesuque, Palomas, Popotosa, Sierra Ladrones, and Zia Formations within the Santa Fe Group. There are no known discoveries in the area within the Milagro Hill allotment, but discoveries have been made southwest of this allotment. Ground disturbing activities in these areas could disturb paleontological resources. The northern portion of the Milagro Hill allotment is designated as a Class 3 area (Cretaceous Mancos Formation and Mesa Verde Group). Paleontological resources have been found in these geological units southwest of this allotment. Ground disturbing activities could disturb paleontological resources.

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

### **Direct and Indirect Impacts**

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

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

If previously undocumented paleontological sites are encountered during development of the project, the project proponent will immediately stop all construction 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.

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

### **Direct and Indirect Impacts**

By not approving project under the No Grazing Action, there would be no impact to paleontological resources in the area.

### **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.

## 4.0 Supporting Information

### 4.1 List of Preparers

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