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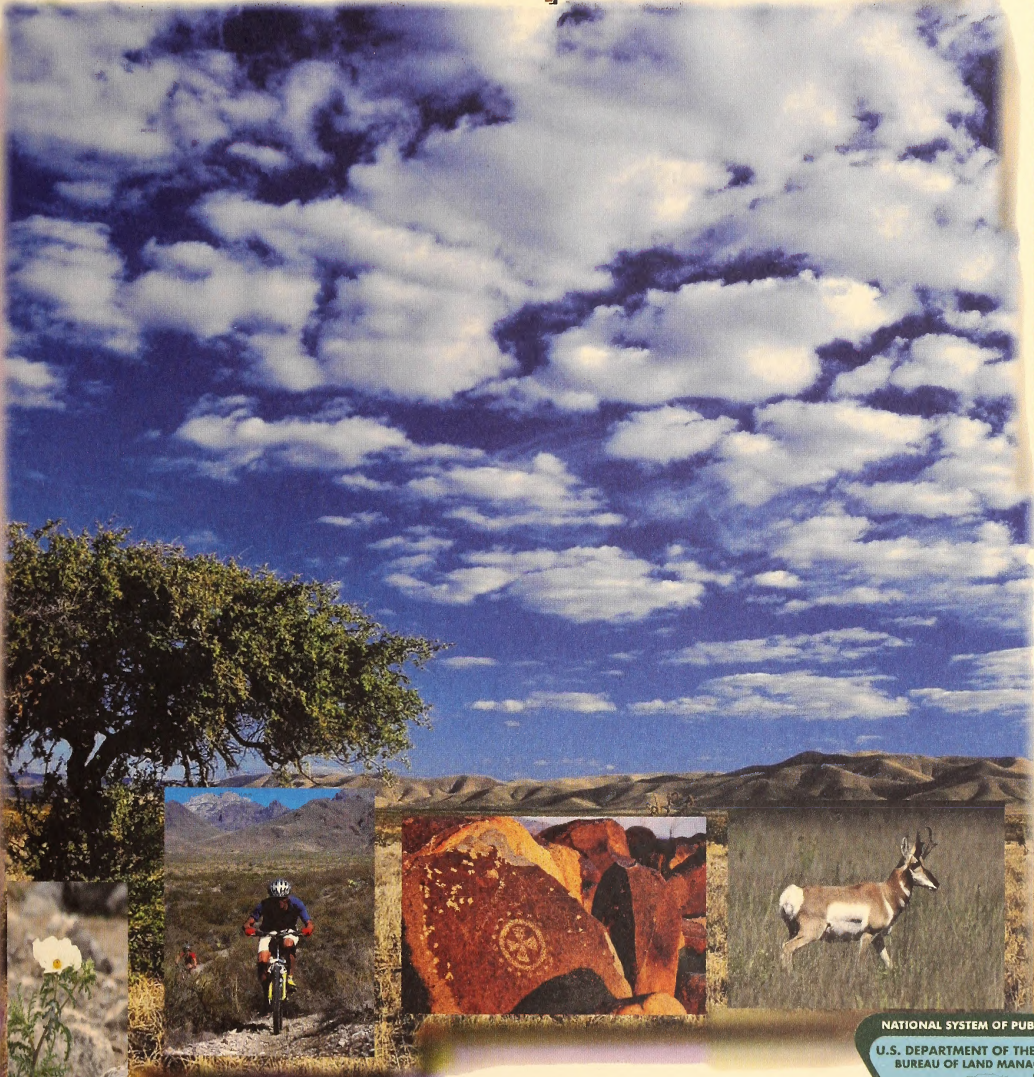


88067464

County

Draft Resource Management Plan/ Environmental Impact Statement

BLM



Volume I

April 2013



BUREAU OF LAND MANAGEMENT

The Bureau of Land Management is responsible for the balanced management of the public lands and resource and their various values so that they are considered in a combination that will best serve the needs of the American people. Management is based upon the principals of multiple-use and sustained yield, a combination of uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness and natural, scenic, scientific and cultural values.

BLM/NM/PL-13-03-1610



READER'S GUIDE



The *TriCounty Draft Resource Management Plan (RMP)/Environmental Impact Statement (EIS)* is actually two plans in one document. In one case, the RMP is a revision of the *White Sands RMP* completed in 1986. A revision is essentially a complete rewrite of and replaces the existing land use plan or RMP. In the other case, the RMP is an amendment of the *Mimbres RMP* completed in 1993. An amendment changes one or more decisions in an existing land use plan in response to new issues or uses of resources. The amendment portion of the *TriCounty RMP* amends decisions pertaining only to Doña Ana County in the original *Mimbres RMP*. All other decisions will remain in force. At the conclusion of this planning process, two separate management plans and two Records of Decision will be issued -- one covering Sierra and Otero Counties and one covering Doña Ana County.

Following is a brief overview of the organization and content of this *TriCounty RMP/EIS* to aid in your review and understanding of the proposed decisions and actions. All the chapters are arranged in the same order or arrangement of the various sections.

The document begins with a **Dear Reader Letter** explaining what BLM is doing, the purpose of the document, a schedule of public meetings and a request for public comments on the RMP. This is followed by a **Table of Contents**. The Table of Contents is comprehensive and most helpful to locate discussion of particular resource programs such as land tenure, special designations, minerals management, wildlife habitat management and so forth, as well as a list of all the maps to complement the text and show geographically the proposed decisions. Next is a comprehensive **Executive Summary** of the document. After that is the main text of the document as described below.

VOLUME I

CHAPTER 1 INTRODUCTION

Chapter 1 identifies the purpose and need for the RMP, defines the Planning Area and Decision Area, and explains the public participation process. This chapter identifies the planning criteria used as guidelines influencing all aspects of the planning process. These guidelines are based on law, regulations, and policy and help to ensure that the document meets policy and regulatory requirements and provides adequate management direction for future users. Also included in this chapter is a description of the involvement of the State, local, and other Federal agencies and various American Indian Tribes. A list of the cooperating agencies participating in the planning process as well as a description of their roles is included here as well. The issues developed through internal and public scoping are listed along with management considerations for resolving resource conflicts addressed in the RMP.

CHAPTER 2 ALTERNATIVES

Chapter 2 presents the various strategies for achieving the management goals and objectives of the various resources and resource uses in the Decision Area and to resolve the issues and management concerns identified in Chapter 1. The alternatives described in Chapter 2 are the essence of the RMP and around which the entire document is constructed. The RMP provides management guidance for the BLM-administered land in the three-county area for up to 20 years. However, the long-term vision for accomplishing objectives may be much greater than that and may not be completely achieved under any alternative during the life of these two plans.

The chapter begins with a brief description of the theme of each alternative. Four alternatives are identified, characterized by different intensities of use and management direction to achieve the desired range of conditions. A section describing alternatives considered but eliminated from further analysis in the document. A No Action Alternative is included as required by law and regulation and to form a baseline comparison for impact analysis. The chapter provides a detailed description of the decisions and actions proposed under each alternative and for each resource and resource use. Each alternative would meet the management goals and objectives; however, the means for meeting each goal, the rate at which they would be met, and the impacts to resources may differ among the alternatives.

CHAPTER 3 AFFECTED ENVIRONMENT

Chapter 3 contains an overview of the *Planning and Decision Areas* and briefly describes both the physical environment and management situation for each of the resources and resource uses. The chapter describes the living and non-living components of the environment that may be affected by the management prescriptions of the alternatives. Other components of the environment that may not be affected by the proposals are described in order to portray a complete picture of the *Planning Area*. Current management direction is briefly described for each resource and resource use.

CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

Chapter 4 contains the analysis of impacts or environmental consequences of the various actions proposed under the alternatives in Chapter 2. Impacts result from the changes to the physical environment and existing conditions described in Chapter 3 as a result of implementing the management strategies of the alternatives described in Chapter 2. Several general analytical assumptions which apply to all alternatives are discussed at the beginning of the chapter as well as at the beginning of the discussion of some of the resources and uses. These are intended to help the reader understand how the writer arrived at his or her conclusions regarding impacts.

CHAPTER 5 CONSULTATION AND COORDINATION

Chapter 5 contains a summary of key events of the consultation and coordination process prior to and during preparation of the Draft RMP/EIS. It lists those agencies, organizations, and individuals who were contacted and provided comments and information for the document. It summarizes Public Scoping at the beginning of the process, and lists and describes all public meetings held during the planning process.

Cooperating agencies are also listed along with their role in the preparation of the document. Also listed are the contractor personnel who prepared the Draft RMP/EIS and the BLM interdisciplinary team members who worked on the project.

GLOSSARY AND REFERENCES

These sections contain the glossary with definitions of the terms and technical language used in the text; and the bibliography of the references cited in the document to assist the reader in the review process.

MAPS AND ACREAGES

All acres for geographical designations or references and all polygons such as areas of critical environmental concern, disposal parcels, visual resource management classes, and so forth are calculated based on the most up-to-date field information available and using current BLM Geographic Information System technology. In all cases, acreages are approximate and may change as better information becomes available or technology changes. Consequently, no warranty is made as to the accuracy of the data contained herein and is for use for gross analysis only.

Likewise, the maps contained in the document depicting the various designations and management actions are for illustration purposes only and are of such a small scale that locations of boundaries or points and sizes of areas are only approximate and should not be used for any other purposes than those intended by BLM in the preparation of this document. In other words, acres, locations, specific points, boundaries, etc., are inexact in all cases and could be changed at any time as better information becomes available.

VOLUME II

APPENDICES

Volume II of the Draft RMP/EIS (CD format only) contains appendices which provide additional supporting or background information to that contained in the Volume I. The appendices contain information such of the laws, regulations and policies that are authorize the preparation of RMPs; a list and description of best management practices; livestock grazing allotment statistics; designated routes in Wilderness Study Areas and Areas of Critical Environmental Concern; and the lands and mineral disposal policy; and other supporting information.



United States Department of the Interior



BUREAU OF LAND MANAGEMENT
Las Cruces District Office
1800 Marquess Street
Las Cruces, New Mexico 88005
www.blm.gov/nm

In Reply Refer To:

1610-5.G.1.4 (L0310)

April 2013

Dear Reader:

Enclosed for your review and comment is the Draft TriCounty Resource Management Plan/Draft Environmental Impact Statement (Draft RMP/EIS) for the New Mexico Bureau of Land Management (BLM) Las Cruces District Office. The BLM prepared this document in consultation with cooperating agencies, and in accordance with the National Environmental Policy Act of 1969, as amended, the Federal Land Policy and Management Act of 1976, as amended, implementing regulations, the BLM's Land Use Planning Handbook (H-1601-1), and other applicable law and policy.

The TriCounty Planning Area (Sierra, Otero, and Doña Ana Counties) consists of about 9.3 million acres of land which includes about 2.82 million surface acres and 3.98 million acres of Federal mineral estate (subsurface) managed by the Las Cruces District Office. When approved, this RMP will replace the White Sands RMP (1986) and portions of the Mimbres RMP (1993) and will guide the management of public land administered by the Las Cruces District Office into the future. The Draft TriCounty RMP/EIS and supporting information is available on the project web site at: <http://www.blm.gov/nm/lascruces>.

The BLM encourages the public to provide information and comments pertaining to the analysis presented in the Draft RMP/EIS. We are particularly interested in feedback concerning the adequacy and accuracy of the proposed alternatives, the analysis of their respective management decisions, and any new information that would help the BLM as it develops the plan. The development of the Draft TriCounty RMP/EIS has taken an unusually long time - scoping began in 2006. This protracted process means that public input is important to help the BLM identify outdated information, errors, and inadvertent omissions. For example, as we readied this document for print, we discovered that we omitted a proposed unit for the Robledo Mountains Area of Critical Environmental Concern (ACEC). Please refer to Appendix G for the description of this ACEC.

In developing the Proposed RMP/Final EIS, which is the next phase of the planning process, the decision maker may select various management decisions from each of the alternatives analyzed in the Draft RMP/EIS for the purpose of creating a management strategy that best meets the needs of the resources and values in this area under the BLM multiple-use and sustained yield

mandate. As a member of the public, your timely comments on the TriCounty Draft RMP/EIS will help formulate the Proposed RMP/Final EIS. Comments will be accepted for 90 calendar days following the Environmental Protection Agency's (EPA) publication of its Notice of Availability in the *Federal Register*. The BLM can best utilize your comments and resource information submissions if received within the review period.

Comments may be submitted electronically at: BLM_NM_LCDO_Comments@blm.gov. Comments may also be submitted by mail to: Jennifer Montoya, RMP/EIS Team Leader, BLM Las Cruces District Office, 1800 Marquess Street, Las Cruces, NM 88005. To facilitate analysis of comments and information submitted, we strongly encourage you to submit comments in an electronic format.

Your review and comments on the content of this document are critical to the success of this planning effort. If you wish to submit comments on the Draft RMP/EIS, we request that you make your comments as specific as possible. Comments will be more helpful if they include suggested changes, sources, or methodologies, and reference to a section or page number. Comments containing only opinion or preferences will be considered and included as part of the decision making process, although they will not receive a formal response from the BLM.

Before including your address, phone number, email address, or other personal identifying information in your comment, be advised that your entire comment - including your personal identifying information - may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

The BLM will hold public meetings in Truth or Consequences, Alamogordo and Las Cruces, New Mexico. All meetings will be held from 6:00 p.m. to 8:00 p.m. Public meetings to provide an overview of the document, respond to questions, and take public comments will be announced by local media, website, and/or public mailings at least 15 days in advance.

Copies of the Draft RMP/EIS have been sent to affected Federal, State and local government agencies, American Indian Tribes, members of Congress, Las Cruces District Resource Advisory Council, and other local and affected citizens and groups. Copies of the Draft RMP/EIS are available for public inspection at the BLM Las Cruces District Office, the BLM New Mexico State Office in Santa Fe, New Mexico, the Albuquerque District BLM Office, the Socorro BLM Field Office, the Carlsbad BLM Field Office and the Pecos District Office in Roswell, New Mexico as well as public libraries in Las Cruces, Alamogordo, Anthony, and Truth or Consequences.

Thank you for your continued interest in the TriCounty RMP/EIS. We appreciate the information and suggestions you contribute to the planning process. For additional information

or clarification regarding this document or the planning process, please contact *Jennifer Montoya*, RMP/EIS Team Leader, BLM Las Cruces District Office at (575) 525-4300 or by email at jmontoy@blm.gov.

Sincerely,

A handwritten signature in cursive script that reads "Bill Childress".

Bill Childress
District Manager

1 Enclosure

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Executive Summary

EXECUTIVE SUMMARY

In accordance with the Federal Land Policy and Management Act of 1976 (FLPMA), the Bureau of Land Management (BLM) is responsible for management of public land and its resources based on the principle of multiple-use and sustained health, diversity, and productivity for present and future generations. The land use plan provides management direction, which is used to determine appropriate uses and allocate resources, develop strategies to manage and protect resources, and establish systems to monitor and evaluate the status of resources and effectiveness of management decisions over time. The Las Cruces District Office of the BLM has prepared the *TriCounty Draft Resource Management Plan and Environmental Impact Statement (TriCounty Draft RMP/EIS)* to analyze alternative management approaches and their corresponding impacts, which provide a framework for managing public land and for allocating resources on the BLM-administered land in Sierra, Otero, and Doña Ana counties in New Mexico.

The Las Cruces District Office manages public land in Sierra, Otero, Doña Ana, Hidalgo, Luna, and Grant counties in southern New Mexico. The area identified for this planning effort includes Sierra, Otero, and Doña Ana counties. The three-county area varies greatly in resource diversity, production, and potential due to differences in elevation, climate, soils, and a topography that exhibits influences from the Chihuahuan desert, Mexican Highlands, southern Rocky Mountains, and Mogollon Plateau Physiographic Regions. The “*Planning Area*” referred to in this document includes all land within Sierra, Otero, and Doña Ana counties. The term “*Decision Area*” applies to all public land and its resources that are managed by the BLM, including Federal mineral estate within the three counties.

Lands administered by the BLM, whether surface or subsurface estate, are referred to in this document as BLM-administered land or public land.

The *TriCounty Planning Area* of Sierra, Otero, and Doña Ana counties consist of about 9.3 million acres which includes all Federal, State trust, private and tribal lands in the three counties.

Within the *Planning Area* is the *Decision Area* which includes approximately 2.82 million surface acres (about 33 percent of the total acres) and 3.98 million acres of Federal mineral estate. Federal mineral estate includes unified surface and subsurface (mineral) estate and subsurface beneath other surface ownership or administration (split estate) administered by the BLM.

The BLM Las Cruces District Office manages a number of special resource protection management areas including 13 areas of critical environmental concern (ACECs); two research natural areas; 10 wilderness study areas (WSAs); one National Natural Landmark (NNL); one Backcountry Byway; one National Historic Trail and one National Monument. The Prehistoric Trackways National Monument, designated through the Omnibus Public Lands Act of 2009, will have a separate stand-alone RMP so its management is not addressed in this RMP/EIS.

The BLM-administered surface and subsurface estate in Sierra and Otero counties is currently managed according to direction provided by the *1986 White Sands RMP*, and public surface and subsurface estate in Doña Ana County is managed under the *1993 Mimbres RMP*. The Las Cruces District Office has determined that the *White Sands RMP* needs to be revised and updated to provide a more comprehensive framework for management guidance in the two counties. The *Mimbres RMP* needs to be amended to address issues associated with the growth in Doña Ana County and nearby El Paso, Texas, that have affected changes in demographic characteristics as well as increased use of public land. The goals and management decisions under the *Mimbres* and *White Sands* RMPs no longer adequately address the demographics or resource conditions of the region, nor are they compatible with policies changes that

have occurred over the years. As a result, the BLM Las Cruces District Office has prepared the *TriCounty Draft RMP/EIS* to analyze BLM's management of public land in the *Planning Area*, to identify alternative management approaches for public land, and to analyze the associated impacts of each alternative on the human and natural environment. The EIS prepared with the RMP is intended to satisfy the requirements of the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations implementing NEPA (Title 40 Code of Federal Regulations Sections 1500 through 1508), and other associated regulations.

The planning process to revise the RMP was initiated on January 28, 2005, with the public scoping phase, which included public meetings, newspaper articles, workshops, and informal presentations to interested groups as well as other activities to identify management concerns. The results of the scoping process are summarized in the *TriCounty RMP/EIS Scoping Report* (June 2005) which is available at the Las Cruces District Office or online at http://www.blm.gov/nm/st/en/fo/Las_Cruces_District_Office/TriCounty_rmp.html. Issues identified during scoping and considered throughout the planning process were related to transportation, access, recreational opportunities, special designations, and renewable energy.

An Analysis of the Management Situation (AMS) was prepared in June 2006 to compile baseline resource data and trends and to analyze the potential for changes to the management of BLM's *Decision Area*. Alternative management plans that are evaluated in the *TriCounty Draft RMP/EIS* were derived from the Management Opportunities section of the AMS. The alternatives were further refined based on the goals and objectives identified for each resource and resource use, and the issues that were identified in pre-planning and public scoping processes.

Management alternatives for the *TriCounty Draft RMP/EIS* are discussed in Chapter 2. Chapter 3 provides a description of the existing environment, and Chapter 4 includes an analysis of the potential impacts that would result from the changes to the existing environment as a result of implementing each alternative. Cumulative impacts that consider past, present, and reasonably foreseeable future actions are analyzed at the end of Chapter 4. Chapter 5 contains a brief summary of the public outreach that was conducted during the preparation of the Draft RMP.

ALTERNATIVES

BLM has considered four management alternatives in the RMP/EIS: a no action alternative and three action alternatives briefly described as follows:

- **Alternative A** is the No Action Alternative. This does not mean "no management," but means that management direction would continue according to decisions in the *White Sands RMP* and *Mimbres RMP*. Those decisions would continue to be implemented, and no changes or new decisions would be made.
- **Alternative B** emphasizes conservation and preservation of resources and places the most restrictions on resource use. With this alternative, the BLM would manage and conserve resources for long-term use rather than using them primarily for short-term gain, while still providing for multiple-uses.

- **Alternative C (Preferred Alternative).** The BLM’s preferred alternative at the time of the *Draft RMP/EIS* aims to find a balance between long-term conservation and the mandate to provide for multiple-use. Measures to protect sensitive resources would be implemented, but they would be less restrictive than under Alternative B.
- **Alternative D** emphasizes resource use, access, and production but still provides for resource protection only to the point necessary to meet regulatory or legislative requirements. Long-term preservation and use of resources on public land may not be possible under this alternative.

A major factor within each alternative is the determination of special designations and their associated management prescriptions. Special designations that are addressed in the alternatives include ACECs, WSAs, an NNL, and national historic trails. The number, the size, and the management prescriptions for ACECs vary across the alternatives. In addition, proposed management decisions within each alternative typically address off-highway vehicle (OHV) use, rights-of-way; minerals management; and renewable energy projects. Management prescriptions for existing WSAs, the NNL, and the National Historic Trail are carried forward from previous legislation, policy or land use plans.

AFFECTED ENVIRONMENT

Documentation of the existing condition of resources, resource uses, and other features of the *Planning Area* are discussed in Chapter 3. Chapter 3 is organized by sections corresponding to the following resources and resource uses:

- Special Designations
- Lands With Wilderness Characteristics
- Air Resources
- Soil Resources
- Water and Watershed Resources
- Geology
- Vegetation
- Fish and Wildlife Habitat
- Special Status Species
- Cultural Resources
- Paleontology
- Visual Resources
- Fire and Fuels Management
- Livestock Grazing
- Comprehensive Trails And Travel Management
- Recreation And Visitor Services
- Lands and Realty
- Renewable Energy
- Minerals
- Abandoned Mine Lands
- Socioeconomic Conditions
- Environmental Justice

Special Designations

Special designations are areas that the BLM has set aside for conservation purposes. Many of these areas have been assigned protective management prescriptions that limit surface disturbing activities. Special designations include ACECs, WSAs, backcountry byways, National Historical Trails, National Scenic Trails, Wild and Scenic Rivers, natural conservation areas, and national monuments. The *Planning Area* includes 9 WSAs, 13 ACECs, the Camino Real de Tierra Adentro National Historic Trail, and the Lake Valley Backcountry Byway. Three historic trails pass through public land in the *TriCounty Planning Area*: the Mormon Battalion Trail, the Butterfield Overland Trail, and El Camino Real de Tierra Adentro. El Camino Real is a designated National Historic Trail that runs north and south through Doña Ana and Sierra Counties. Historically the trail connected Mexico City with northern New Mexico. The 9 WSAs are located in areas with wilderness characteristics totaling approximately 261,793 acres. Certain surface disturbing activities are allowed in WSAs; however, management decisions are geared toward limiting surface disturbance and maintaining existing wilderness characteristics. Wilderness

inventories were completed for the *Planning Area* in 1980. Additional inventories have been conducted and WSAs designated on land acquired since 1980.

Lands with Wilderness Characteristics

Section 201 of FLPMA requires the BLM to maintain on a continuing basis an inventory of all public land and its resources and other values, which includes wilderness characteristics. In accordance with policy outlined in Instruction Memorandum 2011-154 (*Requirement to Conduct and Maintain Inventory Information for Wilderness Characteristics and to Consider Lands with Wilderness Characteristics in Land Use Plans*), this RMP addresses the wilderness characteristics of lands in the *Decision Area*. Where lands are found to contain wilderness character, the BLM considers a full range of alternatives for such lands. This RMP will analyze the effects of (1) plan alternatives on lands with wilderness characteristics and (2) management of lands with wilderness characteristics on other resources and resource uses.

The Las Cruces District Office determined that four areas, Nutt Grasslands, Bar Canyon, Peña Blanca South and Peña Blanca North, totaling approximately 11,494 acres in the *Decision Area* contain wilderness characteristics.

Air Resources

Air quality in the *Planning Area* involves ambient concentrations of criteria air pollutants, levels of visibility, and the presence of permitted and nonpermitted air pollutant sources. The major source of air pollution in the *Planning Area* is particulate emissions from road dust (EPA 2002). Significant PM₁₀ emissions also occur during naturally occurring high wind events (dust storms) (NMED 2006). Criteria pollutants must meet the New Mexico Ambient Air Quality Standards and the National Ambient Air Quality Standards. Motorized vehicles represent the largest single air pollutant source category in the *Planning Area* and include emissions of NO₂, CO, and PM₁₀.

Soil Resources

Three broad categories of soils are found in the *Planning Area*: (1) very shallow to deep, well-drained sandy loams with small rock fragments found on mesas, hills, mountains, ridges, slopes, and upland plains; (2) clay loams ranging from deep, well-drained, and very stony material to very fine, sandy, and silty loams found on fan terraces, bajadas, and swales; and (3) deep, poor- to well-drained clay loams to loamy, fine sands in the floodplains of the Rio Grande Basin.

Water and Watershed Resources

The New Mexico Office of the State Engineer, as delineated by statute and judicial decision, has divided the state into declared groundwater basins to assess and adjudicate water resources. The *Planning Area* contains important surface water resources, including the Rio Grande, Elephant Butte, and Caballo reservoirs as well as Tularosa Creek and Percha Creek. Surface water on public land maintains existing riparian vegetation, provides water for wildlife and livestock, provides recreational opportunities, and recharges aquifers.

Vegetation

Vegetation in the *Planning Area* is grouped into five land cover categories based on the dominant natural vegetation in a location. These categories are: (1) forest-woodland, (2) grassland herbaceous, (3) shrub-scrub, (4) barren, and (5) developed and agricultural.

Forest and woodland cover types are limited to places with adequate soil moisture, and, in the *Planning Area*, typically occur at elevations above 5,000 feet. Shrub-scrub areas are commonly associated with a less moist environment and include herbaceous grass or forb understories. In parts of the *Planning Area*, degradation of the grassland-herbaceous cover types has increased shrub-scrub and shrubland cover area. This cover type typically appears as scattered trees or shrubs, although some areas may exhibit small patches of dense vegetation. Barren and sparsely vegetated cover types have a small amount of plant cover, and soil development is limited.

Woodland vegetation cover types within the *Planning Area* occur primarily in Otero County and the higher elevations in Sierra and Doña Ana counties. The direction for the management of woodlands is determined by the management of vegetation, wildlife, or fire and fuels that restoring ecological health.

According to New Mexico law, a “*noxious weed*” is any species of plant that is liable to be damaging or destructive and difficult to control or eradicate. Common locations for noxious weed infestations in the *Planning Area* include roadsides and areas that are highly disturbed or degraded.

Fish and Wildlife Habitat

The BLM is responsible for managing fish and wildlife habitats in the *Planning Area*, while State and Federal wildlife management agencies are responsible for managing fish and wildlife species and populations. Nineteen different standard habitat sites (SHSs) occur in the *Planning Area*. Most of these are fairly well-represented in all three counties. The fauna in the *TriCounty Planning Area* includes a diversity of game and nongame wildlife species, as well as migratory birds. Land use patterns in the *Planning Area* have influenced wildlife species distribution and habitat conditions. Loss or degradation of habitat and habitat fragmentation are the major factors affecting habitat quality and quantity. Actions contributing to degradation and fragmentation of habitat and wildlife corridors include road construction, oil and gas exploration and development, OHV use, renewable energy development including transmission lines and corridors, and almost any other changes in land use.

Special Status Species

Special status species include plants and animals that are listed as Endangered, Threatened, proposed for listing, or species of concern by the U.S. Fish and Wildlife Service (USFWS), State of New Mexico, or the BLM. Within the *TriCounty Planning Area*, 10 species are protected under the ESA including 8 endangered species and 2 threatened species. There is one candidate species for listing under ESA in the *Planning Area*. Approximately 78 special status animal species and 85 special status plant species potentially occur in the *Planning Area*.

Cultural Resources

Cultural resources include any prehistoric or historic district, site, building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes. Cultural resources also include archeological resources. The BLM's cultural resources program has recorded 380 archeological and historical sites in Sierra and Otero counties and 3,838 archeological and historical sites in Doña Ana County.

Paleontology

Paleontological resources include the bones, teeth, bodily remains, traces, or imprints of plants and animals preserved in the earth through geologic time. Paleontological resources can include related geological information such as rock types. The highest potential for significant fossil finds and geological formations in Otero County occur in the southern Tularosa Valley and in portions of the Sacramento and Capitan mountains. Rocks of the early Paleozoic crop out along escarpments of the San Andres, Organ, and other mountains in the *Planning Area*.

Visual Resources

Visual resources are natural and manmade physical features that give a landscape its character and value. Results of the 2010 Visual Resource Inventory Class Ratings are as follows:

- Visual Resource Inventory Class I – 0 acres
- Visual Resource Inventory Class II – 706,111 acres
- Visual Resource Inventory Class III – 1,028,709 acres
- Visual Resource Inventory Class IV – 1,085,332 acres

Fire and Fuels Management

BLM managers recognize fire as a natural disturbance in healthy ecosystems. The BLM managers use fire to restore the existing condition and character of the landscape and to assist in meeting other resource management goals and objectives. Fire Regime Condition Classes integrate the concept of historical fire regimes and use them as a qualitative measure against which current conditions are compared.

Livestock Grazing

Ranchers are authorized to use public land to support livestock grazing operations in conjunction with a BLM authorized grazing permit on a grazing allotment. There are 300 grazing allotments within the *Planning Area*. Grazing allotments can include Federal, State trust, and private lands. Guidance for livestock grazing on public land in the *Planning Area* is found in *White Sands RMP*, the *Mimbres RMP*, and the *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management* (BLM 2001). These guidelines describe the desired approach to changing grazing management when it is determined that livestock grazing is preventing public land from meeting the standards.

Comprehensive Trails and Travel Management

Road networks within the *Planning Area* include a series of Federal and State highways, county roads, BLM-maintained roads, primitive roads, and trails. All public land must be identified as open, closed, or limited to motorized vehicle use. These designations establish guidelines and limitations to OHV use. The majority of public land in Sierra and Otero counties is currently managed as open to OHV use.

Recreation and Visitor Services

The *TriCounty Planning Area* provides many public recreational opportunities in diverse natural settings. These opportunities occur on lands managed by the BLM as well as the US Forest Service, the National Park Service, the Mescalero Apache Tribe, New Mexico Department of Game and Fish, New Mexico State Parks, New Mexico State Land Office, counties, and cities. Recreation in the *Planning Area* includes sightseeing, hiking, fishing, boating, wildlife viewing, scenic driving, hunting, horseback riding, caving, mountain biking, picnicking, OHV use, and camping.

Lands and Realty

The 1993 *Mimbres RMP* and the 1986 *White Sands RMP* designated specific land for retention and disposal in order to maintain land of value for certain resources and resource uses and to make land easier to manage. Retention areas include concentrated blocks of public land, and smaller parcels of higher resource values. Disposal areas typically consist of tracts of land that are difficult and uneconomical to manage, and parcels that could provide for expansion of communities and economic development. Only minor land tenure adjustments have been implemented in the *Planning Area* since adoption of the existing RMPs.

The BLM Las Cruces District Office manages rights-of-way through a system of designated corridors, right-of-way exclusions, and avoidance areas. Utility corridors have not been established for public land within Sierra and Otero counties.

Renewable Energy

The *Planning Area* has high potential for solar energy development and moderate potential for wind energy development. The Las Cruces District Office has received several applications for renewable energy projects but none have been approved or process.

Minerals

Three classifications of mineral estate are found on public land in the *Planning Area*: locatable (metallic and nonmetallic minerals), leasable (coal, geothermal, oil and gas, other solid leasables), and mineral material (sand, gravel, aggregate or other building stone). The BLM is responsible for managing approximately 4 million acres of Federal mineral estate within the *Planning Area*, which includes subsurface minerals underlying land that is managed by private, State, and other Federal agencies.

Locatable Minerals

Locatable minerals are minerals that can be prospected and mined under the General Mining Law of 1872, as amended. They are sometimes referred to as “hardrock” minerals and consist of both metallic and nonmetallic minerals such as gold, silver, copper, lead, barite, and a host of others. The *Decision Area* has several locatable mineral mining districts with significant mineral deposits.

Leasable Minerals

Opportunities for oil and gas development are limited in the *Planning Area*. Exploratory wells have been drilled, and there have been shows of oil and gas reported in all three counties; however, there has been no economic production to date. Consequently, the *Planning Area* is considered to have low to moderate potential for oil and gas production.

Mineral Materials

Mineral materials include sand, gravel, stone, pumice, pumicite, cinders, and ordinary clay. Sand, gravel, aggregate, limestone, cinders, and building stone are the most common salable minerals. There are several inactive or intermittently operated aggregate pits in the *Planning Area*, with the most activity occurring in Doña Ana County. The most common mineral materials in all counties include sand, gravel, and stone.

Socioeconomic Conditions

Social conditions, economic conditions, health and safety, and Tribal treaty rights are all considered as part of the socioeconomic conditions. Sierra and Otero counties’ populations are generally rural with large proportions of land historically used for agriculture and ranching. Doña Ana County is the most populated county in the *Planning Area*, and also has the greatest projected population growth (U.S. Census Bureau 2010).

Government and government services currently provide the largest share of employment in the *Planning Area* (ranging approximately from 18 percent in Sierra County, 36 percent in Otero County, and 24 percent in Doña Ana County) and statewide (19 percent).

Environmental Justice

Federal agencies are required to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in accordance with NEPA, Executive Order 12898: Environmental Justice, and other applicable laws and regulations. The majority of New Mexico’s population (54 percent) is part of a minority group. Doña Ana County and the Mescalero Apache Nation exceeded the State of New Mexico’s minority population proportion. The *Planning Area* exceeded the State of New Mexico’s low-income population rate of 18 percent (U.S. Census Bureau 2000). The only geographic area that did not exceed the statewide poverty rate was the City of Alamogordo.

ENVIRONMENTAL CONSEQUENCES

The predicted consequences, or potential effects, on the environment that would result from the implementation of the alternative management strategies are identified in the *TriCounty RMP/EIS*. An impact, or effect, is defined as a modification to the environment, as it presently exists, that is brought about by an outside action. Impacts may differ in significance from no change or an only slightly noticeable change to a full modification or elimination of the environmental condition. The following resource sections summarize the results from the impact analysis for each alternative.

Land Use Allocations

Table S-1 shows a summary of the land use allocations by acres by alternative.

Alternative A

This alternative represents the No Action Alternative, or continuation of the existing management direction in accordance with the management decisions outlined in the *1986 White Sands RMP* for Sierra and Otero counties and the *1993 Mimbres RMP* for Doña Ana County. Under Alternative A, resources and use would continue to be managed as under existing management direction, and current management strategies would remain the same. This alternative represents the baseline to which the action alternatives (Alternatives B, C, and D) are compared.

Alternative B

Under Alternative B, management actions would reduce or restrict surface-disturbing activities, closing areas to vehicle use, limiting vehicle use to existing or designated routes in 99 percent of the *Decision Area*. Alternative B would close or defer in the short-term, fluid mineral leasing, and increase the areas of avoidance and exclusion for rights-of-way including siting renewable energy projects. These management actions would reduce surface disturbance, soil erosion, vegetation loss, and increase control of noxious weeds. The potential for maintaining and improving wildlife habitat would be greatest under Alternative B because commodity use or development would occur on fewer acres. The potential for maintaining and improving lands with wilderness characteristics would be greatest under Alternative B. The management of public land within Special Recreation Management Areas (SRMAs) and Extensive Recreation Management Areas (ERMAs), 122,000 acres, have the potential to increase visitor use due to specific designations of roads and trails and the presence of developed facilities. Solar energy development would be confined to the Afton Solar Energy Zone (SEZ) where up to 30,000 acres could be used for installation of solar collectors.

Alternative C (Preferred Alternative)

Vehicle use on 99 percent of the *Decision Area* would be limited to existing or designated routes. Approximately 42,000 acres would be managed as open to OHV use and 20,000 acres would be closed. This would reduce potential surface disturbance and damage to vegetation, cultural resources, and wildlife habitat compared to Alternative A and would be similar to impacts under Alternative B.

Under Alternative C, approximately 304,000 acres would be designated and managed as ACECs, which would result in impacts similar to Alternative B but on less acreage. Reducing the number of acres set aside as ACECs leaves more acres open for surface disturbance and could lead to increased soil erosion and potential vegetation and wildlife habitat damage outside the ACEC.

The acres allocated and managed as lands with wilderness characteristics would be approximately 803 acres, less than under Alternative B. Reducing the number of acres managed to protect lands with wilderness characteristics leaves more acres open for surface disturbance and impacts to wilderness characteristics.

The acres allocated and managed as SRMAs and ERMAs would be approximately 151,000 acres, greater than under Alternative B and impacts would be the same but for a larger area.

Under Alternative C, renewable energy actions and impacts would be the similar as described under Alternative B, but solar energy projects would be considered outside of the Afton SEZ after appropriate NEPA analysis.

Alternative D

Alternative D is primarily oriented toward accommodating more extensive and diverse resource uses in the *Decision Area*. Management actions taken to meet public land health standards in areas that are not currently achieving them would reduce soil erosion as well as vegetation and wildlife habitat damage. Acres open and closed to OHV use under this alternative would be similar as under Alternative C. Bar Canyon would be managed to preserve its wilderness characteristics under this alternative.

Under Alternative D, 194,000 acres would be managed as SRMAs and ERMAs, which is more than under Alternatives B and C. Concentrating recreational activities in these areas could indirectly protect resources outside these areas. However, SRMAs tend to attract more users and, depending upon the type of recreational activity and the amount of use, this would more heavily impact soil, vegetation, and wildlife habitat resources in these areas.

Renewable energy actions and impacts would be the same as described under Alternative C; however, a greater area could be potentially available for wind energy developments because less acreage would be classed as avoidance and exclusion areas under Alternative D.

CONSULTATION AND COORDINATION

The *TriCounty RMP/EIS* is being completed in consultation with other Federal agencies; State, county, Tribal, and local governments; and the public. Consultation under Section 7 of the Endangered Species Act has been initiated with the US Fish and Wildlife Service, and a Biological Assessment will be completed prior to BLM publishing the Proposed RMP and Final EIS. The NMDGF, State Historic Preservation Office, several tribes (White Mountain Apache Tribe, Mescalero Apache Tribe, Fort Sill Apache Tribe, Ysleta del Sur Pueblo, Isleta Pueblo, Hopi Tribe, Navajo Nation, Kiowa Tribe, Comanche Indian Tribe, Laguna Pueblo, Acoma Pueblo, and Tesuque Pueblo), and government officials have been contacted and invited to participate in the RMP/EIS planning process. The City of Las Cruces; Sierra, Otero and Doña Ana counties; NMDGF; New Mexico Department of Agriculture, U.S. Army Ft. Bliss, and U.S Army White Sands Missile Range accepted the invitation and are participating in this effort as cooperating agencies, with the BLM acting as the lead agency.

In 2003, the BLM initiated public involvement in the RMP process through informal community meetings then proceeded in subsequent years with formal scoping meetings in 2005, planning bulletins and newsletters, and information on the BLM websites. Despite the protracted RMP schedule, the BLM has continued to accept public input on the document.

A notice of the availability of the Draft *TriCounty RMPs* and EIS will be sent to individuals, groups, agencies, and businesses on the Las Cruces District mailing list for this project when it is completed. The complete draft document will also be posted on the Las Cruces District Office website at that time.

**TABLE S-1
SUMMARY COMPARISON OF LAND USE ALLOCATIONS BY ALTERNATIVE**

LAND USE	Acres ¹			
	Alternative A	Alternative B	Alternative C	Alternative D
Special Designations				
WSAs (number, acres)	10 261,793	10 261,793	10 261,793	10 261,793
ACECs (number, acres)				
Existing	13 89,723	13 91,477	12 87,731	12 85,977
Proposed	0 0	16 425,997	11 216,311	0 0
Total ACECs	13 89,723	29 517,774	23 304,042	12 85,977
Kilbourne Hole NL (number, acres)	1 5,500	1 5,500	1 5,500	1 5,500
Wild & Scenic River Suitability (miles)	0	3.5	0	1.4
Lands with Wilderness Characteristics				
LWCs (number, acres)	0 0	4 11,917	3 803	1 423
Vegetation				
Vegetation allocation changes as a result of grassland restoration treatments.	No allocation priorities.	Reserved for watershed function and wildlife.	Reserved to meet the needs of watershed function. Excess allocated to wildlife and livestock, with wildlife receiving priority.	Allocated to wildlife and livestock with neither having priority.
Fish and Wildlife Habitat				
Habitat Management Plans (number, acres)	9 1,188,349	4 1,416,965	4 1,416,729	4 1,416,729
Visual Resource Management				
Class I	38,521	343,253	271,406	265,526
Class II	578,348	893,669	638,331	689,513
Class III	840,655	806,869	809,938	810,179
Class IV	1,375,138	789,420	1,113,396	1,066,866

**TABLE S-1
SUMMARY COMPARISON OF LAND USE ALLOCATIONS BY ALTERNATIVE**

LAND USE	Acres ¹			
	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Grazing				
Area Closed To Grazing	2,049 acres of sensitive resources (wildlife and cultural)	Discontinue the authorization of livestock grazing in allotments, in whole or in part, with unmanageable conflicts. 17,602 acres of allotments that have no grazing authorization or with conflicts would be closed conflicts.	Discontinue the authorization of livestock grazing in allotments, in whole or in part, with unmanageable conflicts only after (1) a land health assessment/ evaluation, (2) a determination , and (3) a decision to reallocate the lands to a public purpose that precludes livestock grazing. 17,602 acres of allotments that have no grazing authorization or with conflicts would be closed.	1,156 acres of sensitive resources (wildlife and cultural)
Livestock Grazing Adjustments	Changes made on an as needed basis, case-by-case, based on monitoring.	25% reduction of AUMs on areas with limited restoration potential (950,000).	Changes to grazing made in priority watersheds based on monitoring of vegetation, soils, hydrology, and other variables associated with healthy ecological systems	Changes made on an as needed basis, case-by-case, based on monitoring.
Comprehensive Trails and Travel Management				
Open to OHV use	1,635,694	38,966	41,908	41,908
Limited to Existing Routes	878,636	2,003,188	2,284,102	2,496,266
Limited to Designated Routes	272,021	531,994	492,616	277,336
Closed to OHV Use	42,953	259,891	19,218	17,485

**TABLE S-1
SUMMARY COMPARISON OF LAND USE ALLOCATIONS BY ALTERNATIVE**

LAND USE	Acres ¹			
	Alternative A	Alternative B	Alternative C	Alternative D
Recreation and Visitor Services				
SRMA (numbers, acres)	2 69,151	3 83,003	3 83,003	4 83,233
ERMA (number, acres)	0 0	2 38,954	3 68,407	5 110,340
Closed to Discharge of Firearms	10,440	44,770	40,310	37,550
Lands and Realty				
Land Identified for Disposal	213,199	38,273	108,450	186,523
ROW Avoidance Areas	13,222	109,074	422,910	453,000
ROW Exclusion Areas	518,839	919,953	343,060	308,000
Utility Corridors	17,613	149,835	208,891	224,875
Renewable Energy				
Solar Energy Zones (number, acres)	0 0	1 29,964	1 29,964	1 29,964
Exclusion and avoidance ⁴ Solar Wind	532,061 532,061	2,759,149 1,598,929	1,559,146 1,618,659	1,562,616 1,532,657
Minerals				
Segregated from mineral entry	10,976	10,976	10,976	10,976
Oil and Gas				
Existing Leases	52,705	52,705	52,705	52,705
Open with Standard Lease Terms & Conditions	3,655,138	0	0	0
Open – No Surface Occupancy	27,534	856	856	856
Open – Controlled Surface Use	169,710	0	0	0
Open with Lease Notice	239,307	0	0	0
Discretionary Closure	75,020	75,020	75,020	75,020
Non-discretionary Closure ²	258,186	258,186	258,186	258,186
Deferred from New Leasing	-	3,593,047	3,593,047	3,593,047
Geothermal Leasing				
Existing Leases	440	440	440	440
Discretionary Closure ²	75,020	571,930	358,045	75,020
Non-Discretionary Closure ²	258,186	258,186	258,186	258,186
Open with Stipulations or Standard Terms and Conditions	3,194,610	3,154,014	3,222,397	3,630,721

**TABLE S-1
SUMMARY COMPARISON OF LAND USE ALLOCATIONS BY ALTERNATIVE**

LAND USE	Acres ¹			
	Alternative A	Alternative B	Alternative C	Alternative D
Locatable Minerals				
Open to entry under General Mining Laws ³	4,331,744	3,649,337	3,993,937	4,277,979
Recommended withdrawal under the General Mining Laws	71,488	682,407	337,807	53,765
Mineral (Salable) Materials				
Open Mineral Material Sales ³	3,908,761	3,771,434	3,644,196	3,996,730
Closed Mineral Material	441,239	705,804	456,719	353,270

NOTES:

¹ Because of overlap with other designations, exclusion of some areas from the particular use, or other reason, total acres for any alternative may not add to the *Decision Area* Total for either surface or mineral estate.

