

DECISION RECORD

DOI-BLM-NM-P010-2015-0003- EA

Proposed Decision: It is my decision to implement the BLM-Preferred Alternative as described in DOI-BLM-NM-P010-2015-0003-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:

Allot Number	Allotment Name	Acres of Public Land	Percent Public Land	Animal Units Authorized	Class of Livestock	Permitted Animal Units	Permitted Animal Unit Months
63042	McNally Place	11388	30	5	Sheep	1	4
				940	Cattle	940	3384
				3	Horse	3	11
Totals		11388	30			944	3399

The Class of livestock will continue to be cattle, horses and sheep. Generally there are only enough horses authorized to work stock.

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/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 2nd, 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

04/15/2016
Date

DOI-BLM-NM-P010-2015-003-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 63042.
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 17-18 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

04/15/2016

Date

United States Department of the Interior Bureau of Land Management

Environmental Assessment DOI-BLM-NM-P010-2015-003-EA

Issuance of Term Grazing Permit on McNally Place 63042

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.



Table of Contents

1.0 Purpose and Need for Action-----	4
1.1 Introduction -----	4
1.2 Purpose and Need for Action-----	4
1.3 Decisions to be Made -----	4
1.4 Conformance with Applicable Land Use Plan(s) -----	5
1.5 Relationship to Statutes, Regulations or Other Plans -----	5
1.6 Scoping, Public Involvement, and Issues -----	5
2.0 Proposed Action and Alternative(s)-----	5
2.1 Alternatives Considered but Not Analyzed in Detail-----	6
2.2 No Grazing Alternative-----	6
3.0 Affected Environment, Environmental Consequences, and Cumulative Impacts -----	6
3.1 Soil / Water / Air-----	7
Climate -----	7
Soils-----	9
Air Quality -----	10
Watershed Hydrology-----	12
Floodplains -----	13
Water Quality - Surface -----	15
Water Quality - Ground -----	16
3.2 Archaeology -----	17
Cultural and Historical Resource -----	17
Native American Religious Concerns-----	18
3.3 Range-----	18
Vegetation-----	18
Livestock Grazing-----	21
Invasive, Non-Native Species -----	22
3.4 Wildlife Biology -----	22
Wildlife -----	22
3.5 Recreation -----	23
Recreation -----	23

3.6 Cave and Karst	24
3.7 Geology	25
Paleontology	25
4.0 Supporting Information	27
4.1 Tribes, Individuals, Organizations, or Agencies Consulted	27
4.1.2 References	28

1.0 Purpose and Need for Action

1.1 Introduction

This environmental assessment is limited to the effects of issuing a new grazing permit on allotment 63042, McNally Place. 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 permit/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 public land within the Allotment #63042, McNally Place is located in Lincoln County, about 32 miles northwest of Roswell, New Mexico. The allotment contains 11,048 acres of federal range; 6,526 acres of state lease land and 22,738 acres of deeded property.

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/lease would be to authorize livestock grazing on public range on Allotment #63042, McNally Place. When authorizing livestock grazing on public range, the Bureau of Land Management (BLM) must conduct a site-specific NEPA analysis before issuing a permit/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 permit/lease on each allotment. The permit/lease 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

The Decisions to be made upon the completion of this Environmental Assessment are: to issue a Grazing permit and authorize grazing on Allotment 63042, McNally Place; 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)

The proposed action conforms to the 1997 Roswell Approved Resource Management Plan (RMP), 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 permit/lease on this allotment is in conformance with the 1994 Environmental Impact Statement for Rangeland Reform; the Federal Land Policy and Management Act of 1977 (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 purchased the base property for the allotment in August 24, 2014 and made application for grazing on the allotment. BLM NEPA Id team scoped the project on October 22, 2014 and decided to analyze the action.

2.0 Proposed Action and Alternative(s)

The BLM is proposing to issue a grazing permit on the allotment. The proposed action is to issue a term permit to graze cattle, sheep and horses on this allotment. Current permitted use is based on long term monitoring and rangeland conditions (Available at the Roswell Field office). Additionally a rangeland health assessment has been completed and the allotment met the Standards for Public Land Health. See Table 1 below for details of this allotment.

Table 1. Animal Units/Animal Unit Months

Allot Number	Allotment Name	Acres of Public Land	Percent Public Land	Animal Units Authorized	Animal Unit Months Authorized	Permitted Animal Units	Permitted Animal Unit Months
63042	McNally Place	11388	30	944	3398	944	3398
Totals		11388	30	944	3398	944	3398

See Attached Maps.