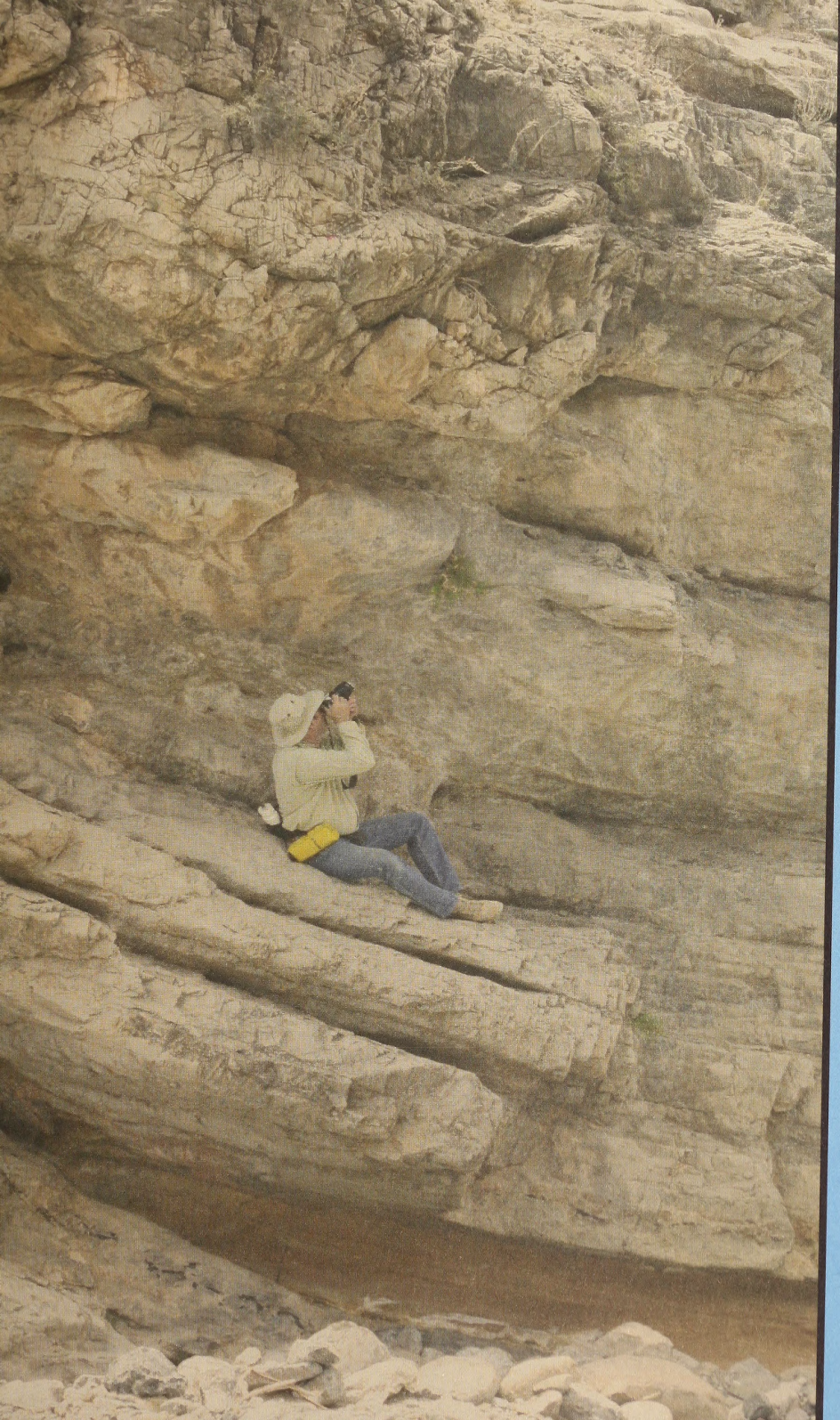
² Where WSA acres (non-discretionary closure) and ACEC acres (discretionary closure) overlap, the more restrictive management (WSA-nondiscretionary closure) will prevail.

³ Includes all subsurface estate regardless of surface ownership

⁴ In many cases, acres of avoidance and exclusion overlap for both types of renewable energy projects.

Chapter I

Purpose and Need



CHAPTER 1 INTRODUCTION

Resource Management Plans (RMPs) are the principal instruments used by the U.S. Department of the Interior (USDI), Bureau of Land Management (BLM) to manage public land and resources, including subsurface Federal mineral estate. According to the Federal Land Policy and Management Act of 1976 (FLPMA), the BLM is responsible for managing public land and resources to allow for multiple-use while assuring the sustained yield, diversity, and productivity of public land for present and future generations. This general mandate can be realized in a number of ways, and each RMP is a reflection of the unique set of issues, management concerns, resource conditions, and community needs and desires attached to a management area. Because circumstances, legislation, and policies change or evolve over time, RMPs are periodically reviewed for relevance and effectiveness.

Two existing plans are addressed in this document: The *White Sands RMP* (USDOI BLM1986a) and the *Mimbres RMP* (USDOI BLM1993). The *White Sands RMP* is being completely revised and the *Mimbres RMP* is being amended in part. The result will be the *TriCounty RMP* which will replace the *White Sands RMP* and supersede the *Mimbres RMP* for Doña Ana County. Consequently, a new *Planning Area* which did not previously exist, The *TriCounty Planning Area*, will be created for the Las Cruces District. This revision and amendment are jointly addressed along with an Environmental Impact Statement (EIS) in this document. Together the RMP Revision and RMP Amendment and associated EIS are called the *TriCounty Resource Management Plan and Environmental Impact Statement*. The *Mimbres RMP* will continue to guide the management of public land in Luna, Grant, and Hidalgo Counties in the remainder of the Las Cruces District.

1.1 PURPOSE AND NEED FOR THE RMP AND ENVIRONMENTAL IMPACT STATEMENT

FLPMA directs the BLM to manage the public land and resources to allow for multiple-use while assuring the sustained yield, diversity, and productivity of that land for present and future generations. As directed by FLPMA, the primary way of accomplishing this mandate is through the development and updating of resource management plans. The BLM Las Cruces District has determined that the two primary RMPs it relies on to direct management of public land in the Las Cruces District, *White Sands RMP* covering Sierra and Otero Counties and the *Mimbres RMP* for Doña Ana County, are inadequate for a number of resources and need to be revised or amended to conform with latest policies and to provide updated management direction. The *Mimbres RMP* will continue to apply to Luna, Grant and Hidalgo Counties. Once the Record of Decision is issued for the *TriCounty RMP*, all public land management decisions pertaining to Sierra, Otero, and Doña Ana Counties will be contained in the *TriCounty RMP*.

The purpose for revising the existing RMPs is to consolidate, update, and establish appropriate goals, objectives, land use allocations, management actions, priorities, and procedures, within a multiple-use management context, for the BLM public land resource programs administered by the Las Cruces District Office within Sierra, Otero and Doña Ana Counties. The RMP is to provide a land use plan consistent with current laws, regulations and policies, and to update resource management direction to allow the Las Cruces District Office to meet nationwide BLM goals and objectives and to ensure actions taken are consistent with current BLM policy.

The need for revising the two RMPs is that new issues have arisen and new policies have been developed and implemented regarding renewable energy siting, outdoor recreation management, special status species habitat, and proposals for special designations. Neither of the existing plans adequately addresses these issues, policies, and guidance. The *White Sands RMP* does not conform with or adequately address current policy on off-highway vehicle (OHV) use and route designations. The *Mimbres RMP* identified

as suitable for disposal a large area of the public land between Las Cruces and the Organ Mountains. Since the adoption of that plan, the interest in retaining public land in Federal ownership has increased. The impacts of potential land disposals on adjacent military operations, on Section 15 grazing leases, and on community lifestyle were not adequately addressed in the existing RMPs. Neither of the existing RMPs reflects new policies or guidance on planning for recreation management; nor does either plan specifically address renewable energy projects siting. The plans will update guidance on other programs as well including wildlife habitat management, fire management, vegetation restoration, and the impacts of a growing population on the use of nearby public land. In short, over the last 20-25 years the management situation of the public land within the Las Cruces District has changed significantly. A new RMP is necessary to address this changing situation.

Some of the relevant law, policy, and guidance changes that have occurred since the previous plans were signed and need to be considered in the revised RMP include:

- Manual 6400, Wild and Scenic River Policy and Program Direction for Identification, Evaluation, Planning and Management (USDOI BLM 2012)
- Manual 6330, Management of Wilderness Study Areas (USDOI BLM 2012).
- National Fire Plan (DOI and USDA 2000)
- New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (BLM 2001a)
- National Management Strategy for Motorized Off-Highway Vehicle (OHV) Use on Public Lands (USDOI BLM 2001)
- Manual 6840, Special Status Species (USDOI BLM 2001c)
- Healthy Forests Restoration Act of 2003
- Manual H-8410-1, BLM Visual Resource Inventory, Section V. Visual Resource Classes and Objectives (USDOI BLM 2003)
- Energy Policy Act of 2005
- Handbook H-1601-1, Land Use Planning Handbook (USDOI BLM 2005d)
- BLM Instruction Memoranda and Executive Orders

The RMP will establish consolidated guidance and updated objectives and management actions for the public land within the *TriCounty* area. It will be comprehensive in nature and will address issue categories applicable within the Decision Area that have been identified through agency, interagency, and public scoping efforts. Preliminary issues for the *TriCounty Planning Area* have been identified by BLM personnel, other State and Federal agencies, and other stakeholders. These issues include:

- Renewable energy development for solar, wind, and geothermal power;
- Management of rights-of-way for renewable energy and other uses;
- Visual Resource Management (VRM) Classes;
- Land tenure adjustments to meeting community growth needs;
- Disposal of public land adjacent military operations;
- Population growth and urban interface;
- Open space;
- Economic and Social Conditions;

- Management of split estate land;
- Evaluation of existing and potential new Areas of Critical Environmental Concern (ACEC);
- OHV designations and Special Resource Management Areas (SRMAs);
- Recreation management; and
- Grazing management

The EIS for the *TriCounty* RMP will identify the potential impacts that land use plan decisions could have and the appropriate measures to mitigate those impacts. The primary purpose of the EIS is to analyze and document the direct, indirect, and cumulative impacts of the reasonably foreseeable future actions resulting from BLM's management decisions. By law, these impacts must be analyzed before the BLM makes an irreversible commitment of public land resources. This EIS satisfies the requirements of the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality regulations implementing NEPA (Title 40 Code of Federal Regulations [CFR] Sections 1500 to 1508), FLPMA, and other associated regulations.

1.2 PLANNING AREA DESCRIPTION

BLM's Land Use Planning Handbook (H-1601-1) differentiates between geographic areas associated with planning. They include the *Planning Area*, *Decision Area*, and *Analysis Area*.

The *Planning Area* is the region within which BLM will propose management decisions during a planning effort. The three-county area addressed in this document is referred to as the *TriCounty Planning Area*. It includes all land—public and private, regardless of jurisdiction or ownership—in Sierra, Otero, and Doña Ana Counties in south-central New Mexico (Map 1-1).

The *Decision Area* includes all public land in the *Planning Area* for which BLM has authority to make land use decisions (Table 1-2). Generally, the BLM has jurisdiction over all BLM-administered lands (surface and subsurface) and over subsurface minerals in areas of split estate (the surface is owned by a non-Federal entity such as with State Trust land or private land).

The *Analysis Area* includes any lands, regardless of jurisdiction, for which the BLM synthesizes, analyzes, and interprets information that relates to planning for BLM-administered land. The analysis area generally comes into consideration in the Cumulative Impacts analysis in Chapter 4.

The *TriCounty Planning Area* of Sierra, Otero and Doña Ana counties consists of about 9.3 million acres. This includes about 2.82 million Federal surface acres (about 32 percent of the total *Planning Area* acres) and 3.98 million acres of Federal mineral estate (subsurface) that are administered by the BLM. The BLM is the largest single owner/administrator of land within the *Planning Area*. BLM administered land is officially known as the National System of Public Lands or public land. BLM-administered land, BLM-managed land, BLM land, and public land is used interchangeably throughout this document.

While this RMP addresses only management of the public land and resources, management decisions for public land can and do have an effect on non-BLM lands. These effects are analyzed in Chapter 4 as appropriate.

Within the *Planning Area*, the BLM manages 26 special management areas: 13 ACECs; one research natural area (RNA); 10 wilderness study areas (WSAs); one National Natural Landmark; one Backcountry Byway; and one National Historic Trail.

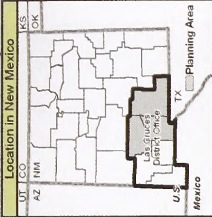
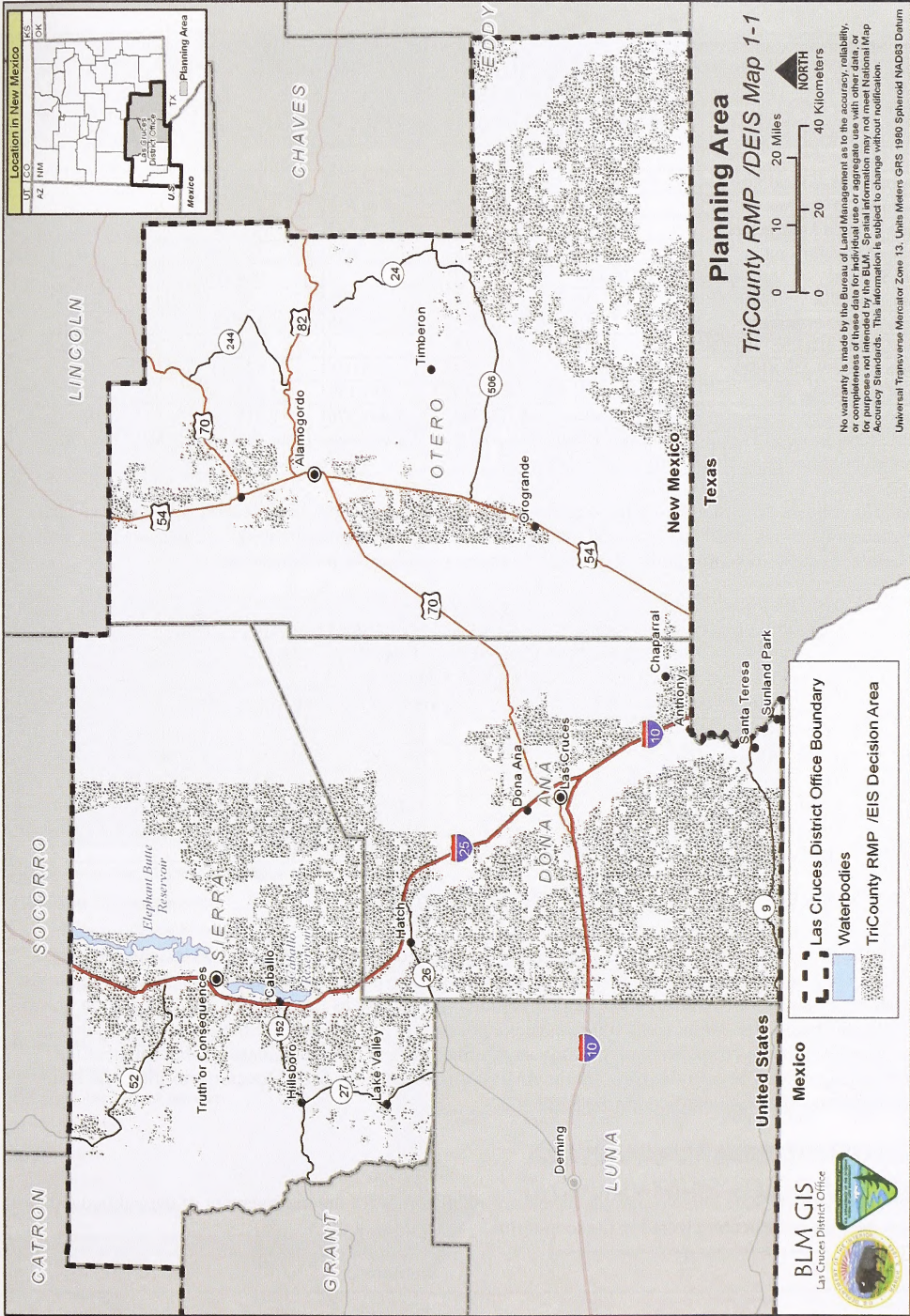
Other areas of Federally-managed land in the *Planning Area* include portions of the military installations of White Sands Missile Range, which extends partially into each of the three counties; McGregor Range and Holloman Air Force Base in Otero County; and Doña Ana Range, which extends into Otero and Doña Ana counties. U. S. Forest Service units include portions of the Gila National Forest and the Cibola National Forest in Sierra County; and the Lincoln National Forest in Otero County. A large portion of the Mescalero Apache Indian Reservation in Otero County is also within the *Planning Area*.

Although much of the 606,157-acre McGregor Range consists of public land managed by the BLM, it is withdrawn from the public domain for military use, and special restrictions apply in that area. Management of the Range is addressed in the *McGregor Range RMP Amendment*, which amended the 1986 *White Sands RMP* and replaced the 1990 *McGregor Range RMP Amendment*. A Record of Decision (ROD) approving the RMP Amendment was issued by the BLM Las Cruces District Office in May 2006, and since that RMP amendment is still valid, the Range is excluded from consideration in the *TriCounty Range RMP/EIS*. However, McGregor Range is considered as part of the *Planning Area*.

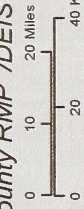
Physically, the *TriCounty Planning Area* encompasses a diversity of landscapes, vegetation communities, and wildlife in the Chihuahuan Desert, Mexican Highland, southern Rocky Mountains, and Mogollon Plateau. Elevations in the *Planning Area* range from 3,800 to 9,000 feet, with desert-mountains rising abruptly from gently sloping plains. Approximately 490 species of vertebrate wildlife are known to inhabit the region. Archaeological and historical studies indicate that a succession of different cultural groups have inhabited the region for about the past 12,000 years.

1.2.1 LAND MANAGEMENT STATUS IN THE *PLANNING AREA*

Table 1-1 shows the surface management/administration by agency or entity by county in the *Planning Area*. In addition to BLM, other Federal land managers in the *Planning Area* are: the Department of Agriculture, Department of Defense, Forest Service, National Park Service (NPS), Fish and Wildlife Service (USFWS), and the Bureau of Reclamation. Many isolated parcels of State Trust land (administered by the New Mexico State Land Office) and isolated parcels of private land are interspersed with public land throughout the *Planning Area*. Table 1-1 and Map 1-2 show the surface ownership of acreage in the *TriCounty Planning Area* that is managed by Federal agencies, American Indian tribes, the State of New Mexico, or private owners.



Planning Area
TriCounty RMP /EIS Map 1-1



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for use in any other application. The information is subject to change without notification. Accuracy Standards: This information is subject to change without notification.

Universal Transverse Mercator Zone 13, Units: Meters GRS 1980 Spheroid NAD83 Datum

- Las Cruces District Office Boundary
- Waterbodies
- TriCounty RMP /EIS Decision Area

BLM GIS
 Las Cruces District Office

**TABLE 1-1
SURFACE MANAGEMENT OR OWNERSHIP IN THE TRICOUNTY PLANNING AREA
ACRES PER COUNTY**

SURFACE MANAGER	SIERRA	OTERO	DOÑA ANA	TOTAL	PERCENT OF PLANNING AREA
FEDERAL					
Department of Agriculture	0	0	109,464	109,464	1.2
Department of Defense	516,996	711,793	490,881	1,719,670	18.5
Bureau of Land Management	773,222	1,537,837	1,116,247	3,427,306 ¹	36.8
Bureau of Reclamation	125	0	837	962	0.0
Forest Service	378,440	555,827	0	934,267	10.0
Fish and Wildlife Service	0	0	56,775	56,775	0.6
National Park Service	0	91,876	52,548	144,424	1.5
AMERICAN INDIAN TRIBES	0	459,719	0	459,719	4.9
STATE OF NEW MEXICO	360,844	338,532	228,079	927,445	10.0
PRIVATE	681,173	469,919	387,139	1,538,231	16.5
Totals	2,710,800	4,165,503	2,441,970	9,318,263	100

NOTE: ¹ Includes 606,157 acres in McGregor Range but which are not addressed in the *TriCounty* RMP. Total BLM surface ownership in the Decision Area is 2,821,149 acres.

Table 1-2 shows the Federally-owned surface and mineral estate within the Decision Area and to which the decisions in this RMP apply. BLM managed surface estate is approximately 2.82 million acres and subsurface estate, including split estate lands, is approximately 3.98 million acres.

**TABLE 1-2
FEDERAL MINERAL ESTATE BY SURFACE OWNER ADMINISTERED BY BLM
WITHIN THE TRICOUNTY DECISION AREA¹
ACRES PER COUNTY**

SURFACE MANAGER	SIERRA	OTERO	DOÑA ANA	TOTAL
BLM Surface Ownership	773,222	931,680	1,116,247	2,821,149
BLM Surface, Federal Minerals	769,385	931,252	1,099,248	2,799,885
Non-BLM Surface, Federal Minerals	274,669	638,887	270,815	1,184,371
Federal Mineral Ownership	1,044,054	1,570,139	1,370,063	3,984,256

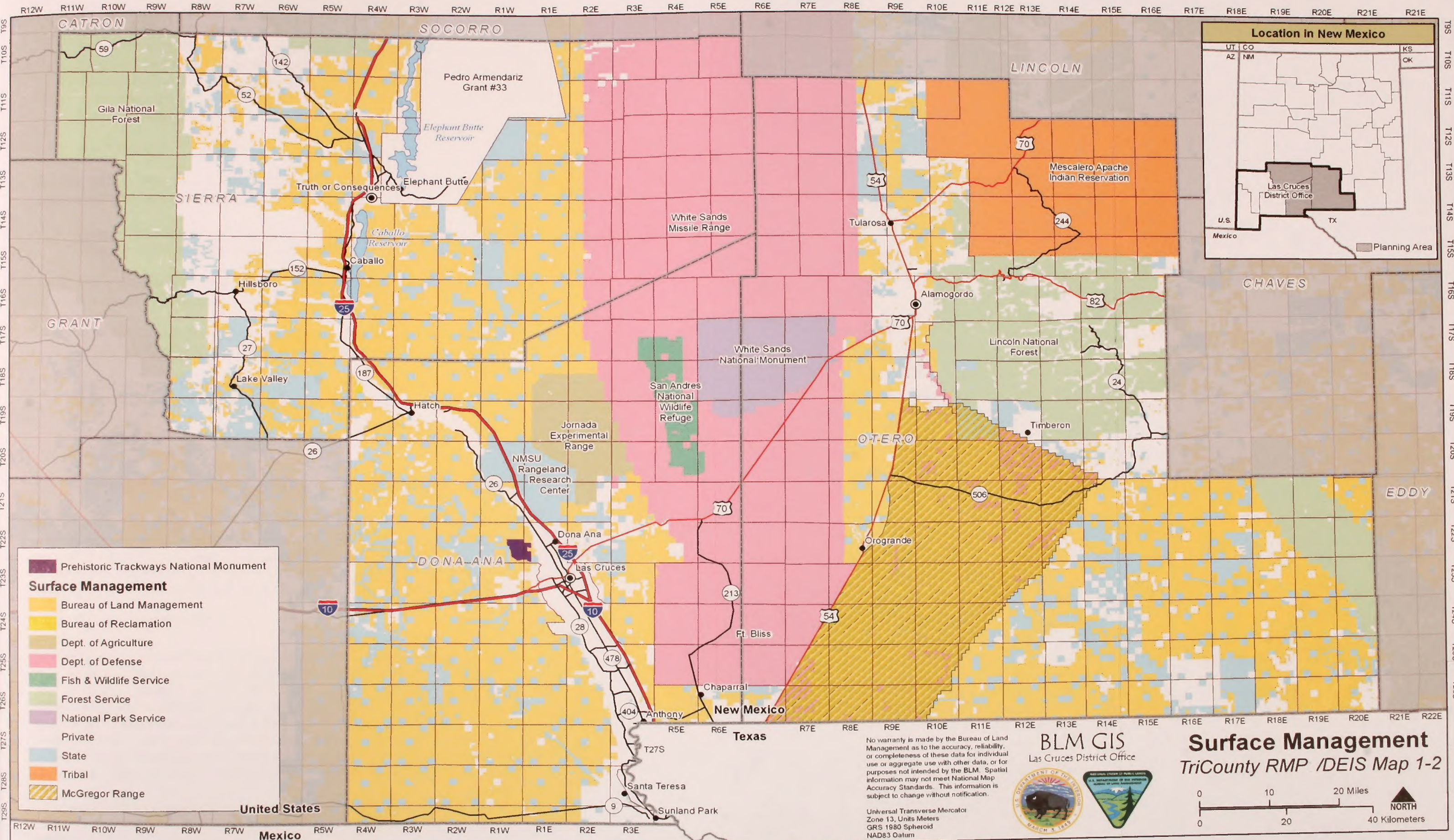
NOTE: ¹ Decision Area is the BLM-administered surface and subsurface estate within the three counties to which the decisions within this RMP apply. It does not include military land, McGregor Range, or other withdrawals.

1.3 OVERALL VISION FOR THE RMP/EIS

Since the *TriCounty* RMP is intended to guide management over the next 15-20 years, a long-term view of resource goals and the overall vision for management of the public land underlies the planning process. Establishing an overall vision ensures that the resource-specific steps taken during implementation of the RMP contribute to the larger goals for management of the public land, and the management direction in the *Planning Area* is consistent and mutually supportive with public land management throughout the State and agency. The overall vision for the RMP is provided by the State Director priorities, and goals which are specifically identified for the RMP.

1.3.1 STATE DIRECTOR PRIORITIES

The New Mexico State Director has identified several priorities for the management of the public land in New Mexico to be accomplished in the long-term:



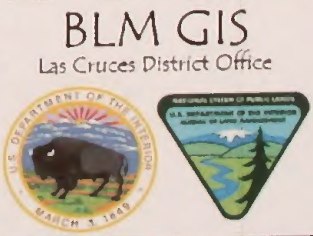
Prehistoric Trackways National Monument

Surface Management

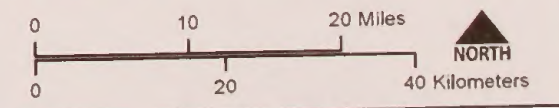
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



Surface Management
TriCounty RMP /DEIS Map 1-2



- Restore watershed health
- Protect special landscapes
- Reclaim “*legacy*” lands (lands that have been damaged by historic use or extraction of resources)
- Help local communities meet future needs
- Enhance habitat for special status species
- Consolidate land ownership patterns
- Resolve mineral conflicts

1.3.2 RMP GOALS

Based on the State Director’s priorities, and the issues identified in the *TriCounty Planning Area*, the goals for this RMP include the following:

- Manage for long-term sustainability and to meet the Standards for Public Land Health for Upland Sites, Biotic Communities, and Riparian Sites.
- Within the capability of the *Planning Area*’s natural and cultural resources, provide tourism, recreational, educational, and research opportunities;
- Provide for production of goods and services from the public land while protecting the natural and cultural resources of that land for future generations.
- Within the capability of the *Planning Area* resources, provide a predictable, sustained flow of economic benefits to individuals and local communities; and
- Work with local American Indian Tribes and local communities to meet their needs within the mission of the BLM.

1.4 ISSUES TO BE ADDRESSED IN THE TRICOUNTY RMP/EIS

The BLM, cooperating agencies, other Federal and State agencies, and the general public raised a number of issues and concerns to be addressed in the RMP. The BLM land use planning process is driven by these issues and concerns to resolve resource management problems and take advantage of management opportunities. The following sections summarize the broad scope of issues and management concerns that determined the alternatives and the scope of analysis for the *TriCounty RMP/EIS*.

1.4.1 PLANNING ISSUES

A planning issue can be defined as an opportunity, conflict, or problem regarding the use or management of the public land and resources. The Preparation Plan for the *White Sands RMP Revision* and *Mimbres RMP Amendment*, prepared by the BLM in 2003, identified several preliminary issues and management concerns to be addressed in the *TriCounty RMP/EIS* (USDOI BLM 2003a). In addition, the BLM began conducting informal public information meetings in 2003 to help the BLM understand community interests related to public land, gather information to help frame a comprehensive set of issues regarding management of public land in the *Planning Area*, and identify opportunities to improve public land management. This was prior to official public scoping which started in January of 2005.

The issues identified through this process were grouped into four general categories. These categories are framed as questions here. Each issue contains a list of management decisions to be made, also framed as questions.

ISSUE 1

How can the conditions of the natural and cultural resources be managed or enhanced given the public's desire to use public land in a variety of ways, including recreation and commercial uses?

Questions to be considered in addressing Issue 1:

- *What decisions and measures would assure that known and unknown cultural, archaeological, and paleontological resources are preserved and protected?*
- *Which areas provide opportunities for recreation close to communities, and which areas provide opportunities for more remote, unstructured recreational experiences, and how should these areas be managed?*
- *What lands in the Decision Area should be identified for disposal, retention, and acquisition to improve development and manageability of BLM's land ownership pattern to effectively manage its resource programs?*
- *How should lands that are found to have wilderness characteristics (naturalness, solitude, and opportunities for primitive recreation), be managed?*
- *How should mineral resources be managed to minimize conflicts in areas of intense recreational use?*
- *How should vegetation be managed to provide forage for livestock and wildlife while protecting and sustaining watersheds in areas that are increasingly urbanized or under pressure for mineral and energy development?*
- *What decisions would help identify strategies and measures for improving and coordinating the control of noxious weeds?*

ISSUE 2

How can public land be used to promote the social and economic well-being of the population in general and the interest of specific subgroups of the populations, given the need to protect cultural and natural resources?

Questions to be considered in addressing Issue 2:

- *Which areas should be designated open, closed, or limited to OHV use?*
- *Which specific vehicle routes or "ways" in ACECs, special recreation management areas (SRMAs) and WSAs should be available for motorized use and what kinds of limitations (i.e., season of use, type of vehicle) should be applied to those routes?*
- *Which areas should be designated as ACECs, SRMAs, or other designations, and how should they be managed?*
- *Should existing special designations be dropped from certain areas?*

- *How will visual resource management classifications be applied throughout the Decision Area as to protect scenic values and, at the same time, conform to other resource allocation decisions?*
- *Which areas should be protected for wilderness characteristics and how?*

ISSUE 3

What BLM support, facilities, and/or services are needed to accommodate growing demands on public land in the *Planning Area*?

Questions to be considered in addressing Issue 3:

- *How should BLM pursue and acquire legal and physical access to public land where it is needed to meet management objectives?*
- *How will travel management areas be determined in the Decision Area?*
- *Which areas should be designated as right-of-way corridors, and which areas should be designated for avoidance or exclusion of rights-of-way?*
- *What management decisions would be implemented to protect fish and wildlife species and habitat?*

ISSUE 4

How should BLM manage and provide for development of energy resources, both renewable and nonrenewable, on public land in the *Planning Area*?

- *How should BLM address the court's decision on previous analysis of oil and gas management in Sierra and Otero Counties?*
- *How should fluid minerals be managed while protecting natural and cultural resources?*
- *How should the Las Cruces District incorporate the best management practices and policy direction from the BLM's Renewable Energy Programmatic EISs; and which areas, if any, within the Decision Area should be identified as most suitable for the development of utility-scale wind and solar energy facilities?*

1.4.2 ISSUES CONSIDERED BUT NOT FURTHER ANALYZED

Although all issues were considered, not all issues raised during the public involvement process are analyzed in the RMP/EIS. Other issues are relevant to site-specific or implementation-level decisions, but are not relevant to this RMP/EIS process. Several such issues, which were considered but not analyzed further, are presented below, by issue category.

Issues Beyond BLM's Regulatory Authority: Some of the issues identified during scoping were outside BLM's regulatory authority. Some of the issues are more relevant to the oversight of other agencies, or simply unregulated by any agency. For example:

- *Regulation of hunting of nonnative species,*
- *Designating WSAs,*
- *Estimating the risk of flooding due to retention-pond failure on private property,*
- *Establishing grazing rates,*
- *Preservation and protection of cultural resource sites such as Fort Selden State Monument, Mount Cristo Rey, and the Lucero Wash petroglyphs.*

None of these fall under the scope of BLM's authority or responsibility.

Issues Related to Financial Impacts: An analysis of the financial costs associated with several management actions was requested as part of the RMP/EIS process. Issues included socioeconomic impacts and quantitative costs related to fisheries, loss of productivity of irrigated crops, and the spread of noxious weeds as a result of oil and gas development. Other issues were raised about the long-term economic cost of water pollution and lack of water recharge and about the cost of funding road maintenance and personnel (based on OHV use) that would occur under some of the alternatives. However, the economic impacts of these issues are impossible to quantify for the broad planning decisions made in the RMP, largely because the impacts would occur on a site-specific basis as a result of future activities that could be subject to additional NEPA compliance. However, the socioeconomic environment and potential impacts were considered to be within the purpose and scope of this document.

Issues Addressed In Previously Adopted RMPs: One commenter suggested that the RMP/EIS support development of the Camino Real Trail; however, *El Camino Real de Tierra Adentro National Historic Trail Comprehensive Management Plan and RMP Amendment* which BLM and National Park Service (NPS) share responsibilities for administering provides trail-related decisions that the Las Cruces District Office will carry forward in the *TriCounty RMP* (USDOI BLM 2004).

Issues Associated with Infrastructure Availability: With development occurring east of Las Cruces, the availability of water and natural gas to accommodate future demands and the costs of additional sewage treatment facilities, roads, bridges, electrical infrastructure, schools, and parks emerged as issues of concern during scoping. The BLM is not obligated to propose or develop community infrastructure; however, as part of the RMP/EIS process, BLM is coordinating with local jurisdictions to identify land that could be available for disposal to accommodate facilities such as schools and parks.

1.5 PLANNING CRITERIA

BLM planning regulations (43 CFR 1610) require the preparation of planning criteria preliminary to the development of all plans. Planning criteria provide direction for the RMP process and are established early, in conjunction with cooperating agencies. Planning criteria establish the principles that will guide the development of the Plan and influence all aspects of the planning process, including collection of resource and resource use inventory data, development of alternatives, analysis of impacts, and ultimately the selection of a preferred alternative. In effect, planning criteria assure that the planning process remains focused on the identified issues and prevent unnecessary data collection and analysis.

Planning criteria are developed on the basis of applicable laws, agency guidance, public involvement, data analysis, and professional judgment and in coordination with other Federal, State, and local governments.

The following general planning criteria have guided the preparation of the RMP and will continue to guide land use decisions made in the future:

- Comply with all laws, regulations, policies and orders regarding management of public land and resources as listed in Appendix A.
- Apply the principles of multiple-use and sustained yield as set forth in the Federal Land Policy and Management Act and other applicable laws.
- Use a systematic, interdisciplinary approach to achieve integrated consideration of physical, biological, economic, social, and environmental aspects of public land management.
- Give priority to the identification, designation, protection, and special management of ACECs.
- Consider the relative significance of the public land products, services, and uses to local economies.
- Rely on available inventories of the public land, its resources, and other values with updating the inventory to the extent necessary to reach sound management decisions.
- Consider present and potential uses of the public land including short-term and long-term management of oil and gas leasing.
- Consider incomplete and unavailable information related to fluid mineral potential and impacts when considering future planning decisions.
- Consider the relative scarcity of the values involved and the availability of alternative means (including recycling) and sites for realization of those values.
- Weigh long-term benefits and detriments against short-term benefits and detriments.
- Comply fully with applicable pollution control laws, regulations, and policies, including State and Federal air, water, noise, or other pollution standards or implementation plans.
- Coordinate (BLM) resource inventory, planning, and management activities with the resource planning and management programs of other Federal departments and agencies, State and local governments, and American Indian Tribes to the extent consistent with the laws governing the administration of the public land.
- Provide for public involvement including early notice and frequent opportunity for citizens and interested groups and others including American Indian Tribes to participate in and comment on the preparation of plans and related guidance.
- Comply fully with all Federal laws that guide management of specific resources such as the Endangered Species Act, Clean Water Act, National Historic Preservation Act, Taylor Grazing Act, and others.
- Comply fully with the BLM National policy on special status species.
- Reflect Federal land management agency obligations under applicable Tribal treaties and laws or executive orders relating to American Indian reserved rights, religious freedoms, traditional use areas, etc.

- Consider the importance of military missions.
- Comply with Executive Order 13443 – Facilitation of Hunting Heritage and Wildlife Conservation.
- Comply with the District Court and the Tenth Circuit Court decisions regarding fluid mineral leasing and management decisions for Sierra and Otero Counties.
- The planning team will work cooperatively with county and municipal governments; Federal, State, and local agencies; and interested groups and individuals. A process of collaborative public involvement and participation will continue throughout this process.
- The revision and the amendment will protect and enhance the biodiversity in the *Planning Area* while allowing the public the opportunity for access to public land in a productive and meaningful way.
- The revision and the amendment will recognize valid existing rights related to the use of the public land.
- The process will involve American Indian tribal governments and will provide strategies for protection of cultural resources on public land.
- Every effort will be made to ensure that decisions are compatible with existing plans and policies of adjacent local, State, and Federal governments and agencies while recognizing that decisions must be made in conformance with relevant laws, regulations, and BLM management policies.

1.6 LEGAL CONSIDERATIONS

1.6.1 FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976

The Federal Land Policy and Management Act (FLPMA) constitutes the so-called “*organic act*” for the BLM and governs most uses of the Federal public land, including grazing. The Act requires the Bureau to execute its management powers under a land use planning process that is based on multiple-use and sustained yield principles. Even though the Act declares that it is public policy to retain the public land in Federal ownership, the Act also provides for public land sales, withdrawals, acquisitions and exchanges.

1.6.2 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

The Environmental Protection Agency (EPA) requires that the Federal Government cannot undertake any “*major Federal action*” unless and until the environmental consequences of that action have been thoroughly assessed. The Act requires that the Federal Government adhere to a standard procedure for determining the environmental impact of decisions or projects, and encourages decision-makers in Federal agencies to consider the environmental impact of every major project with Federal involvement. NEPA also requires Federal agencies to involve interested groups and the public in its decision-making process (Title 42 United States Code Part 4331). An EIS is being prepared as part of this land use planning process to identify the potential effects that implementation of the RMP Amendment and the RMP Revision could have on the environment and provides measures to minimize or mitigate those effects at a broad scale, if appropriate.

1.6.3 THE OMNIBUS PUBLIC LANDS MANAGEMENT ACT OF 2009

The Omnibus Public Lands Management Act of 2009 designated the Prehistoric Trackways National Monument at the south end of the Robledo Mountains. The Act required that a stand-alone management plan be prepared for the area. Consequently, that area is not further considered in the RMP and is not part of the *Decision Area*.

1.6.4 OTHER LEGISLATION

Numerous Federal laws, Executive Orders, and the regulations and policies based on those laws and orders guide development of BLM RMPs. Key laws applicable to this planning effort and the development of the planning criteria are listed in Appendix A.

1.6.5 COURT DECISIONS

On April 29, 2009, in *New Mexico v. BLM*, 565 F.3d 683 (10th Cir. 2009), the Tenth Circuit invalidated the BLM's Record of Decision adopting a Resource Management Plan Amendment concerning "*Federal Fuels Mineral Leasing in Sierra and Otero Counties*" (RMPA). The Tenth Circuit also affirmed the district court's determination in *New Mexico ex rel. Richardson v. BLM*, 459 F. Supp. 2d 1102 (D.N.M. 2006), that the RMP Amendment complied with FLPMA, affirmed the District Court's finding that NEPA requires BLM to conduct further site-specific analysis before leasing, and reversed the District Court's conclusion that BLM complied with NEPA in the RMP Amendment analysis. On December 7, 2009, the District Court set aside the invalid RMP Amendment and ordered the BLM not to "*execute the 2005 Bennett Ranch Unit lease without first conducting an appropriate environmental analysis pursuant to NEPA.*"

1.7 PLANNING PROCESS FOR *TRICOUNTY* RMP/EIS

The RMP preparation process employs several steps according to the BLM Land Use Planning Handbook, H-1601 (USDOI BLM 2005d). The public is encouraged to participate throughout the planning process, and the BLM is mandated to support and allow for public participation and review. This process also requires the expertise of an interdisciplinary team of resource specialists to complete each step.

STEP 1 – PREPARATION PLAN

Potential issues were identified through internal discussions among the BLM staff at the District Office, State Office, and Washington Office levels prior to the beginning of the project. Local BLM staff also met with local governmental agencies and organizations and various user and interest groups. The official start of scoping and the RMP/EIS process began with the publication in the *Federal Register* of the Notice of Intent to update the RMP, prepare an EIS, and conduct public scoping meetings. The Notice of Intent was published on January 28, 2005. After the discussions, meetings with agencies and organizations, public scoping meetings, and review of public comments, the issues described in Section 1.4.1 were identified to be carried forward for analysis in the *TriCounty Draft RMP/EIS*.

Planning criteria were established to provide focus for data collection efforts, achieve compliance with legal mandates, and facilitate decision making. The planning criteria used to guide the development of the RMP/EIS are detailed in Section 1.5.

STEP 2 – SCOPING

Scoping is the process by which the BLM solicits both internal and external input to identify relevant issues and concerns that need to be addressed within the scope of the RMP. These issues and concerns are analyzed in detail in the EIS as required by the NEPA. During scoping, the Las Cruces District Office engaged the public, local and State governments, Native American Tribes, and other Federal agencies to identify these issues and concerns. The scope of the analysis was then narrowed to those issues and concerns. The BLM held four public meetings in Las Cruces, Alamogordo, Truth or Consequences and Anthony, New Mexico. A scoping report was made available to the public on the BLM website in June 2005.

STEP 3 – ANALYZE MANAGEMENT SITUATION

The *TriCounty Analysis of the Management Situation* is an assessment of the current situation as it relates to natural and cultural resource management and resource use on public land in the *TriCounty* area. That document does not compile all available data, but it does provide information appropriate to address the planning issues identified during scoping. The *TriCounty Analysis of the Management Situation* provides a profile of the resource concerns on the public land in Sierra, Otero, and Doña Ana counties; a description of the existing management situation as it pertains to management of the resources; and an analysis of opportunities to modify the existing management situation. The *TriCounty Analysis of the Management Situation* and accompanying resource maps are on file at the BLM Las Cruces District Office.

STEP 4 – FORMULATE ALTERNATIVES

Four alternatives—A, B, C, and D—are examined in these *TriCounty RMP/EIS*. These alternatives were developed to respond to issues identified through scoping and management concerns. They explore alternatives to the existing management situation, and comply with the FLPMA requirement of managing for multiple-use and sustained yield on public land.

STEP 5 - ESTIMATE EFFECTS OF ALTERNATIVES

The predicted effects resulting from each of the alternatives were identified and evaluated. Mitigation measures also were considered in evaluating impacts. A description of the existing environment in the *Planning Area* is included in Chapter 3, and potential environmental consequences are discussed in Chapter 4.

STEP 6 – IDENTIFY PREFERRED ALTERNATIVE

Based on the information generated in Step 6, the BLM Las Cruces District Manager identified and recommended Alternative C to the BLM State Director as the preferred alternative.

STEP 7 – PREPARE THE DRAFT RMP/EIS

A Draft RMP/EIS describing the purpose and need for the plan, the affected environment, the alternatives for managing public land, the environmental impacts of those alternatives, and the consultation and coordination in which the Las Cruces District Office engaged in developing the plan was distributed to the public initiating a 90-day review and comment period.

STEP 8 – PREPARE A PROPOSED RMP AND FINAL EIS

Based on the results of public review and comments on the *TriCounty Draft RMP/EIS*, the BLM Las Cruces District Manager will recommend, and the BLM State Director will select, an alternative or a combination of the alternatives for the Proposed RMP and will publish that Proposed RMP and the Final EIS analyzing the impacts of the proposed plan.

STEP 9 – PROVIDE A PROTEST PERIOD AND RESOLVE PROTESTS

A 30-day protest period will be provided during which individuals who participated in the planning process may protest any or all land use planning decisions contained in the Proposed RMP. The BLM Director must resolve all protests prior to issuing a Record of Decision (ROD) for the RMP. Implementation decisions contained in the RMP cannot be protested but can be appealed at the time of their implementation. These decisions and the appeal process will be identified in the proposed RMP.

STEP 10 – GOVERNOR’S CONSISTENCY REVIEW

Concurrent with the 30-day protest period the BLM must provide a 60-day review period to the Governor of New Mexico to ensure consistency with State and local plans, policies and programs. Any responses from the Governor on consistency must also be resolved before the BLM issues a ROD.

STEP 11– PREPARE AND PUBLISH A ROD AND APPROVED RMP

The approved RMP is typically the proposed RMP as modified in response to protests, the Governor’s consistency review, or other considerations. The plan is officially approved when the State Director signs the ROD adopting the RMP. The BLM will then publish the ROD and approved RMP in a single document, making it available to all interested parties.

STEP 12 – IMPLEMENT, MONITOR, AND EVALUATE PLAN DECISIONS

Over time, the BLM will implement, monitor, and evaluate actions, resource conditions, and trends to determine if implementation of the RMP is occurring as planned, if management goals and objectives are being met, and whether there are unanticipated results from implementation. Monitoring and evaluation are essential components of an adaptive management approach, which will enable BLM to detect issues early enough to adjust implementation strategies as necessary to assure that goals and objectives are achieved. The RMP will be kept current through minor maintenance, amendments, or revisions as demands on resources change or new information is acquired.

1.8 RELATIONSHIP TO BLM POLICIES, PLANS, AND PROGRAMS

The *TriCounty RMP/EIS* will replace the *White Sands RMP* and supersede the *Mimbres RMP* for Doña Ana County. In some cases, decisions from existing plans are brought forward to this RMP unchanged. For example, the ACEC designations that were made through the *RMP Amendment for Areas of Critical Environmental Concern in Otero County* (USDOI BLM 1997a) are incorporated into this RMP revision for Sierra and Otero Counties.

The BLM will continue to manage public land and mineral estate in accordance with the current, unrevised RMPs until the *TriCounty RMP/EIS* is completed and a ROD is signed.

1.8.1 RMP AMENDMENT FOR FLUID MINERALS LEASING AND DEVELOPMENT

In 2005, the BLM completed the RMP Amendment for fluid mineral leasing and development in Sierra and Otero Counties. The BLM intended to carry the management decisions in that plan amendment into the *TriCounty* RMP for the two counties and, where appropriate, apply those decisions to Doña Ana County. However, the District Court decision setting aside the RMP Amendment nullified the decisions in the plan. Consequently, management of oil and gas leasing reverts back to the decisions made in the *White Sands* and *Mimbres* RMPs. The BLM has previously determined that these planning decisions are insufficient for management of this resource and that there is a need to develop a management strategy for oil and gas leasing in the *TriCounty Planning Area* prior to any further leasing. To allow additional time for the BLM to gather and analyze the further information needed for the comprehensive analysis of fluid minerals leasing as identified by the courts in *New Mexico v. BLM*, 565 F.3d 683 (10th Cir. 2009) and *New Mexico ex rel. Richardson v. BLM*, 459 F. Supp. 2d 1102 (D.N.M. 2006), and in the interest of pursuing other decisions for all the many, crucial, non-fluid mineral resources in the *Planning Area*, the BLM will defer all oil and gas leasing in the *Planning Area* until the BLM prepares a new programmatic environmental analysis of oil and gas leasing upon completion of this RMP which in turn will operate to amend this RMP with respect to oil and gas development.

The primary area of concern regarding oil and gas leasing is the Otero Mesa in southern Otero County. Consistent with the courts' opinions in *New Mexico*, 459 F. Supp. 2d 1102 and *New Mexico*, 565 F.3d 683, the BLM needs to gather and evaluate additional information for this area, including impacts to vegetation, wildlife habitat and special status species and groundwater in the Salt Basin Aquifer including extent, amount, depth of the aquifer and potential effects from drilling and wastewater disposal. Air quality impacts also would have to be assessed and possibly modeled according to the interagency Air Quality Memorandum of Understanding (BLM MOU WO-200-2011-04).

Consequently, the Las Cruces District, has determined that in order not to delay the resource decisions analyzed in the *TriCounty* RMP any further, analysis of oil and gas leasing and development will take place in an RMP Amendment accompanied by suitable programmatic NEPA analysis for the program once the *TriCounty* RMP is completed. Until the programmatic NEPA analysis and the RMP Amendment are completed, oil and gas leasing in the *TriCounty Planning Area* will be deferred. The impacts of this deferral are analyzed accordingly for the *TriCounty* RMP.

1.8.2 STANDARDS FOR PUBLIC LAND HEALTH AND GUIDELINES FOR LIVESTOCK GRAZING MANAGEMENT

The alternatives analyzed in the RMP and EIS include management direction intended to complement or support, rather than replace, "*Standards for Public Land Health and Guidelines for Livestock Grazing Management*" (BLM 2001). These standards and guidelines were developed by the New Mexico State Director in consultation with the New Mexico Resource Advisory Committee (RAC). They were approved by the Secretary of the Interior in January 2001.

The fundamentals of rangeland health stated in 43 CFR 4180 include four elements: watershed, ecological processes, water quality, and plant animal habitats. The objectives for the public land health standards are to promote healthy, sustainable ecosystems; to accelerate restoration and improvements of public land to properly functioning conditions; and to provide for the sustainability of industry and communities that depend upon productive, healthy public land. The alternatives analyzed in the Draft RMP/EIS incorporate the principle that cumulative effects of all management activities, including Federally-authorized activities, determine whether the standards for land health would be achieved. Consequently, the effects of livestock grazing are not the only concern.

The New Mexico “Standards for Public Land Health and Guidelines for Livestock Grazing Management” are explained in detail in Appendix B (USDOI BLM 2000a)

1.8.3 WIND, SOLAR, AND GEOTHERMAL PROGRAMMATIC EIS

The BLM, in conjunction with other agencies including the Department of Energy (DOE), has prepared a number of BLM-wide programmatic EISs dealing with renewable and alternative energy development. In all cases, the *TriCounty* RMP/EIS incorporates by reference these documents and specific material from these documents has been quoted or summarized in various sections as may be appropriate and necessary to clarify discussion, description, and analysis. These documents include the following:

Final Programmatic Environmental Impact Statement for the Designation of Energy Corridors in Eleven Western States (2009). The PEIS identified energy corridors throughout BLM to facilitate future siting of oil, gas, and hydrogen pipelines, as well as renewable energy development projects and electricity transmission and distribution facilities on Federal lands in the West to meet the region’s increasing energy demands while mitigating potential harmful effects to the environment. Three corridors identified in the PEIS fall within the *TriCounty* Decision Area and are analyzed in this RMP/EIS.

Final Programmatic EIS on Wind Energy Development on BLM-Administered Lands in the Western United States (USDOI BLM 2005e). From this PEIS, BLM produced its wind energy development policy and best management practices. This also established consistency in processing right-of-way applications and management authorizations for wind energy site testing and development on public land. Any right-of-way applications for wind energy projects within the Decision Area would follow these procedures.

Resource Management Plan Amendments for Geothermal Leasing in the Western United States (2008). This document allocated BLM land as open to be considered for geothermal leasing or closed to leasing; and adopted stipulations, best management practices, and procedures for geothermal leasing and development. The EIS identified approximately 5 million acres open within the Las Cruces District.

Because geothermal leasing information for the *Planning Area* was compiled and addressed in the Resource Management Plan Amendments for Geothermal Leasing and policy and best management practices were developed in that document, the Las Cruces District believes that, in contrast to oil and gas fluid minerals, there is information and guidance sufficient to serve as grounds to analyze geothermal leasing decisions in the *TriCounty* RMP.

Solar Energy Development in Six Southwestern States Programmatic EIS (US DOI BLM 2012). The PEIS evaluates the agency’s proposed actions to establish a new BLM Solar Energy Program applicable to utility-scale solar energy development on BLM-administered land in Arizona, California, Colorado, Nevada, New Mexico, and Utah. This includes establishing policy direction and best management practices as well as identifying areas as available for consideration of siting utility-scale solar energy projects including the *TriCounty* Decision Area.

El Camino Real de Tierra Adentro National Historic Trail Comprehensive Management Plan (USDOI NPS and BLM 2004). This plan, written in cooperation with the National Park Service, responds to the Trail’s congressional designation and the requirements of the National Trails System Act. It identifies strategies to meet the following goals: a high-quality visitor experience, coordinated interpretation and education, effective administration, and active resource protection.

1.8.4 OTHER BLM LAND USE PLANS

The 2006 *McGregor Range RMP Amendment* decisions will continue to be implemented and are not revised as part of the *TriCounty RMP*.

An RMP is being prepared for the Prehistoric Trackways National Monument (PTNM). That plan will be consistent with the *TriCounty RMP* but is a stand-alone plan that is outside the *TriCounty Decision Area*. Management of the Monument will be governed entirely by the PTNM RMP when it is completed.

The BLM *Las Cruces District Office Fire Management Plan* (USDOI BLM 2004a) and the 2004 *Statewide Resource Management Plan Amendment for Fire and Fuels* are used to coordinate the fire management program of the BLM Las Cruces District Office in the Gila-Las Cruces and the Lincoln fire management zones (USDOI BLM 2004b). The Joint Powers Master Agreement outline agreements and commitments among Federal agencies and the State of New Mexico for wildland fire protection, joint fire management, and large-fire support (USDOI BLM 2003b). The agencies jointly conduct mutual interest projects, within their authority, to maintain or improve fire management capability. While not all areas within the authority of the BLM Las Cruces District Office are entirely in the *Planning Area*, fire management resources from all areas may be used in the *TriCounty Planning Area*. Effective fire management will require close coordination among local and regional jurisdictions. The 2001 Federal Wildland Fire Management Policy provides guiding principles for Federal agencies that are fundamental to the success of the Federal Wildland Fire Management Program.

1.9 COLLABORATION AND CONSULTATION

Council on Environmental Quality regulations, which are contained in 40 CFR 1501.6 and 1508.5, implement the NEPA mandate that Federal agencies responsible for preparing NEPA analysis and documentation do so “*in cooperation with State and local governments*” and other agencies with jurisdiction by law or special expertise, as stated in Title 42 United States Code Parts 4331(a) and 4332(2). Cooperating agency status allows interested agencies to assume responsibilities beyond attending public meetings and to both review and comment on plan documents.

The BLM solicited several local, state and Federal Agencies to participate as Cooperating Agencies in the preparation of the *TriCounty RMP/EIS*. Initially, six agencies responded and became cooperators: City of Las Cruces, Doña Ana County, Otero County, Sierra County, New Mexico Department of Agriculture, and New Mexico Department of Game and Fish. In 2009, the U.S. Army White Sands Missile Range and U.S. Army Ft. Bliss requested cooperator status and it was granted.

In formulating the RMP, the BLM has worked collaboratively with local communities, the public, interested groups, and all levels of government to assure that the resulting plans have considered future needs.

A 60-day public scoping period was initiated in January 2005 with the publication of a Notice of Intent to prepare an RMP/EIS. BLM held four public meetings in Las Cruces, Alamogordo, Truth or Consequences and Anthony, New Mexico. The BLM also received 323 written comments during public scoping. Concerns or interests most addressed at the meetings and in the comments included management of biological resources, motor vehicle use, trails and access, special designations, and land disposal and retention.

Three public workshops were held in December 2006 to receive public input on the draft alternatives BLM had developed to that point. A total of 329 people attended those workshops.

Four newsletters were sent to the RMP mailing list during preparation of the document. The fourth newsletter asked for comments regarding changes to the RMP in fluid minerals management, renewable energy development, and livestock grazing management. Over 2,500 responses were received, 99 percent of which were form letter emails.

During the development of the *TriCounty* RMP/EIS, the BLM consulted with adjacent communities, military and other government agencies to determine to what extent these entities wanted to see land available for disposal to achieve their objectives for community expansion or other needs. The parcels identified for disposal under the various alternatives have been determined to meet the FLPMA criteria for disposal in terms of BLM needs and BLM management objectives; and to meet future growth needs of communities within the *Planning Area*. The BLM has made no determination as to whether the disposal parcels would be suitable for management and use by other Federal agencies. The BLM is not in a position to make that determination and other such uses are not addressed in this document.

Consultation has been initiated with the U.S. Fish and Wildlife Service (USFWS), and a Biological Assessment will be completed prior to BLM issuing the Proposed RMP/Final EIS. The State Historic Preservation Office also has been consulted regarding this RMP/EIS effort. The BLM also contacted local tribes and government officials to inform them of the planning effort, request the identification of traditional cultural places and resources that should be considered, and invite them to participate in the preparation of the RMP/EIS.

In recent years, illegal activities along the US and Mexico border has increased dramatically involving the smuggling of illegal drugs, contraband, and persons, as well as illegal border crossing by individuals. This increased activity is evident along the southern boundary of Doña Ana County. Consequently, US Customs and Border Protection (CBP) and Office of Border Patrol (CBP-BP) activities have increased as well. In 2008, anti-personnel and anti-vehicle barriers were installed on the Mexico/New Mexico border in Doña Ana County. In March 2006, the Departments of the Interior, Agriculture and Homeland Security and all of their respective constituent Bureaus entered into a Nationwide Memorandum of Understanding (MOU) to provide consistent goals, principles, and guidance related to border security, such as law enforcement operations; tactical infrastructure installation; utilization of roads; minimization or prevention of significant impacts on or impairment of natural and cultural resources; implementation of the Wilderness Act, Endangered Species Act, and other related environmental law, regulation, and policy across land management agencies; and provide for coordination and sharing information on threat assessments and other risks, plans for infrastructure and technology improvements on Federal lands, and operational and law enforcement staffing changes. In meeting the purpose and scope of the 2006 MOU, BLM and CBP-BP meet regularly to discuss, plan and coordinate the two agencies' activities along the border. Parties to the MOU strive to resolve conflicts and delegate resolution authority to the lowest field operational level as possible.



Chapter 2

Alternatives

CHAPTER 2 ALTERNATIVES

The land use planning process provides an opportunity for the Bureau of Land Management (BLM) Las Cruces District Office to reevaluate the way it manages the resources, resource uses, and other programs on public land within the *Planning Area* of Sierra, Otero, and Doña Ana Counties. As part of the *White Sands Resource Management Plan (RMP) Revision* and *White Sands RMP Amendment*, collectively referred to as the *TriCounty RMP*, the BLM Las Cruces District Office developed alternative land management strategies to address the issues that were identified early in the planning process (refer to Chapter 1) and to achieve resource goals and objectives. The potential environmental consequences of these management actions were evaluated, as well as the No-Action Alternative which is the continuation of existing management. The full analysis of the impacts of these alternatives on the resources can be found in Chapter 4.

There are four alternatives and they consist of land use plan-level decisions as defined in the BLM *Land Use Planning Handbook* (USDOI BLM 2005a). The land use plan management decisions fall into two categories: desired outcomes and allowable uses. Desired outcomes are goals and objectives for management of each resource and resource use. Allowable uses, including restricted or prohibited, achieve desired outcomes. This Chapter describes:

- A general description of the alternatives;
- Alternatives considered but not analyzed in detail;
- Detailed descriptions of alternatives including Continuing Management Guidance and Management Common to All Alternatives; and
- A summary comparing the potential impacts associated with each alternative.

2.1 GENERAL DESCRIPTION OF THE ALTERNATIVES

Three action alternatives and the No-Action Alternative are evaluated in the impact assessment for this Environmental Impact Statement (EIS). In general, the three action alternatives range in emphasis from resource conservation to resource use. Under all action alternatives, new oil and gas leasing would be deferred pending development of a programmatic RMP Amendment and EIS to address specific decisions for those resources prepared after the *TriCounty RMP/EIS* Record of Decision (ROD) is signed.

The **No-Action Alternative (or Alternative A)** is the continuation of existing management. Continuing management is defined for Sierra and Otero Counties by the 1986 *White Sands RMP*, as amended; and defined for Doña Ana County by the 1993 *White Sands RMP*, as amended. Under Alternative A, current management strategies would remain in place. Decisions that have been implemented based on the 1986 and 1993 RMPs would continue, and those that have not yet been implemented would be carried out.

Three action alternatives (Alternatives B, C, and D) represent variations from existing management and were developed to address current issues and concerns in the *Planning Area*.

Alternative B places emphasis on conserving resources and reducing human use of public land. With this alternative, the BLM has defined a resource conservation approach while still providing for multiple uses. This alternative would assure protection of resources for long-term use and benefit. This would be achieved primarily through greater emphasis to conserve resource values associated with special designations, fish and wildlife habitat, and special status species habitat. In some areas, resource uses would be excluded to conserve sensitive resources.

Alternative C (Preferred Alternative), is the BLM's preferred alternative at the time of this Draft RMP/EIS. It provides a mix of resource protection and resource uses, prescribing resource conservation in specific areas while allowing for continued and, in some cases increased, resource uses in other areas. Management under this alternative would balance the need to protect, restore, and enhance natural values with the need to provide for the production of food, fiber, and minerals and to provide recreation, heritage tourism, and other services on public land. This balance would be achieved within the limits of the ecosystem's ability to provide resources on a sustainable basis and within the constraints of applicable laws and regulations. Measures to protect sensitive resources would be implemented, but they would be less restrictive than under Alternative B.

Alternative D generally places an emphasis on resource uses and production, while still providing for resource protection necessary to meet legal requirements. Under Alternative D, constraints on commodity production would be the least restrictive, while still complying with multiple uses in accordance with applicable law, regulation, and BLM policy. Under this alternative, long-term preservation of some resources for future use and benefit may not occur.

2.2 NATIONAL ENVIRONMENTAL POLICY ACT

The alternatives presented in the *TriCounty RMP/EIS* are designed to provide general management guidance for all resource programs in the *Decision Area*. Future proposals for site-specific actions would in almost all cases require more detailed environmental review in compliance with the National Environmental Policy Act of 1969 (NEPA). The type of analysis required would be determined at the time an application is received or proposal is developed. Site-specific analysis would include surveys required by law or policy such as cultural resources surveys, special status species surveys, hazardous material site assessments, and so forth. Specific projects for some areas or resource programs may be detailed in future activity plans, project plans, and site-specific proposals. These plans and projects may be derived from broader decisions in the RMP or from internal management decisions. They address more precisely how a particular area or resource is to be managed and ensure compliance with the approved RMP. Usually, this would occur where the project or activity plan has not been specifically addressed in the *TriCounty RMP/EIS*. These plans and projects may include actions such as developing a travel management plan, issuing a right-of-way, or constructing range improvements.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

Several alternatives were considered as possible methods of resolving resource management issues and conflicts. Some of the alternatives considered were received during public scoping. Alternatives or components of alternatives identified as existing requirements under current laws, regulations, or standard operating procedures and policies were not carried forward for detailed analysis. The following alternatives were considered but were eliminated from detailed analysis for the reasons described.

2.3.1 REMOVAL OF TWO WILDERNESS STUDY DESIGNATIONS

During the scoping for the *TriCounty RMP*, a comment was submitted that the Wilderness Study Area (WSA) designations for Organ Needles and Peña Blanca should be removed because WSA management restricted other resource uses and the designations were not in accordance with current BLM policy. These areas were found to have wilderness characteristics as a result of land exchanges. The BLM acquired additional land in the Organ Needles and Peña Blanca inventory units.

During the preparation of the *White Sands RMP*, BLM policy required that areas meeting wilderness criteria be analyzed for designation as WSAs through the RMP process. This policy was based on interpretation of Section 202 of the Federal Land Policy and Management Act (FLPMA) (the land use planning section). At that time, areas that were found to have wilderness size and characteristics were designated as WSAs through the RMP process, and were managed under the *Interim Management Policy for Lands under Wilderness Review* (1995). This guidance has been updated and superseded by BLM Manual 6330 *Management of Wilderness Study Areas*. During the preparation of the *White Sands RMP*, no negative comments were received from the public regarding the designation of the two WSAs. Conditions have not substantially changed that would create new resource conflicts where none existed at the time the WSAs were designated.

As mandated by Section 603 of FLMPA, the BLM identified all land under its jurisdiction that contained wilderness characteristics through a process that concluded on October 21, 1993. WSAs were reported to Congress along with a recommendation as to their suitability or non-suitability to be preserved as wilderness. Criteria for designating WSAs are found in the BLM's *Wilderness Inventory Handbook* (1978). Until Congress acts to designate a WSA as part of the National Wilderness Preservation System, or remove it from further consideration for wilderness, the BLM is required to manage the WSAs so as to prevent impairment of the area's suitability for preservation as wilderness. All WSAs would continue to be managed under the BLM's *Management of Wilderness Study Areas Manual 6330* (2012b). Any areas not designated by Congress as wilderness and released from further study, would be managed according to the applicable management prescriptions in the *TriCounty RMP* such as Visual Resource Management (VRM) class, ACEC prescriptions, and vehicle use designations

In summary, the decision to designate the Organ Needles and Peña Blanca WSAs was made in the previous RMP in accordance with FLPMA section 202. Therefore, the status of these WSA designations will continue to be carried forward until Congress decides whether to retain or release these lands.

2.3.2 ELIMINATION OF LIVESTOCK GRAZING

An alternative that proposes to make the entire *Planning Area* unavailable for grazing would not meet the purpose and need of this Draft RMP/EIS. The NEPA requires that agencies study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources. No issues or conflicts have been identified during this planning effort which requires the complete elimination of grazing within the *Decision Area* for their resolution. In fact, during public scoping of the RMP, livestock grazing was not brought up as an issue. The BLM has discretion through its grazing regulations and through the *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management* (BLM 2000) to determine and adjust stocking levels, and seasons-of-use. Grazing management activities and forage allocation are determined in an RMP, therefore, the analysis of an alternative to entirely eliminate grazing is not needed in the absence of identified conflicts.

In accordance with BLM's Land Use Planning Handbook (BLM 2005) and BLM IM No. 2012-169, the BLM considered a range of alternatives with respect to areas that are available and unavailable for livestock grazing, and forage adjustments. These alternatives provide a clear basis for choice by the decision-maker. All alternatives would allow suitable measures which could include a reduction or elimination of livestock grazing in specific situations where livestock grazing causes or contributes to conflicts with the other resource values or uses. The BLM considered but did not analyze in detail an alternative that would make all 2.8 million acres of public land in the *Decision Area* unavailable for livestock grazing because such an alternative is not reasonable, viable, or necessary in light of resource conditions.

Under Alternative B, the decision-maker may close allotments to grazing based on basic evidence of unmanageable conflicts compared to Alternative C under which the decision-maker must conduct an evaluation to document whether land health standards are achieved or not achieved based on long-term monitoring and make a determination to identify causal factors where standards are not achieved. Alternatives A and D close only the most sensitive habitats to grazing (1,686 acres and 1,156 acres, respectively).

On public land, livestock grazing is authorized by term permits lasting for up to 10 years and permit renewal is a discretionary action dependent on compliance with terms and conditions of the expiring permit, as well as monitoring and rangeland health assessments. During the permit renewal process, the BLM may analyze a no grazing alternative at the site-specific level.

Current resource conditions on BLM-administered land, including range vegetation, watershed, and wildlife habitat, as reflected in land health assessments, do not warrant prohibition of livestock grazing throughout the *TriCounty* area. For the purpose of this analysis, the range of alternatives in livestock grazing management provide for consideration of reduced grazing and appropriate grazing utilization levels. Impacts from such a management approach are described in Chapter 4 of this document.

2.4 ALTERNATIVES CONSIDERED IN DETAIL

This section discusses the resources and resource uses that address the purpose and need for the RMP changes and the resolution of issues. Each resource section contains Goals, Objectives, Continuing Management Guidance and Management Decisions Common to all Alternatives. Continuing Management Guidance can include applicable laws, and regulations, but the emphasis is on state and District policy guidance and direction with which the Las Cruces District Office complies. The primary authorizing laws, executive orders and regulations which direct BLM management are shown in Appendix A. Management Decisions Common to all Alternatives are the discretionary actions or decisions carried forward from previous planning documents that would be implemented under each alternative. Then the management prescriptions and uses for each alternative are described. At the end of Chapter 2 is a Summary Comparison of Impacts (Table 2-12), which shows a summary of the impacts across each alternative.

The BLM has identified Alternative C as the Preferred Alternative in the Draft RMP/EIS. However, in developing the Final RMP, the BLM may select all or part of any one alternative for a particular resource or resource use. The Final RMP could be quite different from the Preferred Alternative in the Draft.

2.4.1 SPECIAL DESIGNATIONS

This section deals with areas that have been nominated for special management that can be designated through the RMP. Special designations are Areas of Critical Environmental Concern (ACECs), Historic Trails not Congressionally designated, Backcountry Byways, WSAs, National Historic Trails and Natural Landmarks (NNL).

Goals:

- Designate and manage areas that have special values, meet the relevance and importance criteria, and/or require special management to prevent risk of loss or damage to those characteristics and values.
- Protect National Wild and Scenic Rivers System-eligible segments in accordance with the Wild and Scenic Rivers Act and BLM guidance (Manual 6400) (USDOI BLM 2012).

Objectives:

- Manage ACECs where relevance and importance criteria are met and special management is required to protect the identified values.
- Manage WSAs to protect naturalness; opportunities for primitive, unconfined recreation; and opportunities for solitude.

2.4.1.1 Special Designations Continuing Management Guidance

Areas of Critical Environmental Concern: ACECs are areas of concern where special management attention is required to protect life and safety from natural hazards or to protect or prevent irreparable damage to important historic, cultural, or scenic values; fish or wildlife resources; or other natural systems or processes. *BLM Manual* Section 1613 and 43 CFR Section 1610.7-2 provide the criteria for designating ACECs and require that areas having potential for designation as ACECs be identified during the planning process.

In 1991, the New Mexico BLM entered into a Memorandum of Understanding with The Nature Conservancy (TNC) under which The TNC would: (1) review and evaluate existing ACECs and recommend management with regard to rare or sensitive plants, animals and ecological communities within or near these areas, and (2) identify, evaluate and recommend management for additional ACECs having rare, threatened, or sensitive plants, animals or communities. The TNC found nine areas containing rare or sensitive plants or animals (BLM special status species) or their habitats. It was determined that all nine areas met the relevance and importance criteria to be nominated as an ACEC. Three of these areas were designated ACECs in Otero County (1997). The other six are considered here.

Other outside groups have submitted nominations for ACEC designations. A BLM interdisciplinary team evaluated the nominations and those areas that were found to contain values meeting the relevance and importance criteria were carried forward into the *TriCounty RMP*. The ACEC process is detailed in Appendix G. A report of evaluations and findings for all nominated ACECs is available from the Las Cruces District Office.

National Historic Trail: One designated national historic trail, the El Camino Real de Tierra Adentro, passes through the *Planning Area*. The trail is managed according to the *El Camino Real de Tierra Adentro National Historic Trail Comprehensive Management Plan* prepared by the BLM and the National Park Service in 2004. The trail was the primary route from Mexico City to Northern New Mexico during the Spanish colonial period, 1598-1821. The management plan establishes the administrative objectives, policies, and management actions needed to fulfill the preservation and public use goals for the trail and is hereby incorporated by reference as part of the *TriCounty RMP*.

Backcountry Byway: The BLM's Backcountry Byways Program designates special roads, crossing public land, for their scenic attributes. Most of the public land found along the byways is remote and provides both solitude and recreational opportunities. The Lake Valley Backcountry Byway, designated by the BLM State Director in 1993, would continue to be managed as a designated backcountry byway.

National Natural Landmark: Kilbourne Hole is a designated NNL and is managed to maintain the naturalness and the integrity of its unique volcanic-related features.

Wild and Scenic Rivers: Eligible river segments were evaluated and suitable segments were identified for inclusion and protection in the National Wild and Scenic Rivers System, in accordance with the Wild and Scenic Rivers Act and BLM guidance (BLM Manual 6400).

2.4.1.2 Management Decisions Common to All Alternatives

Under all alternatives, the existing WSA and ACEC designations would continue and would be managed to protect the resource values of those areas (Table 2-1, Table 2-2). In the 1993 *White Sands RMP*, five ACECs were designated in Doña Ana County. In 1997, a RMP Amendment for the Whites Sands RMP designated six ACECs in Otero County. The Las Cruces District Office would also continue to manage the Kilbourne Hole NNL under all alternatives. Decisions regarding management of fluid minerals in existing ACECs from previous RMPs and amendments would be carried forward unchanged under all alternatives. Maps of each of the existing and proposed ACECs are shown in Appendix J.

Motor and mechanical vehicle use in all existing ACECs would be limited to designated routes to be determined through area-specific travel management activity planning upon completion of the *TriCounty RMP/EIS*. See Appendix O for the post-RMP travel management planning procedure.

**TABLE 2-1
EXISTING ACEC ACREAGE IN TRICOUNTY PLANNING AREA BY ALTERNATIVE**

ACEC	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Aden Lava Flow ¹	3,746	Same as A	0	0
Alamo Mountain ²	2,528	Same as A	Same as A	Same as A
Alkali Lakes	6,348	Same as A	Same as A	Same as A
Cornudas Mountain ²	852	Same as A	Same as A	Same as A
Doña Ana Mountains	1,427	3,181	3,181	Same as A
Los Tules	24	Same as A	Same as A	Same as A
Organ/Franklin Mountains	58,417 ³	Same as A	Same as A	Same as A
Rincon	856	Same as A	Same as A	Same as A
Robledo Mountains	7,077 ⁴	Same as A	Same as A	Same as A
Sacramento Escarpment	4,474	Same as A	Same as A	Same as A
San Diego	623	Same as A	Same as A	Same as A
Three Rivers Petroglyph	1,043	Same as A	Same as A	Same as A
Wind Mountain ²	2,308	Same as A	Same as A	Same as A
TOTAL EXISTING	89,723	91,477	87,731	85,977

NOTES:

¹Aden Lava Flow is currently designated a Research Natural Area (RNA) and would be designated an ACEC in Alternative B, and not designated in Alternatives C and D. However, all of the RNA is within the Aden Lava Flow WSA so would continue to be managed as WSA under Alternatives C and D.

²Under Alternatives B and C, Cornudas Mountain, Alamo Mountain and Wind Mountain would be incorporated into the larger proposed Otero Mesa Grasslands ACEC.

³Includes 19,770 acres of WSAs acreage within the Organ Mountains ACEC boundary.

⁴Does not include 789 acres in the Prehistoric Trackways National Monument.

Non-Federally owned lands within or contiguous with an ACEC would be priorities for acquisition by the BLM. Acquired in-holdings or edge holdings within or adjacent to an ACEC would be managed according to the ACEC prescription until the acquired area could be evaluated to determine if it contained resources that met the relevance and importance criteria. If relevant and important values for which the ACEC was designated were found on the acquired lands, those lands would be added to that ACEC and managed accordingly. No new ACECs would be designated under Alternative A. All proposed ACECs would be designated under Alternative B, some proposed ACECs would be designated under Alternative C, and none would be designated under Alternative D (Tables 2-3, 2-4).

2.4.1.3 Special Designations Management Direction by Alternative

2.4.1.3.1 *ACECs*

At the beginning of preparing this RMP, Las Cruces District Office staff nominated a number of ACECs for protection and management of scenic, ecological, cultural, botanical, geological and other values. An interdisciplinary team determined that eight of these met the relevance and importance criteria to be nominated an ACEC and these eight are considered here. A decision common to all would be exclusion of industrial and commercial development that would negatively impact the ACEC resource values.

During public scoping for this RMP, the New Mexico Wilderness Alliance and the Wilderness Society nominated 16 areas for special designations including: ACECs, primitive recreation areas, research natural areas, outstanding natural areas, and scenic areas. Since the ACEC designation is the only legally recognized administrative designation available to BLM, all 16 nominations were evaluated as potential ACECs by the BLM interdisciplinary staff. Nine areas met the importance and relevance criteria for ACEC designation and are considered here.

**TABLE 2-2
PROPOSED ACEC ACREAGE BY ALTERNATIVE**

PROPOSED ACEC	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Broad Canyon	0	4,721	0	0
Brokeoff Mountains	0	61,224 ¹	3,971	0
Caballo Mountain	0	17,268	0	0
Cornucopia	0	16,037	0	0
East Potrillo Mountains	0	11,460	0	0
Jarilla Mountains	0	6,219	0	0
Mud Mountain	0	2,579	2,579	0
Nutt Mountain	0	0	756	0
Otero Mesa Grasslands ²	0	271,262 ²	198,511 ²	0
Percha Creek	0	870	870	0
Picacho Peak	0	950	950	0
Pup Canyon	0	3,677	3,677	0
Sacramento Mountains	0	2,381	2,381	0
Six Shooter Canyon	0	1,060	1,060	0
Southern Caballo Mountains	0	24,117	0	0
Tularosa Creek	0	236	236	0
Tortugas Mountain	0	1,936	0	0
VanWinkle Lake	0	0	1,320	0
TOTAL PROPOSED NEW ACECS	0	16	11	0
ACREAGE OF PROPOSED ACECS	0	425,997	216,311	0

NOTES:
¹Includes 3,110 acres of Brokeoff Mountains WSA.
²Under Alternatives B and C, Alamo Mountain, Cornudas Mountain, Wind Mountain and the proposed VanWinkle Lake would be incorporated into the Otero Mesa Grasslands ACEC. Acres shown do not include the three existing ACECs in order to avoid duplicating acres shown in Table 2-2. Total acreage for Alternative B including the three existing ACECs would be 276,950; for Alternative C it would be 204,199. Otero Mesa Grasslands Alternative B would also include the proposed Van Winkle Lake ACEC (1,320 acres).

In 2006, BLM staff proposed to expand the existing Robledo Mountains ACEC to include the existing Paleozoic Trackways RNA. With the passage of the Omnibus Public Lands Management Act of 2009 which designated the Prehistoric Trackways National Monument, the expansion of the Robledo Mountains ACEC was dropped.

The proposed ACECs would be designated under Alternatives B and C (Table 2-2) and no new ACECs would be designated under Alternatives A and D. The proposed Otero Mesa Grasslands ACEC would incorporate three existing ACECs – Alamo Mountain, Cornudas Mountain, and Wind Mountain in Alternative B.

Existing ACECs would be managed as shown in Table 2-3 and proposed ACECs would be managed as shown in Table 2-4. Individual maps of each ACEC are located in Appendix J and by alternative on Maps 2-2 through 2-5.

2.4.1.3.2 *Historic Trails*

One congressionally designated National Historic Trail and two non-designated historic trails traverse the *Planning Area*. In addition, one RNA and a NNL also are designated within the *Planning Area*. The Paleozoic Trackways RNA was designated in the *White Sands RMP*. However, that area is included in the Prehistoric Trackways National Monument designated in the 2009 National Public Lands Omnibus Bill and is addressed in a separate RMP. Table 2-5 describes how these areas would be managed under each alternative and Maps 2-2 through 2-5 show their locations.

2.4.1.3.1 *Wilderness Study Areas*

As mandated by Section 603 of FLPMA, the BLM identified all land under its jurisdiction that contained wilderness characteristics through a process that concluded on October 21, 1993. WSAs were reported to Congress along with a recommendation as to their suitability or non-suitability to be preserved as wilderness. Criteria for designating WSAs are found in the BLM's *Wilderness Inventory Handbook* (1978). Until Congress acts to designate a WSA as part of the National Wilderness Preservation System, or remove it from further consideration for wilderness, the BLM is required to manage the WSAs so as to prevent impairment of the area's suitability for preservation as wilderness. All WSAs would continue to be managed under the BLM's *Management of Wilderness Study Areas Manual* (2012b). All WSAs would be designated and managed as Visual Resource Management (VRM) Class I areas, per BLM Policy. Any areas not designated by Congress as wilderness and released from further study, would be managed according to the applicable management prescriptions of the adjacent lands in the *TriCounty RMP* such as VRM class, ACEC prescriptions, and vehicle use designations.

Ten existing WSAs would continue to be designated WSAs and managed according to the *Management of Wilderness Study Areas Manual* (Table 2-6) (Maps 2-2 through 2-5). See Appendix J for individual WSA maps. Approximately 4,000 acres of the Jornada del Muerto WSA is within Sierra County but the majority of the WSA is in Socorro County. The entire WSA is managed according to the *Management of Wilderness Study Areas Manual* (2012b) and the Socorro RMP (US DOI BLM 2010), and the acreage is shown as part of the TriCounty *Decision Area* to show the true picture of WSA management.

**TABLE 2-6
EXISTING WILDERNESS STUDY AREAS**

WILDERNESS STUDY AREA	ACREAGE
1. Aden Lava Flow	25,287
2. Brokeoff Mountains	31,606
3. Jornada del Muerto ¹	4,319
4. Las Uvas Mountains	11,067
5. Organ Mountains	7,283
6. Organ Needles	7,630
7. Peña Blanca	4,470
8. Robledo Mountains	12,946
9. West Potrillo Mountains ² / 10. Mount Riley	157,185
TOTAL ACRES	261,793

NOTES:

¹ Includes only the acreage in Sierra County.

² Does not include approximately 10,300 acres in Luna County.

2.4.1.3.2 *Wild And Scenic Rivers*

The BLM will consider decisions affecting eligible rivers that would protect and/or enhance free-flowing conditions, water quality, and identified outstandingly remarkable values. An inventory of streams in the *Decision Area* is described in Appendix P.

Alternative A: Preserve the tentative classification of each eligible segment by protecting its free-flowing nature, water quality, and outstandingly remarkable value(s) and determine suitability at a later date (see Appendix P).

Alternative B: Determine all eligible stream segments as suitable for inclusion in the National Wild and Scenic Rivers System.

Alternative C: Determine all river segments as not suitable, and not recommended for Congressional designation within the National Wild and Scenic Rivers System.

Alternative D: Determine the Tularosa Creek stream segments as suitable and recommended for Congressional designation in the National Wild and Scenic Rivers System.

TABLE 2-3

EXISTING ACECS: MANAGEMENT PRESCRIPTIONS & ACREAGE BY ALTERNATIVE

ACEC & VALUES	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
<p>Aden Lava Flow (Map J-7) <i>Biological, Scenic, Geological, and Research Resources</i></p>	<p>3,746 Acres</p> <p>Maintain Research Natural Area designation and manage as follows:</p> <ul style="list-style-type: none"> • Exclude new rights-of-way. • Close to mineral material disposal and free use. • Close to fluid-mineral leasing. • Consider chemical brush control where necessary to meet desired plant community objectives. • Research and interpret paleontological and geological features. • Manage as VRM Class II. • Limit vehicle use to designated roads and trails. • Establish research permitting/information exchange process. • Designate parking area (0.25 acre) and trail to Crater. • Manage for Recreation Opportunity Spectrum (ROS) primitive and semiprimitive nonmotorized classes. • Develop grazing activity plan. 	<p>3,746 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> • Designate area as an ACEC and use management prescriptions from Alternative A. • Close to vehicle use. • 	<p>Remove Research Natural Area designation and do not designate as an ACEC.</p> <p>The area currently designated as the RNA lies wholly within the Aden Lava Flow WSA so would be managed as described in BLM Manual 6330.</p>	<p>Same as Alternative C.</p>
<p>Alamo Mountain (Map J-18) <i>Scenic, Cultural and Ecological Resources</i></p>	<p>2,528 Acres</p> <ul style="list-style-type: none"> • Retain public land. • Exclude new rights-of-way; allow other ready actions with stipulations. • Close to fluid mineral leasing. • Withdraw from mineral entry. • Close to mineral material disposal. • Close to vegetation sales. • Exclude new wildlife waters. 	<p>The existing ACEC would be wholly incorporated into the Otero Mesa Grassland Alternative B and managed accordingly.</p> <p>See Table 2-4.</p>	<p>The existing ACEC would be wholly incorporated into the Otero Mesa Grassland Alternative C and managed accordingly</p> <p>See Table 2-4.</p>	<p>2,528 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> • Avoid all new rights-of-way. • Do not recommend withdrawal from mineral entry.

TABLE 2-3

EXISTING ACECS: MANAGEMENT PRESCRIPTIONS & ACREAGE BY ALTERNATIVE

ACEC & VALUES	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
	<ul style="list-style-type: none"> • Manage area for Barbary sheep. • Designate the Cornudas Mountain snail as a BLM sensitive species. • Nominate area to National Register of Historic Places. • Manage as VRM Class I. • Close to vehicle use. • Allow recreation access. Limit camping; develop parking area. • Do not implement an interpretation program other than signing. • Develop activity management to include the Butterfield Trail. 			<ul style="list-style-type: none"> • Manage barbary sheep habitat to maintain or increase population goals in coordination with NMDGF to meet hunting demand, consistent with land health standards. • Nominate area to National Register of Historic Places. • Manage as VRM Class II. • Limit vehicle use to designated routes.
<p>Alkali Lakes (Map J-20) <i>Special Status Plant Species</i></p>	<p>6,348 Acres</p> <ul style="list-style-type: none"> • Retain public land; acquire State trust land, including minerals, from willing sellers. • Exclude new rights-of-way. • Close to sale of mineral material. • Close to fluid mineral leasing. • Withdraw from mineral entry. • Close to vegetation sales. • Manage as VRM Class IV. • Designate area as limited for vehicle use; close no roads. • Allow recreation access, but do not allow camping or fires. • Develop activity management plan. 	<p>6,348 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> • Recommend for withdrawal from mineral entry. • Manage as VRM Class III. • Limit vehicle use to designated routes upon completion of travel management planning. 	<p>6,348 Acres</p> <p>Same as Alternative B except:</p> <ul style="list-style-type: none"> • Do not recommend withdrawal from mineral entry. 	<p>6,348 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> • Avoid new rights-of-way. • Do not recommend withdrawal from mineral entry.
<p>Cornudas Mountains (Map J-17) <i>Scenic and Cultural Resources</i></p>	<p>852 Acres</p> <ul style="list-style-type: none"> • Retain public land. • Exclude new rights-of-way. • Close to fluid mineral leasing. • Withdraw from mineral entry. • Close to mineral material disposal. 	<p>The existing ACEC would be wholly incorporated into the Otero Mesa Grassland Alternative B and managed accordingly.</p> <p>See Table 2-4.</p>	<p>The existing ACEC would be wholly incorporated into the Otero Mesa Grassland Alternative C and managed accordingly.</p> <p>See Table 2-4.</p>	<p>852 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> • Avoid new rights-of-way. • Do not recommend withdrawal from mineral entry.

TABLE 2-3

EXISTING ACECS; MANAGEMENT PRESCRIPTIONS & ACREAGE BY ALTERNATIVE

ACEC & VALUES	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
	<ul style="list-style-type: none"> • Close to vegetation sales. • Develop no new wildlife waters. • Manage for Barbary sheep. • Nominate area to National Register of Historic Places. • Manage as VRM Class I. • Limit vehicles to designated routes. • Mitigate cultural resources. • Allow recreation access to the southeastern corner by permit. No camping. • Implement minimal interpretation program. • Implement signing. • Develop an activity management plan to include Butterfield Trail. • Allow no new fencing. • Designate the Cornudas Mountain land snail as a Sensitive Species. 			<ul style="list-style-type: none"> • Manage Barbary sheep habitat to maintain or increase population goals in coordination with NMDGF to meet hunting demand, consistent with land health standards. • Manage 850 acres as VRM Class II. • Implement directional and informational signing only.
<p>Doña Ana Mountains (Map J-12) <i>Biological, Scenic, and Cultural Resources</i></p>	<p>1,427 Acres</p> <ul style="list-style-type: none"> • Retain all public land. • Exclude new rights-of-way. • Close to mineral material sale. • Close to fluid-mineral leasing. • Maintain current livestock grazing practices. • Exclude feral goats and other exotic animals. • Manage for primitive and semiprimitive recreational opportunities. • Manage as VRM Class I. • Limit vehicle use to designated routes. • Close roads that provide access for illegal plant collecting. 	<p>3,181 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> • Enlarge existing ACEC to 3,181 acres. • Recommend withdrawal from mineral entry. • Maintain closure to all fluid minerals on 1,400-acre existing ACEC. Close remaining area to geothermal energy leasing. • Close to mineral material disposal. • Maintain current livestock grazing practices. 	<p>3,181 Acres</p> <p>Same as Alternative B except:</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. 	<p>1,427 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> • Do not recommend withdrawal from mineral entry. • Manage recreation the same as for the Doña Ana Mountains SRMA. • Limit vehicle use to designated routes. • Do not develop primitive campsites in the bowl on the north side. • Do not manage according to ROS system.

**TABLE 2-3
EXISTING ACECS: MANAGEMENT PRESCRIPTIONS & ACREAGE BY ALTERNATIVE**

ACEC & VALUES	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
<p>Los Tules (Map J-10) <i>Cultural Resources</i></p>	<ul style="list-style-type: none"> Develop primitive campsites in the "bowl" on north side (10 acres). Manage for ROS semi-primitive non-motorized, semi-primitive motorized, and roaded natural classes. 	<p>23 Acres</p> <ul style="list-style-type: none"> Manage recreation the same as Doña Ana Mountains SRMA. Limit vehicle use to designated routes. Exclude commercial development that would negatively impact the ACEC resource values. 	<p>23 Acres</p> <p>Same as Alternative B.</p>	<p>23 Acres</p> <p>Same as Alternative B.</p>
<p>Organ/Franklin Mountains (Maps J-8 & J-9) <i>Cultural, Scenic, Biological, Special Status Species (Plant and Animal), and Riparian, Resources.</i></p>	<p>58,417 Acres (19,770 acres within WSA; 38,647 acres outside WSAs)</p> <ul style="list-style-type: none"> Retain all public land and acquire adjacent private land from willing sellers. Exclude new rights-of-way. Designate no surface occupancy for fluid mineral leasing. Close to mineral sales. Manage as VRM Class II. Close to vehicle use. Fence or cover pit house site with sterile fill (0.75-mile-long fence; 0.25 acre). Manage for ROS semi-primitive non-motorized class. 	<p>58,417 Acres</p> <p>Consider conveyance to New Mexico Parks Division under R&PP Act. Until then manage the same as Alternative A except:</p> <ul style="list-style-type: none"> Manage as VRM Class III. Close to vehicle use. Do not manage according to the ROS system. Exclude commercial development that would negatively impact the ACEC resource values. 	<p>58,417 Acres</p> <p>Same as Alternative B.</p>	<p>58,417 Acres</p> <p>Same as Alternative B.</p>

TABLE 2-3

EXISTING ACECS; MANAGEMENT PRESCRIPTIONS & ACREAGE BY ALTERNATIVE

ACEC & VALUES	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
	<ul style="list-style-type: none"> ● Close to mineral material disposal. ● Close to fluid mineral leasing. ● Withdraw from mineral entry. ● Manage as Class II air quality. ● Manage mountainous portions (above 5,000 feet) as VRM Class I; manage other portions as VRM Class III or IV. ● Limit vehicle use to designated routes except for the scenic ACEC portion (8,800 acres), which is closed to vehicle use. ● Manage in accordance with the <i>Organ Mountains Coordinated Resource Management Plan</i>. ● Prohibit dogs and pets and require hiking on designated trails only in upper Ice Canyon above drift fence. ● Manage for ROS primitive, semi-primitive, non-motorized, semi-primitive, and roaded natural classes. ● Monitor the area in accordance with limits of acceptable change with emphasis on the most biologically or culturally sensitive areas. 			

TABLE 2-3

EXISTING ACECS: MANAGEMENT PRESCRIPTIONS & ACREAGE BY ALTERNATIVE

ACEC & VALUES	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
<p>Rincon (Map J-13) <i>Cultural Resources</i></p>	<p>856 Acres</p> <ul style="list-style-type: none"> Retain all public land; acquire State trust land in southern half of Section 32 from willing sellers. Exclude new rights-of-way. Limit vehicle use to designated routes. Manage as no surface occupancy for fluid-mineral leasing within 100 feet of petroglyph site. Close to mineral material disposal outside existing rock quarry. Evaluate potential to interpret the petroglyphs. Manage as VRM Class II. Manage for semi-primitive non-motorized recreation. 	<p>856 Acres</p> <ul style="list-style-type: none"> Recommend withdrawal from mineral entry. Limit vehicle use to designated routes. Exclude commercial development that would negatively impact the ACEC resource values Do not manage according to the ROS system. 	<p>856 Acres</p> <p>Same as Alternative B except:</p> <ul style="list-style-type: none"> Limit vehicle use to designated routes. 	<p>856 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> Avoid new rights-of-way. Limit vehicle use to designated routes.
<p>Robledo Mountains (Map J-11) <i>Biological and Scenic Resources.</i></p>	<p>7,077 Acres</p> <p>Manage areas outside the Prehistoric Trackways National Monument (PTNM) as follows:</p> <ul style="list-style-type: none"> Retain all public land; acquire State Trust and private inholdings from willing sellers. Exclude new rights-of-way. Close to mineral material disposal. Close to fluid-mineral leasing. Acquire legal public access. Manage for primitive and semi-primitive recreation opportunities. Manage as VRM Class I. Limit vehicle use to designated routes Allow natural fires to burn under prescribed conditions. 	<p>7,077 Acres</p> <ul style="list-style-type: none"> Acquire State trust and private inholdings from willing sellers. Exclude new rights-of-way. Do not accept new communication site use applications for Lookout Mountain. Recommend withdrawal from mineral entry. Close to mineral material disposal. Close to fluid-mineral leasing. Acquire legal public access. Manage 4,000 acres as VRM Class I and manage 3,077 acres as VRM Class II. Limit vehicle use to designated routes. 	<p>7,077 Acres</p> <p>Same as Alternative B except:</p> <ul style="list-style-type: none"> Do not recommend for withdrawal from mineral entry. Limit vehicle use to designated routes. 	<p>7,077 Acres</p> <p>Same as Alternative B except:</p> <ul style="list-style-type: none"> Avoid new rights-of-way. Do not recommend withdrawal from mineral entry. Limit vehicle use to designated routes.