2.1 Alternatives Considered but 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 permit 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 allotment, approximately 105 miles of new fences would be required to exclude grazing on the Federally-managed 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 this allotment: Cultural Resources, Native American Religious Concerns, Visual Resources, Prime or Unique Farmland, Minority/Low Income Populations, Public Health and Safety, Hazardous or Solid Wastes, Realty, 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.

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 (CO₂) and methane (CH₄), 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 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 allotment 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.

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:

Darvey Asparas 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 Asparas soil is moderately slow. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

Darvey-Pastura association, gently sloping, 0 to 8 percent slopes (9) Permeability of the pasture soil is moderate. Runoff is rapid, and the hazard of water erosion is high. 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 Pastura association, moderately sloping, 0 to 15 percent slopes (13) Permeability of the Deama soil is moderate. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight. Permeability of the Pastura soil moderate. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is high.

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.

Hogadero-Pena association, moderately undulating, 0 to 8 percent slopes (30) Permeability of the Hogadero soil is moderate. Runoff is medium, and the hazard to water erosion is moderate. The hazard of soil blowing is moderate. Permeability of the Pena soil is moderate. Runoff is medium, and the hazards of water erosion and soil blowing are moderate.

Pastura Loam, Gently sloping 0-8 percent slopes (53) Permeability of this Pastura soil is moderate. Runoff is rapid, and hazard of water erosion is high. The hazard of soil blowing is high.

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 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.

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 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_{2.5}, was lowered to 35 ug/m³ from the previous standard of 65 ug/m³. This revised PM_{2.5} daily NAAQS was promulgated to better protect the public from short-term particle exposure. The significant threshold of 35 ug/m³ daily PM_{2.5} 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 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 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 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.

Floodplains

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 and several miles of 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 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 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.

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. Indirect impacts to water-quality related resources, such as fisheries, would not occur.

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 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.

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 400 to 600 feet in the 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.

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 Impacts

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

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. Five surveys and zero sites have been reported in this allotment.

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

No direct or indirect impacts are anticipated based on the local office and NMCRIS database reviews.

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

No mitigation measures are planned at this time.

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. In addition, 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 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**

Based on the review of existing information, no impacts are anticipated.

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

No impacts are anticipated if a no grazing action is selected.

Cumulative Impacts

No cumulative impacts are anticipated.

Mitigation Measures and Residual Impacts

No mitigation measures are proposed at this time.

3.3 Range

Vegetation

Affected Environment

The allotment is comprised of two vegetation community types, Pinon/Juniper and Grasslands arranged in a mosaic over the allotment. The Pinon/Juniper community would be considered to be the larger of the communities. General objectives or guidelines for this vegetation community are described in the Roswell Approved RMP and Record of Decision (BLM 1997) and the Roswell Draft RMP/EIS (BLM 1994).

Grasslands Community Type (SG)

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.

Pinon/Juniper Community Type (PJ)

The primary consideration in listing range sites under this 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 Rangeland Health assessments and monitoring were completed in 2014, and all sites have met the standard for Rangeland Health. The Rangeland Health assessment for this allotment can be viewed at the Roswell Field Office. Rangeland monitoring studies have been established in key areas within the allotment. Table 3 below lists the key areas, identified by the vegetation ID number, within each allotment as well as the ecological site associated with each key area. These permanent sites are used to track vegetation changes and to determine proper stocking rates.

Study Number	Range Site
idsu-1094	Loamy CP-3
idsu-1095	Gravelly CP-3
idsu-109	Loamy CP-3
vegid 703	Loamy CP-3
vegid 705	Shallow CP-3
vegid 706	Shallow CP-3
vegid 707	Limy CP-3
vegid 701	Loamy CP-3
vegid 702	Loamy CP-3

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

Noxious and Invasive Weeds: Noxious weeds affect both crops and native plant species in the same way, by out-competing for light, water and soil nutrients. Losses are attributed to decreased quality and quantity of agricultural products due to high levels of competition from noxious weeds and infestations. Noxious weeds can negatively affect livestock productivity by making forage unpalatable to livestock thus decreasing livestock productivity and potentially increasing producer's feed costs. Potential noxious weed species include African rue, non-native thistles (*Cirsium* spp.), leafy spurge, goldenrod. There are no known populations of noxious weeds on surrounding allotments.

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

Under the Proposed Action (No Action), the vegetation 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.

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 (No 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 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 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

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.