TABLE 2-3

EXISTING ACECS; MANAGEMENT PRESCRIPTIONS & ACREAGE BY ALTERNATIVE

ACEC & VALUES	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
<p>Sacramento Escarpment (Map J-16) <i>Scenic Resources</i></p>	<p>4,474 Acres</p> <ul style="list-style-type: none"> Retain public land; acquire mineral estate on two parcels from willing sellers. Exclude rights-of-way; allow other realty actions in "new" area with stipulations. Acquire access as needed. Close to fluid mineral leasing. Close to mineral material disposal. Close to vegetation sales. Withdraw from mineral entry under general mining law. (This was done through PLO7375/NMNM86816, January 12, 1999). Manage as VRM Class I and II. Limit vehicles to existing routes, but close approximately 5 miles of road. Establish parking area and maintain trails. Develop and implement directional signing. Develop activity management plan. Do not install new fencing. 	<p>4,474 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> Exclude new rights-of-way. Manage as VRM Class I. Limit vehicle use to designated routes. 	<p>4,474 Acres</p> <p>Same as Alternative B.</p>	<p>4,474 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> Exclude commercial development that would negatively impact the ACEC resource values.
<p>San Diego Mountain (Map J-14) <i>Cultural Resources</i></p>	<p>623 Acres</p> <ul style="list-style-type: none"> Retain all public land; acquire adjacent private inholdings from willing sellers. Exclude new rights-of-way. Close to mineral material disposal. Close to fluid-mineral leasing. Manage as VRM Class II. Limit vehicle use to designated routes. Manage for research rather than interpretive value. Encourage rock art research. Manage for ROS semi-primitive non-motorized class. 	<p>623 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> Recommend withdrawal from mineral entry. Limit vehicle use to designated routes. 	<p>623 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> Do not recommend withdrawal from mineral entry. Limit vehicle use to designated routes. 	<p>623 Acres</p> <p>Same as Alternative A except :</p> <ul style="list-style-type: none"> Avoid all new rights-of-way. Do not recommend withdrawal from mineral entry. Limit vehicle use to designated routes.

TABLE 2-3

EXISTING ACECS: MANAGEMENT PRESCRIPTIONS & ACREAGE BY ALTERNATIVE

ACEC & VALUES	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
<p>Three Rivers Petroglyph Site (Map J-15) <i>Cultural Resources</i></p>	<p>1,043 Acres</p> <ul style="list-style-type: none"> • Retain public land; acquire State trust land from willing sellers. • Allow new rights-of-way on additional lands with stipulations. • Withdraw from entry. • Close to fluid mineral leasing. • Close to mineral material disposal. • Nominate to National Register of Historic Places (National Register). • Acquire mineral estate on reconveyed lands from willing sellers. • Close to vegetation sales. • Manage as VRM Class II. • Designate as limited vehicle use. • Close to shooting. • Develop activity plan. • Fence area boundary (completed). • Develop and implement interpretive signing. • Develop new trails. 	<p>1,043 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> • Exclude new rights-of-way. • Recommend withdrawal from entry. • Nominate to National Register. • Limit vehicle use to designated routes. • Manage recreation in accordance with the Three Rivers Petroglyph SRMA. 	<p>1,043 Acres</p> <p>Same as Alternative B.</p>	<p>1,043 Acres</p> <p>Same as Alternative B except:</p> <ul style="list-style-type: none"> • Do not recommend withdrawal from mineral entry.
<p>Wind Mountain (Map I-19) <i>Cultural and Scenic Resources</i></p>	<p>2,308 Acres</p> <ul style="list-style-type: none"> • Retain all public land. • Exclude new rights-of-way. • Close to fluid mineral leasing. • Withdraw from mineral entry. • Close to mineral material disposal. • Close to vegetation sales. • Construct new wildlife waters. • Manage for Barbary sheep. • Designate the Cornudas Mountain land snail as a Sensitive Species. • Manage as VRM Class I. 	<p>The existing ACEC would be wholly incorporated into the Otero Mesa Grassland Alternative B and managed accordingly.</p> <p>See Table 2-4.</p>	<p>The existing ACEC would be wholly incorporated into the Otero Mesa Grassland Alternative C and managed accordingly.</p> <p>See Table 2-4.</p>	<p>2,308 Acres</p> <p>Same as Alternative A except:</p> <ul style="list-style-type: none"> • Avoid new rights-of-way. • Do not recommend withdrawal from mineral entry. • Manage Barbary sheep habitat to maintain or increase population goals in coordination with NMDGF to meet hunting demand, consistent with land health standards • Manage as VRM Class II.

TABLE 2-3

EXISTING ACECS: MANAGEMENT PRESCRIPTIONS & ACREAGE BY ALTERNATIVE

ACEC & VALUES	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
	<ul style="list-style-type: none"> • Designate area as limited for vehicle use. • Mitigate cultural resources. • Close no roads. • Allow recreation access. • Install directional signing. • Develop activity management plan. • Do not install new fencing. 			<ul style="list-style-type: none"> • Limit vehicles to designated routes. • Do not develop an activity management plan.

**TABLE 2-4 PROPOSED AREAS OF CRITICAL ENVIRONMENTAL CONCERN
MANAGEMENT PRESCRIPTIONS BY ALTERNATIVE***

ACEC & VALUES	ALTERNATIVE B	ALTERNATIVE C
<p>Broad Canyon (Map J-21) <i>Scenic and Biological Resources and Cultural Resources</i></p>	<p>4,721 Acres</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Close to geothermal leasing. • Exclude new rights-of-way • Close to mineral material disposal. • Recommend withdrawal from mineral entry. • Manage as VRM Class II. 	<p>Do not designate area as an ACEC.</p>
<p>Brokeoff Mountains (Maps J-23, J-24, & J-25) <i>Ecological and Cultural Resources</i></p>	<p>61,224 Acres</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Close to geothermal leasing. • Close to mineral material disposal. • Recommend withdrawal from mineral entry. • Exclude new rights-of-way. • Manage as VRM Class II. • Acquire State trust land inholdings from willing sellers. 	<p>3,971 Acres Same as Alternative B except: • Do not recommend withdrawal from mineral entry.</p>
<p>Caballo Mountains (Map J-32) <i>Scenic Resources</i></p>	<p>17,268 Acres</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Close to geothermal leasing • Close to mineral material disposal. • Exclude new rights-of-way outside of existing communication site. Limit communication facilities authorizations to existing facilities and sites. • Manage existing communication site facilities according to the communication site plan. • Manage as VRM Class I except for the existing communication site. 	<p>Do not designate area as an ACEC.</p>
<p>Cornucopia (formerly Southern Sacramento Mountains) (Map J-26) <i>Cultural resources</i></p>	<p>16,037 Acres</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Exclude new rights-of-way • Close to geothermal leasing • Close to mineral material disposal. • Manage as VRM Class II. 	<p>Do not designate area as an ACEC.</p>
<p>East Potrillo Mountains (Map J-39) <i>Scenic Resources</i></p>	<p>11,460 Acres</p> <ul style="list-style-type: none"> • Limit vehicle use to existing routes. • Close to mineral material disposal. • Manage as VRM Class I. • Close to geothermal leasing. • Exclude new rights-of-way. • Acquire State trust land inholdings from willing sellers. • Limit vehicle use to designated routes. 	<p>Do not designate area as an ACEC.</p>

**TABLE 2-4 PROPOSED AREAS OF CRITICAL ENVIRONMENTAL CONCERN
MANAGEMENT PRESCRIPTIONS BY ALTERNATIVE***

ACEC & VALUES	ALTERNATIVE B	ALTERNATIVE C
Jarilla Mountains (Map J-31) <i>Special Status Plant Species And Ecological Resources</i>	6,219 Acres <ul style="list-style-type: none"> • Maintain vehicle closure on 700 acres and limit vehicle use to designated routes the rest of the ACEC. • Close to geothermal leasing. • Close to mineral material disposal. • Manage as VRM Class III • Avoid new rights-of-way. • Acquire land that would improve the manageability of the area from willing sellers. Consider need for reclamation of abandoned mine land in any acquisition. 	Do not designate area as an ACEC.
Mud Mountain (Map J-33) <i>Special Status Plant Species and Ecological Resources</i>	2,579 Acres <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Defer oil and gas leasing until completion of an RMP Amendment addressing leasing/development. • Recommend withdrawal from mineral entry. • Close to geothermal leasing. • Close to mineral material disposal. • Exclude new rights-of-way. 	2,579 Acres Same as Alternative B.
Nutt Mountain (Map J-34) <i>Ecological and Scenic Resources</i>	Do not designate area as an ACEC	756 Acres <ul style="list-style-type: none"> • Designate Nutt Mountain ACEC • Limit vehicle use to designated routes. • Close to geothermal leasing. • Close to mineral material disposal. • Exclude new ROWs. • Manage as VRM Class I.
Otero Mesa Grassland (Map J-40) <i>Ecological Resources and Wildlife Habitat</i>	271,262 Acres <ul style="list-style-type: none"> • Incorporate the existing Alamo Mountain, Cornudas Mountain, and Wind Mountain ACECs into this ACEC and continue their fluid mineral leasing closure. • Incorporate proposed Van Winkle ACEC (1,320 acres). • Exclude new rights-of-way. • Recommend withdrawal from mineral entry. • Designate 44,200 acres surrounding the existing ACECs as VRM I (Map 2-7). • Close to mineral material disposal. • Close to vegetation sales. • Manage barbary sheep habitat consistent with NMDGF population goals. • Close to geothermal leasing • Nominate suitable sites to National Register of Historic Places. • Limit vehicle use to designated routes. • Implement directional and informational signing. 	198,511 Acres Same as Alternative B except: <ul style="list-style-type: none"> • Exclude the ACEC from solar, wind, and geothermal energy projects. • Manage existing ACECs as VRM I and the remainder of ACEC as VRM IV. • Avoid new rights-of-ways. • Do not recommend withdrawal from mineral entry except for Alamo Mountain, Cornudas Mountain, and Wind Mountain. • Close to mineral material disposal only in VRM I.

**TABLE 2-4 PROPOSED AREAS OF CRITICAL ENVIRONMENTAL CONCERN
MANAGEMENT PRESCRIPTIONS BY ALTERNATIVE***

ACEC & VALUES	ALTERNATIVE B	ALTERNATIVE C
<p>Percha Creek (Map J-38) <i>Riparian, Special Status Species, and Ecological Resources</i></p>	<p>870 Acres</p> <ul style="list-style-type: none"> • Close to vehicle use. • Exclude new rights-of-way • Keep livestock enclosure. • Close to geothermal leasing. • Close to mineral material sale. • Recommend withdrawal from mineral entry. • Manage as VRM Class II. • Close to grazing. • Fence boundary. • Implement aquatic habitat improvement projects. • Remove exotic flora/ fauna, reestablish native species. • Stock trout species to develop a sport fishery. • Consider acquiring adjacent non-Federal land. 	<p>870 Acres</p> <p>Same as Alternative B.</p>
<p>Picacho Peak (Map J-36) <i>Scenic and Cultural Resources</i></p>	<p>950 Acres</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Close to geothermal leasing. • Close to mineral material disposal. • Exclude new rights-of-way. • Manage as VRM Class I. 	<p>950 Acres</p> <p>Same as Alternative B.</p>
<p>Pup Canyon (Map J-27) <i>Special Status Plant Species and Ecological Resources</i></p>	<p>3,677 Acres</p> <ul style="list-style-type: none"> • Incorporate into Brokeoff Mountains ACEC and manage accordingly. 	<p>3,677 Acres</p> <ul style="list-style-type: none"> • Do not incorporate as part of Brokeoff Mountains ACEC • Limit vehicle use to designated routes. • Exclude new rights-of-way. • Manage as VRM Class II.
<p>Sacramento Mountains (North and South) (Map J-28) <i>Special Status Plant Species and Ecological Resources</i></p>	<p>2,381 Acres</p> <ul style="list-style-type: none"> • Close area to vehicle use. • Exclude new rights-of-way. • Recommend withdrawal from mineral entry. • Close to geothermal leasing. • Close to mineral material disposal. • Manage as VRM Class II. 	<p>2,381 Acres</p> <p>Same as Alternative B except:</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Avoid new rights-of-way.
<p>Six Shooter Canyon (Map J-29) <i>Special Status Plant Species and Ecological Resources</i></p>	<p>1,060 Acres</p> <ul style="list-style-type: none"> • Close area to vehicle use. • Close to geothermal leasing. • Close to mineral material disposal. • Recommend withdrawal from mineral entry. • Manage as VRM Class II. • Exclude new rights-of-way 	<p>1,060 Acres</p> <p>Same as Alternative B.</p>

**TABLE 2-4 PROPOSED AREAS OF CRITICAL ENVIRONMENTAL CONCERN
MANAGEMENT PRESCRIPTIONS BY ALTERNATIVE***

ACEC & VALUES	ALTERNATIVE B	ALTERNATIVE C
Southern Caballo Mountains (Map J-37) <i>Cultural Resources</i>	24,117 Acres <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Exclude new rights-of-way. • Close to geothermal leasing. • Manage El Camino Real section according to the <i>El Camino Comprehensive Management Plan</i>. • Manage as VRM Class II. • Acquire State inholdings and edges from willing sellers. 	Do not designate area as an ACEC.
Tortugas Mountain (Map J-22) <i>Soils and Geomorphology Resources</i>	1,936 Acres <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Close to mineral material disposal. • Close to geothermal leasing. • Recommend withdrawal from mineral entry. • Exclude new rights-of-way. • Manage as VRM Class III. • Manage according to the SRMA plan as appropriate. • Continue to allow traditional uses, religious and other.. 	Do not designate area as an ACEC.
Tularosa Creek (Map J-30) <i>Riparian and Aquatic Resources</i>	236 Acres <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Exclude new rights-of-way. • Close to geothermal leasing. • Close to mineral material disposal. • Manage as VRM Class II. • Close to grazing. Fence boundary. • Implement aquatic habitat improvement projects. • Remove exotic flora/ fauna, reestablish native species. • Stock trout species to develop a sport fishery. • Consider acquiring adjacent non-Federal land. 	Same as Alternative B.
VanWinkle Lake (Map J-45) <i>Ecological Resources</i>	<ul style="list-style-type: none"> • Included in Otero Mesa Grassland ACEC Alternative B. 	1,320 Acres <ul style="list-style-type: none"> • Limit vehicle use to Designated Routes. • Avoid new rights-of-way. • Exclude solar energy projects. • Close to geothermal leasing. • Close to mineral materials disposal. • Close to vegetative sales. • Recommend withdrawal from mineral entry.

NOTE: *No ACECs are newly proposed for Alternatives A and D.

TABLE 2-5

MANAGEMENT PRESCRIPTIONS FOR OTHER SPECIAL AREAS

AREA	ALTERNATIVES A & D	ALTERNATIVES B & C
El Camino Real de Tierra Adentro National Historic Trail (NHT)	<p>The trail would be managed according to El Camino Real de Tierra Adentro National Historic Trail Management Plan (2004a).</p> <ul style="list-style-type: none"> • Surface disturbance would not be allowed within ¼-mile of each side of well-defined sections of the trail. • Visual resources would be managed as VRM Class II within 5 miles each side of the trail. • Conservation easements and non-Federal land containing sections of the trail would be acquired. 	<p>Same as Alternative A except:</p> <ul style="list-style-type: none"> • Surface disturbance would not be allowed within ½-mile each side of the trail. • An implementation plan for El Camino Real NHT Comprehensive Management Plan would be prepared.
Butterfield Trail	<ul style="list-style-type: none"> • Surface disturbance would not be allowed within ¼-mile each side of the trail. • A No Surface Occupancy stipulation would be applied for fluid mineral leasing or application for permit to drill within ¼-mile of the trail. • An area ¼-mile each side of the trail would be closed to mineral material disposal. • Facilities including power lines would not be constructed parallel to the trail. Facilities that cross the trail would be considered. 	<ul style="list-style-type: none"> • Surface disturbance would not be allowed within ½-mile each side of the trail. • A No Surface Occupancy stipulation would be applied for geothermal leasing or drilling within ½-mile of the trail. • An area ½-mile each side of the trail would be closed to mineral material disposal. • Facilities including power lines would not be constructed parallel to the trail. Facilities that cross the trail would be considered. • Surface disturbance would not be allowed within ½-mile each side of the trail.
Mormon Battalion Trail	<ul style="list-style-type: none"> • No surface disturbance within ¼-mile of the trail. 	<ul style="list-style-type: none"> • No surface disturbance would be allowed within ½-mile each side of the trail.
Lake Valley Backcountry Byway	<ul style="list-style-type: none"> • No surface disturbance within ½-mile each side. 	<ul style="list-style-type: none"> • No surface disturbance would be allowed within ½-mile each side of the Byway except for routine maintenance within the highway right-of-way.
Aden Lava Flow (Map J-1)	<p>Continue to manage 3,700 acres as a Research Natural Area (RNA) within the Aden Lava Flow WSA.</p> <ul style="list-style-type: none"> • Limit vehicle use to designated roads and trails. • Exclude authorizations for new rights-of way. • Close to mineral materials sales. • Close to fluid mineral leasing. • Consider chemical brush control in some portions where necessary to meet desired plant community objectives. • Research and interpret paleontological and geological features. • Establish research permitting/information exchange process. • Designate a parking area (¼-acre) and trail to Aden Crater. • Manage as VRM Class II. • Manage for ROS primitive and semi-primitive nonmotorized classes. • Develop a grazing activity plan. 	<p>ACEC designation would be removed and the area would continue to be managed as part of the Aden Lava Flow WSA.</p>

**TABLE 2-5
MANAGEMENT PRESCRIPTIONS FOR OTHER SPECIAL AREAS**

AREA	ALTERNATIVES A & D	ALTERNATIVES B & C
<p>Kilbourne Hole National Natural Landmark (Map J-41)</p>	<p>Continue to manage 5,500 acres as a National Natural Landmark.</p> <ul style="list-style-type: none"> • Retain all public land; acquire all State trust and private inholdings through exchange or purchase at fair market value, provided that the landowner is in agreement with such acquisitions. • Limit vehicle use to designated roads and trails. • Exclude authorizations for new rights-of-way. • Close to mineral material sales. • Close to fluid mineral leasing. • Consider chemical brush control in some portions where necessary to meet desired plant community objectives. • Establish safety no shooting restrictions within the rim. • Interpret geological features by signing. • Establish primitive facilities (parking area, table, and toilets) (2 acres). • Manage as VRM Class II. • Manage for ROS semi-primitive motorized class. 	<p>Same as Alternative A except:</p> <ul style="list-style-type: none"> • Recommend withdrawal from mineral entry.

2.4.2 LANDS WITH WILDERNESS CHARACTERISTICS

Section 201 of FLPMA requires the BLM to maintain on a continuing basis an inventory of all public land and its resources and other values, which includes wilderness characteristics. The BLM will update its inventory under these circumstances:

- The public or the BLM identifies wilderness characteristic as an issue during the NEPA process;
- The BLM is undertaking a land use planning process;
- The BLM has new information concerning resource conditions;
- A project that may impact wilderness characteristics is undergoing NEPA analysis;
- The BLM acquires additional lands;
- Road decommissioning or abandonment;
- Reclamation to a natural state;
- Removal of substantially noticeable human made features;
- Other changes relevant to wilderness characteristics.

In accordance with policy outlined in Instruction Memorandum 2011-154 (*Requirement to Conduct and Maintain Inventory Information for Wilderness Characteristics and to Consider Lands with Wilderness Characteristics in Land Use Plans*), this RMP addresses the wilderness characteristics of lands in the *Decision Area*. Where lands are found to contain wilderness character, the BLM considers a full range of alternatives for such lands. This RMP will analyze the effects of (1) plan alternatives on lands with wilderness characteristics and (2) management of lands with wilderness characteristics on other resources and resource uses.

The Las Cruces District Office determined that four areas, Nutt Grasslands, Bar Canyon, Peña Blanca South and Peña Blanca North, totaling approximately 11,494 acres in the *Decision Area* contain wilderness characteristics.

2.4.2.1 Management Decisions Common to All Alternatives

An inventory of lands with wilderness characteristics would be updated and maintained by the BLM under all alternatives. Where areas are identified as lands with wilderness characteristics, a decision would be made as to whether the area should be managed to maintain lands with wilderness characteristics or to manage the areas for other uses which could impair lands with wilderness characteristics.

2.4.2.2 Management Direction by Alternative

Alternative A (No Action): There is no similar decision under the existing management.

Alternative B: Approximately 10,691 acres in the Nutt Grasslands (including Nutt Mountain) area would be specifically managed to protect wilderness characteristics (see Table 2-7 and Map J-42).

A total of 423 acres of land in the area known as Bar Canyon on the west side of the Organ Mountains, 260 acres of land in the Peña Blanca South area, and 120 acres of land in the Peña Blanca North would be specifically managed to protect wilderness characteristics. They are contiguous to the existing Peña Blanca WSA (see Table 2-7).

**TABLE 2-7
MANAGEMENT OF LANDS WITH WILDERNESS CHARACTERISTICS**

ALTERNATIVE	BAR CANYON, PEÑA BLANCA SOUTH and PEÑA BLANCA NORTH
A	There are no identified lands with wilderness characteristics under the existing management.
B	Manage 803 acres of acquired land as follows to protect wilderness characteristics. <ul style="list-style-type: none"> • Inventory for wilderness characteristics • Inventory for relevant and important values for potential ACEC nomination • Exclude ROW authorizations. • Manage as VRM Class I. • Inventory vehicle routes and close routes that may cause adverse impacts to resource values. • Limit vehicle use to designated roads and trails. • Close to mineral material sales. • Close to fluid mineral leasing. • Manage as Class II for air quality. • Manage for ROS primitive and semi-primitive.
C	Same as B.
D	Manage 423 acres known as Bar Canyon to protect wilderness characteristics. <ul style="list-style-type: none"> • Inventory for wilderness characteristics • Inventory for relevant and important values for potential ACEC nomination • Exclude ROW authorizations. • Manage as VRM Class I. • Inventory vehicle routes and close routes that may cause adverse impacts to resource values. • Limit vehicle use to designated roads and trails. • Close to mineral material sales. • Close to fluid mineral leasing. • Manage as Class II for air quality. • Manage for ROS primitive and semi-primitive.
ALTERNATIVE	NUTT GRASSLANDS (Map J-34)
A	There are no identified lands with wilderness characteristics under the existing management.
B	Manage 10,691 acres to protect wilderness characteristics. <ul style="list-style-type: none"> • Retain land in Federal ownership. • Defer oil and gas leasing pending completion of a programmatic RMP Amendment addressing oil and gas leasing and development. • Close to mineral material disposal. • Exclude new rights-of-way. • Exclude commercial development including renewable energy projects that would negatively impact wilderness characteristics. • Limit vehicle use, both motorized and mechanized, to designated routes. • Continue current livestock grazing use (as of the time of completion of this RMP). • Manage as VRM Class II Prohibit any other actions that would negatively impact wilderness characteristics.
C	Do not manage lands to protect wilderness characteristics.
D	Do not manage lands to protect wilderness characteristics

Alternative C: The Nutt Grasslands would not be managed to protect the wilderness characteristics in that area. Except for 756 acres proposed for Nutt Mountain ACEC designation, the rest of the area would be managed for other priority uses.

Bar Canyon, Peña Blanca South, and Peña Blanca North would be specifically managed to protect wilderness characteristics (see Table 2-7 and Map J-43).

Alternative D: The Nutt Grasslands would not be managed to protect the wilderness characteristics in that area.

Approximately 423 acres known as Bar Canyon would be specifically managed to protect wilderness characteristics. Bar Canyon is contiguous to Peña Blanca WSA (see Map J-44).

2.4.3 RESOURCES

2.4.3.1 AIR RESOURCES

Air resources include air quality and climate. Because it is unknown to what extent the management actions in the Las Cruces District would affect climate and vice-versa, no actions which could proactively address climate are identified in this section. When further information on the impacts to climate is known, such information would be incorporated into the BLM's planning and NEPA documents as appropriate.

Goal:

- Meet all applicable local, State, tribal, and National Ambient Air Quality Standards established under the Clean Air Act (as amended) and prevent significant deterioration of air quality from all direct and authorized actions, within the natural range of variability.

Objective:

- Manage surface-disturbing activities to maintain air quality consistent with the National Ambient Air Quality Standards.

2.4.3.1.1 *Air Resources Continuing Management Guidance*

BLM actions and use authorizations must comply with applicable local, state, tribal, and Federal air quality laws, statutes, regulations, standards, and implementation plans. The New Mexico Environment Department also regulates smoke management through requirements for the use of prescribed fires. In addition, the BLM would comply with Department and Agency guidance with regard to climate change and greenhouse gas inventories.

2.4.3.1.2 *Air Resources Management Decisions Common to All Alternatives*

Air quality impacts caused by activities on public land would be reduced by mitigation measures developed on a case-by-case basis through statutory or regulatory processes. These processes generally would be applicable to BLM or other Federally-sponsored activities in the *Planning Area*. Best management practices related to fire and air quality are common to all alternatives and are prescribed in the *Fire and Fuels Management Plan Amendment and Environmental Assessment for Public Lands in New Mexico and Texas (2004c)* and *BLM Manual Section 7000: Soil, Water, and Air Management*. Under all alternatives, air resources would be managed as prescribed by existing and applicable air quality laws. Mitigation of impacts to air resources would be developed on a case-by-case basis through the NEPA process to prevent and reduce air quality impacts from activities on public land. Dust abatement stipulations would be included as part of permits or contracts on public land or for Federally-sponsored activities where air quality could significantly be affected.

2.4.3.2 SOIL AND WATER

This section primarily addresses soil and water resources on a watershed basis. Watersheds contain multiple parameters such as soil type, topography, precipitation events, vegetation, and surface and ground water that function in unison across the landscape. Manipulation or alteration of any one of these parameters can change the watershed's function or condition. Goals, objectives, and proposed alternatives for soil and water resources are proposed on a watershed scale.

Goals:

- Protect and restore natural ecosystems and the environment while managing for sustainable economic and social development, avoiding adverse impacts to natural ecosystems wherever possible, and fully mitigating any unavoidable impacts.
- Protect and restore soil and hydrologic conditions, on both site-specific areas and a watershed basis, to meet ecological site capabilities in a manner that promotes natural hydrological processes and enhances natural resources.
- Maintain or improve the integrity of streams and their associated riparian values on public land.
- Ensure that surface water and ground water influenced by BLM activities comply with or are making significant progress toward achieving State of New Mexico water quality standards consistent with the New Mexico Environment Department (NMED) and the U.S. Environmental Protection Agency (EPA).

Objectives:

- Develop and analyze soil and water resources and associated projects based on sound science, increased consideration of both monetary and non-monetary benefits to justify and select a project or action, and consider nonstructural approaches that maximize net economic, environmental, and social benefits.
- Meet or move toward riparian and upland land health standards (Appendix B) to protect and restore watersheds and stream systems and reduce nonpoint source pollution through enhanced soil stability and productivity, increased soil moisture, decreased erosion, stable hydrologic functions, and thriving desired vegetation communities
- Minimize or control elevated levels of nonpoint source pollutants from Federal land to degraded and impaired stream systems, by managing surface land use, where practical and within the scope of the BLM's authority, according to New Mexico Water Quality Rules and Regulations.
- Manage stable, non-stable, and transition areas for desired state and conditions to meet site capability for soil, stability, and hydrologic functions consistent with naturally occurring processes.

2.4.3.2.1 *Soil and Water Continuing Management Guidance*

Controlling soil erosion, sediment movement, and salt contamination of surface water would remain a major management commitment. The BLM would use a variety of tools and applicable planning documents to identify issues and conflicts within watersheds and formulate comprehensive management plans for each impaired watershed. The watershed analyses would be based on the indicators outlined in the *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management* (BLM 2001a; Appendix B). To guide this process, the Las Cruces District Office follows Title 43 Code of Federal Regulations (CFR) Section 4180.1, BLM's *Rangeland Health Standards Handbook*, and *BLM Manual Section 4180: Rangeland Health Standards*. The BLM would remain involved with coordinated

efforts for Watershed Restoration Action Strategies (WRAS) associated with the 319(h) Watershed Restoration Grant through the NMED and the EPA.

The Las Cruces District Office would coordinate with other agencies and water users to assure best management practices are employed for managing water uses. The BLM would continue evaluating and monitoring public land health to make sure that ecological sites are achieving or moving toward their capability, which aids in maintaining or improving water quantity through increased soil moisture, infiltration, and groundwater recharge. The BLM would comply with all water rights regulations for ground water and surface water controlled and administered by the New Mexico Office of the State Engineer.

BLM actions and use authorizations must comply with applicable state and Federal water quality laws, statutes, regulations, standards, and implementation plans. Water quality authority is vested in the New Mexico Water Quality Control Commission and is administered primarily by the various units of the NMED and the EPA. The BLM would continue to work with state and Federal agencies in water quality management to ensure that best management practices comply with state water quality standards.

Riparian and upland sites would be managed to meet standards outlined in the New Mexico Standards and Guidelines (see Appendix B). Riparian sites on public land would continue to be assessed to determine if the land is meeting the standards, moving toward the standards, or not achieving the standard. Evaluations of current conditions, impacts, trends, and capabilities of riparian areas would guide management decisions for maintenance and restoration actions in riparian areas. Management practices would be designed and established to meet upland, riparian, and water quality needs. Livestock management activities would be excluded from riparian areas, such as salting, feeding, and construction of holding facilities and stock driveways, unless specifically authorized.

2.4.3.2.2 *Soil and Water Management Decisions Common to All Alternatives*

Watersheds containing areas where accelerated erosion, runoff, and physical or chemical degradation have resulted in unacceptable soil conditions would be rehabilitated and stabilized. The primary strategies to achieve watershed restoration would focus on implementing actions that support and mimic the natural landscape and hydrologic processes within the capability of the site. The objective would be to move the site toward the upland sites land health standard (see Appendix B). Soils would be stabilized by maintaining appropriate amounts of vegetation and protective litter or rock cover, and decreased surface disturbance. In coordination with other resource programs, emphasis would be placed on meeting the upland sites land health standard. For surface disturbing activities, the use of best management practices would reduce impacts to soil and water resources with an emphasis on achieving and maintaining healthy ecosystems and watersheds.

2.4.3.2.3 *Soil and Water Management Direction by Alternative*

Alternative A: Continuing efforts to control erosion would include minimizing surface disturbance from construction projects, closure and rehabilitation of unneeded roads, and control of off-road vehicle use in critical areas.

In Doña Ana County, critical soils on 0 percent to 10 percent slopes would be the first priority for land treatments and grazing management to reduce erosion and improve water quality. A second priority would be to manage grazing on critical soils on slopes over 10 percent to reduce erosion and improve water quality. In all surface disturbing actions, continue to incorporate provisions for erosion control. Watershed Management Plans would be developed in the following areas:

- Corralitos, Rincon/Hatch (Doña Ana County)
- The area of Wind and Chess Draws in the Cornudas Mountain (23,000 acres) (Otero County)
- Watersheds east of Tularosa and south of the Tularosa Creek (11,000 acres) (Otero County)
- The Three Rivers watershed north of Tularosa (21,000 acres) (Otero County)
- East of Crow Flats (11,000 acres) (Otero County)
- The Moccasin and Otto Draws southwest of Pinon (7,300 acres) (Otero County)

Alternative B: Under Alternative B, no surface-disturbing activities would be allowed on public land which may result in soil movement and loss within watersheds containing Clean Water Act Section 303(d) listed streams, except for management activities specifically designed to minimize or control nonpoint source pollutants.

Management of soil and water resources and landscape restoration projects would be completed using only passive methods. Examples of passive methods would be altering current management of activities such as grazing, recreation, or rights-of-ways. All surface-disturbing activities having a long-term effect that would alter the natural topography, soil profile, or hydrologic process would be prohibited, except for valid existing rights or mining claims and mineral exploration and development conducted pursuant to regulations at 43 CFR 3809. Any surface disturbing activities determined to only have short-term effects on soil and water resources would be restored to natural pre-construction conditions and re-vegetated.

Alternative C: Under Alternative C, surface-disturbing activities which may result in soil movement and loss within watersheds containing Clean Water Act Section 303(d) listed streams would be allowed provided each activity could be fully mitigated. No surface disturbing activities that may increase the transport of nonpoint source pollutants to an impaired stream would be permitted within 0.25 miles of an impaired stream or any of its tributaries for which an ordinary high water mark could be determined.

Management of soil and water resources and landscape restoration projects would be completed using passive methods (such as altering grazing or recreation use) and active treatments (structural, manual, fire, biological, chemical, and mechanical) to meet and enhance the soil and site stability and hydrologic function to the capability of the site. All surface-disturbing activities having a long-term effect and which would alter the natural topography, soil profile, or hydrologic process would be prohibited from restored vegetation sites, potential vegetation restoration sites, and intact grassland habitats, except for valid existing rights or mining claims and mineral exploration and development conducted pursuant to regulations at 43 CFR 3809. All surface disturbing activities would be reclaimed to natural pre-disturbed conditions and re-vegetated whenever possible.

Alternative D: Under Alternative D, surface disturbing actions would be allowed provided these activities do not contribute to the likelihood of a stream becoming listed; site-specific mitigation would apply to activities near 303(d) streams. Soil and watersheds management and landscape restoration projects would be completed through any reasonable method of restoration to meet the ecological site capability for soil and site stability and the hydrologic function.

2.4.3.3 VEGETATION AND WOODLANDS

Vegetation management within the *Decision Area* is guided overall by the *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management* (USDOI BLM 2000). These standards and guidelines are explained in Appendix B and are incorporated as part of this RMP.

Vegetation management and treatment would be aimed at meeting the ecological site's potential natural community or capability. A potential natural community is a stable community with the kind,

proportions, and amounts of plants expected on the site without disturbance under present environmental conditions. Capability is the degree to which the site can produce the kind, proportions, and amounts of plants expected on the site based on the area's history of disturbance.

The woodland vegetation type represents approximately 3 percent of the *Decision Area* vegetation. Much of the woodland type is in wildland-urban interface areas. By definition wildland-urban interface areas in the *Planning Area* include any area where vegetative fuels and human development meet and intermingle. Consequently, woodland management has consisted and would continue to consist primarily of fuels reduction projects in these areas to promote human safety and protection of property.

Goal:

- Manage vegetation on public land in a manner that ensures progress toward achieving the *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management*.

Objectives:

- Within priority watersheds, enhance, protect, and restore the diversity of native vegetation in a mosaic of vegetative communities that protect soil and watershed and to provide resources for other multiple uses such as wildlife habitat and livestock grazing.
- Use an integrated pest management approach to control noxious weeds and undesirable invasive species in priority areas.
- Maintain areas that meet desirable state and conditions and improve areas that do not meet desired state and conditions within the ecological site capability.
- Use prescribed fires, mechanical fuels treatments and wildfires to restore ecosystem resilience, structure, and composition on degraded BLM land to resemble pre-settlement conditions.

2.4.3.3.1 *Vegetation and Woodlands Continuing Management Guidance*

All BLM activities are expected to meet the *New Mexico Standards and Guidelines*. These standards describe the conditions needed for healthy public land under three categories: upland sites, biotic communities, and riparian sites. In accordance with BLM policy, the Las Cruces District Office must evaluate activities on public land against indicators developed for each standard. All programs and activities should be managed to ensure that standards are being met or areas are moving towards the standards. See Appendix B for an explanation of the *New Mexico Standards and Guidelines*.

Natural recovery by native plant species is preferable to planting or seeding when considering restoration, rehabilitation, or reclamation of disturbed areas. In compliance with E.O.13112, BLM Handbook 1740-2, and BLM Manual 1745, and subject to future revisions to Bureau policy and guidance, where restoration, rehabilitation, or reclamation efforts (including any and all BLM authorized and BLM initiated actions such as rights-of way, fluid minerals reclamation, rangeland restoration projects, and fire stabilization and rehab projects) require reseeding or use of other plant materials (such as potted plants, poles, etc.), native plant materials will be given first consideration. Locally adapted source identified material, selections, varieties, or cultivars of native species will be used to the maximum extent possible to improve project success and maintain plant community integrity. Prior to considering the use of non-native/exotic plant materials, consider using suitable native plant materials from alternate community states or nearby communities. In limited circumstances, the use of non-native plant materials may be authorized to achieve specific objectives.

Non-native/exotic plant materials may only be considered for use in situations where:

1. Seeds or plants of suitable native species are not available.
2. The natural biological diversity of the proposed management area will not be diminished.
3. Non-native/exotic species can be confined within the proposed management area.
4. Analysis of ecological site inventory information indicates that a site will not support reestablishment of a species that historically was part of the landscape and.
5. Resource management objectives cannot be met with native species.

In cases where the use of non-native/exotic plant materials is desired, a justification including identification of any desired native species that is not available, and a detailed environmental analysis will be submitted for approval by the State Director. The Plant Conservation Program and partner organizations, will work to identify and develop native replacements for any non-native/exotic plant species approved for use on public land.

The Las Cruces District Office Weed Management Program focuses on inventorying existing infestations, preventing noxious weed invasion, monitoring revegetation efforts for invasive weeds, and assessing the success of weed control efforts. The program is guided by executive order and Federal and State laws.

Vegetation management and treatment activities would give full consideration to the management of pollinators. This includes implementation of vegetation treatment standard operating procedures in Appendix B of the 2007 Vegetation Treatment EIS, other measures outlined in BLM Information Bulletin 2009-011, its supporting documentation, and any subsequent policy and guidance developed.

Woodland management would be through the fire management program to manage the use of fire in the woodland ecosystems to achieve resource goals. The program for the Las Cruces District Office would be driven primarily by ecological objectives while promoting economic and social benefits.

2.4.3.3.2 *Vegetation and Woodlands Decisions Common to All Alternatives*

Vegetation communities may be restored using passive methods, active methods or a combination of both. Passive treatment methods are primarily restrictions of uses such as reducing or closing an area to grazing, reducing OHV use, or preventing soil disturbance from mineral development. Active treatment methods include: manual, such as cutting individual trees or shrubs; fire, natural and prescribed; biological; chemical; and mechanical.

An integrated approach would be used and coordinated with other Federal and local government agencies to inventory, identify, and eradicate noxious weeds and invasive species.

American Indian groups often use native plants or plant material in various ceremonial events. These plants are generally found on public land. Consequently, free-use permits would be authorized for collection of plants or plant material to be used in ceremonial or religious events and observances.

2.4.3.3.3 *Vegetation and Woodlands Management Direction by Alternative*

Alternative A: Grass bottomlands, mixed desert shrub (>10 percent slope), snakeweed, and mountain brush vegetation types would be treated using a combination of prescribed burning, prescribed wild fire, and prescribed grazing management. Creosotebush, mesquite, and desert shrub (<10 percent slope) would be treated almost entirely by use of chemical herbicides. Chemicals would not be used on areas over 10 percent slopes and within ½-mile of a perennial stream.

All areas treated by prescribed burning or prescribed wild fire, or chemical herbicides would be rested from grazing for at least two growing seasons in areas where livestock use occurs, unless otherwise authorized.

Vegetation sale areas would be retained until a minimum is reached where the amount of residual vegetation left is sufficient for natural regeneration. Sale areas would be expanded into adjacent lands identified for disposal.

Alternatives B, C & D: Woodland management projects would be conducted using active methods including mechanical and fire treatments to reduce fuels build-up, minimize fire potential in the wildland urban interface, and improve ecological health of woodlands.

Alternative B: Vegetation communities on areas needing restoration would be treated using passive methods to meet the ecological site's potential natural community or capability. Any vegetation increases as a result of grassland restoration treatments would be reserved for watershed function and wildlife.

The NMDGF maintains a list of key habitats of special status species (e.g., Chihuahuan desert grasslands, piñon-juniper, riparian, desert shrubs) in its *Comprehensive Wildlife Conservation Strategy*. The BLM would place emphasis on enhancing ecological sites within these key habitats by managing transition and other stable-state areas for desired state and conditions to meet ecological site potential.

Integrated management techniques (excluding fire, mechanical, and chemical treatments) would be used to manage noxious weeds and invasive species.

Vegetation sales including commercial and non-commercial harvest of woodland products would be allowed only in project areas where vegetation would be removed, such as a pipeline or road.

Alternative C: Vegetation communities and areas needing restoration would be treated using a combination of passive and active methods to meet the ecological site's potential natural community or capability. Vegetation increases as a result of grassland restoration treatments would be reserved to meet the needs of watershed function. Vegetation in excess of those needs would be available to wildlife and livestock, with wildlife receiving priority over livestock. However, there would be no increase in grazing preference as a result of vegetation increases.

To meet ecological site capability, transitioning areas and stable state and condition areas would be managed for a desired state and condition.

The BLM would place emphasis on enhancing ecological sites within the NMDGF key habitats by managing transition and other stable-state areas for the desired state. Integrated management techniques (including fire, mechanical, and chemical treatments) would be used to manage noxious weeds and invasive species.

Permits for vegetation sales would be in areas designated for disposal or in utility and right-of-way corridors where vegetation would be otherwise removed. Commercial and non-commercial harvest of woodland products would be allowed where appropriate to meet management objectives.

Alternative D: Vegetation communities and areas needing restoration would be treated using active methods to meet the ecological site's potential natural community or capability. Vegetation in excess of those needs would be available to wildlife and livestock with neither having priority over the other. In any case there would be no increase in grazing preference as a result of vegetation increases.

Transitioning areas would be managed for a desired state and condition to meet ecological site capability.

Integrated management techniques (including fire, mechanical, and chemical treatments) would be used to manage noxious weeds and invasive species.

Permits for vegetation sale would be authorized in areas designated for disposal or in utility and right-of-way corridors where vegetation would be otherwise removed. Commercial and non-commercial harvest of woodland products would be allowed where appropriate to meet management objectives.

2.4.3.4 WILDLIFE AND FISH HABITAT

Section 102.8 of FLPMA requires that public land be managed to protect the quality of multiple resources and to provide food and habitat for fish, wildlife, and domestic animals. Rangeland health policies reiterate the need to foster productive and diverse populations and communities of plants and animals.

The BLM manages wildlife habitat on public land and the NMDGF manages the wildlife populations. This requires a close working relationship between the two agencies in managing a variety of projects, habitats and species.

Goal:

- In cooperation with NMDGF, manage public land to provide sufficient quantity and quality of wildlife habitat and to maintain or enhance wildlife populations and biological diversity.

Objectives:

Protect, enhance, and where appropriate, restore native fish and wildlife, and fish and wildlife habitats by the following:

- Managing public land to attain the biotic, riparian, and upland standards for public land health (*New Mexico Standards and Guidelines*).
- Managing for Species of Greatest Conservation Need and Key Habitats identified in the NMDGF's *Comprehensive Wildlife Conservation Strategy*.
- Implementing BLM Habitat Management Plans (HMPs) or other cooperatively developed Federal, state, or local activity plans and fish and wildlife habitat projects consistent with habitat management goals and objectives.
- Managing public land to allow for reintroductions, transplants, and augmentations of native fish and wildlife populations in coordination with the NMDGF or the U.S. Fish and Wildlife Service, consistent with applicable agency policies and habitat and population management plan goals.
- Maintaining and restoring habitat connectivity in and between public land including breeding, foraging, dispersal, and seasonal use habitats.

2.4.3.4.1 *Wildlife and Fish Continuing Management Guidance*

The BLM is primarily responsible for protecting and improving fish and wildlife habitat on public land according to the FLPMA and U.S. Department of Interior Policy (43 CFR Part 24.4). Resident fish and wildlife species are managed by the NMDGF. A Memorandum of Understanding (MOU), No. NMSO-41, between the BLM and the NMDGF provides for the cooperative development of fish and wildlife resource plans, sets forth responsibilities for coordination, identifies issues of concern, and establishes methods of coordination. The BLM will continue to cooperate under the terms of the MOU. The BLM

will continue with the New Mexico Habitat Stamp Program in coordination with NMDGF. This is a process authorized under the Sikes Act (Public Law 93-452) and establishes a mechanism to fund projects and programs for the conservation, rehabilitation, and ecological diversification of fish and wildlife habitats on land administered by the Forest Service and BLM. The BLM will also continue to closely cooperate with NMDGF on the restoration of desert bighorn sheep.

Animal damage control on BLM-administered land is conducted by the U.S. Department of Agriculture Animal Plant Health Inspection Services-Wildlife Services (APHIS-WS) in accordance with a National Memorandum of Understanding between APHIS-WS and the BLM. The U.S. Department of the Interior policy and annual *Work Plan for Predator Damage Management on Public Lands Administered by the BLM* for Las Cruces District Office prepared jointly by the APHIS-WS and the BLM, guide animal damage control activities on public land within the *Planning Area*. The APHIS-WS has overall responsibility for the specific control actions on public land.

Proposed activities would be analyzed to ensure compliance with the Migratory Bird Treaty Act (MBTA) and Executive Order 13186, and the Bald and Golden Eagle Protection Act. The MBTA of 1918 prohibits the take, capture or killing of any migratory birds, any parts, nest or eggs of any such bird (16 U.S.C. 703 (a)). In addition, Executive Order 13186 (January 2001) requires the BLM to ensure MBTA compliance, evaluate Bureau actions and agency plans on migratory birds, initiate actions to minimize take of migratory birds and contribute to the conservation of migratory birds. The Bald and Golden Eagle Protection Act limits the take of bald and golden eagles where the take to be authorized is associated with otherwise lawful activities.

Specific guidance for proposed actions in all alternatives would include consideration of:

- Habitat and population objectives from the New Mexico Partners In Flight Plan, and NMDGF *Comprehensive Wildlife Conservation Strategy*, to maintain, restore, or enhance the habitat of migratory birds.
- Desired habitat conditions or population for habitat types that support a variety of game, non-game, and migratory bird species, acknowledging the state's role in managing fish and wildlife.
- Actions and area-wide use restrictions needed to achieve desired population and habitat conditions while maintaining a natural ecological balance and multiple-use relationships for area-specific bird conservation opportunities.
- In coordination with USFWS identify best management practices for or categories of actions to avoid or minimize unintentional take of migratory birds as well as measures aimed at conserving migratory bird habitats and populations (see Appendix D).
- The biotic and riparian standards included in the *New Mexico Standards and Guidelines* provide management guidance for fish and wildlife habitats.

2.4.3.4.2 Wildlife and Fish Management Decisions Common to All Alternatives

Under all alternatives, the BLM would continue to implement existing HMPs and Coordinated Resource Management Plans (CRMPs) to improve terrestrial and riparian wildlife habitats: Jornada Del Muerto HMP (Sierra and Doña Ana counties); Robledo Mountains HMP; Organ/Franklin Mountain CRMP; and Riparian HMP (See Map 2-1). Additional HMPs would be developed as needed under all alternatives.

Fish and wildlife, and fish and wildlife habitat would continue to be considered and evaluated during site-specific planning for all types of projects and public rights-of-way. Stipulations developed through consultation with the NMDGF for each project would become part of project authorizations. The BLM

would ensure that public rights-of-way are consistent with attainment or making significant progress toward attainment of the New Mexico Public Land Health Standards for biotic and riparian habitats.

Lands identified for disposal would be a low priority for habitat management, unless site-specific analysis determines that changes in the existing situation have resulted in higher resource values that would warrant retention of these lands to protect fish and wildlife values consistent with existing laws, regulation, or policy.

Riparian areas would not be identified for disposal, unless such a disposal is in the public interest. An example would be exchange of a low-quality riparian habitat for a higher-quality riparian habitat.

Habitat management actions and other discretionary public land uses would be authorized consistent with approved BLM HMPs, NMDGF population or conservation plans, Western Association of Fish and Wildlife Agencies or NMDGF species or habitat management guidelines, cooperatively developed Federal, state, or local activity plans, and other habitat and wildlife corridor data from the Western Governors Association Wildlife Council Interagency Crucial Habitat Assessment Tool (CHAT).

The transplant, augmentation, and establishment of native and naturalized exotic fish, wildlife, and plant species and the introduction of exotic species on public land would be consistent with *BLM Manual Section 1745: Introduction, Transplant, Augmentation and Reestablishment of Fish, Wildlife and Plants*.

The BLM would use species of greatest conservation need and key habitats identified in the NMDGF *Comprehensive Wildlife Conservation Strategy for New Mexico*, existing BLM HMPs, or other cooperatively developed Federal, State, or local, activity plans to prioritize watersheds for assessment in accordance with the *New Mexico Standards and Guidelines* and to develop future HMPs or other appropriate activity plans to protect or enhance fish and wildlife habitats.

The watershed analysis process would determine if attainment or significant progress is being made toward the achievement of the biotic and riparian standards for public land health. Restoration strategies, including appropriate changes in existing management, would be developed and implemented to address the causal factors identified as contributing to terrestrial and aquatic/riparian habitat degradation.

Best management practices and standard operating procedures would be implemented where needed and applicable to wildlife and fisheries habitat management (see Appendix D).

2.4.3.4.3 *Wildlife and Fish Management Direction by Alternative*

Alternative A: The BLM would seek to attain biotic and other public land health standards through emphasizing management of key habitats identified by the NMDGF *Comprehensive Wildlife Conservation Strategy for New Mexico* and through implementing existing HMPs, developing new HMPs, and managing the protections afforded by existing ACECs.

An HMP would be developed for Percha Creek, Caballo Mountains, West Potrillo Mountains, Sacramento Mountains, and Otero Mesa.

Riparian habitats would be managed according to applicable BLM guidance and decisions. Riparian habitat management would be coordinated with other programs and activities as needed, particularly range, wildlife habitat, watershed, recreation, and lands management.

Forage for 354 mule deer that presently utilize habitats within Sierra County would be provided. Forage would be provided for an estimated population increase of 261 deer by 2010. In addition, forage for 195

pronghorn that presently utilize habitat within Sierra County and for an estimated addition of 475 pronghorn would be provided.

Forage for 12,588 mule deer and 1,666 pronghorn (optimum numbers) would be provided in herd unit areas in the long-term (30,234 and 2,582 AUMs respectively, for a total of 32,816 AUMs). This represents an increase from the 1993 numbers of 5,955 mule deer (14,281 AUMs) and 731 pronghorn (1,247 AUMs).

Priority big game species objectives and population goals by area would be as follows:

Robledo Mountains	Mule Deer:	400
	Pronghorn Antelope:	50
Las Uvas Mountains	Mule Deer:	300
West Potrillo Mountains	Mule Deer:	300
Organ/Franklin Mountains	Mule Deer:	500
	Desert Bighorn Sheep:	100

Alternative B, C, and D: Management for mule deer, pronghorn, elk, and desert bighorn sheep habitats would be emphasized consistent with attainment of NMDGF population management goals and objectives.

Alternatives B & C: Biotic and other public land health standards would be attained through emphasizing management of key habitats identified by the NMDGF *Comprehensive Wildlife Conservation Strategy for New Mexico*; and through implementing existing HMPs, developing new HMPs, and managing the protections afforded by existing ACECs and new ACEC designations.

Any vegetation increases as a result of grassland restoration treatments would be reserved for watershed function and wildlife.

New land uses would be restricted and, where possible, existing land uses would be modified in riparian habitats in order to achieve proper functioning conditions while restoring and protecting riparian and aquatic ecosystems and restoring plant community structure and composition to meet site potential or site capability.

Desert bighorn sheep habitat would be managed consistent with attainment of population management goals and objectives for all occupied and potentially suitable habitat identified in the NMDGF *Desert Bighorn Sheep Recovery Plan*, as updated or amended, and other suitable habitat where no conflicts with domestic sheep/goat grazing permits or exotic species managed by the NMDGF exist.

No emphasis would be placed on habitat management for non-native species (e.g., oryx, barbary sheep).

Alternative C: Vegetation increases as a result of grassland restoration treatments would be reserved to meet the needs of watershed function. Vegetation in excess of those needs would be available to wildlife and livestock, with wildlife receiving priority over livestock.

Desert bighorn sheep habitat management objectives would be consistent with attaining the NMDGF population management goals and objectives for currently occupied and potentially suitable habitat identified in the NMDGF *Desert Bighorn Sheep Recovery Plan*, as updated or amended. Other suitable habitat pioneered by bighorn sheep would be managed similarly if there are no conflicts with domestic sheep/goat grazing, or exotic species managed by the NMDGF. Bighorn sheep habitat management

emphasis for the herd areas in the Sacramento and Guadalupe Mountains would be deferred until issues regarding domestic sheep and goat grazing and nonnative species are resolved.

Habitat for nonnative species would be consistent with the NMDGF management goals and consistent with the attainment of public land health standards.

Alternative D: Biotic and other public land health standards would be attained through continuing to implement existing HMPs, developing new HMPs, and managing protections afforded by existing ACECs.

Any vegetation increases as a result of grassland restoration treatment would not be reserved to meet wildlife needs.

Riparian habitats would be managed according to applicable BLM guidance and decisions to achieve the minimum standard of proper functioning condition to meet the needs of aquatic species, including nonnative species.

Desert bighorn sheep habitat would be managed consistent with attaining the NMDGF population management goals and objectives for the Organ Mountains and Caballo Mountains herd areas.

Habitat management for nonnative species (e.g., oryx, Barbary sheep) would seek to maintain or increase populations to meet the public hunting demand in coordination with the NMDGF and consistent with attaining public land health standards.

2.4.3.5 SPECIAL STATUS SPECIES

Section 102.8 of FLPMA requires that public land be managed to protect the quality of multiple resources and to provide food and habitat for fish, wildlife, and domestic animals. The Endangered Species Act (ESA) mandates management that leads to the conservation and recovery of Federally-listed threatened or endangered species. Bureau sensitive species are species that require special management consideration to avoid potential future listing under the ESA and that have been identified in accordance with procedures set forth in *BLM Manual 6840: Special Status Species Management*.

BLM special status species consists of: species listed as endangered or threatened under the ESA and BLM sensitive species (which includes proposed or candidate species for ESA listing, and delisted species within 5 years of delisting). BLM sensitive species would be managed consistent with species and habitat management objectives in land use and implementation plans to promote their conservation and to minimize the likelihood and need for listing under the ESA.

Goal:

- Manage public land to restore, maintain or improve habitats that lead to the recovery of Federally-listed species populations and preclude the need for Federally-listing proposed, candidate, state protected, or sensitive species.

Objectives:

- Ensure appropriate management, protections, and mitigations are developed and applied by continuing to monitor and inventory special status animal and plant species and their habitats.
- Utilize key habitats identified in the NMDGF's *Comprehensive Wildlife Conservation Strategy*, along with other resource values and concerns to assist in the prioritization of watersheds for assessment and determination of public land health standards or the development of management plans designed to protect or enhance habitat for special status species.
- Over the life of this RMP, achieve no net loss of special status species habitats within the *Decision Area*.

2.4.3.5.1 *Special Status Species Continuing Management Guidance*

In accordance with *BLM Manual Section 6840*, special status species should be managed to the level of protection required under the ESA, or for BLM sensitive species, to ensure that actions authorized, funded, or carried out by the BLM do not contribute to the need to Federally list those species.

State laws protecting state listed species apply to all BLM programs and actions to the extent that they are consistent with Federal authority. Applicable state legislation in the *Planning Area* is shown in Appendix A. In accordance with these laws, lists of species that require protective measures are maintained by the state. Key habitats for special status species would be identified by the NMDGF's *Comprehensive Wildlife Conservation Strategy for New Mexico*.

The BLM would consider special status species habitat needs, species of greatest conservation need and key habitats identified in the *Comprehensive Wildlife Conservation Strategy for New Mexico*, existing HMPs, and other cooperatively developed Federal, state, or local activity plans to prioritize watersheds for assessment according to the *New Mexico Standards and Guidelines* and to develop future HMPs or other appropriate activity plans to protect and enhance special status species habitat.

Management actions authorized or carried out by the BLM would be consistent with the recovery and conservation goals and objectives outlined in any applicable USFWS recovery plans, special status species conservation plans, and BLM HMPs. Prior to authorizing any surface-disturbing activity the BLM prepares an appropriate environmental document in which potential impacts to special status species are analyzed and mitigation is planned if necessary, to avoid or reduce potential adverse impacts to these species or their habitats.

The transplant, augmentation, and establishment of native and naturalized exotic fish, wildlife, and plant species and populations and the introduction of exotic species on public land would be consistent with *BLM Manual Section 1745: Introduction, Transplant, Augmentation and Reestablishment of Fish, Wildlife and Plants*.

2.4.3.5.2 *Special Status Species Management Decisions Common to All Alternatives*

In order to protect Federally-listed endangered and threatened and BLM sensitive species, site-specific evaluations and clearances during the NEPA process would be required and more stringent management prescriptions would be applied in areas that have been specially designated to protect target species. Any action that may affect Federally-listed species or species proposed for listing would also require consultation or conferencing, respectively, with the USFWS under Section 7 of the ESA.

A model has been developed by the NMSU Cooperative Wildlife Conservation Unit and the BLM to predict potential habitat for the Federally-endangered northern aplomado falcon (Young et al., 2002), now

designated as a non-essential experimental population. Grazing allotments within areas identified as potential aplomado falcon habitat would be managed for a stable or increasing trend in range condition or desired plant community within the capability of the ecological sites. Areas of high value or core habitat as shown by the aplomado falcon habitat model would be managed to minimize potential impacts from surface disturbing activities.

The BLM would implement the following management actions as well as standard operating procedures and best management practices described in the *New Mexico Standards and Guidelines* (see Appendix B) to ensure the protection of special status species:

- Comply with recovery plans for threatened or endangered species and conservation plans for candidate species, as well as BLM guidance for sensitive species.
- Prohibit disturbance within 0.25 miles of known raptor nests, prairie dog towns and other special status species habitats. Apply seasonal closures or use restrictions in specific areas, as necessary, to protect special status species, while allowing for compatible uses.

2.4.3.5.3 *Special Status Species Management Direction by Alternative*

Alternatives A & D: The following existing ACECs would continue to be managed to protect special status species plant or animal habitat:

EXISTING ACECS	ACRES
Cornudas Mountain	852
Alamo Mountain	2,528
Wind Mountain	2,308
Alkali Lakes	6,348
Sacramento Escarpment	4,474
Organ/Franklin ACEC	58,417
TOTAL	74,927

Alternatives A, C and D: Surface disturbing activities would be relocated up to 0.25 miles away from known populations of special status species.

Alternatives B and C: The Las Cruces District Office would cooperate with the USFWS regarding the release of aplomado falcons within suitable habitat within the *Decision Area* in accordance with Section 10(j) of the ESA.

Aplomado falcon releases would continue as part of the effort to reestablish viable populations under the 10(j) rule of the ESA. Vegetation restoration areas considered moderate to high potential falcon habitat (Young et al., 2002) would be priority areas for releases.

Alternative B: Existing ACECs and the following proposed ACECs would be designated and managed, in part, for the protection of special status plant or animal species habitat (see Map 2-3):

PROPOSED ACECS	ACRES
Brokeoff Mountain	61,224
Pup Canyon	3,677
Sacramento Mountain	2,381
Six Shooter Canyon	1,060
Tularosa Creek	236
Otero Mesa Grassland	271,262
East Potrillo	11,460
Tortugas Mountain	1,936
Mud Mountain	2,579
Percha Creek	870
TOTAL	356,685

Surface disturbing activities would be relocated a minimum of 0.5 miles away from known populations of special status species plants subject to valid existing rights. Other restrictions would be imposed on a site specific basis where necessary to avoid impacts to a plant population.

Electrical powerlines and towers would be located at least 2 miles away from occupied prairie dog habitat in order to reduce predation by raptors.

Alternative C: Existing ACECs (in Alternative A) and the following proposed ACECs would be designated and managed, in part, for the protection of special status plant or animal species (Map 2-4):

PROPOSED ACECS	ACRES
Brokeoff Mountain	3,971
Pup Canyon	3,677
Sacramento Mountains	2,381
Six Shooter Canyon	1,060
Otero Mesa Grassland	198,511
Mud Mountain	2,579
Percha Creek	870
Van Winkle Lake	1,320
TOTAL	214,369

Alternative D: No releases of aplomado falcons would be allowed within suitable habitats on public land under Section 10(j) of the ESA. The BLM would no longer participate in the falcon restoration program.

Existing ACECs in Alternative A would be managed to protect, in part, special status species habitat. No new ACECs would be designated for the protection of special status plant or animal species habitat.

2.4.3.6 CULTURAL RESOURCES

The BLM is required by law, regulations, and executive orders to manage cultural resources in such a way that they would be preserved and protected from destruction, and that appropriate uses would be made of such resources. Laws, regulations, and executive orders require that such management be coordinated with the appropriate American Indian tribes and individuals.

Cultural resources management in the Las Cruces District Office involves meeting the requirements of Section 106 of the National Historic Preservation Act as well as pro-active obligations under Section 110 and other authorities such as field schools for site digs, rock art inventories, and interpretation of historic sites including El Camino Real de Tierra Adentro, Lake Valley and other sites.

Goals:

- Identify, preserve, and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations per FLPMA of 1976, Sections 103(c) and 201(a) and (c); National Historic Preservation Act (NHPA), Section 110(a); Archaeological Resources Protection Act, Section 14(a).
- Seek to reduce imminent threats and resolve potential conflicts from natural or human-caused deterioration or potential conflict with other resource uses per FLPMA Section 103(c), and NHPA Sections 106 and 110(a) (2) by ensuring that all authorizations for land use and resource use would comply with the NHPA Section 106 and other pertinent laws, regulations, and policies.

Objectives:

- Protect and preserve a representative sample of significant cultural resources on public land for present and future generations.
- Allocate all cultural resources both known and projected to occur to one or more of the six use-location categories as prescribed by the cultural resource program and manage accordingly.

2.4.3.6.1 *Cultural Resources Continuing Management Guidance*

The BLM complies with numerous Federal laws, regulations, executive orders, and other directives regarding cultural resources and historic preservation (see Appendix A). The requirement to appropriately manage cultural resources was incorporated into FLPMA. This law remains the primary basis for BLM's program for managing cultural resources in conjunction with the agency's mandate to promote multiple, sustainable uses of resources on public land.

Section 106 of the National Historic Preservation Act (NHPA) stipulates that Federal agencies give due consideration to historic properties (e.g., resources eligible for the National Register of Historic Places) as Federal undertakings are planned and implemented. Regulations for Protection of Historic Properties (36 CFR 800) define a process for consulting with State Historic Preservation Offices (SHPOs), the Federal Advisory Council on Historic Preservation, and other interested organizations and individuals. In 1997, the BLM negotiated a National Programmatic Agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers regarding the manner in which the BLM would comply with the NHPA. This was amended in 2012. The National Programmatic Agreement is implemented through a state-specific protocol negotiated with the New Mexico SHPO.

The Archaeological Resources Protection Act and its implementing regulations (43 CFR 296) give the BLM the permitting authority to restrict access to archaeological resources on public land and specifies that such permits can only be issued for scholarly research or resource preservation. Human remains, funerary objects, sacred objects, and objects of cultural patrimony affiliated with American Indians are sometimes associated with archaeological sites. The Native American Graves Protection and Repatriation Act stipulates how such remains and objects on Federal land are to be treated.

The BLM applies a “*rule of reason*” in considering how potential effects of BLM actions on cultural resources would be considered on non-Federal land, as directed by *BLM Manual* Section 8100.07 and the National Programmatic Agreement. Under this policy, the BLM inventories, evaluates, and assesses potential effects on cultural resources on nonpublic land to the extent that effects stem from BLM decisions. These situations may arise for linear projects that cross land of various jurisdictions, including public land, or issuance of permits to drill on split-estate land. Cross-jurisdictional activities also may be subject to the New Mexico Cultural Properties Act, which addresses cultural resources on State trust land.

2.4.3.6.2 Cultural Resources Management Decisions Common to All Alternatives

The BLM would cooperate with the National Park Service (NPS) and other agencies, Instituto Nacional de Antropología e Historia de Mexico (INAH), interested parties, and landowners in protecting and interpreting El Camino Real de Tierra Adentro National Historic Trail in accordance with *El Camino Real de Tierra Adentro National Historic Trail Comprehensive Management Plan* (USDOI BLM 2004a). Butterfield Trail stage station sites would be acquired through land exchanges or purchases from willing sellers.

The corridor and associated VRM Class II area for El Camino Real de Tierra Adentro across the Jornada del Muerto in Sierra County would continue to be managed according Comprehensive Management Plan with the exception of Visual Resources, which are described below.

2.4.3.6.3 Cultural Resource Management Direction by Alternative

Alternative A: Surface-disturbing activities would not be permitted within ¼-mile of well-preserved segments of the Butterfield Trail (2,200 acres) (see Map 2-22); a cultural resource management plan would be prepared for the Trail. The following ACECs would continue to be managed in part to protect cultural resources:

EXISTING ACECS	ACRES
Cornudas Mountain	852
Alamo Mountain	2,528
Wind Mountain	2,308
Three Rivers Petroglyph Site	1,043
Doña Ana Mountains	1,427
Los Tules	24
Rincon	856
Organ/Franklin Mountains	58,417
San Diego	623
TOTAL	68,078

Alternatives B, C, and D: Depending on availability of funding and personnel, under Alternatives B, C, and D, the Las Cruces District would prepare one or more cultural resource activity plans that would provide more specific direction to the program. These activity plans would address such program issues as priorities and emphasis of the Cultural Resources program for the future, determining use allocations and decisions to further the goals and objectives outlined above, and survey work, stabilization and preservation programs that would be pursued in the program.

The Butterfield and the Mormon Battalion historic trails would be managed to preserve their integrity for future generations and possible designation as National Historic Trails.

Alternative B: Surface disturbing activities within a ½-mile of well-preserved segments of the following historic trails would not be permitted (Map 2-23). Well-preserved segments are those which the BLM and others have been able to identify on-the-ground.

- El Camino Real de Tierra Adentro
- Butterfield Trail
- Mormon Battalion Trail

Existing ACECs (in Alternative A) and the following proposed ACECs shown would be managed in part to protect cultural resources:

PROPOSED ACECS	ACRES
Brokeoff Mountain	61,224
Sacramento Mountains	2,381
Broad Canyon	4,721
Picacho Peak	950
Tortugas Mountain	1,936
Southern Caballo Mountains	24,117
TOTAL	95,329

Alternative C: Surface disturbing activities would be managed in order to keep the historic setting intact along well-preserved segments of the following historic trails (Map 2-24):

- El Camino Real de Tierra Adentro
- Butterfield Trail
- Mormon Battalion Trail

Well-preserved segments are those which the BLM and others have been able to identify on-the-ground.

Existing ACECs (in Alternative A) and the following ACECs would be managed in part to protect cultural resources.

PROPOSED ACECS	ACRES
Brokeoff Mountain	3,971
Sacramento Mountains	2,381
TOTAL	6,352

Alternative D: Surface disturbance activities would not be permitted within a ¼-mile of well-preserved segments of the three historic trails (see Map 2-25). Well-preserved segments are those which the BLM and others have been able to identify on-the-ground.

No new ACECs would be designated to protect cultural resources. The existing ACECs in Alternative A would be managed in part to protect cultural resources.

2.4.3.7 PALEONTOLOGY

Paleontological resources are any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth. The Paleontological Resources Preservation Act (PRPA) directs the BLM to manage, protect, and preserve paleontological resources using scientific principles and expertise. Body and bone fossils,

shells of marine creatures, petrified wood, and trace fossils such as tracks and trackways and impressions of plant parts are the principal types of evidence about ancient life found on public land in the *Decision Area*. Paleontology borders between biology and geology, and shares with archaeology a number of similarities.

Goal:

- Preserve, protect, and manage paleontological resources on public land for their scientific, educational, and recreational values in accordance with the PRPA and BLM policy and guidelines.

Objectives:

- Evaluate impacts to paleontological resources on a project-specific basis with consideration of the following information: paleontological sensitivity mapping, known resources of the project area, and extent and type of surface and subsurface disturbance.
- Facilitate the protection, storage, and preservation of fossils discovered or collected on BLM lands.

2.4.3.7.1 *Paleontology Continuing Management Guidance*

The PRPA is the new legal authority for the BLM for the management, protection, and preservation of paleontological resources using scientific principles and expertise. It authorizes collection of any paleontological resources from public land for scientific research with a permit or common invertebrate and plant paleontological resources without a permit as casual collection. It provides for the curation of paleontological resources collected under permit from public land and requires confidentiality of locality data. It provides new criminal and civil penalties for the prosecution of fossil theft and vandalism, prohibits commercial sale, and illegal transport or export. The PRPA requires a program for public awareness and education of the importance of paleontological resources from public land as well as the inventory of Federal lands for paleontological resources. FLPMA requires that public land be managed in a manner that protects the quality of scientific and other values. Paleontological resources will continue to be mitigated under FLPMA and NEPA. The PRPA requires the Secretary of the Interior to promulgate regulations under the PRPA. But, not all sections of the PRPA need regulations to be in full force and effect. Until such time the regulations are finalized and new policy and guidelines are issued, guidelines for management of paleontological resources (fossil resources) in BLM Manual Section 8270 and in the BLM's General Procedural Guidance for Paleontological Resource Management Handbook will continue to be followed.

The objective of the BLM's paleontological resource management program is to provide a consistent and comprehensive approach in all aspects, including identification, evaluation, protection, and use of paleontological resources. Significant paleontological resources are defined by BLM policy to include all vertebrate fossil remains (body and trace fossils) and those plant and invertebrate fossils determined to be scientifically unique on a case-by-case basis.

To estimate the approximate number of fossils within the *Planning Area*, the BLM uses a predictive model based on the potential of exposed rock units to yield significant fossils. The model, based on the geology and known occurrences of fossil resources, is called the Potential Fossil Yield Classification. The BLM New Mexico State Office has an assistance agreement with the New Mexico Museum of Natural History and Science (NMMNHS), a State of New Mexico Museum, to ensure the care, protection, and storage of paleontological resources collected from public land in New Mexico discovered in the

course of land use activities. The paleontologists at the NMMNHS hold permits that are required to collect vertebrate fossils and other material from public land across the state.

2.4.3.7.2 *Paleontology Management Decisions Common to All Alternatives*

To ensure scientific use of significant fossils, permits would be issued by the BLM New Mexico State Office to qualified individuals for the scientific and education collection of paleontological resources including vertebrates and non-vertebrates. Under all alternatives, the BLM would continue to use existing partnerships and information collected from the paleontological collection permits to evaluate the importance of specific areas in the *Decision Area*. To facilitate the protection, storage, and preservation of fossils discovered or collected on BLM land, the BLM would continue to work cooperatively with the NMMNHS vertebrate paleontologists to collect and curate important material to the standards outlined in *USDI Departmental Manual 411*.

To evaluate impacts on significant paleontological resources, the Potential Fossil Yield Classification would be used to develop management recommendations for site-specific land use actions. To provide for educational and recreational values, public outreach material would be available at the Las Cruces District Office. Under all alternatives, the BLM would work to provide public access to significant paleontological resources to local museums and educational facilities for display and interpretation of fossils as a component of regional natural history.

Paleontological resources discovered or collected on public land within the *Decision Area* would be used for scientific purposes and public outreach, including notifications and information on “*discovery*” procedures.

The Omnibus Public Land Management Act of 2009 established the Prehistoric Trackways National Monument which encompasses the Paleozoic Trackways Research Natural Area (RNA). The RNA designation would be rescinded and the trackways would be managed according to the enabling legislation under all alternatives until such time as a stand-alone RMP is developed for the Prehistoric Trackways National Monument as required by the legislation.

2.4.3.7.3 *Paleontology Management Direction by Alternative*

Alternative A: Paleontological resources in Doña Ana County would be managed through the issuance of scientific permits.

Alternatives A and B: The BLM would require field surveys and a mitigation plan for paleontological resources to be done by a BLM-qualified paleontologist for paleontological resources for any land-disturbing activity in Class 3, 4 or 5 areas of paleo-sensitivity.

Alternatives A, B, and C: Areas within the Camp Rice Formation and other Santa Fe Group Formations in the Robledo Mountains would be evaluated for potential for important new discoveries.

Alternative B: Excavation or removal of paleontological resources in WSAs, ACECs, or other areas with sensitive resources would not be authorized.

Outreach and interpretation of paleontological resources *in situ* would be conducted where appropriate.

Alternatives B, C, and D: A notification procedure for permits issued for surface-disturbing activities occurring in paleo-sensitive areas would be set up.

Mitigation measures for surface disturbing activities would be developed and applied as needed to protect paleontological resources, including a controlled surface-use stipulation for leases.

Alternative C: Authorizations for excavation and removal of paleontological resources would be considered where appropriate. Adequate protection, storage, and curation of paleontological resources would be required with emphasis on both scientific and educational uses both *in situ* and off-site.

Alternative D: Field surveys and a mitigation plan for paleontological resources would be required to be done by a BLM-qualified paleontologist for paleontological resources for any land-disturbing activity in Class 4 or 5 areas of paleo-sensitivity.

Develop and implement mitigation measures to protect paleontological resource. Mitigation could include a controlled surface-use stipulation for leases.

2.4.3.8 VISUAL RESOURCES

Section 102.8 of FLPMA declares that public land will be managed to protect the quality of scenic values and where appropriate to preserve and protect certain public land in its natural condition. In order to accomplish this, the BLM uses the Visual Resource Inventory process and Visual Resource Management classes as detailed in Appendix L. The establishment of VRM classes on public land is based on an evaluation of the landscape's scenic qualities, public sensitivity toward certain areas (special designations and WSAs), and the location of affected land from major travel corridors or distance zones.

Goal:

- Maintain the regional scenic beauty, open space landscape, undisturbed views, and other high-quality visual resources compatible with multiple-use management.

Objectives:

- To minimize the visual impacts and contrast against the landscape, including impacts on the night sky, for all actions permitted on public land.
- To ensure management activities and approved land uses are consistent with, and meet, the established VRM class objectives.

2.4.3.8.1 *Visual Resources Continuing Management Guidance*

The BLM has developed a comprehensive system for VRM for the purpose of carrying prescribed visual management objectives and preserving the natural scenic quality of Federal land. *BLM Manual Section 8400: Visual Resource Management* describes BLM's responsibility to identify and protect visual values on all land administered by the BLM. The BLM accomplishes this through a VRM system that follows the management guidelines in *BLM Manual Section 8400* and other policy guidance. In the VRM system, VRM classes are assigned to accommodate management or use of other resources including, but not limited to, visual resources. The VRM class designations are management decisions regarding the level of visual resource protection to be employed in maintaining the scenic quality on a specific landscape or area of public land.

2.4.3.8.2 *Visual Resources Management Decisions Common to All Alternatives*

VRM class designations have been proposed on all land within the BLM’s *Decision Area* under all alternatives. More restrictive visual management requirements would not be retroactively applied to existing projects or ground disturbances. Contrast ratings (VRM compliance) would be required for all future projects in highly sensitive areas, and for projects with the potential for high visual impacts. Visual design consideration such as siting, color selection, and reclamation would be incorporated into all surface disturbing projects.

VRM Class I is assigned to all special areas where the current management situation requires a natural environment essentially unchanged by human actions, such as WSAs. All areas designated as ACECs to protect scenic resources would be managed as VRM Class I. Kilbourne Hole in Doña Ana County would be managed as VRM Class II.

2.4.3.8.3 *Visual Resources Management Direction by Alternative*

Alternative A: VRM classes would be allocated as follows (see Map 2-6):

CLASS	ACRES
VRM Class I	38,521
VRM Class II	578,348
VRM Class III	840,655
VRM Class IV	1,375,138

The Sacramento Escarpment ACEC would be managed as VRM Class I to protect scenic resources.

The area 5 miles each side of the defined route of El Camino Real across the Jornada del Muerto Basin in Doña Ana and Sierra County would be managed as VRM Class II.

Alternative B: VRM classes would be allocated as follows (see Map 2-7):

CLASS	ACRES
VRM Class I	343,253
VRM Class II	893,669
VRM Class III	806,869
VRM Class IV	789,420

The following ACECs designated under this alternative would be managed as VRM Class I:

EXISTING ACECS

Sacramento Escarpment
 Aden Lava Flow
 Organ/Franklin Mountain
 Robledo Mountains
 Doña Ana Mountains

PROPOSED ACECS

Caballo Mountain
 Broad Canyon
 East Potrillo Mountains
 Picacho Peak
 Portions of Otero Mesa Grassland

Alternatives B, C, and D: Areas of high sensitivity would be managed as the priority for reducing visual contrast for VRM conformance through mitigation; examples include mineral material sites and abandoned mines, at the discretion of the authorized officer to mitigate new circumstances.

Five miles of either side of the El Camino Real National Historic Trail across the Jornada del Muerto Basin would be designated VRM Class II. Exceptions to this VRM designation would be considered following site-specific analysis where the proposed action is not visible from the trail, and the trail and its historic context are buffered by landscape features.

Based upon future inventory, study, and possible inclusion in the National Historic Trail System, VRM class designations may need to be amended for the following two historic trails: Butterfield Trail and Mormon Battalion Trail.

All WSAs would be managed as interim VRM Class I until such time as Congress designates them as wilderness or releases them from further study. Any areas released from wilderness study would be managed according to the adjacent VRM class for the area.

Alternative C: VRM classes in the *Decision Area* would be allocated as follows (see Map 2-8):

CLASS	ACRES
VRM Class I	271,406
VRM Class II	638,331
VRM Class III	809,935
VRM Class IV	1,113,396

The following ACECs designated under this alternative would be managed as VRM Class I:

EXISTING ACECS

Sacramento Escarpment
 Robledo Mountains
 Organ/Franklin Mountain
 Doña Ana Mountains

PROPOSED ACECS

Nutt Mountain
 Portions of Otero Mesa Grassland

Alternative D: VRM classes in the *Decision Area* would be allocated as follows (see Map 2-9):

CLASS	ACRES
VRM Class I	265,526
VRM Class II	689,513
VRM Class III	810,179
VRM Class IV	1,066,866

The following scenic ACECs would be managed as VRM Class I:

EXISTING ACECS

Sacramento Escarpment
 Cornudas Mountain
 Alamo Mountain
 Wind Mountain
 Organ/Franklin Mountain
 Doña Ana Mountains
 Robledo Mountains

PROPOSED ACECS

None

2.4.3.9 FIRE AND FUELS MANAGEMENT

National fire management policy has evolved in response to the increased fatalities, property loss, local economic disruptions, and risk to ecosystems associated with increasingly catastrophic wildland fire seasons. The Fire and Fuels program for the BLM New Mexico as well as the Las Cruces District Office have adapted to meet these changes and are incorporated into the program for the TriCounty *Decision Area*.

Goals:

- Reduce the risk to human life and property from wildland fire.
- Reduce the risk and cost of fire suppression in areas of hazardous fuels buildup.
- Improve landscape health through returning fire to its natural role in the ecosystem.

Objectives:

- Focus treatments on communities and surrounding areas with the potential for escaped fire or loss of life or property.
- Focus treatments on areas identified as containing hazardous fuels buildup, to reduce the risk and cost of fire suppression. Focus treatments on improving landscape health through treating lands in Fire Regime Condition Classes 2 and 3 to achieve the Desired Future Condition of Fire Regime Condition Class 1.
- Maintain Condition Class 1 where it occurs.

2.4.3.9.1 *Fire and Fuels Management Continuing Management Guidance*

The 2001 Federal Wildland Fire Management Policy directs Federal agencies to achieve a balance between fire suppression to protect life, property, and resources and wildfire management to regulate fuels and maintain healthy ecosystems. The policy provides nine guiding principles that are fundamental to the success of the Federal wildland fire management program:

1. Firefighter and public safety is the first priority in every fire management activity.
2. The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
3. Fire management plans, programs, and activities support land and resource management plans and their implementation.
4. Sound risk management is a foundation for all fire management activities.
5. Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
6. Fire management plans and activities are based upon the best available science.
7. Fire management plans and activities incorporate public health and environmental quality considerations.
8. Federal, state, tribal, local, interagency, and international coordination and cooperation are essential.
9. Standardization of policies and procedures among Federal agencies is an ongoing objective.

2.4.3.9.2 *Fire and Fuels Management Decisions Common to All Alternatives*

Fire management plans must be completed for all burnable acres in accordance with Federal fire policy. The fire management plans prescribe appropriate wildfire management response for all fire management units. The appropriate wildfire management response takes into account safety, cost, and resource management objectives.

In 2004, the BLM New Mexico State Office prepared the *Resource Management Plan Amendment for Fire and Fuels Management on Public Land in New Mexico and Texas* (BLM 2004a) which amended all of the BLM New Mexico RMPs. The purpose of the amendment was to incorporate current fire management policy into RMPs, restore fire as an integral part of fire-adapted ecosystems to meet resource management objectives, improve the protection of human life and property through the reduction of hazardous fuels, and establish consistent methods of managing fire and fuels on public land in New Mexico and Texas.

Wildland fire management in the BLM's *Decision Area* would be guided by the Las Cruces District Office Fire Management Plan and includes specific language for managing fire and fuels within Fire Management Unit boundaries and tiers to the 2004 *Fire and Fuels RMP Amendment*. The current Fire Management Plan for Las Cruces District Office has been in place since 2004, and is updated annually. It guides all actions for fire and fuels management. The Fire Management Plan is not a NEPA document; therefore additional NEPA analysis is required for all fire treatments.

Fuels Treatments: Fuels treatments include various tools (i.e., prescribed fire, mechanical, biological, chemical) to reduce hazardous fuel loads, or to achieve resource objectives. Actual prescribed fire accomplishments vary greatly from year-to-year due to weather patterns. Actual mechanical treatment tends to be based on annual budget allocation. Treatment, via prescribed burning and mechanical treatments have averaged 4,672 acres per year for the past 8 years on the Las Cruces District.

Prescribed burning within the Las Cruces District Office area may occur anytime prescriptive parameters are met. Grassland burns take place before vegetation turns green. Piñon-juniper and most landscape broadcast burns take place during late spring and summer and require the warmest and driest parameters to meet objectives.

Fire Suppression: Residential developments that are surrounded by, or adjacent to, wildland in the *Planning Area* are termed wildland-urban interface areas. By definition wildland-urban interface areas include any area where vegetative fuels and human development meet and intermingle. These are high-priority full suppression areas due to public safety concerns.

The Fire and Fuels RMP Amendment states that under ideal conditions a total of approximately 73,000 acres District-wide could be treated annually. The District Office would have considerable flexibility in determining the appropriate treatments for specific areas. Effects on wildlife habitat, cultural resources, and other resources would be considered during treatment planning. The proportion of treatments would be balanced, with an average of 40 percent and a range of 20-45 percent of total acres treated with prescribed fire, 40 percent with a range of 20-40 percent with mechanical treatments, and 20 percent with chemical treatments. Biological treatments are not planned but may be considered for site-specific projects. The BLM would use a combination of any fuels management technique (wildfire for resource benefit, prescribed fire, mechanical treatment, chemical treatment, or biological treatment) on any fuel type, to meet fire and fuels management objectives.

2.4.3.9.3 *Fire and Fuels Management Direction by Alternative*

Alternatives A-D: The following decisions and prescriptions are taken from the *Resource Management Plan Amendment for Fire and Fuels Management on Public Lands in New Mexico and Texas* (BLM 2004c) and are hereby incorporated into all alternatives of this RMP. These decisions would effectively guide the fire and fuels management program for the *Decision Area*; no other decisions are needed at this time. Impacts of these decisions have been analyzed; therefore, no other decisions are proposed.

Lands in the *Decision Area* would be assigned to one of the following Fire Management Categories:

Category A: Areas where fire is not desired at all.

Category B: Areas where unplanned wildfire is not desired because of current conditions.

Category C: Areas where fire is desired, but there are significant constraints on its use.

Category D: Areas where wildland fire is desired, and there are few or no constraints on its use.

Fire Management Units (FMUs) would be described, mapped and assigned to a Fire Management Category (See Table 3-6). FMUs would be changed as needed through the NEPA process to reflect dynamic effects of wildfire, prescribed fire, and non-fire treatments.

Fuels reduction treatments would be conducted with appropriate treatment for specific areas determined by local conditions.

Best management practices would be used in implementing fire suppression, managing wildfire for resource benefit, prescribed fires, and mechanical, chemical, and biological treatment methods (see Appendix D).

Wildfire management response would be based on the Las Cruces District Office Fire Management Plan, Fire and Fuels Plan Amendment and this RMP when responding to wildfire.

Areas such as buildings and structures, communication sites, important wildlife habitat, cultural or historical sites, developed recreation facilities and other areas would be identified for protection from wildland fire.

Vegetation treatments would be conducted using wildland fire for resource benefit, prescribed burns, mechanical treatments, and chemical treatments.

2.4.4 RESOURCE USES

2.4.4.1 LIVESTOCK GRAZING

The *Taylor Grazing Act* of 1934 is the legislative authority which provides for livestock grazing on public land. The FLPMA and the *Public Rangeland Improvement Act* further defines how livestock grazing is managed in the context of multiple-use and sustained yield. Livestock grazing occurs on 300 allotments in the *Decision Area* under a system of permits and leases in which ranchers pay grazing fees for the privilege of use. Most of the public land is open to grazing and is guided by the EIS for *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management*. These guidelines provide the means for making adjustments in grazing as described below.

Goal:

- Manage livestock grazing on public land in a manner that ensures progress toward achieving the *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management*.

Objectives:

- Complete or revise allotment management plans and functionally equivalent activity plans or decisions within priority watersheds and base them on allotment management status (Categories I, M, and C).
- Implement rangeland improvements within allotments or priority watersheds to optimize livestock management consistent with multiple-use objectives and designed for the maintenance and improvement of ecological conditions.
- Based on monitoring data, make appropriate changes in grazing management necessary to ensure progress toward attainment of *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management* and other multiple-use objectives. Changes in grazing management would be consistent with those guidelines and may include adjustments in permitted use levels, season of use, kind of livestock, allowable use levels, or stocking rates.
- Evaluate the feasibility of authorizing grazing on allotments against conflicts with site-specific issues and other resources. Close areas to grazing when necessary for the proper and efficient management of public rangelands.

2.4.4.1.1 *Livestock Grazing Continuing Management Guidance*

Grazing allotments or groups of allotments in a watershed would be reviewed based on the BLM's allotment categorization and watershed prioritization process (Appendix C). Management focus would be on high-priority watersheds; however, circumstances may arise that would require assessing standards and implementing and monitoring guidelines in other, lower-priority areas. Rangeland improvements would be implemented to improve or maintain watershed health and ensure progress towards or attainment of the *New Mexico Public Land Health Standards*. Rangeland improvements include, but are not limited to fences, pipelines, vegetation treatments, erosion control structures, storage tanks, water troughs, and cattle guards. Rangeland improvement priorities would be based on the following criteria:

1. Existence of an allotment management plan, functional equivalent activity plan, determination of *New Mexico Standards and Guidelines* or other decisions;
2. Need to mitigate an emergency situation (e.g., fire, flooding, drought);
3. Need for public safety;
4. Amount of contributed funding;
5. Number of partnerships;
6. Direct/indirect benefit to special status species, critical fish and wildlife habitats, impaired waters, soil stabilization, or nonnative, invasive species;
7. Overall cost of the project in relation to the benefits.

Management according to the *New Mexico Standards and Guidelines* would allow adjustments to use levels, season of use, kind of livestock, and stocking rates. In addition, the following management guidance would be used: (1) areas that are not meeting the standards of public land health due to livestock grazing would be identified and (2) guidelines would be implemented and monitored on areas that are not meeting or where progress is not being made toward attainment of the *New Mexico Standards and Guidelines*. Additional management actions that would be considered to ensure public land health

standard attainment could include, but not be limited to, implementing available forage reductions in shrub-dominated communities, implementing available forage reductions based on distance to water and implementing available forage reductions based on percent slope (see Appendix B).

Under the 1986 and 1993 RMPs, the accepted maximum forage use levels ranged from 40 to 60 percent. However, researchers on stocking rate studies in the Southwest (including Jornada Experimental Range near Las Cruces) recommended that desert ranges be routinely stocked for around 30-35 percent use of average forage production with some reduction in stocking in drought years (Holechek, et al. 1999).

2.4.4.1.2 *Livestock Grazing Decisions Common to All Alternatives*

Livestock grazing would continue to be managed consistent with Federal law, BLM policy, guidance and regulation using any and/or all management tools available. These authorities, policy and guidance provide for implementing management actions such as using livestock grazing as a tool to control invasive species, reduce fire danger, and accomplish other management objectives.

Grazing permits and leases would continue to be issued and/or renewed according to BLM policy, guidance, and the grazing regulations. Grazing permits are authorized for a period of 10 years. As permits expire, permit renewals would be considered and issued under all alternatives. All permit renewals would be analyzed through the appropriate NEPA document.

Alternatives would be considered in these documents including but not limited to renewing the permit with existing terms and conditions or changing the terms and conditions to meet the standards for public land health or grazing policy changes.

No grazing of domestic sheep or goats would be authorized within currently occupied bighorn sheep habitats, identified migration corridors, and buffer strips no less than 9 miles (except where topographic features or other barriers exist), or as developed through a cooperative agreement to minimize contact between native wild sheep and domestic sheep and goats consistent with existing BLM policy guidance. Where the BLM has authorized changes in kind of livestock grazing from domestic sheep or goats to cattle within potentially suitable bighorn sheep habitat, such permits would not be converted back to sheep or goats unless it has been determined that the presence of exotic wildlife species managed by the NMDGF would still preclude successful management of native wild sheep populations.

Grassland restoration treatments would be rested for a minimum of two growing seasons (June 1 to October 31) following treatment. The need for adjusting pre- and post-treatment growing season rest would be determined on a site-specific basis. An appropriate utilization level would be established for the other pastures or portions of pastures during the growing season deferment of the treatments to ensure attainment of the overall objectives for the allotment.

Supplements in the form of salt, mineral, and protein would be located a minimum of ¼-mile from existing livestock waters and riparian areas. No maintenance feeding would be allowed on public land.

The Las Cruces District Office manages 20 allotments wholly or partially outside the *Planning Area*. These are shown in Appendix E. Management of livestock grazing within these allotments would continue under this RMP unless they are transferred to another office. Such a transfer and subsequent management could be executed by a management agreement between the Las Cruces District Office and the receiving office. No further planning or NEPA documentation would be required.

2.4.4.1.3 Livestock Grazing Management Direction by Alternative

Alternative A: Grazing treatments would be incorporated into activity plans for Category I and selected Category M allotments to meet management objectives and goals established for each individual allotment. Monitoring studies would be established on all Category I allotments with those in priority watersheds being first.