Mitigation Measures and Residual Impacts

Vegetation monitoring studies will continue if a new grazing permit/lease was 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, this allotment has been permitted to be grazed yearlong by cattle and sheep with a small percentage of horses. Generally there are only enough horses authorized to work stock. The permit authorized 944 AUs. This is the equivalent of 14.5 head per section. The allotment contains about 11,048 acres of public land (see Location Map) and 29,264 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 Alternative A, Proposed (No Action) Alternative, livestock would continue to graze public lands within the allotment. 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 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 somewhat dominating the shrub component. Forage 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 permit 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 20th 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 this allotment. The cumulative impacts to the allotment 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 others would occur. Grazing would no longer be available as a vegetative management tool, and BLM lands within the allotment 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 this allotment.

3.4 Wildlife Biology

Wildlife

Affected Environment

Game species occurring within the area include mule deer, pronghorn antelope, mourning dove, and scaled quail. Resident bat species are present, such as the Townsends Western Big-eared and Mexican Freetail. Raptors that utilize the area on a more seasonal basis include the Swainson's, red-tailed, and ferruginous hawks, American kestrel, 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 western meadowlark, mockingbird, horned lark, killdeer, 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, coachwhip, bullsnake, prairie rattlesnake, and western rattlesnake.

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

Livestock and wildlife will 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.

Impacts from the No Grazing Action
Direct and Indirect Impacts

Wildlife would benefit from less competition for grasses. However, if no disturbance occurred for a long period of time grasses would become decadent, which could have a negative impact on wildlife. Wildlife would not benefit from the loss of year round water provided by the lessee.

3.5 Recreation

Recreation

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.

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

Under the Proposed Action, game and non-game wildlife species could realize long-term benefits through the improvement of habitat. Therefore, 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

Recreation resources are not usually adversely affected by livestock grazing.

Mitigation Measures and Residual Impacts

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 Cave and Karst

Affected Environment

The allotment 63042 is located in gypsum karst terrain, a landform that is characterized by underground drainage through solution ally 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 3 miles of known cave(s) or karst feature(s). 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 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.

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. As of this writing the disease is confirmed in eastern Oklahoma. 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 2015 it had moved over 1,300 miles across 29 eastern and southern states, and 5 Canadian provinces, and has killed well over 10 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>

BLM maintains up to date locations and surveys of known cave and karst features. Projects will be located away from these features whenever possible.

The Allottee is encouraged to report to the BLM RFO Cave or Range Specialist any cave of interest on public lands.

Impacts from the No Action (Proposed) 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 renewal of a grazing permit on this allotment. The cumulative impacts to cave and karst resources from the renewal of a grazing permit on this allotment 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 migrate those impacts.

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.