The following areas would continue to be closed to grazing:

SITES CLOSED TO GRAZING	ACRES
Percha Creek	870
Tularosa Creek	236
Dripping Springs Natural Area	530
Aguirre Spring Campground	23
Three Rivers Petroglyph Campground	340
Wildlife waters and other habitat improvements	50
TOTAL	2,049

Alternative B Vegetation communities on areas needing restoration would be treated using passive methods to meet the ecological site’s potential natural community or capability. Any vegetation increases as a result of grassland restoration treatments would be reserved for watershed function and wildlife.

Allotments or portions of allotments that may end up as non-permitted in the future or result in unmanageable conflicts with other uses would be closed.

Livestock grazing would be allowed in all parts of the *Decision Area* except for the areas closed to grazing in Alternative A, unallotted areas (areas that currently are not within an allotment but have not been officially closed to livestock grazing) and areas with unmanageable conflicts (at least 10,295 acres with additional areas added as appropriate over time), and non-permitted allotments, allotments currently without an authorization (permit or lease) to graze livestock, (5,258 acres).

Grazing preference of forage allocated to livestock on the 950,000 acres of limited restoration potential would be reduced by 25 percent. The reduced animal unit months (AUMs) would be placed into suspension and a portion, or all, may be reactivated following determinations of significant progress toward meeting restoration objectives.

Alternative C: Vegetation communities and areas needing restoration would be treated using a combination of passive and active methods to meet the ecological site’s potential natural community or capability. Vegetation increases as a result of grassland restoration treatments would be reserved to meet the needs of watershed function. Vegetation in excess of those needs would be allocated to wildlife and livestock, with wildlife receiving priority over livestock. However, there would be no increase in licensed AUMs as a result of vegetation increases.

Allotments or portions of allotments that may end up as non-permitted in the future or result in unmanageable conflicts with other uses would be closed to grazing after health standard assessment, determination, and decision to allocate to other uses.

Livestock grazing would be allowed in all parts of the *Decision Area* except for the areas closed to grazing in Alternative A, unallotted areas and areas with unmanageable conflicts that have been evaluated

using the health standard assessment and determination (at least 10,295 acres with additional areas added as appropriate over time), and non-permitted allotments (5,258 acres).

Grazing use adjustments would be based on watershed priorities, allotment and ecological site health standard assessments, and monitoring.

Isolated parcels of Federal land within Section 15 lease allotments would be disposed of in order to eliminate those allotments.

Alternative D: Vegetation communities and areas needing restoration would be treated using active methods to meet the ecological site’s potential natural community or capability. Vegetation in excess of those needs would be allocated to wildlife and livestock with neither having priority over the other. In any case there would be no increase in grazing preference as a result of vegetation increases.

The following areas would be closed to grazing, however, grazing would be allowed as a management tool:

SITES CLOSED TO GRAZING	ACRES
Percha Creek	870
Tularosa Creek	236
Wildlife waters and other habitat improvements	50
TOTAL ACRES	1,156

2.4.4.1.4 *Summary of Grazing Decisions by Alternative*

Alternative A- 2,049 acres closed to grazing. Livestock adjustments done on a case-by case-basis, based on monitoring.

Alternative B- 17,602 acres closed to grazing as well as allotments with unmanageable conflicts. Twenty-five percent reductions in livestock grazing on vegetation with limited restoration potential.

Alternative C-17,602 acres closed to grazing as well as allotments with unmanageable conflicts after evaluation and determination. Livestock adjustments made on a watershed priority basis based on monitoring.

Alternative D- 1,156 acres closed to grazing. Livestock adjustments done on a case-by-case basis, based on monitoring.

2.4.4.2 COMPREHENSIVE TRAILS AND TRAVEL MANAGEMENT

This section contains proposed decisions for travel and vehicle use throughout the *Decision Area*. While these decisions pertain to all uses and all vehicles, policy dictates that BLM prescribe and define OHV use specifically. Areas for vehicle use must be delineated, and the type of use allowed must be defined; all parts of the *Decision Area* must be prescribed as Open, Closed, or Limited for OHV use.

An Off-Highway Vehicle (OHV) is defined by 43 CFR Section 8340.0-5 as any motorized vehicle capable of or designed for travel on or immediately over land, water, or other natural terrain, excluding (1) any non-amphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved or permitted; (4) vehicles in official use by administering agencies such as the BLM or other agency; and (5) any combat or combat support vehicle

when used in times of national defense emergencies. Law enforcement, emergency vehicles and administrative vehicle use is excepted in this definition and the decisions contained here do not apply to those activities and uses.

Goal:

- Develop a trails and travel network that balances public access to and across public land with the enjoyment, use, and protection of sensitive natural, cultural, and historic resources.

Objectives:

- Through the RMP and through travel management planning following RMP approval, designate areas and routes within the *Decision Area* as being Closed, Limited in Use, or Open.
- Acquire, maintain, and enhance access to and across public land where needed to improve management efficiency and to facilitate multiple uses and the public's enjoyment of the land in coordination with other Federal agencies, state and local governments, and private landowners.

2.4.4.2.1 *Trails and Travel Continuing Management Guidance*

All public land is required to be allocated for different levels of OHV use (43 CFR Section 8342.1). Areas must be classified as open, limited, or closed to motorized travel activities. A defined travel management network should be completed during the development of the land use plan to the extent practical. Within the TriCounty *Planning Area*, a definitive route inventory and route designation could not be completed during this planning effort except for ACECs. Until the final travel management network is established, motorized travel would be Limited to Existing Routes at the time of the approval of the land use plan, unless specifically identified otherwise within the *TriCounty RMP/EIS*. As travel management plans are completed, formal route designations would automatically result in changing the OHV Area designations from "limited to *existing* roads, primitive roads, and trails" to "limited to *designated* roads, primitive roads, and trails."

Appendix O provides further explanation of BLM's OHV definitions and associated terms, route designation and closure criteria, and the WSA and ACEC route inventories. Motorized or mechanized vehicle travel in WSAs is limited to only those ways which existed at the time the area became a WSA. Future travel designations may be made for a WSA if released from study.

Cross-country use is permitted in areas designated as open for such travel; however, undue and unnecessary degradation of resources is not permitted on any area of public land under regulations found in 43 CFR Section 8340. Exceptions may be made to OHV designations to accommodate emergency or permitted or authorized uses as allowed by the regulations at 43 CFR Section 8340.

Existing routes as used in this section are defined as follows:

- For WSAs, existing routes are those routes which existed at the time the area was designated a WSA. For the Organ Needles and Peña Blanca WSAs, that date is December 1993. For all other WSAs addressed in this document that date is November 1980.
- For the rest of the *Decision Area*, existing routes are those routes which exist at the time the ROD are signed for this RMP.

2.4.4.2.2 *Trails and Travel Management Decisions Common to All Alternatives*

Travel and transportation networks would be targeted for completion for the entire *Decision Area* within 5 years of the ROD for this RMP/EIS. In Alternatives B, C, and D, areas would be identified for which to prepare travel management plans. Priorities would be determined based on a number of factors including need for resource protection, need for public and administrative access, public interest, and other management considerations. The designation of travel management areas, the preparation of travel management plans for these areas, the priority criteria, and timeframes for travel management plan development after approval of the TriCounty ROD are described in Appendix O

Where off-road vehicles are causing or would cause considerable adverse effects upon soil, vegetation, fish and wildlife, fish and wildlife habitats, cultural resources, historical resources, threatened or endangered species, wilderness suitability, other authorized uses, or other resources, the affected areas shall be immediately closed to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence. This would be accomplished through the use of emergency closures as provided in Supplementary Rules at 43 CFR 8365.1-6.

Under all alternatives, the following processes and procedures would be implemented in support of the transportation program:

- Acquire easements if new road construction crosses state trust or private lands.
- Conduct road maintenance and easement acquisition in support of resource management objectives, subject to available funds.
- Consider new road construction in areas where travel is restricted due to topography or terrain based upon a number of planning criteria including, but not limited to, recreation demand, the ability to protect resources, promoting public safety, and minimizing user conflicts.
- Support access actions with cadastral survey and appraisals.

In the Organ Mountains, non-motorized closures of public land would be accomplished in compliance with Supplementary Rules (43CFR 8365, 1-6). The following trails shown on Maps J-8 and J-9 would be limited to designated use as indicated:

- Sierra Vista Trail - Hiking, equestrian and mountain biking
- Pine Tree Trail - Hiking
- Baylor Pass Trail - Hiking and equestrian
- Dripping Springs Trails (multiple trails) - Hiking
- Bar Canyon Trail - Hiking, equestrian and mountain biking

2.4.4.2.3 *Trails and Travel Management Direction by Alternative*

Alternative A: A total of 1,635,700 acres in the *Decision Area* would be designated as Open to OHV use (Table 2-8) Most of the open area, 99.5 percent, is in Sierra and Otero Counties. Cross-country travel would be allowed in these areas.

The following areas in Doña Ana County would be Closed to motor vehicle use:

- The Mexican border area south of Anapra-Columbus Road and south of State Route 9. Vehicle use for law enforcement and administrative purpose would be allowed.
- Portions of the Organ/Franklin Mountains
- Los Tules ACEC.

**TABLE 2-8
VEHICLE USE DESIGNATIONS BY ALTERNATIVE**

DESIGNATION	ACRES			
	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Open	1,635,700	38,966	41,908	41,909
Limited to Existing Routes	878,636	2,003,192	2,202,425	2,496,266
Limited to Designated Routes	272,021	523,000	569,724	277,336
Closed	42,953	267,630	20,000	17,485

Any road or trail created by the passage of vehicles after December 1993 would not be considered Open and would be subject to closure.

In Sierra and Otero Counties, the BLM would attempt to acquire legal access to most of the public land that does not currently have public access by acquiring easements for 36 miles of existing non-Federal roads and constructing 238 miles of new roads. Easements would be acquired for new road construction crossing State trust or private lands.

In Doña Ana County, the BLM would develop access in the following four areas through new road construction around non-Federal lands, land ownership adjustments, or easement acquisition. Suitable access may be either vehicular or pedestrian depending on the situation.

- Organ Mountains: Acquire legal public access for vehicular use south of Soledad Canyon through private properties.
- Robledo Mountains: Acquire legal public access across private land for vehicular use on the north end. Acquire legal public access from Shalem Colony Road to the Prehistoric Trackways National Monument.
- West Potrillo Mountains: Acquire legal public access to the north and west sides.

In the Aden Hills OHV Area in Doña Ana County, 8,055 acres would be designated as Open for motor and mechanical vehicle use.

Alternatives B, C, and D: Vehicle use designations by area would be as shown in Table 2-8 and Maps 2-11, 2-12, and 2-13. Under the three action alternatives, five travel management areas would be designated and a travel management plan, including access needs, would be prepared for each area following completion of the *TriCounty RMP*:

- Doña Ana County
- Otero Mesa/Crow Flats
- Otero County west of McGregor Range and the Lincoln National Forest
- Jornada del Muerto and Caballo Mountains
- Sierra County west of the Rio Grande

The five areas encompass the entire *Planning Area*. The order in which travel management planning would be done for these areas would depend on funding priorities and resources available to do the planning, amount of route inventory completed for each area, and other factors.

The Red Sands OHV Area (33,854 acres) and the Aden Hills OHV Area (8,055 acres) would be designated as Open to vehicle use. Cross-country travel would be allowed in the open area. However, competitive and commercial events would be limited to designated routes.

Alternative B: The following areas would be Closed to motor vehicle use (Table 2-8 and Map 2-11):

AREA	ACRES
All WSAs	261,793
Bar Canyon	423
Peña Blanca South	260
Peña Blanca North	120
Jarilla Mountains ACEC	700
Los Tules ACEC	23
Percha Creek ACEC	870
Sacramento Mountains ACEC\	2,381
Six Shooter Canyon ACEC	1,060
TOTAL	267,630

These closures include mechanical vehicle use in WSAs. Closed routes are shown on maps in Appendix O. Vehicle use in the remaining ACECs would be Limited to Designated routes upon completion of the five travel management plans described above in Alternatives B, C, and D. All existing vehicle ways within WSAs would be closed. Existing cherry stems, which are routes (roads or spurs into a WSA that are unprotected because the WSA boundary has been drawn around the road) would remain open to vehicle use unless such use would cause damage to wilderness values. If so, cherry stems would be closed under Supplementary Rules at 43 CFR 8365. 1-6.

Vehicle use on 770,000 acres including the International border area south of State Route 9 would be Limited to Existing Routes until a route inventory and travel management plan are completed.

Under Alternative B, the BLM would not seek to obtain legal public access to public land anywhere in the *Decision Area*.

Alternative C: The Organ Needles and Peña Blanca WSAs, Bar Canyon, and the Sacramento Mountains and Percha Creek ACECs , a total of 20,000 acres, would be Closed to motor and mechanical vehicle use.

Vehicle use on 2,202,425 acres would be Limited to Existing Routes until a route inventory and travel management plans are completed.

Vehicle routes adversely affecting riparian areas and arroyos would be closed or rerouted. Where legal vehicle access is not available across non-Federal land to public land beyond, BLM would consider developing access based on public input and resource management needs including recreation, cultural, minerals and biological resources. Means to acquire access would include new road construction on public land to bypass the non-Federal land, land ownership adjustments, or acquisition of easements across the non-Federal land. Easement acquisition (through purchase, exchange or donation) would be anticipated to be the predominant method of obtaining legal access.

The focus of acquisition would be on connecting those routes designated as Open for motorized vehicle use under travel management plans. A more complete picture of access needs in the *Planning Area* would be developed in the travel management plans.

Alternatives C and D: Motor vehicle and mechanical vehicle use in the WSAs would be limited to routes that existed at the time the areas were designated WSAs. Motor and mechanical vehicle use in ACECs would be Limited To Designated Routes upon completion of travel management plans for the ACECs.

Legal access would be sought across non-Federal land to the Prehistoric Trackways National Monument in the Rocky Trails area (private land), in the southeast corner (State trust land), and on the northwest boundary (State trust land). Access would be for both public and administrative purposes.

Alternative D: Vehicle use would be Limited To Existing Routes on 2,496,266 acres until a route inventory and travel management plans are completed.

Vehicle use on 85,978 acres in existing ACECs and 193,573 acres in SRMAs would be Limited to Designated Routes.

Where legal vehicle access is needed across non-Federal land to public land beyond, access would be developed through new road construction around non-Federal land, through land ownership adjustments, or through easement acquisition. All available methods would be used to obtain legal public or administrative access from willing landowners to cross non-Federal land to reach public land lacking adequate access (e.g., easements acquired through purchase, exchange, or donation).

The focus of acquisition would be connecting those routes designated as open for motorized vehicle use. A more complete picture of access needs in the *Planning Area* would be developed in the various travel management plans.

2.4.4.3 RECREATION AND VISITOR SERVICES

Outdoor recreation is a major activity on the public land in the *Decision Area*. Recreation occurs at BLM developed sites such as campgrounds, picnic areas, and historical sites; as well as in dispersed areas. Popular dispersed activities include hunting, sightseeing, wildlife watching, rock hounding, off-highway driving, camping, and geocaching. Maintaining these areas to meet the recreational experiences desired by the many users is a major management issue for the Las Cruces District Office.

Goals:

- Developed outdoor recreation opportunities that offer a range of benefits, activities, and experiences in Special Recreation Management Areas (SRMAs).
- Recreation opportunities that facilitate visitor's freedom to pursue a variety of outdoor recreation activities and attain a variety of outcomes in Extensive Recreation Management Areas (ERMAs).

Objectives:

- Provide the public with appropriate information to plan, prepare, and choose safe, enjoyable, and appropriate recreational uses of public land.
- Provide and maintain legal access to public land in SRMAs and ERMAs.
- Increase understanding, tolerance, and respect for other recreation user types. Improve recreation participant's awareness and sense of stewardship for natural and cultural resource values.

2.4.4.3.1 *Recreation and Visitor Services Continuing Management Guidance*

Most recreation use management is considered administrative and consists of recreational services and use-supervision actions such as installing signs, issuing permits for group events, reducing conflict among user groups, and patrolling and enforcing recreation use regulations. BLM's rules of conduct establish a fundamental framework for the management of all recreation uses on public land (43 CFR Section 8365). The emphasis of these rules of conduct is on the protection of public land and its resources and for the

protection, comfort, and well-being of the public. Beyond this, recreation management in the *Planning Area* is influenced by public demand, policy for certain types of recreation (e.g., hunting, OHV use,) and consistency with the existing management decisions.

The BLM's general recreation management policy is described in *BLM Manual Sections 8300 and 8320*. General objectives of the BLM's recreation management program are to (1) provide a broad spectrum of recreation resources dependent on recreation opportunities, to meet the needs and demands of visitors to public land; (2) foster agency-wide efforts to improve service to the visiting public; (3) maintain high-quality recreation facilities to meet public needs and enhance the image of the agency; and (4) improve public understanding and support of the BLM by effectively communicating the BLM's multiple-use management programs to the recreation visitor.

RMP decisions for recreation and visitor services include the designation of recreation management areas, establishing management objectives for those areas and describing allowable uses for these areas. The existing and proposed SRMAs and ERMAs are described in Appendix F. These descriptions include management objectives, characteristics, primary activities, and experiences available in the areas.

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, or distinctiveness; especially compared to other areas used for recreation. The SRMAs are managed to protect and enhance a targeted set of activities, experiences, benefits, and desired recreation setting characteristics. These areas usually represent a greater investment both in funding and management than do the ERMAs. ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.

One of the major attractions of BLM land for the recreating public is the remoteness and open spaces that the National System of Public Land offers. Minor new facilities in ERMAs (e.g., toilets, kiosks, directional signs, fire pits, etc.) would be considered to protect or enhance important resources. Construction of additional recreation trails would be considered based on need. Public lands that are not designated as "*Special*" or "*Extensive*" RMAs would be managed for basic recreation and resource stewardship needs where recreation would not be emphasized; however recreation activities would occur except on those lands closed to public use. Recreation would be managed to allow recreation uses that are not in conflict with the primary uses of these lands. Those lands not designated SRMAs or ERMAs would provide the recreation opportunities and experiences of the wide-open and undeveloped spaces of the public land.

2.4.4.3.2 *Recreation and Visitor Services Management Decisions Common to All Alternatives*

Any signs would be designed and constructed of materials that would be unobtrusive and blend with surrounding landscape settings, consistent with VRM class objectives for the area. Signing generally would be the minimum necessary to provide for safety and information or to control unauthorized use.

The Las Cruces District Office staff would seek opportunities or partnerships with other agencies, educational institutions, volunteers, and other organizations to enrich interpretation and environmental education opportunities. The BLM would work in collaboration to distribute accurate information on recreational opportunities, land ethics, regulations, safety, education, and maps and travel opportunities.

Special Recreation Permits (SRPs) would be issued where there is a need to control visitor use, protect recreational and natural resources, provide visitor health and safety, and provide a fair return to the United States for the commercial recreational use. Unless prohibited by other RMP decisions, SRPs would be authorized throughout the *Planning Area* on a discretionary basis. The decision to grant or deny an SRP application would be based on a number of factors that include but are not limited to: conformance with laws and land use plans, protection of resources, public safety, and conflicts with other uses (43 CFR 2930). Geocaching, letterboxing sites, and paintball activities would be prohibited in archaeological sites, paleontological areas, caves, designated wilderness, WSAs, and National Natural Landmarks. The BLM will enforce the prohibition of these activities using Supplemental Rules under 43 CFR 8365.1-6.

Las Cruces District Office Supplemental Rules (*Federal Register*, Volume 60, No. 218, page 57014, FR document 95-27596) prohibits the discharge of firearms within ½-mile of developed recreation sites and areas, which includes the following areas:

- Dripping Springs Natural Area with ½-mile buffer (approximately 5,160 acres)
- Aguirre Spring Campground with ½-mile buffer (approximately 2,325 acres)
- Three Rivers Petroglyph Site with ½-mile buffer (approximately 1,850 acres)
- Lake Valley Historic Site with ½-mile buffer (approximately 190 acres)
- Paleozoic Trackways RNA T. 22 S., R. 1 E., Section 19 (approximately 100 acres)

Kilbourne Hole National Natural Landmark is closed to discharge of firearms below the rim of the crater (approximately 815 acres). See Appendix N for further descriptions of these sites.

2.4.4.3.3 *Recreation and Visitor Services Management Direction by Alternative*

Alternative A: Continue management of 61,000 acres as the Organ Mountains SRMA and manage according to the Organ Mountains Coordinated Resource Management Plan. Two SRMAs would be allocated and managed as follows; Organ/Franklin Mountains SRMA (60,807 acres) and Doña Ana Mountains SRMA (8,344 acres).

Hunting and target shooting would be allowed within the Doña Ana Mountains SRMA. Public land outside of Prehistoric Trackways National Monument, approximately 100 acres, in T. 22 S., R. 1 E., Section 19, would be closed to the discharge of firearms. (See Map2-42.)

Alternatives B, C, and D: Recreation management areas would be allocated and managed as SRMAs and ERMA's under Alternatives B, C, and D as shown in Table 2-9.

Community Pit #1, located in Doña Ana County off of Shalem Colony Road (T. 22 S., R. 1 E., Section 19, S½SE¼), would be closed to public access due to unsafe conditions in the gravel mine. Public access would be allowed after the area was successfully reclaimed and safety conditions improved.

Alternative B: The following developed recreation areas and sites (described in Appendix N and shown on Map 2-43) would be closed to the discharge of firearms, including hunting and dispersed recreational target shooting. The total closed acreage includes a ½-mile buffer:

- Permian Tracks Road (290 acres)
- Developed Recreation Trails in the Organ/Franklin Mountains SRMA (20,015 acres)
- All public land within the Doña Ana Mountains SRMA(7,600 acres)
- Tortugas Mountain RMZ(970 acres)
- Dog Canyon Road, Otero County (200 acres)
- Doña Ana Mountains SRMA (200 acres)
- Picacho Peak RMZ (5,350 acres)

Alternative C: The following developed recreation areas and sites (described in Appendix N and shown on Map 2-44) would be closed to the discharge of firearms, including hunting and recreational target shooting. The total closed acreage includes a ½-mile buffer.

- Permian Tracks Road (290 acres)
- Developed Recreation Trails in the Organ/Franklin Mountains SRMA (20,015 acres)
- Public land in the southern portion of the Doña Ana Mountains SRMA (3,145 acres)
- Tortugas Mountain RMZ (970 acres)
- Dog Canyon Road, Otero County (200 acres)
- Doña Ana Mountains SRMA (200 acres)
- Picacho Peak RMZ (5,350 acres)

Alternative D: The following developed recreation areas and sites (described in Appendix N and shown on Map 2-45) would be closed to the discharge of firearms, including hunting and recreational target shooting. The total closed acreage includes a ½-mile buffer.

- Permian Tracks Road (290 acres)
- Developed Recreation Trails in the Organ/Franklin Mountains SRMA (20,015 acres)
- Hunting would be allowed throughout the Doña Ana Mountains SRMA but dispersed recreational target shooting would be prohibited (7,600 acres).
- Tortugas Mountain RMZ (970 acres)
- Dog Canyon Road, Otero County (200 acres)
- Doña Ana Mountains SRMA (200 acres)
- Picacho Peak RMZ (5,350 acres)
- Tularosa Creek SRMA (585 acres)

TABLE 2-9

RECREATION MANAGEMENT AREA DESIGNATION AND MANAGEMENT BY ALTERNATIVE

ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
<p>Las Cruces SRMA: Designate 80,960 acres as the Las Cruces SRMA containing four recreation management zones (RMZs) and manage as follows:</p> <p>Organ/Franklin Mountains RMZ</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Recommend withdrawal from locatable mineral entry. • Close to fluid-mineral leasing and mineral material disposal. • Manage as VRM Class I above 5,000 feet and Classes III and IV for remainder of area. • Retain all public land within boundary. Acquire State trust, private inholdings, and edge holdings from willing sellers. • Maintain current livestock grazing use. <p>Doña Ana Mountains RMZ</p> <p>Manage the portion of the SRMA inside the ACEC as described in Table 2-17 under Doña Ana Mountains ACEC. Manage the remaining area as follows:</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Close area to sale of mineral material and recommend for withdrawal from mineral entry. • Apply NSO stipulation to fluid-mineral leases. • Manage as VRM Classes III and IV outside of ACEC. <p>Tortugas Mountain RMZ</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Close to fluid-mineral leasing and sale of mineral material. • Recommend withdrawal from locatable mineral entry. • Manage as VRM Classes III and IV. • Close to discharge of firearms. <p>Picacho Peak RMZ</p> <p>Manage the portion of the SRMA within the ACEC as prescribed in Table 2-17 under Picacho Peak ACEC. Manage the rest of the area as follows:</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Apply a NSO stipulation to fluid-mineral leases. • Close to discharge of firearms. • Manage as VRM Class I. 	<p>Same as Alternative B except:</p> <p>Anthony Gap utility corridor in the Organ/Franklin Mountains would be up to 2 miles wide.</p>	<p>Same as in Alternative C except:</p> <p>Identify 645 acres as the Talavera ERMA and manage as follows:</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes • Close to mineral material disposal • Open to geothermal leasing with NSO stipulation. • Manage as VRM Class IV • Eliminate livestock grazing if irresolvable conflicts with other uses arise.

TABLE 2-9

RECREATION MANAGEMENT AREA DESIGNATION AND MANAGEMENT BY ALTERNATIVE

ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
<p>Identify and manage 5,100 acres as the Aden Hills OHV ERMA and manage as follows:</p> <ul style="list-style-type: none"> • Manage as an open OHV use area. Limit permitted events and activities to designated routes. • Retain public land. • Close to sale of mineral material. • Apply an NSO stipulation to fluid-mineral leasing. • Recommend withdrawal from locatable mineral entry. • Continue livestock grazing but consider closing to grazing if conflicts arise. • Manage as VRM Class III. 	<p>Same as Alternative B except identify 8,052 acres as the Aden Hills OHV ERMA.</p>	<p>Same as Alternative C.</p>
<p>Designate 1,000 acres as the Lake Valley SRMA and manage as follows:</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Limit trail use to pedestrian traffic. • Close to mineral material disposal, allow fluid-mineral leasing with NSO, and recommend withdrawal from locatable mineral entry. • Avoid new rights-of-way unless they benefit management of the historic resources or SRMA. • Manage as VRM Class III. 	<p>Same as Alternative B.</p>	<p>Same as Alternative B.</p>
<p>Designate 1,043 acres as the Three Rivers Petroglyph SRMA and manage as follows:</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Limit trail use to pedestrian traffic. • Maintain grazing closure. • Maintain mineral withdrawal. • Close to fluid-mineral leasing and mineral material disposal. • Close to discharge of firearms. • Exclude new rights-of-way. • Retain public land. • Acquire non-Federal land within SRMA boundary from willing sellers. • Manage as VRM Class II. 	<p>Same as Alternative B.</p>	<p>Same as Alternative B.</p>

**TABLE 2-9
RECREATION MANAGEMENT AREA DESIGNATION AND MANAGEMENT BY ALTERNATIVE**

ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
<p>Identify 33,854 acres as the Red Sands OHV ERMA and manage as follows:</p> <ul style="list-style-type: none"> • Manage as an open OHV area. Limit permitted activities and events to designated routes. • Continue grazing use. Monitor for conflicts. Should conflicts between grazing and motorized use arise, consider closing to grazing. • Open to fluid-mineral leasing with a controlled surface use constraint. • Retain public land. Acquire state trust land from willing owner. • Manage as VRM Class IV 	<p>Same as Alternative B.</p>	<p>Same as Alternative C.</p>
<p>No Decision</p>	<p>Identify 26,501 acres as the Elephant Butte ERMA and manage as follows:</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Allow geothermal leasing with a controlled surface use stipulation. • Manage as VRM Classes III and IV. • Continue livestock grazing. • Avoid new rights-of-way <p>No Decision</p>	<p>Same as Alternative C.</p>
<p>No Decision</p>	<p>Identify 41,288 acres as the Caballo Mountain ERMA and manage as follows:</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Avoid new ROWs. • Allow geothermal leasing with standard terms and conditions. • Manage as VRM Classes II and III. • Maintain livestock grazing. 	<p>Identify 41,288 acres as the Caballo Mountain ERMA and manage as follows:</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. • Avoid new ROWs. • Allow geothermal leasing with standard terms and conditions. • Manage as VRM Classes II and III. • Maintain livestock grazing.

TABLE 2-9
RECREATION MANAGEMENT AREA DESIGNATION AND MANAGEMENT BY ALTERNATIVE

ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
<p>No Decision</p>	<p>No Decision</p>	<p>Designate 230 acres as the Tularosa Creek SRMA and manage as follows:</p> <ul style="list-style-type: none"> • Limit vehicle use to designated routes. Limit trail use to pedestrians. • Close to mineral leasing and mineral material disposal. • Close to discharge of firearms. • Recommend withdrawal from locatable mineral entry. • Retain public land. • Manage as VRM Class IV
<p>Manage the remainder of the <i>Decision Area</i> for dispersed recreation activities. No special emphasis would be placed on recreation management, however, management actions and allowable use decisions may still be necessary to address basic recreation and visitor services and resource stewardship needs such as visitor health and safety.</p> <p>Use and user conflict; the type(s), activities and locations where special recreation permits would be issued or not issued; mitigation of recreation impacts on cultural and natural resources.</p>	<p>Same as in Alternative B.</p>	<p>Same as in Alternative B.</p>

2.4.4.4 LANDS AND REALTY

The lands and realty program has the primary responsibility for managing public land for land use, purchase, exchange, donation and sale, and determining the boundaries of Federal land.

Goal:

- Within the context of multiple-use management, conduct a land tenure program and land use authorizations to accomplish resource management goals and to meet public interest, community, local, state, and Federal agency, and ecological needs.

Objectives:

- Provide opportunity for use of public land for commercial or non-commercial use through issuance of a right-of-way, lease or permit.
- Provide access to public land.
- Utilize withdrawal actions with the least restrictive measures and minimum size necessary to accomplish the required purposes.
- Resolve in a prompt, efficient manner realty-related unauthorized use, occupancy or development.
- Make public land or interests in land available for community growth and expansion needs, recreation and public purpose use, and infrastructure needs. Meet the needs of other Federal agencies, certain state and local governmental agencies and other qualified organizations.

2.4.4.4.1 *Lands and Realty Continuing Management Guidance*

Land Tenure Adjustments: Under the Recreation & Public Purposes (R&PP) Act, land would be leased and later patented for public uses such as parks, schools sites, public buildings, and other uses for community improvement. Patents would be issued for existing landfills and managed shooting ranges (see Appendix M); however, no portions of these R&PP patented lands would revert to the United States if such portion was used for solid waste or hazardous substance disposal. In accordance with current policy, new land use authorizations would not be issued for uses which would involve the disposal or storage of materials which could contaminate the land (hazardous waste, landfills, rifle ranges, etc.).

Although this RMP/EIS identifies public land as being suitable for disposal or withdrawal such land may not actually be disposed. Land disposal by the BLM is a discretionary action. Each proposed disposal would be evaluated through the NEPA process and analyzed on its own merits at the time of such proposal. If any agency is interested in acquiring or managing any land identified for disposal, it is incumbent upon that agency to let the BLM know and initiate the withdrawal or transfer process. The BLM would contact adjacent landowners, government entities, and interested parties to fully coordinate the proposal to determine any impacts the proposed action may have on management of adjacent lands.

Land, or interests in land identified for disposal, would be subject to valid existing rights. Existing FLPMA and Mineral Leasing Act right-of-way grant holders would be provided an opportunity to negotiate new grant terms and conditions.

The BLM may dispose of land or interests in land under the Desert Land Entries Act, the Carey Act or Indian Allotment Act; however, because no land in the *Decision Area* has been identified as meeting the criteria under these authorities, none are available for such disposal.

Newly acquired land would be managed in the same manner as comparable surrounding public land or in conformance with established guidelines until the land use plan is updated. Land acquired within or adjacent to WSAs would be inventoried for wilderness characteristics. If present, wilderness characteristics in the area would be managed to protect those characteristics until a management decision for the area is made in the next land-use planning cycle. Land acquired within or adjacent to ACECs would be evaluated to determine if it contains resources that meet the relevance and importance criteria of the ACEC. If so, the acquired parcel would be managed to protect those values until a decision could be made to include the acquired parcel as part of the ACEC.

Acquired land may not be leased or conveyed under the R&PP Act. Bankhead-Jones land is not “*public land*” as the term is used in the R&PP Act and therefore, is not subject to lease or sale under this Act; and it is not public land as that term is used in the state indemnity selection laws and therefore, it may not be conveyed to a state under those laws. The land may be conveyed through FLPMA exchange or sale, or use authorized under that Act. Land and interests in land obtained with Land and Water Conservation Fund appropriations would not be available for disposal by any means.

Disposals and Acquisitions: Only land in identified areas would be available for potential disposal. Disposal of land outside of identified areas to resolve unauthorized use of public land would be considered only when there are no other practical means of resolution. Lands in retention areas may be disposed of through R&PP lease or sale if there are no conflicts with other resources. Sections 203 and 209 of FLPMA state that sales are the preferred method of disposal.

The BLM would consider disposing of or acquiring land, or interest in land, in accordance with resource management objectives, RMP decisions, disposal and acquisition authorities, detailed in Appendix M.

In addition to FLPMA, the lands and realty program is guided by a number of laws, regulations and policies dealing with land sales, exchanges, grants, withdrawals and other actions in the program. Many of these laws and guidance are shown in Appendix A.

Access: Owners of non-Federal land surrounded by public land would be allowed a degree of access across public land which would provide for the reasonable use and enjoyment of the non-Federal land.

Where access to public land is blocked by private or State trust land, the BLM would develop access through new road construction around non-Federal lands, land ownership adjustments, or easement acquisition. Suitable access may be either vehicular or pedestrian depending on the situation.

Rights-of-Way: Title V of FLPMA provides the BLM authority to grant rights-of-way (ROWs) to any qualified individual, business, or government entity for a variety of industrial and commercial needs. These ROWs may be site locations including renewable energy generation or communication site facilities or linear facilities including transmission lines, highways, railroads, or pipelines. Avoidance areas are to be avoided but may be available for ROWs with special stipulations. Excluded areas are those where ROWs would not be allowed unless required by law.

Under the authority of FLPMA and the Mineral Leasing Act, the Las Cruces District Office would continue to grant ROWs, leases, permits, and easements to qualified individuals, businesses, and government entities for use of public land in the BLM’s *Decision Area*. ROW grants would include authorizations for access, utility and telephone lines, fiber-optic lines, and communication sites. New ROW facilities would be located within or adjacent to existing ROWs, to the extent practical, in order to minimize adverse environmental impacts and the proliferation of separate ROWs. In particular, new communication site users would be grouped into suitable existing sites to reduce impacts and expedite application processing.

The BLM 2008 ROD for the *Westwide Energy Corridor Final Programmatic EIS* was intended to accommodate growth, improve reliability, relieve congestion, and otherwise enhance grids for oil, gas, and electricity transmission and distribution, and to accommodate hydrogen. Designated corridors determined in the ROD have been incorporated into this RMP.

Realty-related unauthorized use would be abated through prevention, detection, and resolution of such uses. Upon settlement of trespass liabilities, resolution of unauthorized use or development would be accomplished through termination, authorization, or sale or exchange, as appropriate. BLM land affected by unauthorized uses or development would be rehabilitated as determined necessary. Trespass resolution would be conducted in accordance with regulations located in 43 CFR 2808, 2920 and 9230.

Any use determined to be outside the definition of casual use would only be authorized as provided by Section 302 of FLPMA.

Land Use - Lease, Permits, and Easements: FLPMA also provides the BLM authority to issue leases, permits, and easements for the use, occupancy, and development of the public land. Leases and permits are issued for a variety of purposes such as commercial filming, advertising displays, temporary or permanent facilities for commercial purposes (does not include mining claims), and water pipelines related to irrigation and non-irrigation facilities.

Proposals made to the BLM for military activity on public land must be considered within the BLM's existing processes, including land use planning, NEPA, other natural resource and cultural resource laws and Executive Orders. The BLM may allow use of public land by any other Federal agency including Department of Defense only through rights-of-way, withdrawals or cooperative agreements. Any other use must be recognized as casual use. Activities recognized under casual use are defined as activities ordinarily resulting in no or negligible disturbance of the public land, resources, or improvements from any activity recognized by the BLM as a legitimate use of the public land. The following factors, and others as deemed appropriate, would be used in determining whether a proposed military activity of public lands may be considered casual use:

- Number of personnel involved in the activity;
- Type of vehicles to be used;
- Mode of travel involved – hiking versus use of vehicles;
- Cross-country travel versus use of existing roads;
- Number of days or overnights to conduct the activity;
- Specific area proposed for the activity;
- Proposed use of any existing features in the area such as caves, mine shafts, adits, tunnels, etc.

Any NEPA analysis of military use of public land must address why existing military land cannot accommodate the proposed use. Requests for new withdrawals of more than 1,000 acres of public land for military purposes must be accompanied by a signed approval to pursue this acquisition by the Deputy Secretary of Defense. Requests for use of public land, other than withdrawal, must be accompanied by a signed approval by the appropriately delegated military official to pursue this action.

2.4.4.4.2 *Lands and Realty Decisions Common to All Alternatives*

Land Tenure Adjustment: Public land with high resource values including WSA, ACECs and lands with wilderness characteristics outside of WSAs would generally be retained in public ownership and managed for multiple-use.

The BLM may consider land in retention zones for disposal in the event that such lands could be exchanged for higher value resource lands such as threatened or endangered species habitat, riparian areas, important historic or cultural resource sites, etc. Such changes must be in accordance with resource management objectives and other RMP decisions and be in the public interest.

The BLM would continue, as required, processing the “*Holloman Air Force Base Land Exchange Act*” (Public Law 109-470) of January 2007. This Act provides for a land exchange of private land and BLM-managed land in the vicinity of Holloman Air Force Base, Otero County, New Mexico, for the purpose of removing private land from the safety zone surrounding munitions storage bunkers at the air force base.

On lands identified for a specific disposal proposal, major arroyos identified in 100-year Flood Plain Zone maps developed by the Federal Emergency Management Administration would be surveyed and identified as separate parcels. The arroyo parcels would be retained in Federal ownership or transferred to the local government entity with a restrictive perpetual easement prohibiting those parcels from being developed. Specific criteria for determining which arroyos would be considered for such easements would be developed upon completion of the *TriCounty RMP*.

Prior to disposing of any land identified for disposal, the BLM would coordinate with local county, city, or other governmental entities including school districts to determine if such agencies or entities have an interest in acquiring any parcel within the proposed disposal for public purposes. This action is to ensure that local governments have opportunity to acquire sites for needed facilities or infrastructure to support growth that could result from the proposed disposal.

Existing classifications and segregations would be reviewed on a case-by-case basis to determine whether the classification or segregation is appropriate and should be continued, modified, or terminated. A notice of termination and opening order would be published to notify the public when and to what extent the land would be opened, consistent with planning decisions. Land on which a classification or segregation has been terminated would be managed in the same manner and degree as surrounding or adjacent public land, including military or other agency withdrawals which might be terminated, in whole or in part.

The Las Cruces District would consider disposal or acquisition of split-estate where appropriate to improve resource management while protecting resource values. Federal minerals underlying non-Federal surface would generally be retained in Federal ownership; however, an exchange of mineral estate may be considered on a case-by-case basis if found to be in the public interest.

New withdrawals may be completed when existing law or regulation cannot adequately protect or preserve the integrity of resources of rarity, significance, fragility, or irreplaceably, or when valuable capital improvements are involved. They must be shown to be at risk by current land management practices. New withdrawal requests by other Federal agencies would be considered on a case-by-case basis where the public land transfer from one Federal agency to another or where resource values or agency investments are best protected by withdrawal. Land identified for retention may be considered for proposed withdrawals, on a case-by-case basis. The size of proposed withdrawals would be limited to the minimum acreage consistent with the demonstrated need. BLM policy would be to minimize the amount of land withdrawn in favor of cooperative use agreements that are more flexible. Land acquired through a withdrawal would be managed under the terms and conditions of the withdrawal.

Rights-of-Way, Permits, Leases, and Easements: Groundwater contamination as a result of hazardous chemical spills at the National Aeronautics and Space Administration (NASA) White Sands Test Facility was discovered in the late 1980s. A ROW (NMNM66383) was granted to NASA and a subsequent Memorandum of Understanding (NM-030-45) was signed in April 1990 reserving public land for ground water monitoring wells. This land may need to be retained by the BLM to protect public safety.

Realty-related unauthorized use would be abated through prevention, detection, and resolution of such uses. Upon settlement of trespass liabilities, resolution of unauthorized use or development of public land would be accomplished through termination, authorization, or sale or exchange, as appropriate. The *TriCounty RMP/EIS* does not address, adjudicate, analyze or otherwise determine the validity of roads claimed under the Revised Statute (RS) 2477. Such assertions are acknowledged administratively or adjudicated by court decision.

Applications for leases, permits, and easements that do not involve surface disturbance or constructing permanent structures or facilities would be considered in avoidance and exclusion areas on a case-by-case basis and subject to appropriate NEPA analysis.

All valid existing rights, including leases, permits, easements, and withdrawals, are recognized and would be carried forward under all alternatives.

New ROWs would be allowed in exclusion areas if physical access or utility service to private or state inholdings within landlocked areas is necessary and alternative access is demonstrated to not be feasible. Special stipulations for exclusion areas would be applied to these authorizations.

No activity would be allowed which could result in obviously noticeable effects on the area of use by the average visitor to that area. Any use should fall well short of the BLM mandate to prevent undue and unnecessary degradation either from direct and immediate impacts or from cumulative impacts.

The BLM would monitor all instances of recognized casual use by the military to determine if such use went beyond or did not comply with any specified restrictions. Failure to comply could result in denying the military future use of public land.

2.4.4.4.3 *Lands and Realty Management Direction by Alternative*

COUNTY	ALTERNATIVES/ACRES			
	A	B	C	D
Sierra	75,243	4,399	25,500	41,557
Otero	77,573	22,958	33,300	39,860
Doña Ana	60,383	10,916	49,650	105,106
TOTAL	213,199	38,273	108,450	186,523

Alternative A:

Land Disposal: In Doña Ana County, only land within disposal areas would be exchanged for land outside the (former) Mimbres Resource Area. To facilitate orderly disposal on the East Mesa (east of I-25), there are two disposal zones:

- First priority would be public land west of a north-south line 1 mile east of the boundary between R. 2 E. and R. 3 E.
- Second priority would be public land east of the line described above.

Certain parcels of land on the east side within disposal areas were set-aside by Memorandum of Understanding (signed August 17, 1982) with the City of Las Cruces and the Las Cruces School District No. 2 for disposal and future development under the R&PP Act. In addition, certain parcels were also set-aside within the 10,000-acre State Land Exchange Area east of Las Cruces for existing and potential R&PP Act lease or patent.

Land Retention: In the *Decision Area*, public land not identified as available for disposal would be retained in Federal ownership and managed according to provisions of Section 102(a) of FLPMA. However, land in this category may be exchanged for parcels that would enhance overall consolidation of public land. Public land within ACECs and other special management areas would not be disposed.

Land Acquisition: The BLM would acquire up to 116,000 acres of State trust land and 56,000 acres of private land within ACECs and WSAs through exchange or purchase at fair market value, from willing sellers. Acquisition of non-public land in special management areas, or land containing important historic, cultural, mineral, recreational, scientific, scenic, or fish and wildlife habitat values would be priorities.

For withdrawals where the BLM presently has management responsibility, all RMP decisions covering those areas would apply.

Utility Corridors: A total of 17,613 acres would be dedicated to utility corridors. In Sierra and Otero Counties, utility corridors would not be established. The co-locating and use of existing ROWs would be encouraged for future ROW grants to reduce the proliferation of ROWs. In Doña Ana County, major ROWs and utility lines would be managed as follows (Map 2-22):

- The east-west corridor near Vado, and others running north and south, would be confined to a width of ¼-mile.
- The corridor in the Anthony Gap area would be confined to a width of ½-mile; however, the Anthony Gap Corridor does not have identified boundaries.

Rights-of-Way Avoidance Areas (Map 2-22): Avoidance – 13,222 acres

New ROWs would be avoided for the following areas:

- Butterfield Trail (¼-mile each side)
- Desert bighorn sheep areas
- VRM Class II areas

The following stipulations would apply to new facilities within avoidance areas:

- Facilities would not be located parallel to the Butterfield Trail.
- Facilities would not be located within ¼-mile of any stage station on the Butterfield Trail.
- Facilities would not be located in riparian areas.
- Access routes would be limited and considered on a case-by-case basis.

Major transmission lines (outside existing corridors) would be avoided within 5 miles of El Camino Real National Historic Trail (VRM Class II area). Lines perpendicular to the Trail would be allowed.

Rights-of-Way Exclusion Areas (Map 2-22): Exclusion – 518,839 acres

New ROWs including communication sites and renewable energy projects would be excluded in all WSAs, ACECs, the Research Natural Area and Kilbourne Hole National Natural Landmark.

Existing ROWs within exclusion areas are recognized as grandfathered, and operation, maintenance, and renewal of these facilities would be allowed to continue within the scope of the ROW grants.

Alternative B:

Land Disposal: A total of 38,273 acres of public land would be identified as available for disposal as shown in Table 2-10 and on Map 2-19.

Los Tules ACEC would be transferred to Mesilla Valley Bosque Park through an R&PP Act lease and eventual sale. As of August 2011, this process is ongoing.

The BLM would coordinate with local government entities including the school district prior to disposing of any parcel to meet public need for schools site, law enforcement and fire facilities and other infrastructure.

Land Retention: Public land with special designations such as WSAs or ACECs would be retained in Federal ownership. Public land outside of special designation areas not identified for disposal would generally be retained in Federal ownership. However, land in this category may be exchanged for land of higher resource value such as non-Federal lands within or adjacent to WSAs or ACECs, high-value wildlife habitat, high-value cultural resource sites, or other land as appropriate. These lands may also be disposed to serve public interest such as community expansion, R&PPs or similar needs.