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

4.1 Tribes, Individuals, Organizations, or Agencies Consulted

4.1.1 List of Preparers

Rangeland Management Specialist – Adam Ortega

Hydrologist –Michael McGee

Archeologist- Laura Hronec

Realty Specialist- Tate Salas

Wildlife Biologist- Dan Baggao

Recreation/Cave/Karst- Michael Bilbo

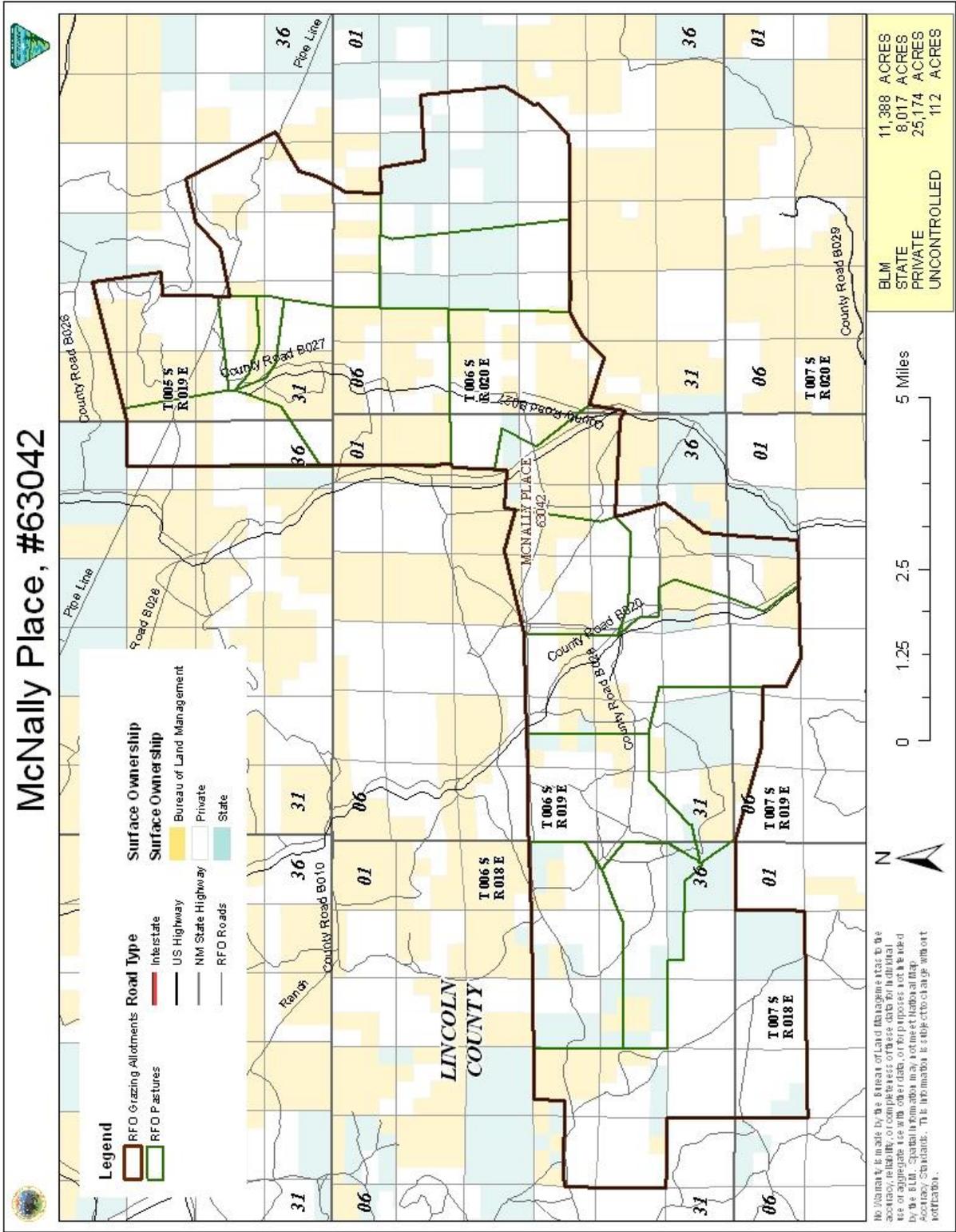
Geologist- Christopher Bolen

Geologist- Al Collar

4.1.2 References

- EPA Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006. Environmental Protection Agency, Washington, D.C.
- EPA, Natural Gas Star Program (2006 data) at: <http://www.epa.gov/gasstar/accomplish.htm>. Environmental Protection Agency, Washington, D.C.
- Enquist, Carolyn and Gori, Dave. Implications of Recent Climate Change on Conservation Priorities in New Mexico. April 2008.
- Goddard Institute for Space Studies. 2007. Annual Mean Temperature Change for Three Latitude Bands. Datasets and Images. GISS Surface Temperature Analysis, Analysis Graphs and Plots. New York, New York. (Available on the Internet: <http://data.giss.nasa.gov/gistemp/graphs/fig.B.lrg.gif>.)
- Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: The Physical Basis (Summary for Policymakers). Cambridge University Press. Cambridge, England and New York, New York. (Available on the Internet: <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf>)
- Intergovernmental Panel on Climate Change (IPCC). Climate Change 2007, Synthesis Report. A Report of the Intergovernmental Panel on Climate Change.
- National Academy of Sciences. 2006. Understanding and Responding to Climate Change: Highlights of National Academies Reports. Division on Earth and Life Studies. National Academy of Sciences. Washington, D.C. (Available on the Internet: <http://dels.nas.edu/basc/Climate-HIGH.pdf>.)
- New Mexico Office of the State Engineer data at: <http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html>
- US Government Accountability Office Report "Climate Change, Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources" GAO-07-863, August 2007 (1st paragraph, 1st page, GAO Highlights) at: <http://www.gao.gov/news.items/d07863.pdf>.
- U.S. Department of the Interior, Bureau of Land Management. 1997. Roswell Proposed Resource Management Plan and Final Environmental Impact Statement. Roswell, New Mexico.
- U.S. Department of the Interior, Bureau of Land Management. 1997. Roswell Approved Resource Management and Plan Record of Decision. Roswell, New Mexico.
- U.S. Department of the Interior, Bureau of Land Management. 2008. Special Status Species Resource Management Plan Amendment and Record of Decision. Roswell, New Mexico.
- Climate Change SIR. 2010. Climate Change Supplementary Information Report for Montana, North Dakota, and South Dakota, Bureau of Land Management. Report on Greenhouse Gas Emissions and Climate Change for Montana, North Dakota, and South Dakota. Technical report prepared for the Montana/Dakotas Bureau of Land Management by URS Corporation. URS Project 22241790.

McNally Place, #63042



No warranty is made by the Forest of Land Management that the information shown on this map is accurate or that the information is up to date. The information is provided for informational purposes only and is not intended for use in any legal proceeding. The information is subject to change without notice.