Land Acquisition: The BLM would acquire non-Federal land located within or adjacent to ACECs and WSAs where appropriate. Land may be acquired through donation, purchase, or land exchange, including mineral estate, only from willing landowners. Land acquired within or adjacent to an ACEC or WSA would be inventoried to determine if the area meets the relevance and importance criteria for ACEC designation or if the area contains wilderness characteristics.

Where needed, land, interest in lands, or ROWs would be acquired to facilitate access to and across public land and resources, maintain or enhance public use and values, and provide for a more manageable land ownership pattern. During the acquisition process, specific management prescriptions for any acquired land would be prepared.

Withdrawals: Withdrawal actions would have the least restrictive measures and minimum size to accomplish the required purposes. Withdrawals no longer needed, in whole or in part, for the purpose for which they were withdrawn would be revoked or modified. Withdrawn areas returned to BLM administration would be managed consistent with land use plan decisions for the surrounding area, as appropriate.

Utility Corridors: See Map 2-23. Up to 149,835 acres would be dedicated to utility corridors.

- An east-west utility corridor, through Anthony Gap, extending from Luna County southeastward into Texas would be designated. The Corridor would be up to ½-mile width. (By definition, this Corridor would be outside the exclusion area of the Organ/Franklin Mountains ACEC.)
- A north-south utility corridor up to 0.5 miles wide from Anthony Gap through Doña Ana and Sierra Counties to connect with the Interstate-25 corridor would be designated.
- Additional ROW applications would be considered on a case-by-case basis both within and outside existing corridors.

Rights-of-Way Avoidance Areas (Map 2-23): New ROWs would be avoided on 111,295 acres in the following areas:

- Jarilla Mountains ACEC
- Areas classified as VRM Class II
- Historic trails (½-mile each side)
- Aden Hills ERMA

Rights-of-Way Exclusion Areas (Map 2-23): New ROWs including communication sites would be excluded on 686,083 acres in the following areas:

- Lake Valley Back Country Byway (½-mile each side)
- Lake Valley SRMA
- Three Rivers Petroglyph SRMA
- Las Cruces SRMA
- All WSAs
- All existing and proposed ACECs, except for Jarilla Mountains ACEC
- Kilbourne Hole National Natural Landmark
- VRM Class I areas
- Areas of high and moderate aplomado falcon habitat as prescribed by the habitat model.
- Areas within 5 miles of Chiricahua leopard frog occupied habitat
- Intact grasslands and habitats (areas producing at or near reference state conditions)
- Areas of treated or restored vegetation
- Areas planned for vegetation treatment or restoration
- Within 5 miles each side of El Camino Real National Historic Trail.

Alternative C:

Land Disposal: A total of 108,450 acres would be available for disposal (Table 2-10 and Map 2-20).

Land parcels of interest by the Las Cruces School District or other governmental entity would be managed the same as under Alternative B.

Lands in ACECs, SRMAs or other special designation, except Congressional designations, may be transferred to another government entity (local, state or Federal) for similar management such as a county or State park or wildlife management area when management would be similar and it is in the interest of both agencies and the public to do so. Los Tules ACEC would be transferred to Mesilla Valley Bosque Park through an R&PP Act lease and eventual sale. As of August 2011, this process is ongoing.

Retention Lands: Public land with special designations such as WSAs, ACECs, and SRMAs, and Lands with Wilderness Characteristics under this alternative would be retained in Federal ownership.

Other public land not within special designations or identified as available for disposal would remain in Federal ownership. However, land in this category may be exchanged for land of higher resource value such as non-Federal land within or adjacent to WSAs or ACECs, high-value wildlife habitat, high-value cultural resource sites, or other land as appropriate. These lands may also be disposed to serve public interest such as community expansion, R&PPs, or similar needs.

Land Acquisition: Land acquisition actions under Alternative C would follow the same prescriptions and protocol described under Alternative B.

Withdrawals: Management of withdrawals under Alternative C would be the same as prescribed under Alternative B.

Utility Corridors: See Map 2-24. Up to 208,891 acres would be dedicated to utility corridors.

- An east-west corridor through Anthony Gap would be designated the same as Alternative B, except that the Corridor would be up to 2 miles wide.
- A north-south utility corridor up to 1-mile wide would be designated from Anthony Gap to connect with the Interstate 25 corridor near Truth or Consequences.
- Other ROW applications outside these areas would be managed the same as Alternative B.

Rights-of-Way Avoidance Areas (Map 2-24): New ROWs, including communication sites and wind energy projects, would be avoided on 422,910 acres in the following areas:

- Tularosa Creek ACEC
- Sacramento Mountains ACEC
- Areas classified as VRM Class II
- Historic Trails (½-mile each side)
- SRMAs
- Elephant Butte ERMA
- Areas within 1-5 miles radius of Chiricahua leopard frog habitat

Major transmission lines (outside existing corridors) would be avoided within 5 miles of El Camino Real National Historic Trail (VRM Class II area). Lines perpendicular to the Trail would be allowed.

Rights-of-Way Exclusion Areas (Map 2-24): New ROWs, including communication sites and renewable energy projects, would be excluded on 343,058 acres in the following areas:

- Lake Valley Back Country Byway (½-mile each side)
- Lake Valley SRMA
- Three Rivers Petroglyph SRMA
- Las Cruces SRMA
- All WSAs
- All existing ACECs and those ACECs designated under this alternative.
- Kilbourne Hole National Natural Landmark
- VRM Class I areas
- Areas of high and moderate aplomado falcon habitat as prescribed by the habitat model and areas within one mile of Chiricahua leopard frog habitat

Alternative D:

Land Disposal: A total of 186,523 acres of public land would be identified as available for disposal (Table 2-10 and on Map 2-25).

Lands in ACECs, SRMAs or other special designation would be managed the same as in Alternative C.

Parcels of interest to the School District or other government agency would be managed the same as under Alternative A.

Land Retention: Public land in WSAs, ACECs, SRMAs, and lands with wilderness characteristics under this alternative would be retained in Federal ownership.

Other public land not within special designations or identified as available for disposal would be managed as in Alternative C.

Land Acquisition: No efforts would be made to acquire non-Federal land under Alternative D; however, the BLM would consider proposals for exchange from other government agencies or private entities on a case-by-case basis.

Withdrawals: Management of withdrawals under Alternative D would be the same as Alternative B.

Utility Corridors: Up to 224,875 acres would be dedicated to utility corridors. An east-west corridor through Anthony Gap would be designated the same as Alternative C. A north-south corridor up to 2 miles wide and following the existing powerlines would be designated from Anthony Gap to connect with the I-25 corridor near Truth or Consequences.

Rights-of-Way Avoidance Areas (Map 2-25): New ROWs including communication sites would be on 453,000 acres in the following areas:

- Lake Valley Back Country Byway (½-mile each side)
- Doña Ana Mountain ACEC
- San Diego Mountain ACEC
- Cornudas Mountains ACEC
- Alamo Mountain ACEC
- Wind Mountain ACEC
- Alkali Lakes ACEC
- VRM Class I and II areas
- Historic trails (¼-mile each side)
- Butterfield Trail
- Aden Hills ERMA
- Caballo Mountains ERMA
- Elephant Butte ERMA
- Las Cruces SRMA
- Red Sands ERMA
- Talavera ERMA
- Areas of high and moderate aplomado falcon habitat as prescribed by the habitat model

Rights-of-Way Exclusion Areas (Map 2-25): New ROWs including communication sites would be excluded on 308,000 acres in the following areas:

- Lake Valley SRMA
- Three Rivers Petroglyph SRMA
- Tularosa Creek SRMA
- All WSAs
- Organ/Franklin Mountains ACEC
- Los Tules ACEC
- Robledo Mountains ACEC
- Doña Ana Mountains ACEC
- Rincon ACEC
- Three Rivers Petroglyph Site
- Kilbourne Hole National Natural Landmark
- 36,000 acres aplomado falcon habitat on Otero Mesa and Nutt Grassland

2.4.4.5 RENEWABLE ENERGY

ROWs for renewable energy, such as wind, solar, biomass, and other alternative energy sources would be authorized and permitted under the Lands and Realty Program. Avoidance and exclusion areas noted in the alternatives under the lands and realty program would also apply to renewable energy siting. However, since this issue has been the subject of three multi-state programmatic EISs within the BLM, one of which is still in preparation, this issue should be separated from the proposed actions and decisions under the Lands and Realty Program. In all cases, the prescriptions described in the various alternatives herein are consistent with the following BLM Programmatic EISs: *Wind Energy Development Programmatic EIS* (BLM 2005b), *Resource Management Plan Amendments for Geothermal Leasing in the Western United States* (BLM 2008c), *Solar Energy Development in Six Southwestern States Final Programmatic EIS* (BLM 2012c), and the *Final Programmatic Energy Corridor EIS (2008a)*. The Decisions from these documents are incorporated by reference into the *TriCounty RMP*.

Goal:

- Provide direction for the development of renewable energy projects including determining potential locations and management parameters in order to assist the United States in increasing the development and use of alternative energy sources.

Objectives

- To manage areas potentially suitable for renewable energy development to reduce impacts of such development to other resources and resource uses.
- Incorporate policy, management guidance and Best Management Practices from programmatic studies to utility-scale renewable energy projects during the project permitting process.

2.4.4.5.1 *Renewable Energy Continuing Management Guidance*

The Energy Policy Act of 2005 (Title II, Section 211) establishes a goal for the Secretary of the Interior to approve 10,000 megawatts (MWs) of electricity from non-hydropower renewable energy projects located on public land. In December 2005, the BLM issued a Record of Decision on the *Wind Energy*

Development Programmatic EIS (BLM 2005b). Following the publication of the EIS, the BLM published updated guidance on processing wind energy applications on BLM land (IM 2009-043). This guidance specifically addressed VRM, wildlife and migratory birds, ACECs, and avoidance and exclusion areas and provided numerous best management practices and stipulations that would apply to a wind energy project. Testing facilities and the wind energy project would be authorized by FLPMA ROW grants.

Solar Energy Development in Six Southwestern States Final Programmatic EIS (BLM 2012c) addresses utility-scale solar energy policy and guidance, and solar energy project siting on public land. It defines solar project policy, describes best management practices, and identifies solar energy zones (SEZ) potentially suitable for solar project development.

Although BLM considers geothermal energy a renewable energy resource, it is discussed in the minerals section because it is permitted as a leasable mineral and not under a ROW as are wind and solar energy projects. Transmission lines that may be required to move renewable energy from production source to utilization point are discussed under the Lands and Realty section for ROW avoidance and exclusion areas and utility corridors.

2.4.4.5.2 *Renewable Energy Decisions Common to All Alternatives*

The NEPA process for any proposed wind or solar projects would be tiered to the *Wind Energy Development Programmatic EIS* (BLM 2005b), *Solar Energy Development Final Programmatic EIS* (BLM 2012c), and the *Final Programmatic Energy Corridor EIS* (BLM 2008c) as appropriate. The siting requirements, best management practices, and programmatic mitigation identified in the programmatic renewable energy EISs would be incorporated into any NEPA analysis as appropriate.

Avoidance areas are those areas where project siting is not desirable because of environmental impacts; however, projects may be sited with certain stipulations to eliminate or reduce impacts. The preferred alternative identified in the *Solar Energy Development Programmatic EIS* does not identify avoidance areas, only exclusion areas. In keeping with this, no avoidance areas were identified in the alternatives for solar development. Exclusion areas are those where projects would not be allowed unless required by law. Areas not identified as avoidance or exclusion would be open on a case-by-case basis.

Utility scale renewable energy projects would be excluded from all VRM Class I areas, existing ACECs, and WSAs. Where wind energy projects and transmission lines intersect with VRM Class II and in some cases VRM Class III, an RMP amendment for VRM would, in most cases, be necessary.

Under all alternatives, wind energy projects would follow the BLM Las Cruces District Wildlife Monitoring Protocol Minimum Standards for Wind Energy Projects as shown in Appendix D.

2.4.4.5.3 *Renewable Energy Management Direction by Alternative*

Alternative A: Applications for utility scale solar or wind energy projects would be accepted, processed and analyzed on a case-by-case basis as a FLPMA right-of-way. If the *Solar Energy Development Draft Programmatic EIS and Record of Decision* is completed before the Record of Decision for this RMP/EIS is issued, the alternative selected in that programmatic EIS would become the No Action Alternative for the *TriCounty RMP/EIS*.

Rights-of-Way Exclusion Areas for Solar and Wind Projects:

- Camino Real de Tierra Adentro National Historic Trail (37 miles)(¼-mile buffer)
- WSAs
- ACECs
- Kilbourne Hole National Natural Landmark
- VRM Class I

Rights-of-Way Avoidance Areas for Solar and Wind Projects:

- Mormon Battalion Trail, Butterfield Trail and Lake Valley Backcountry Byway(¼-mile buffer)
- VRM Class II
- Within 5 miles of El Camino Real National Historic Trail VRM Class II area.

Under Alternative A, 532,000 acres would be avoidance or exclusion areas for both solar and wind energy projects (Map 2-33).

Alternatives B, C, and D: No avoidance areas are identified for utility scale solar energy projects, only Exclusion Areas.

Rights-of-Way Exclusion Areas: The following areas would be exclusion areas for utility scale wind energy projects:

- Wilderness Study Areas
- Lands with Wilderness Characteristics
- Existing ACECs and proposed ACECs
- Historic Trails
- Kilbourne Hole National Natural Landmark
- VRM Class I
- VRM Class II
- Playas and Riparian areas
- Special Recreation Management Areas
- Intact Desert Grasslands
- ACECs newly designated under each Alternative, except for Jarilla Mountains.

Alternative B: Under this alternative, the Afton SEZ (29,964 acres) southwest of Las Cruces and described in the *Solar Energy Development Final Programmatic EIS* (2012c) would be the only area available for siting solar energy projects in the TriCounty *Decision Area*. EIS-level NEPA analysis would be required as part of the permitting process. Other sites outside the Afton Solar Energy Zone would not be considered.

Wind energy projects would be considered throughout the *Decision Area* in technically suitable locations outside avoidance and exclusion areas prescribed under this alternative (See Map 2-35). Applications would be accepted and processing would be done on a case-by-case basis using EIS-level NEPA analysis.

Rights-of-Way Avoidance Areas: The following areas would be avoidance areas for utility scale wind energy projects:

- Jarilla Mountains
- Restore New Mexico areas completed and planned
- Special Status Species habitat
- Habitat Management Plan Areas and wildlife waters
- Mormon Battalion Trail, Butterfield Trail and Lake Valley Back Country Byway (½-mile buffer)

Rights-of-Way Exclusion Areas: The following areas would be exclusion areas for utility scale wind and solar energy projects:

- High and moderate aplomado falcon habitat as prescribed by the habitat model. At the time of an application, field surveys would be conducted to verify the accuracy of the model and determine if falcon habitat exists in the application area (see Map 2-31 and 2-35).
- Within ¼-mile of prairie dog colonies
- Within a 5-mile radius of occupied Chiricahua leopard frog habitat.
- Within ½-mile of historic trails
- Camino Real de Tierra Adentro NHT (37 miles) (½-mile buffer)
- Solar and wind projects would be excluded from high and moderate aplomado falcon habitat as prescribed by the habitat model (Young et al. 2002). At the time of an application, field surveys would be conducted to verify the accuracy of the model and determine if falcon habitat exists in the application area (see Map 2-31 and 2-35).

Solar energy projects would be excluded on 2,759,149 acres of the *Decision Area*. Wind energy projects would be avoided or excluded on 1,598,929 acres of the *Decision Area*. These acres are not additive as many areas of avoidance and exclusion overlap, depending on proposed type of use.

Alternative C: The Afton SEZ would be the priority area for siting solar energy projects. The appropriate NEPA analysis, either environmental assessment or EIS, would be done as part of the permitting process. Areas outside the Afton SEZ and outside exclusion areas (Map 2-32) may be considered for solar energy projects on a case-by-case basis through the appropriate level of NEPA analysis.

Wind energy projects would be considered throughout the *Decision Area* in technically suitable locations outside avoidance and exclusion areas. Application and processing would be done on a case-by-case basis using the appropriate level of NEPA analysis.

Rights-of-Way Avoidance Areas: The following areas would be avoidance areas for wind energy projects and exclusion areas for solar energy projects:

- High and moderate aplomado falcon habitat as prescribed by the habitat model (Young 2002). At the time of an application, field surveys would be conducted to verify the accuracy of the model and determine if falcon habitat exists in the application area (see Map 2-32 and 2-36).
- Within ¼-mile of prairie dog colonies
- HMP areas and wildlife waters
- Restore New Mexico areas (completed and planned projects)
- Intact grasslands
- Special status plant species habitat
- Between 1- and 5-mile radius of occupied Chiricahua leopard frog habitat
- Camino Real de Tierra Adentro NHT (37 miles) (½-mile buffer)
- Mormon Battalion Trail, Butterfield Trail and Lake Valley Back Country Byway (½-mile buffer)

Rights-of-Way Exclusion Areas: The following areas would be exclusion areas for utility scale solar and wind energy projects:

- Existing ACECs and ACECs newly designated under this Alternative, except for Jarilla Mountains
- Within a 1-mile radius of occupied Chiricahua leopard frog habitat
- Existing WSAs
- Riparian habitat and playas as shown on District GIS data

Solar energy projects would be excluded on 1,617,996 acres in the *Decision Area*. Wind energy projects would be avoided or excluded on 1,610,456 acres in the *Decision Area*. These acres are not additive as many areas of avoidance and exclusion overlap depending on proposed type of use.

Alternative D: The Afton SEZ would be the priority for siting proposed solar energy sites. The appropriate level of NEPA analysis, either environmental assessment or EIS, would be completed as part of the permitting process. Other areas outside the Afton SEZ and exclusion areas (Map 2-33) may be considered for solar energy projects on a case-by-case basis through the appropriate level of NEPA analysis.

Rights-of-Way Avoidance Areas: Avoidance areas for Wind Projects in Alternative D:

- Mormon Battalion Trail, Butterfield Trail and Lake Valley Backcountry Byway (¼-mile buffer)
- Riparian habitat and playas
- Special Recreation Management Areas
- High and moderate potential aplomado falcon habitat. Field surveys would need to be conducted at the time of application to verify the accuracy of the habitat model and determine if falcon habitat exists in the application area.
- Within ¼-mile of prairie dog colonies
- HMP areas and wildlife waters
- Restore New Mexico areas completed and planned
- Intact grasslands
- Special status species habitat
- Geothermal leasing would be avoided within a 1-mile radius of occupied Chiricahua leopard frog habitat.

Rights-of-Way Exclusion Areas: Wind and Solar Projects would not be built in the following Exclusion Areas:

- 36,000 acres of aplomado falcon core habitat located on Otero Mesa and the Nutt Grasslands (see Maps 2-33 and 2-37).
- Camino Real de Tierra Adentro NHT (37 miles) (¼-mile buffer)

Solar energy projects would be excluded on 1,562,616 acres in the *Decision Area*. Wind energy projects would be avoided or excluded on 1,532,657 acres in the *Decision Area*. These acres are not additive as many areas of avoidance and exclusion overlap, depending on the proposed type of use.

Outside of avoidance and exclusion areas wind energy projects would be considered throughout the *Decision Area* where conditions are suitable.

2.4.4.6 MINERALS

Mineral resources in the *Planning Area* include fluid minerals such as geothermal and oil and gas; hard rock minerals such as gold, silver, copper, lead, and tin; and mineral material such as sand, gravel and building stone. Mineral material extraction is the most active mineral program in the *Planning Area* particularly around Las Cruces, which is experiencing expansion.

In 2005, the BLM issued the *RMP Amendment for Federal Fluid Mineral Leasing and Development in Sierra and Otero Counties* (See Chapter 1). However, an appeal of that document led to a Tenth Circuit Court decision invalidating its decisions. Consequently, the oil and gas leasing programs in the *Decision Area* are governed by the *White Sands* and *White Sands RMPs*. These decisions do not comply with current BLM policy for onshore oil and gas leasing and do not provide sufficient and appropriate management options or guidance for oil and gas leasing. In the case of Otero Mesa, additional information on the Salt Basin Aquifer and potential impacts to the aquifer, updated information on oil and gas potential, as well as in depth information on potential impacts to wildlife and vegetation habitats of the Mesa, should be compiled and evaluated before a leasing program can be properly implemented and managed. All new leasing would be deferred until further land use planning is completed. The Las Cruces District Office has chosen to prepare a programmatic RMP amendment for oil and gas leasing and development after the ROD for the *TriCounty RMP* is issued.

As a valid existing right, any areas currently under lease would be managed according to existing regulations and lease terms and conditions until the lease expires; this would not be changed by new land use plan decisions.

Goal:

- Provide opportunities for mineral exploration and extraction for locatable, saleable and geothermal minerals, and to defer new oil and gas leasing until a future programmatic EIS is prepared on public land consistent with the Federal leasing laws and existing policy while preventing undue and unnecessary impacts on the environment.

Objectives:

- Manage mineral resource exploration and development with the minimum restrictions and stipulations necessary to protect other resources and resource uses on a case-by-case basis.
- Propose withdrawals from locatable mineral entry only when justified and appropriate to protect other resources.
- Ensure that locatable mining operations (notices and plans of operation) consider all resources in the local environment and apply best management practices to minimize mining or exploration impacts.
- Provide opportunities for development of mineral material resources to support community and infrastructure needs.

2.4.4.6.1 *Minerals Continuing Management Guidance*

Federal laws require the Federal government to facilitate the development of mineral resources to meet national, regional, and local needs for domestic and defensive purposes. The BLM is responsible for

assuring that mineral development is carried out in a manner that minimizes environmental damage and provides for rehabilitation of affected land. Most public land in the *Planning Area* is available for mineral entry, except where restricted by withdrawals for military, conservation, or other specific purposes.

Policy guidance for managing mineral resources is provided in several pieces of legislation as well as in the *BLM Manual* and handbooks. The key directives are that (1) public land is to be managed for multiple-use and (2) if it is determined to be necessary to place certain areas under special management, then that management must be the least restrictive necessary to protect the resource of concern to ensure that the area remains open to other uses. In areas of split-estate (i.e. where the United States owns all or some of the mineral estate and another entity owns the surface estate), the surface owner or manager is primarily responsible for developing access agreements with the mineral resource developer that protects their surface resources. The surface owner may not deny the action. Federal mineral estate underlying land managed or owned by other entities would be managed by the BLM in accordance with applicable plans and in cooperation with the surface owner or manager.

The BLM ROD for the *Resource Management Plan Amendments for Geothermal Leasing in the Western United States* (1) allocated BLM land as open to be considered for geothermal leasing or closed for geothermal leasing; (2) developed a reasonably foreseeable development scenario that indicated a potential for 12,210-megawatts of electrical generating capacity from 244 power plants by 2025, plus additional direct uses of geothermal resources; and (3) adopted stipulations, best management practices, and procedures for geothermal leasing and development. The ROD amended the *White Sands* and *Mimbres RMPs* for areas open or closed for geothermal leasing. Decisions applicable to the *TriCounty Planning Area* are carried forward in this RMP (USDOJ BLM 2008c).

Locatable mineral resources include metallic minerals (e.g., gold, silver, uranium) and certain nonmetallic minerals (e.g., gemstones, fluorspar, and high purity limestone). Locatable mineral extraction would be allowed on all public domain land unless withdrawn or segregated from mineral entry. Any withdrawal or segregation of public land from mineral entry is subject to valid existing rights. Mining claim location, prospecting, and mining operations are allowed in WSAs but only in a manner that will not impair the suitability of an area for inclusion in the wilderness preservation system.

Salable minerals, also known as mineral materials, are sand, gravel, building stone, etc. and their use is authorized by free-use permits and over-the-counter sales, competitive sales and negotiated sales. Mineral materials under Title 23 rights-of-way are granted to the Federal Highway Administration for Federally-funded highway construction or maintenance projects and are not included as salable minerals. The *Decision Area* would be generally open to mineral material disposal except for specific areas designated closed.

2.4.4.6.2 *Minerals Management Decisions Common to All Alternatives*

Geothermal leasing and development would incorporate, as appropriate, the findings, decisions, stipulations and mitigations contained in the Record of Decision for the *Resource Management Plan Amendments for Geothermal Leasing in the Western United States* (BLM 2008c).

Within the *Decision Area*, some locations are non-discretionarily closed to exploration or extraction of one or more types of mineral by law, regulation, executive or secretarial order. Non-discretionary closures cannot be changed administratively by the BLM. These closures would be observed under all alternatives. These closures include all WSAs (closed to mineral leasing, but not to claims under the 1872 Mining Law); and small areas in Sierra and Otero Counties formerly used by the military. Non-

discretionary closures totaling approximately 258,186 acres of Federal mineral estate in the *Decision Area* would be common to all alternatives.

Discretionary closures are administrative decisions and are made in land use planning documents such as RMPs. Discretionary closures can be applied to leasable minerals and mineral materials, but not to locatable minerals, as withdrawal from locatable mineral entry can only be made by Act of Congress, or order of the Interior Secretary. In those alternatives where existing ACEC designations are continued, those ACECs which are discretionarily closed to fluid mineral leasing would continue to be closed pending further planning for oil and gas.

The Abandoned Mine Lands program of inventory, assessment and remediation of abandoned mine features would continue. Any required NEPA analysis for remediation or reclamation of mine features would be done on a mining district or other site-specific basis and tiered to this RMP/ EIS.

No proposed decisions are listed for coal due to the very limited resource potential in the *Planning Area*. Any future coal leasing, should it occur, would be done according to applicable laws and regulations in areas identified as potentially suitable for coal leasing.

Under all alternatives, 5,364 acres in the Sacramento Escarpment ACEC would continue to be withdrawn from entry under the mining laws (Public Land Order [PLO] No. 7375) until 2019. The area would remain open to mineral leasing. Another 5,612 acres in the Organ Mountains and Three Rivers Petroglyph Site would continue to be segregated from all mineral entry to protect recreational and historic values. (Notice of Classification of Public Lands for Multiple Use Management, *Federal Register*, Vol. 35, No. 69, April 9, 1970).

Under all alternatives, Community Pit #1, located in Doña Ana County off of Shalem Colony Road (T. 22 S., R. 1 E., Section 19, S½SE¼), would be recommended for withdrawal of locatable minerals.

Under all alternatives, authorizations for use of existing mineral material pits would continue as needed and appropriate. Existing authorizations are shown in Appendix M. New mineral material pits would be established as needed in open areas where the resource is available.

Fluid mineral leasing decisions are shown on Maps 2-26 to 2-29. Table 2-11 shows a summary of proposed fluid minerals management by alternative. Mineral material decisions are shown on Maps 2-38 to 2-41.

All new R&PP lease or patent areas would be closed to geothermal leasing or designated as no surface occupancy.

Existing fluid mineral leases would continue on 52,705 acres. As a valid existing right, any areas currently under lease would be managed according to existing regulations and lease terms and conditions until the lease expires or is relinquished by the leaseholder; this would not be changed by new land use plan decisions. Mitigation measures for surface disturbing activities would be developed and applied as needed to protect paleontological resources, including a controlled surface-use stipulation for leases.

RESTRICTIONS	A	B	C	D
OIL AND GAS LEASING				
Nondiscretionary Closure	258,186	258,186	258,186	258,186
Discretionary Closure ¹	75,020	75,020	75,020	75,020
Open – NSO Stipulation	27,534	856 ²	856 ²	856 ²
Open – CSU Stipulation	169,710	0	0	0
Open with Lease Notice	239,307	0	0	0
Open – SLTC	3,655,138	0	0	0
Existing Leases	52,705	52,705	52,705	52,705
ACRES DEFERRED FROM OIL AND GAS LEASING				
Deferred pending further planning	0	3,593,047	3,593,047	3,593,047
GEOHERMAL LEASING				
Nondiscretionary Closure	258,186	258,186	258,186	258,186
Discretionary Closure ¹	75,020	571,930	358,045	75,020
Open – NSO Stipulation	27,534	856	856	856
Open – CSU Stipulation	169,710	0	0	0
Open with Lease Notice	239,307	0	0	0
Open – SLTC	3,194,610	3,154,014	3,222,397	3,630,721
NOTES:				
¹ Discretionary closure applies only to areas of existing ACECs outside WSAs. Any area within a WSA is part of a nondiscretionary closure. This also includes Kilbourne Hole.				
² Rincon ACEC in Doña Ana County				

2.4.4.6.3 Minerals Management Direction by Alternative

FLUID MINERALS

Alternative A:

Oil and Gas Leasing: Under Alternative A, the following existing management decisions for oil and gas leasing would apply:

- 258,186 acres in WSAs and former military use areas would be non-discretionarily closed to leasing
- 75,020 acres in existing ACECs (outside WSAs) and Kilbourne Hole National Natural Landmark would be discretionarily closed to fluid minerals leasing
- 27,534 acres in R&PP sites, ecological study sites, recreation sites, historical trails and communication sites would be open to leasing with No Surface Occupancy (NSO) stipulation
- 169,710 acres in the Jornada Experimental Range (109,461 acres), NMSU Chihuahuan Desert Rangeland Research Center (60,249 acres) would be open with a Controlled Surface Use Stipulation
- 239,307 acres in the WSMR Safety Evacuation Zone in Sierra County would be open with a Lease Notice
- 3,655,138 acres of Federal mineral estate in the *Planning Area* would be open with Standard Lease Terms and Conditions (SLTC)

Alternatives A and D:

Geothermal Leasing: Under Alternatives A and D, the following restrictions would apply:

- 258,186 acres in WSAs and former military use areas would be non-discretionarily closed to leasing
- 75,020 acres in existing ACECs and Kilbourne Hole National Natural Landmark would be discretionarily closed to leasing
- 27,534 acres in R&PP sites, ecological study sites, recreation sites, historical trails and communication sites would be open to leasing with No Surface Occupancy stipulation
- 169,710 acres in the Jornada Experimental Range (109,461 acres) and NMSU Chihuahua Desert Rangeland Research Center (60,249) would be open with a Controlled Surface Use stipulation
- 239,307 acres in the WSMR Safety Evacuation Zone in Sierra County would be open with a Lease Notice
- 3,655,138 acres of Federal mineral estate in the *Planning Area* would be open with Standard Lease Terms and Conditions. However, since fluid mineral leasing is a discretionary action, any lease application may be denied if during NEPA analysis of the action it was determined that unacceptable impacts could accrue to other resources
- Geothermal would be avoided within 5 miles of El Camino Real National Historic Trail (VRM Class II area)
- Restore New Mexico Areas (completed and planned projects) would be avoided.

Alternatives B, C and D:

Oil and Gas Leasing: Under Alternatives B, C and D, existing discretionary and non-discretionary closures to oil and gas leasing would continue. All WSAs and certain former military use areas totaling 258,186 acres would be non-discretionarily closed to oil and gas leasing. Existing ACECs totaling 85,484 acres would continue to be discretionarily closed to oil and gas leasing. The ACEC acreage includes the existing boundaries of the Cornudas, Wind Mountain, and Alamo Mountain ACECs. Although these areas would be incorporated into the Otero Mesa Grassland ACEC under Alternative B, the existing boundaries would continue to be closed to fluid mineral leasing.

For the mineral estate in the remainder of the *Planning Area* outside of existing discretionary and nondiscretionary closures, oil and gas leasing would be deferred until such time as a programmatic RMP amendment can be prepared addressing oil and gas leasing and management including identifying areas open and closed to leasing and new leasing stipulations. No new leasing would be allowed in the *Planning Area* until that Plan Amendment is completed.

Alternatives B and C:

Geothermal Leasing: Under Alternatives B and C, the Federal fluid mineral estate (approximately 62,000 acres) beneath the NMSU Rangeland Research Center, would be discretionarily closed to geothermal leasing. In the remainder of the *Planning Area*, the fluid mineral leasing restrictions for Alternative A would also apply to geothermal leasing under Alternatives B and C.

Geothermal leasing would be excluded from high and moderate aplomado falcon habitat as prescribed by the habitat model. At the time of an application, field surveys would be conducted to verify the accuracy of the model and determine if falcon habitat exists in the application area (see Map 2-27 and 2-28).

Alternative B:

Geothermal Leasing: Geothermal leasing would be excluded within a 5-mile radius of occupied Chiricahua leopard frog habitat.

Alternative C:

Geothermal Leasing: Geothermal leasing would be excluded within a 1-mile radius of occupied Chiricahua leopard frog habitat and avoided between 1- and 5-mile radius of occupied habitat.

Alternative D:

Geothermal Leasing: Geothermal leasing would be avoided within a 1-mile radius of occupied Chiricahua leopard frog habitat. Leasing would be excluded in 36,000 acres of aplomado falcon “core” habitat located on Otero Mesa and the Nutt Grasslands (see Maps 2-29). It would be avoided in high and moderate potential aplomado falcon habitat throughout the rest of the *Decision Area*. Field surveys would need to be conducted at the time of application to verify the accuracy of the habitat model and determine if falcon habitat exists in the application area.

LOCATABLE MINERALS

Alternative A: All public land and mineral estate in the *Planning Area* would be open to entry and location under the mining laws except for withdrawn or segregated areas (10,977 acres).

Approximately 71,488 acres in existing ACECs would be recommended to be withdrawn from location under the general mining laws.

Alternative B: All public land and mineral estate in the *Planning Area* would be open to entry and location under the mining laws except for withdrawn or segregated areas (10,977 acres).

The following areas would be recommended for withdrawal from mineral entry (682,407 acres):

- Existing WSAs (252,704 acres)
- Existing ACECs (except Sacramento Escarpment) (85,249 acres)
- Lake Valley SRMA (1,000 acres)
- Proposed ACECs
 - Brokeoff Mountains ACEC (61,224 acres)
 - Six Shooter Canyon ACEC (1,060 acres)
 - Percha Creek ACEC (870 acres)
 - Broad Canyon ACEC (4,721 acres)
 - Tortugas Mountain ACEC (1,936 acres)
 - Otero Mesa Grassland ACEC (271,262 acres)
 - Sacramento Mountains ACEC (2,381 acres)

Alternative C: All public land and mineral estate in the *Planning Area* would be open to entry and location under the mining laws except for withdrawn or segregated areas (10,977 acres).

The following areas totaling 337,807 acres would be recommended for withdrawal from location under the general mining laws:

- Existing WSAs (261,793 acres)
- Alamo Mountain ACEC (2,528 acres)
- Comudas Mountain ACEC (852 acres)
- Doña Ana Mountains ACEC (3,181 acres)
- Organ Franklin/Mountains ACEC (58,417 acres)
- Rincon ACEC (856 acres)
- Three Rivers Petroglyph ACEC (1,043 acres)
- Wind Mountain ACEC (2,308 acres)
- Mud Mountain ACEC (2,579 acres)
- Percha Creek ACEC (870 acres)
- Six Shooter ACEC (1,060 acres)
- Lake Valley SRMA (1,000 acres)
- VanWinkle Lake ACEC (1,320 acres)

Alternative D: A total of 53,765 acres in the Organ/Franklin Mountains ACEC would be recommended for withdrawal from locatable mineral entry. All other public land and mineral estate would be open to entry and location under the mining laws except for withdrawn or segregated areas (10,977 acres).

MINERAL MATERIALS

Alternative A: The following areas would be closed to mineral material disposal:

- All WSAs (261,793 acres)
- All ACECs designated and managed under this alternative (89,723 acres)
- Research Natural Area (one area in the Aden Lava Flow WSA) (3,700 acres)
- Kilbourne Hole Natural National Landmark (5,500 acres)
- No lands with wilderness characteristics were identified under existing management (0 acres)

All remaining areas in the *Planning Area*, including subsurface estate would be open to mineral material disposal pending site-specific environmental assessment at the time of a sale application.

Alternative B: The following areas would be closed to mineral material disposal:

- All WSAs (261,793 acres)
- All existing and proposed ACECs designated and managed under this alternative (517,774 acres)
- Kilbourne Hole Natural National Landmark (5,500 acres)
- Four areas managed as lands with wilderness characteristics (11,494 acres)

All remaining areas in the *Planning Area*, including subsurface estate would be open to mineral material disposal pending site-specific environmental assessment at the time of a sale application.

Alternative C: The following areas would be closed to mineral material disposal:

- All WSAs (261,793 acres)
- Existing and proposed ACECs designated and managed under this alternative, except for Otero Grassland which would only be closed in VRM I (111,219 acres)
- Kilbourne Hole Natural National Landmark (5,500 acres)
- Three areas managed as lands with wilderness characteristics (803 acres)

Alternative D: The following areas would be closed to mineral material disposal:

- All WSAs (261,793 acres)
- All existing ACECs managed under this alternative (85,978 acres)
- Kilbourne Hole Natural National Landmark (5,500 acres)
- No areas managed as lands with wilderness characteristics

2.5 SUMMARY OF IMPACTS

Table 2-12 shows a summary of the impacts by alternative and resource and resource use.

TABLE 2-12 SUMMARY OF IMPACTS BY ALTERNATIVE

SUMMARY OF IMPACT				
A	B	C	D	D
SPECIAL DESIGNATIONS				
Areas of Critical Environmental Concern				
Controlled surface disturbance, closed routes, vehicle use in existing ACECs limited to designated routes, and excluded new ROW would protect relevant and important resources and maintain resource conditions.	89,723 acres 3% of <i>Decision Area</i>	517,774 acres 18% of <i>Decision Area</i>	304,042 acres 14% of <i>Decision Area</i>	85,978 acres 3% of <i>Decision Area</i>
Wilderness Study Areas	13 ACECs	29 ACECs	23 ACECs	12 ACECs
Management under BLM Manual 6330 would protect wilderness values and lead to rehabilitation of disturbed areas.	Vehicle use limited to Existing Routes at time of WSA designation.	Close all routes in WSAs.	Peña Blanca and Organ Needle routes closed.	Vehicle use limited to Existing Routes at time of WSA designation.
Wild and Scenic Rivers	0.0 miles	3.5 miles	0.0 miles	1.4 miles
Preserve the classification of eligible rivers.				
LANDS WITH WILDERNESS CHARACTERISTICS				
Designating Nutt Grasslands, Bar Canyon, and or Peña Blanca as LWC would protect wilderness values, restrict vehicle use, close to new ROW which reduces surface disturbance.	No designation.	Designate Nutt Grasslands and Bar Canyon, Peña Blanca South and Peña Blanca North.	Designate Bar Canyon, Peña Blanca South, and Peña Blanca North.	Designate Bar Canyon.
AIR RESOURCES				
Air Quality				
Limiting vehicle use to designated or existing routes would reduce fugitive dust.	40% of <i>Decision Area</i>	99% of <i>Decision Area</i>	99% of <i>Decision Area</i>	99% of <i>Decision Area</i>
Oil and gas leasing deferred from leasing precludes any impacts to air quality.	0 acres deferred	3,600,000 acres	3,600,000 acres	3,600,000 acres
SOIL AND WATER				
Surface disturbances by OHV use leads to soil erosion, compaction and increased run-off.	1.6 million acres in Sierra and Otero Open to OHV.	Limit vehicle use on 2 million acres.	Limit vehicle use on 2.2 million acres.	Limit vehicle use on 2.5 million acres.
Soils protected in areas closed to vehicle use. Vegetation treatments would reduce soil exposure and erosion in the long-term and improve water quality.	42,953 acres No Decision.	259,891 acres Passive Restoration would be improve fewer acres than A.	20,000 acres Passive and active methods improve soil stability and productivity greater extent than A & B.	17,485 acres Active methods would increase the acres restored and increase ground cover and reduce erosion.

TABLE 2-12 SUMMARY OF IMPACTS BY ALTERNATIVE

SUMMARY OF IMPACT	A	B	C	D
VEGETATION AND WOODLANDS				
OHV open areas lead to degradation of soils and vegetation.	1.6 million acres open	39,000 acres open	42,000 acres open	42,000 acres open
ROW Avoidance and Exclusion reduce impacts to vegetation from surface disturbances associated with communications sites, utilities and roads.	532,061 acres	1,029,027 acres	765,970 acres	761,000 acres
Route closures in WSAs lead to vegetation recovery.	0	164 miles	40 miles	0
Passive and Active restoration leads to desired states and conditions, reduces opportunities for weeds.	No Decision.	Passive Restoration would be improve fewer acres than A.	Passive and active methods improve vegetation conditions to a greater extent than A & B.	Active methods would increase the rate of restoration.
Lands closed to grazing would improve recreation sites, degraded or special riparian sites, and wildlife waters.	2,049 acres	17,602 acres + allotments with unmanageable conflicts based on basic evidence.	17,602 acres + allotments with unmanageable conflicts that have had evaluation and monitoring.	1,156 acres
FISH AND WILDLIFE HABITAT				
ROW Avoidance and Exclusion would maintain large areas of diverse, productive habitats.	532,061 acres	1,029,027 acres	765,970 acres	761,000 acres
Habitat would potentially be degraded by OHV designations, and other development.	1,738,000 acres	247,000 acres	383,000 acres	434,000 acres
Mitigations would improve and protect habitats	376,000 acres	1,524,000 acres	1,722,000 acres	1,681,000 acres
Habitat and vegetation restoration rates vary on whether active or passive methods are used . Increases in vegetation may be allocated to wildlife, watershed, or livestock.	No Decision	Passive restoration leads to fewer acres restored compared to A. Increases in vegetation reserved for watershed and wildlife.	Passive and active restoration rates than A or B. Increases allocated to wildlife and livestock, with wildlife a priority.	Active methods improve more acreage but vegetation increases would be allocated for livestock.
SPECIAL STATUS SPECIES				
ACECs protect special status species habitats (number, acres).	6 75,000	10 356,000 acres	6 212,000 acres	6 75,000
Aplomado falcon releases leads to viable populations	No decision	Yes	Yes	No

TABLE 2-12 SUMMARY OF IMPACTS BY ALTERNATIVE

SUMMARY OF IMPACT	A	B	C	D
Special status species habitat potentially degraded by OHV designations, land disposals, energy and mineral development.	1,738,000 acres	247,000 acres	383,000 acres	434,000 acres
CULTURAL RESOURCES				
Cultural resources would potentially degraded by OHV designations	1.64 million acres	39,000 acres	42,000 acres	42,000 acres
ACECs for cultural resources would reduce surface disturbance to sites such as habitation sites and lithic scatters (numbers/acres).	8 existing/62,390 acres	8 existing/62,390 acres 5 proposed/352,393 acres	8 existing/62,390 acres 3 proposed/344,261 acres	8 existing/62,390 acres
Areas closed to livestock grazing reduces disturbance to cultural resources.	2,049 acres	At least 17,602 acres	At least 17,602 acres	1,156 acres
PALEONTOLOGY				
Paleo resources potentially degraded by OHV designations	1.64 million acres	39,000 acres	42,000 acres	42,000 acres
ACECs and SRMAs would reduce surface disturbance and prevent fossil destruction.	90,000 acres ACECs 69,000 acres SRMAs	512,000 acres ACECs 83,000 acres SRMAs	439,000 acres ACECs 83,000 acres SRMAs	87,000 acres ACECs 83,230 acres SRMAs
Applying fossil yield classification to all surface disturbing activities would screen out locations with likelihood of paleo resources.	No Decision	Yes	Yes	Yes
VISUAL RESOURCES				
Designated utility corridors would confine major rights-of-ways to reduce impacts to visual values.	No corridors in Sierra and Otero Counties Vado ¼-mile width Anthony Gap ½-mile width	A North-South Doña Ana County/Sierra County corridor would be ½-mile width Anthony Gap 1 mile width	A North-South Doña Ana County/Sierra County corridor would be 1 mile width Anthony Gap 1 mile width.	A North-South Doña Ana County/Sierra County corridor would be 2 miles in width
Allowable levels of impacts (VRM) compared to the actual evaluation (VRI) of visual values.	Protects more visual values than C or D.	Protects most of the visual values.	Protects more visual values than D, less than B	Protects the least amount of visual values.
FIRE AND FUELS MANAGEMENT				
Potential to restore or maintain historic fire regime.	Moderate	Low	High	Moderate
Fire used as a tool for restoration in conjunction with herbicide treatments and grazing leads to more sustainable vegetation communities and sustainable historic fire regimes.	More frequent fire in the long-term but historic regime altered.	Fire as a tool excluded, historic fire regime altered.	Historic fire regime restored.	Historic fire regime not sustainable.

TABLE 2-12 SUMMARY OF IMPACTS BY ALTERNATIVE

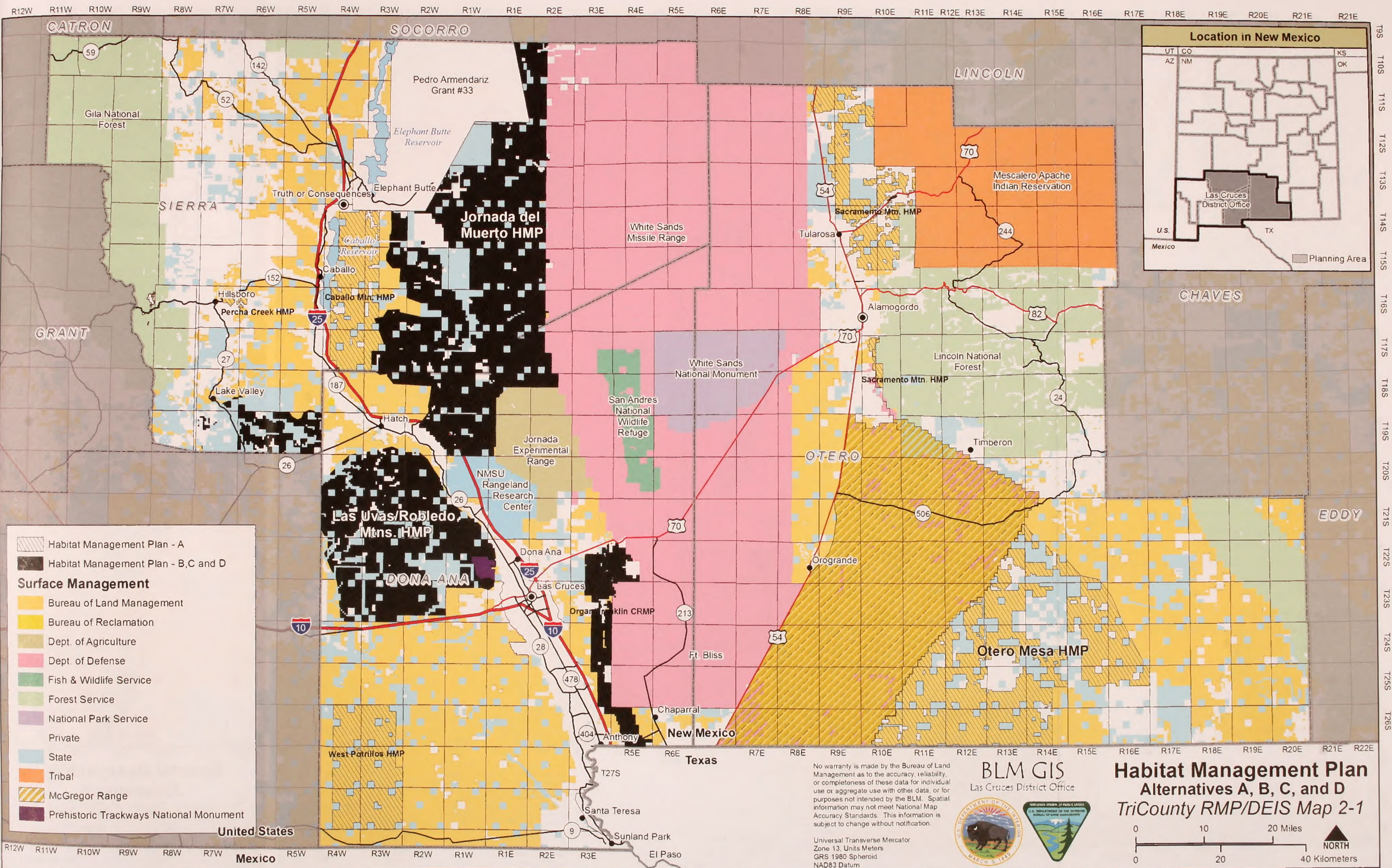
SUMMARY OF IMPACT		A	B	C	D
Human caused ignitions are reduced in structured public interface areas.		SRMAs help reduce ignitions.	More SRMAs than A also reduces ignitions.	More SRMAs than A also reduces ignitions.	SRMAs would reduce ignitions the most.
LIVESTOCK GRAZING					
Passive and active restoration methods would lead to improved forage quality and quantity.		No Decision	Passive only would reduce area of improved forage and quantity compared to A, C & D.	Active and passive would result in a greater increase in forage available to livestock.	Active methods would increase forage over a wider area in a shorter time.
Habitat degraded by OHV designations, land disposals, energy and mineral development may impact forage and livestock distribution.		1,738,000 acres	247,000 acres	383,000 acres	434,000 acres
COMPREHENSIVE TRAILS AND TRAVEL MANAGEMENT					
Cross country vehicle use would allow motorized access off of routes.		1.64 million acres	39,000 acres	42,000 acres	42,000 acres
Limited to Designated Routes (including ACECS) reduces motorized access.		272,000 acres	532,000 acres	493,000 acres	277,000 acres
Limited to Existing Routes would reduce cross country travel.		879,000 acres	2 million acres	2.2 million acres	2.5 million acres
Closed routes would limit access.		43,000 acres	260,000 acres	20,000 acres	17,000 acres
Disposal lands may reduce access.		214,000 acres	38,300 acres	108,000 acres	187,000 acres
Acquisition of legal access would improve the ability to reach public land.		Acquisition emphasized.	Acquisition for access not emphasized.	Acquisition and road development emphasized.	Acquisition and road development emphasized
RECREATION AND VISITOR SERVICES					
Managing OHV as open reduces the quality of the setting for dispersed and primitive recreation.		1.64 million acres	39,000 acres	42,000 acres	42,000 acres
Acquisition in ACECs and WSAs would improve recreational experiences and opportunities.		Acquisition of non-Federal properties would be pursued.	Non-Federal land would be acquired to the extent possible.	Non-Federal land would be acquired to the extent possible.	Non-Federal land would not actively be acquired.
SRMAs maintain recreational experiences, reduce user conflicts, concentrate uses.		2	3	3	4
ERMs retain recreational experiences with minor facilities such as kiosks.		69,000 acres	83,000 acres	83,000 acres	83,000 acres
Closing areas to hunting and target shooting would reduce recreational opportunities.		No Decision	2	3	5
VRM I and II could limit developed recreational opportunities such as interpretive sites or OHV use areas.		0.37 percent	39,000 acres	68,000	110,000 acres
		617,000 acres	1.5 percent	1.4 percent	1.3 percent
			1,237,000 acres	910,000 acres	955,000 acres

TABLE 2-12 SUMMARY OF IMPACTS BY ALTERNATIVE

SUMMARY OF IMPACT				
	A	B	C	D
VRM III and IV would allow for opportunities for developed recreational sites or facilities	2,216,000 acres	1,600,000 acres	1,923,000 acres	1,880,000 acres
LANDS AND REALTY				
Disposal lands may be used for community development and improve the BLM's ability to manage the public lands.	213,000 acres	38,000 acres	108,000 acres	187,000 acres
Infrastructure and developments requiring ROWs would be excluded, or contain stipulations on avoidance areas.	532,061 acres	1,029,027 acres	933,021 acres	778,000 acres
Utility corridor width drives the number of lines that may be granted. Co-location would ease construction, maintenance, and operation.	Corridors for major utilities would be ¼-mile wide East-West Vado corridor is ¼-mile wide	A North-South Doña Ana County/Sierra County corridor would be ½-mile wide An East-West Corridor from Luna County to TX would be designated, and up to ½-mile wide	A North-South Doña Ana County/Sierra County corridor would be 1 mile wide An East-West Corridor from Luna County to TX would be designated, and up to 2 mile wide	A North-South Doña Ana County/Sierra County corridor would be 2 miles in width An East-West Corridor from Luna County to TX would be designated, and up to 2 mile wide
RENEWABLE ENERGY				
Level of NEPA analysis required increases lead time and costs.	EIS or EA	EIS or EA	EIS or EA	EIS or EA
PEIS Variance Decisions for projects outside Afton SEZ would increase public lands available for utility solar projects.	Variance allowed on 1.3 million acres	30,000 acres Afton SEZ only No Variance	Variance allowed on 1.2 million acres	Variance allowed on 1.2 million acres
Wind projects would be considered on lands outside avoidance/exclusion areas.	1.3 million acres	1.2 million acres.	1.2 million acres	1.3 million acres
MINERALS				
Closing fluid mineral leasing discretionarily would have minimal impact due to low to moderate oil and gas potential.	75,000 acres	75,000 acres	75,000 acres	75,000 acres
Lands open with standard lease terms and conditions for fluid leasing would maximize leasing, exploration and development.	3,655,000 acres	53,000 acres (existing leases)	53,000 acres (existing leases)	53,000 acres (existing leases)
Oil and gas leasing deferral would forego any exploration and development within unleased lands in the short term. Impacts low due to low	0	3,600,000 acres	3,600,000 acres	3,600,000 acres

TABLE 2-12 SUMMARY OF IMPACTS BY ALTERNATIVE

SUMMARY OF IMPACT	A	B	C	D
to moderate potential.				
Lands withdrawn from locatable mineral entry would lessen opportunities for extraction.	71,000 acres	682,000 acres	337,000 acres	54,000 acres
Existing claims recognized.				
Closing to mineral materials disposal for development could impact local construction.	361,000 acres	797,000 acres	111,219 acres	353,000 acres
SOCIOECONOMIC CONDITIONS				
Renewable energy opportunities on public land would contribute to economic activities.	Yes	Yes	Yes	Yes
Locatable and leasable minerals would continue to provide materials for economic activities.	Yes	Yes	Yes	Yes
Public land would provide a stable base for recreational industries.	Yes	Yes	Yes	Yes
Livestock grazing would continue with improved forage conditions.	Yes	Yes	Yes	Yes
HEALTH AND SAFETY				
Abandoned mine land reclamation program would prevent injury to public land users.	Yes	Yes	Yes	Yes
Developed recreational sites would be safe.	Yes	Yes	Yes	Yes
Maintaining the open OHV designation would increase injury.	1.6 million acres	39,000 acres	42,000 acres	42,000 acres

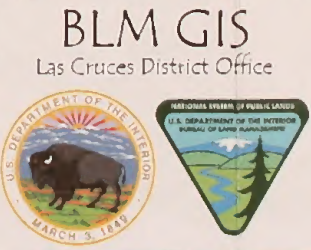


Habitat Management Plan - A
 Habitat Management Plan - B, C and D

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range
- Prehistoric Trackways National Monument

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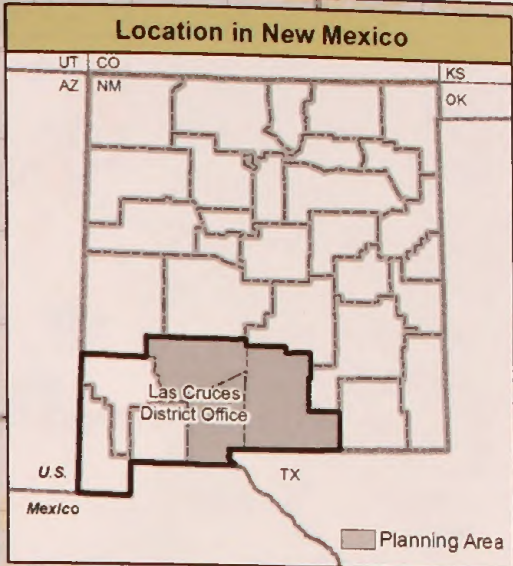
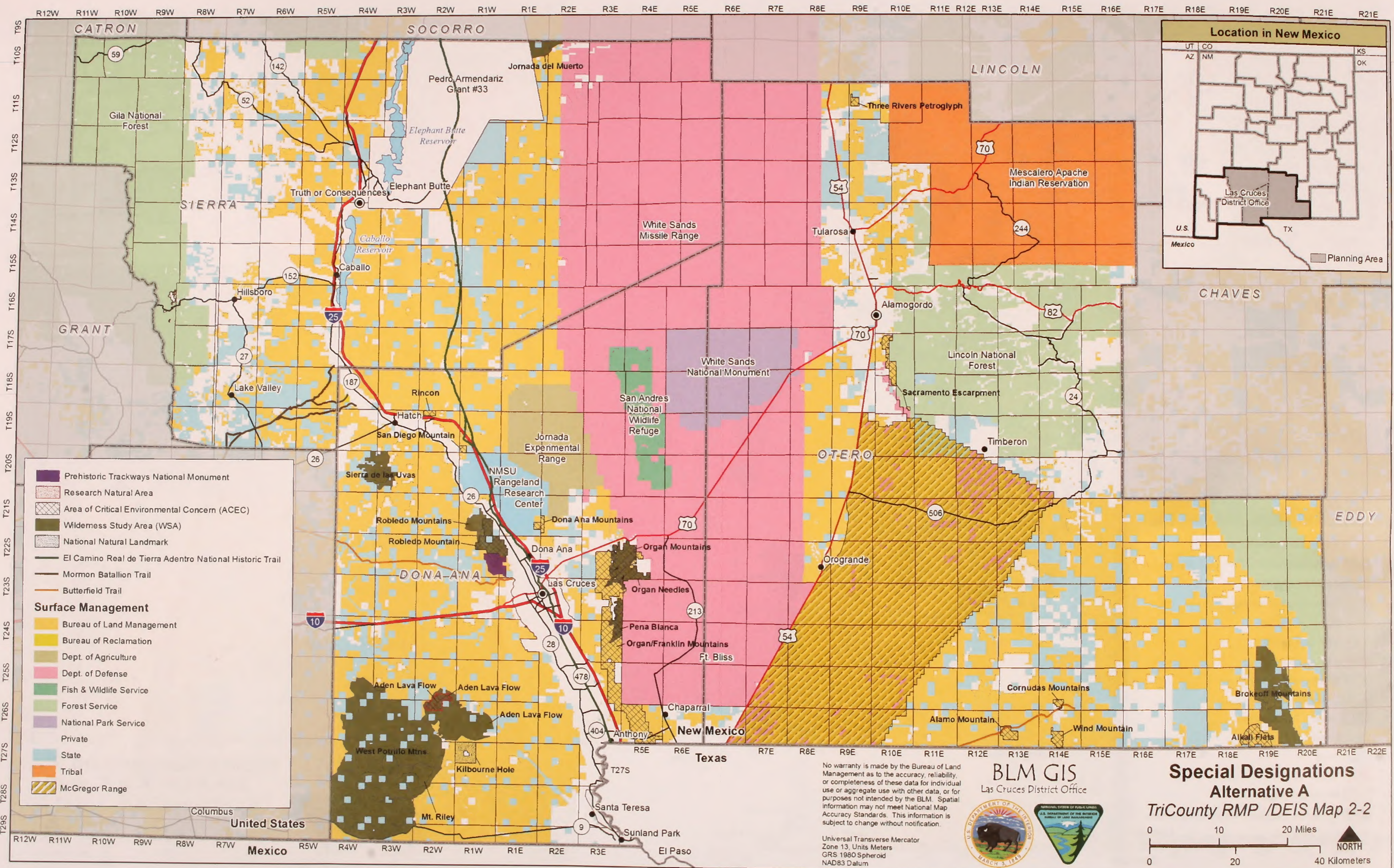


Habitat Management Plan Alternatives A, B, C, and D
TriCounty RMP/DEIS Map 2-1

0 10 20 Miles
 0 20 40 Kilometers

NORTH

Universal Transverse Mercator
 Zone 13, Units Meters
 GRS 1980 Spheroid
 NAD83 Datum



Legend

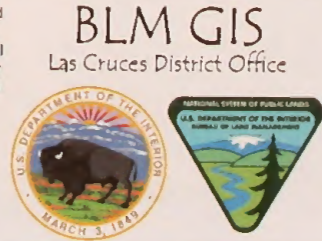
- Prehistoric Trackways National Monument
- Research Natural Area
- Area of Critical Environmental Concern (ACEC)
- Wilderness Study Area (WSA)
- National Natural Landmark
- El Camino Real de Tierra Adentro National Historic Trail
- Mormon Battalion Trail
- Butterfield Trail

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



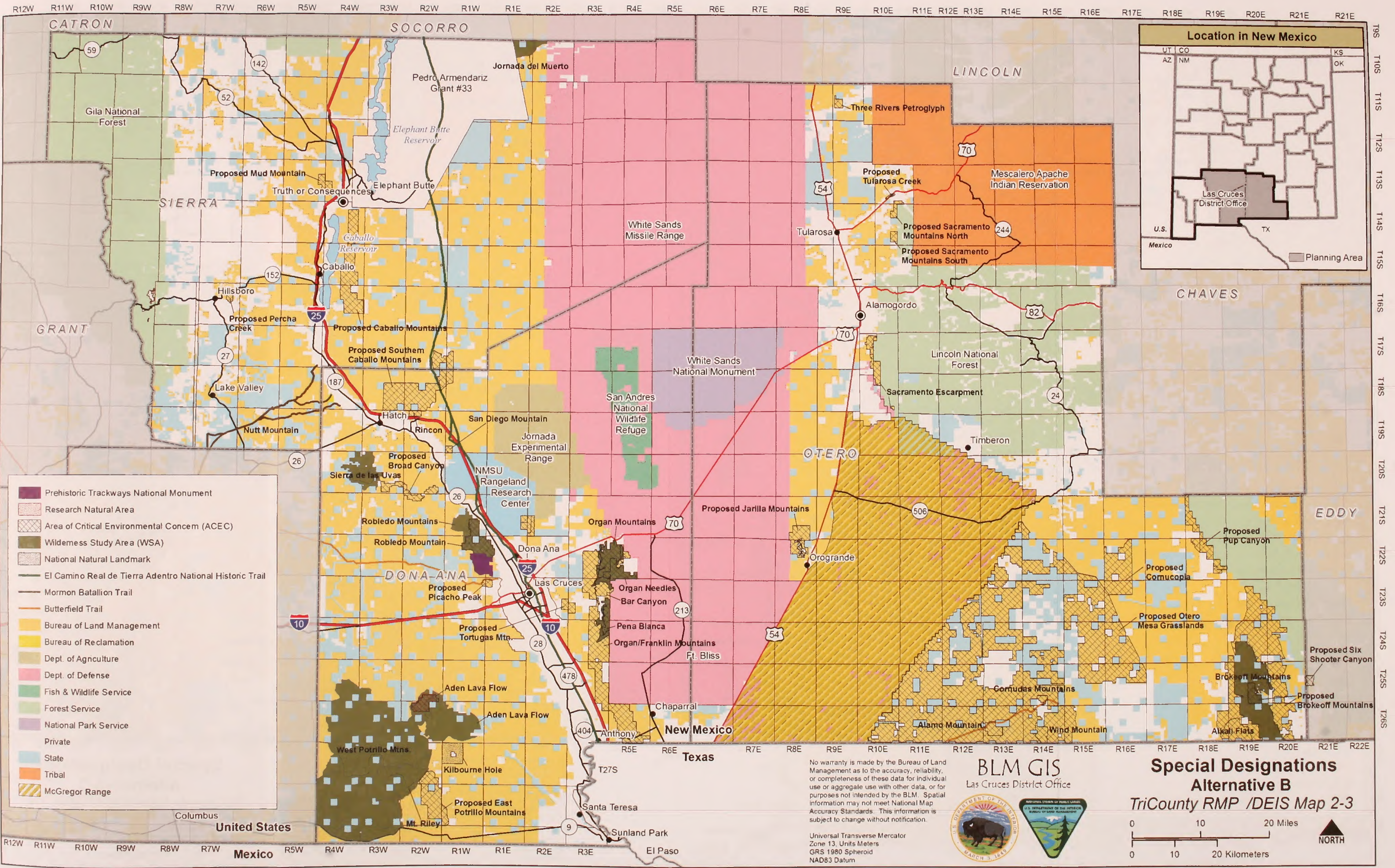
**Special Designations
Alternative A**

TriCounty RMP / DEIS Map 2-2

0 10 20 Miles

0 20 40 Kilometers

NORTH



- Prehistoric Trackways National Monument
- Research Natural Area
- Area of Critical Environmental Concern (ACEC)
- Wilderness Study Area (WSA)
- National Natural Landmark
- El Camino Real de Tierra Adentro National Historic Trail
- Mormon Battalion Trail
- Butterfield Trail
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

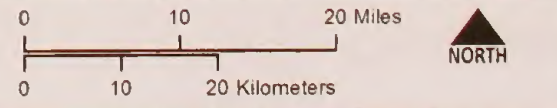
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Las Cruces District Office

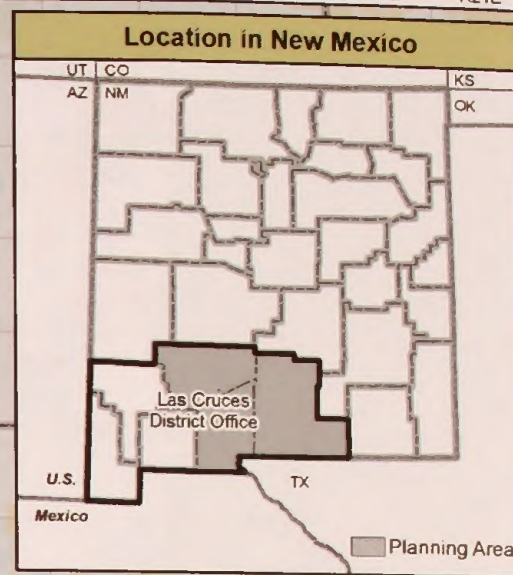
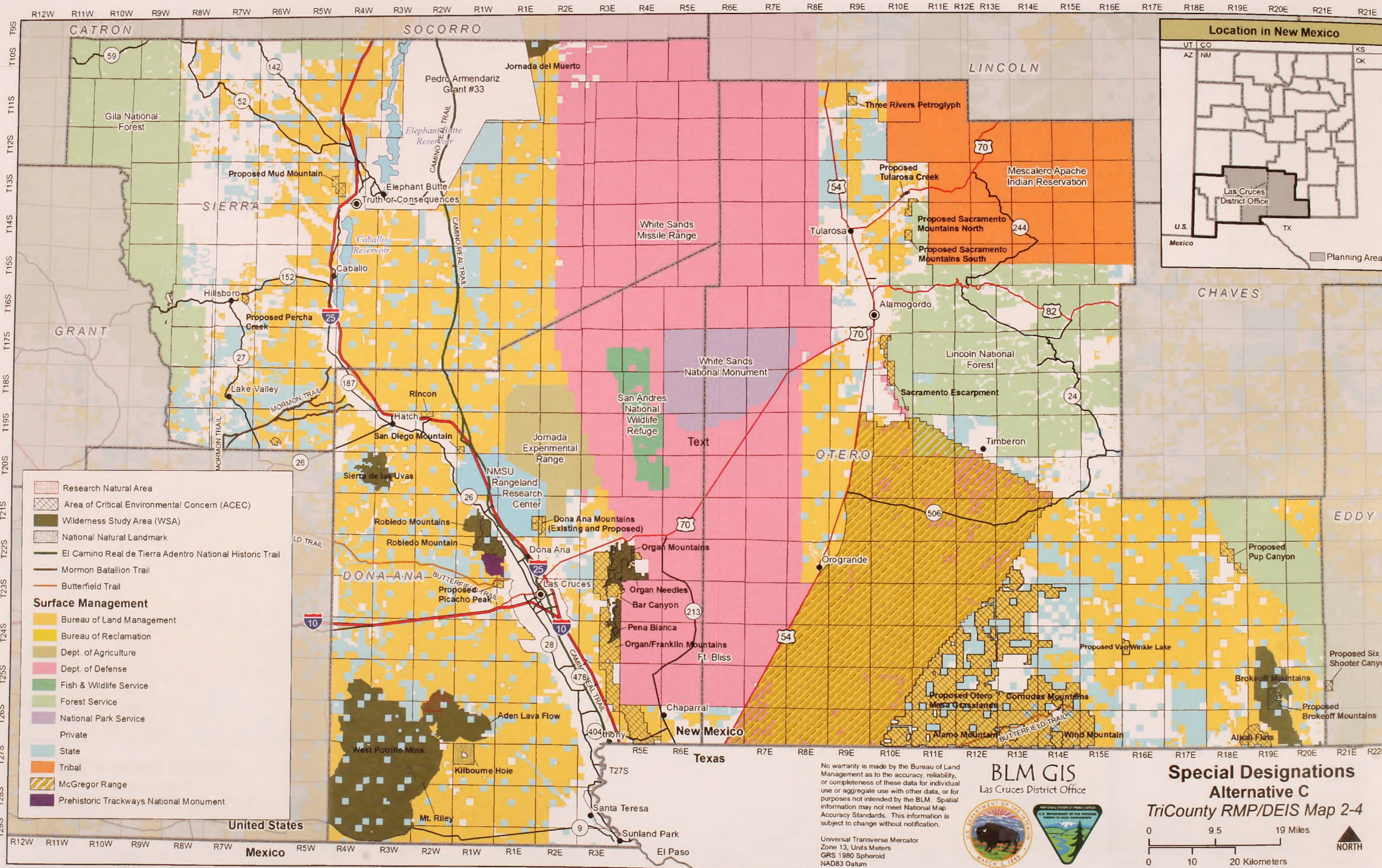


**Special Designations
Alternative B**

TriCounty RMP / DEIS Map 2-3



Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



Legend

- Research Natural Area
- Area of Critical Environmental Concern (ACEC)
- Wilderness Study Area (WSA)
- National Natural Landmark
- El Camino Real de Tierra Adentro National Historic Trail
- Mormon Battalion Trail
- Butterfield Trail

Surface Management

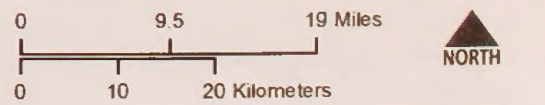
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range
- Prehistoric Trackways National Monument

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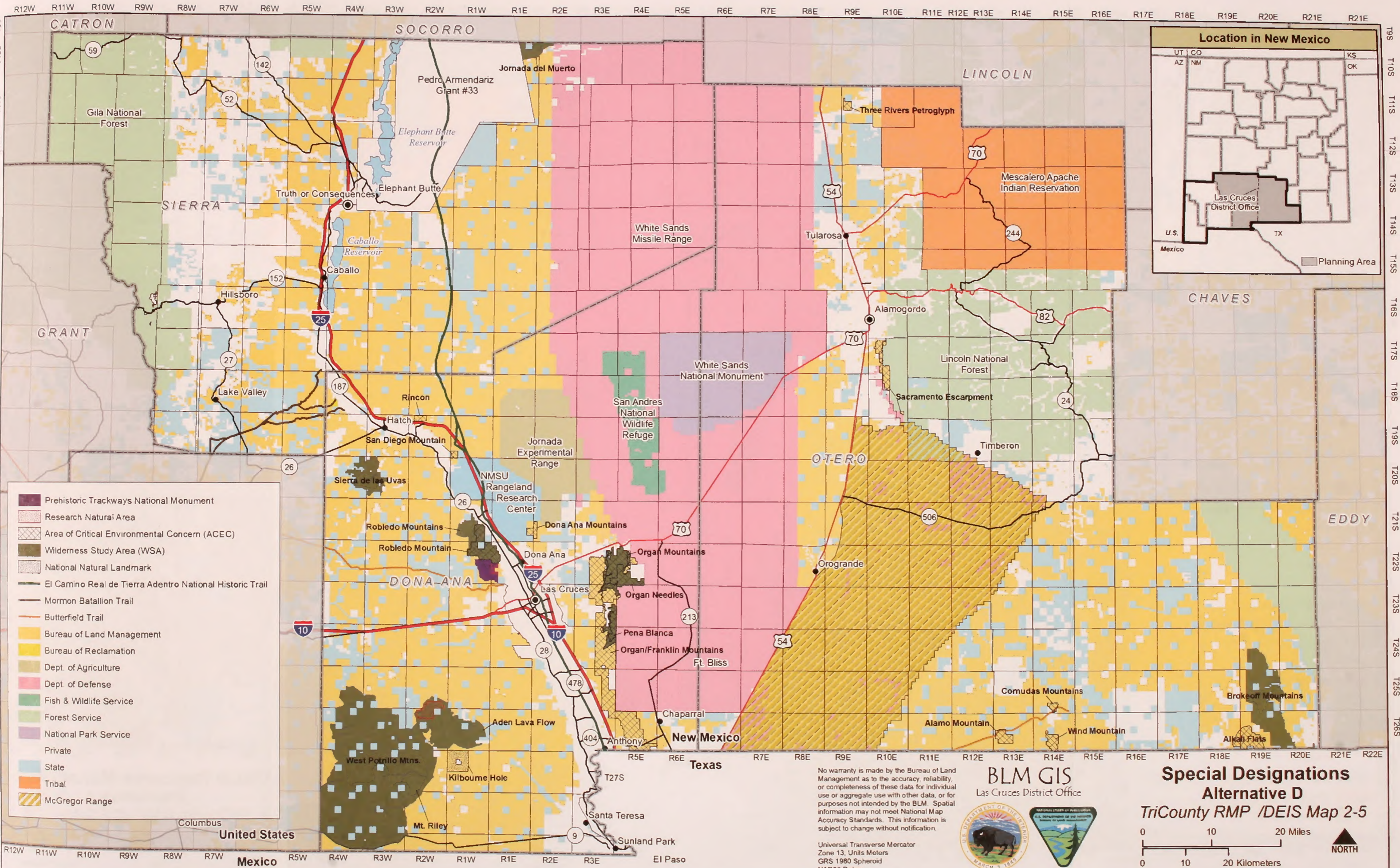
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Las Cruces District Office






















**Special Designations
Alternative C
TriCounty RMP/DEIS Map 2-4**



Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



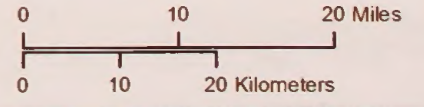

-  Prehistoric Trackways National Monument
-  Research Natural Area
-  Area of Critical Environmental Concern (ACEC)
-  Wilderness Study Area (WSA)
-  National Natural Landmark
-  El Camino Real de Tierra Adentro National Historic Trail
-  Mormon Battalion Trail
-  Butterfield Trail
-  Bureau of Land Management
-  Bureau of Reclamation
-  Dept. of Agriculture
-  Dept. of Defense
-  Fish & Wildlife Service
-  Forest Service
-  National Park Service
-  Private
-  State
-  Tribal
-  McGregor Range

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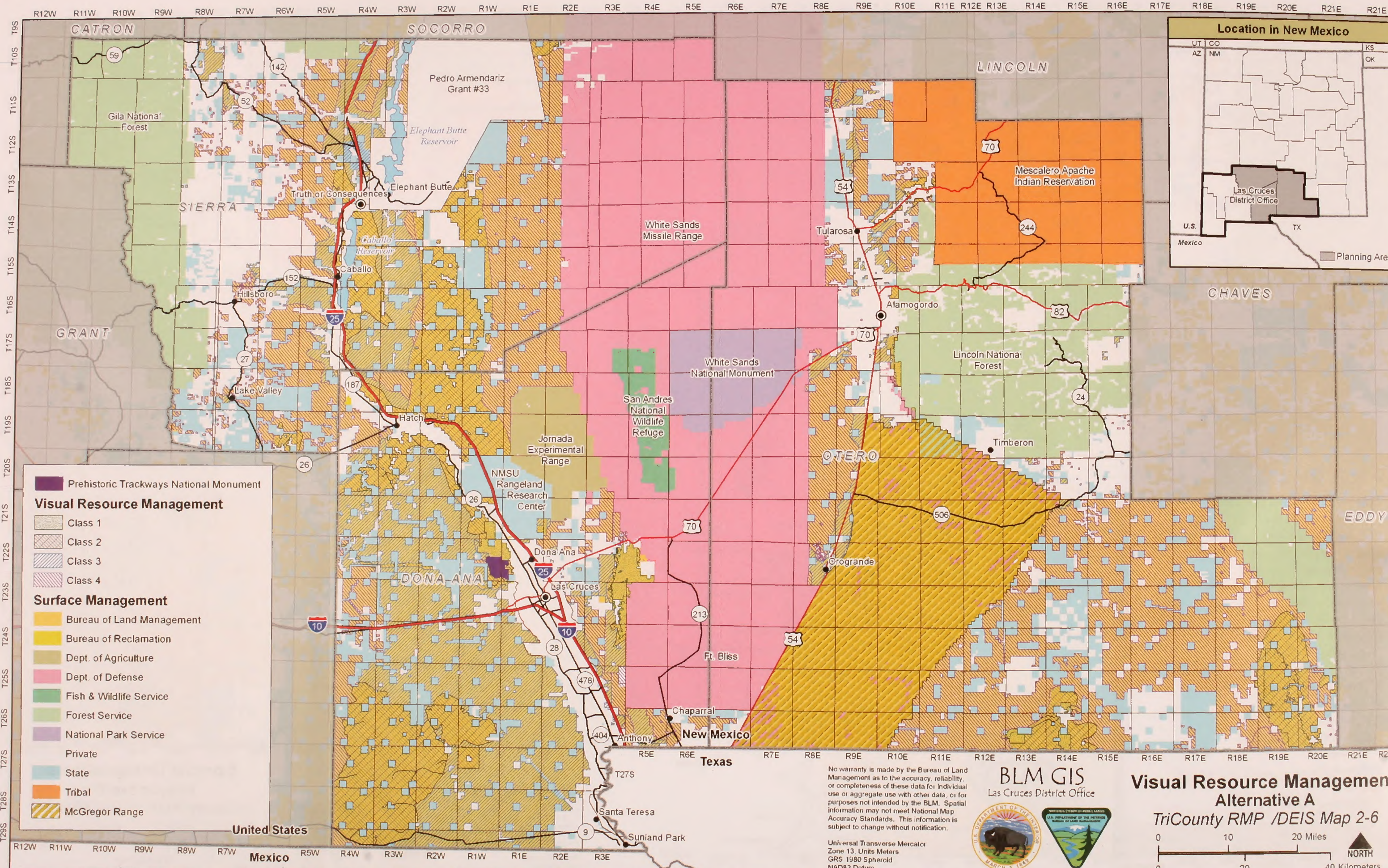
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Special Designations
Alternative D
TriCounty RMP /DEIS Map 2-5

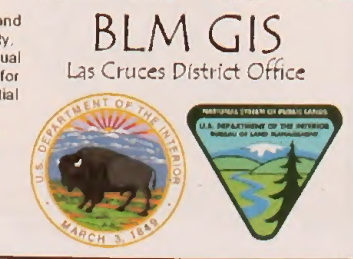
Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



- Prehistoric Trackways National Monument
- Visual Resource Management**
- Class 1
- Class 2
- Class 3
- Class 4
- Surface Management**
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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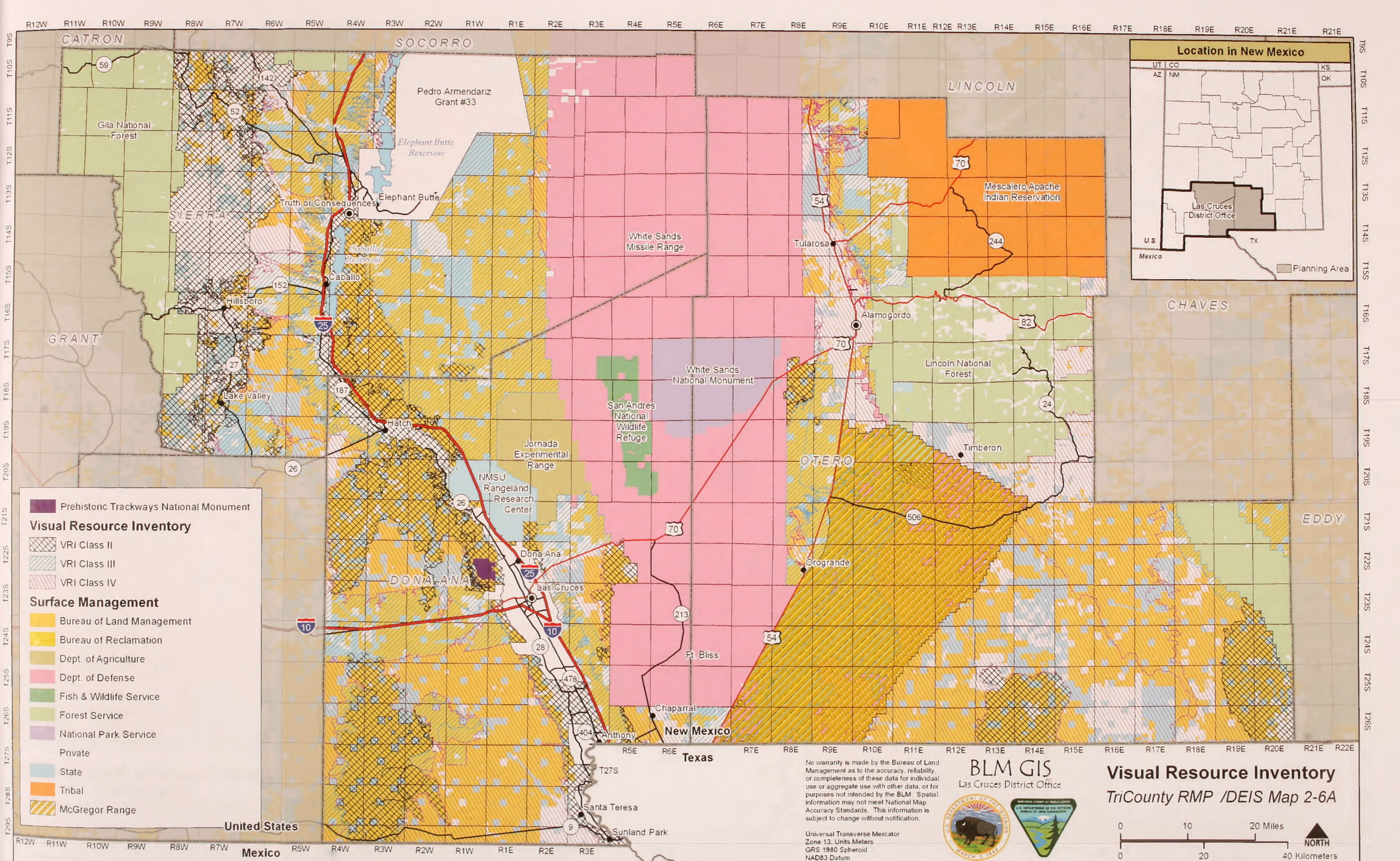
Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



**Visual Resource Management
Alternative A**
TriCounty RMP / DEIS Map 2-6

0 10 20 Miles
0 20 40 Kilometers

NORTH

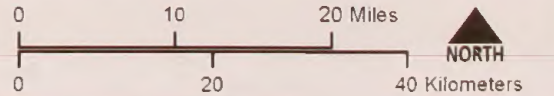


- Prehistoric Trackways National Monument
- Visual Resource Inventory**
- VRI Class II
- VRI Class III
- VRI Class IV
- Surface Management**
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

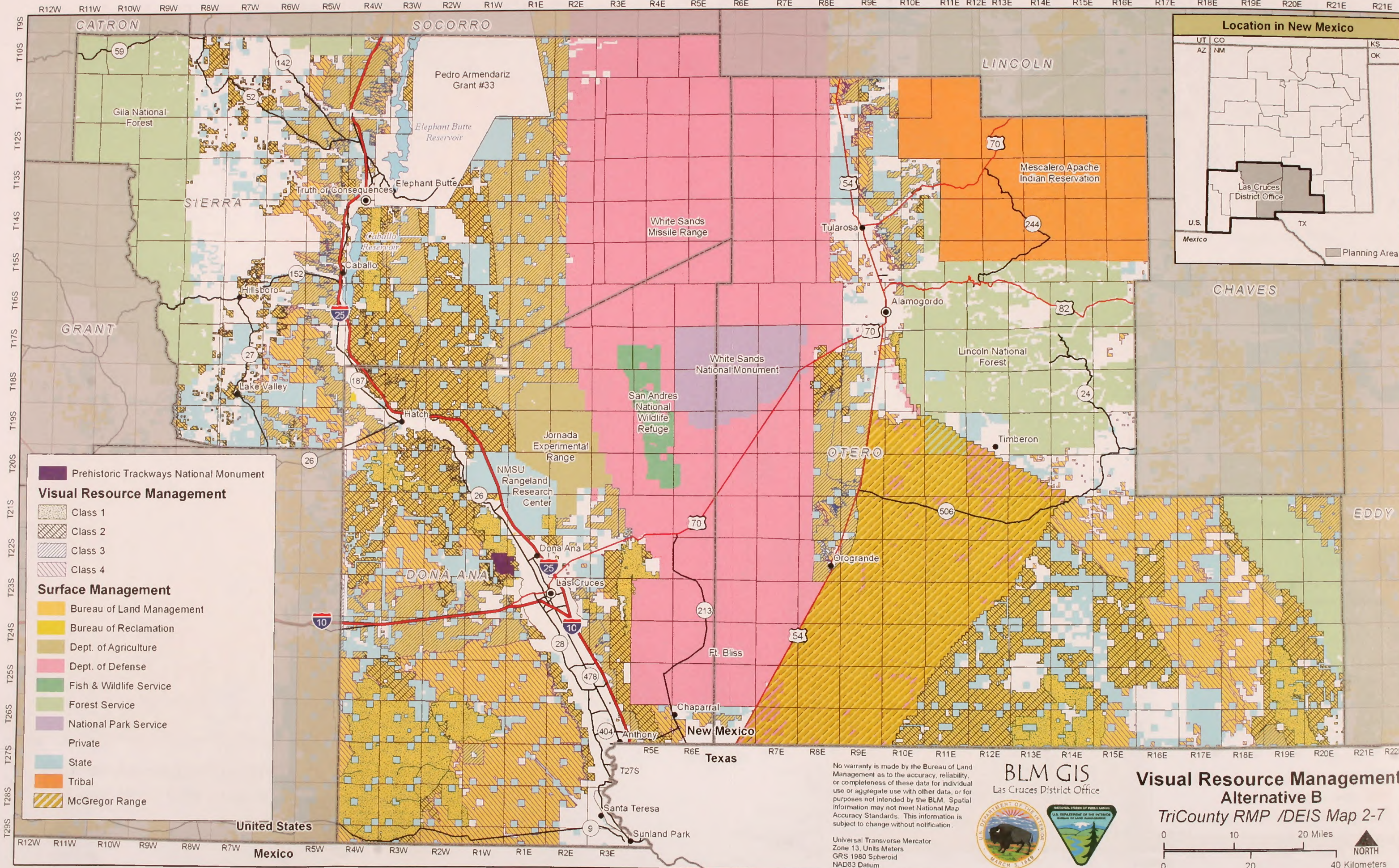
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Visual Resource Inventory
TriCounty RMP / DEIS Map 2-6A



Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



Prehistoric Trackways National Monument

Visual Resource Management

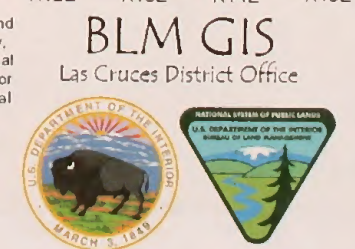
- Class 1
- Class 2
- Class 3
- Class 4

Surface Management

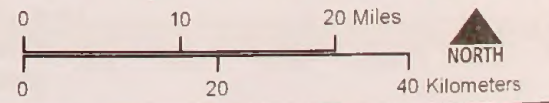
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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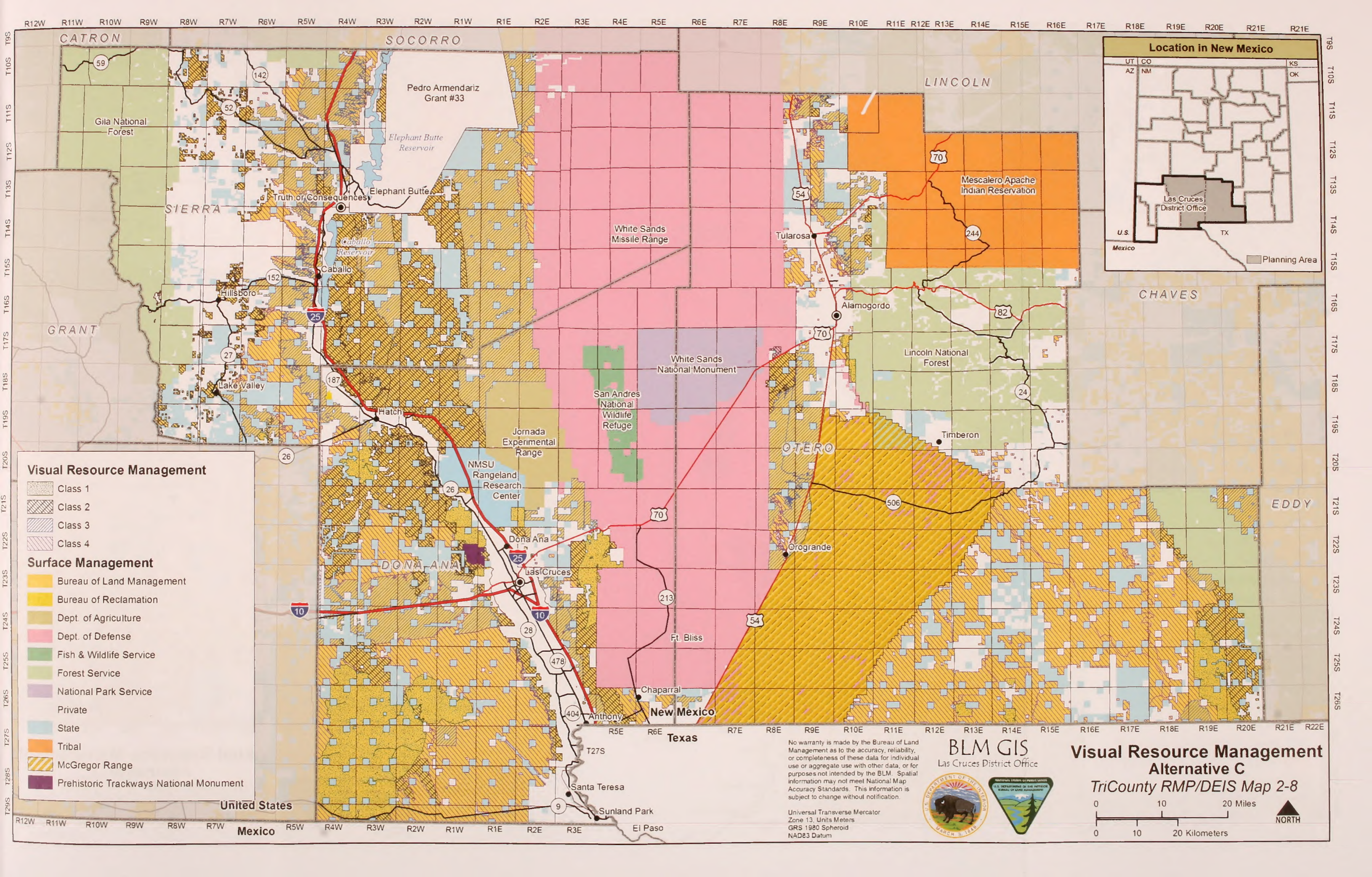
Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



**Visual Resource Management
Alternative B
TriCounty RMP / DEIS Map 2-7**



United States
Mexico



Visual Resource Management

- Class 1
- Class 2
- Class 3
- Class 4

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range
- Prehistoric Trackways National Monument

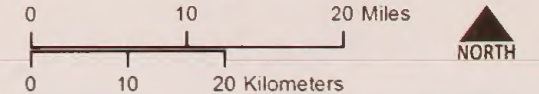
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Las Cruces District Office

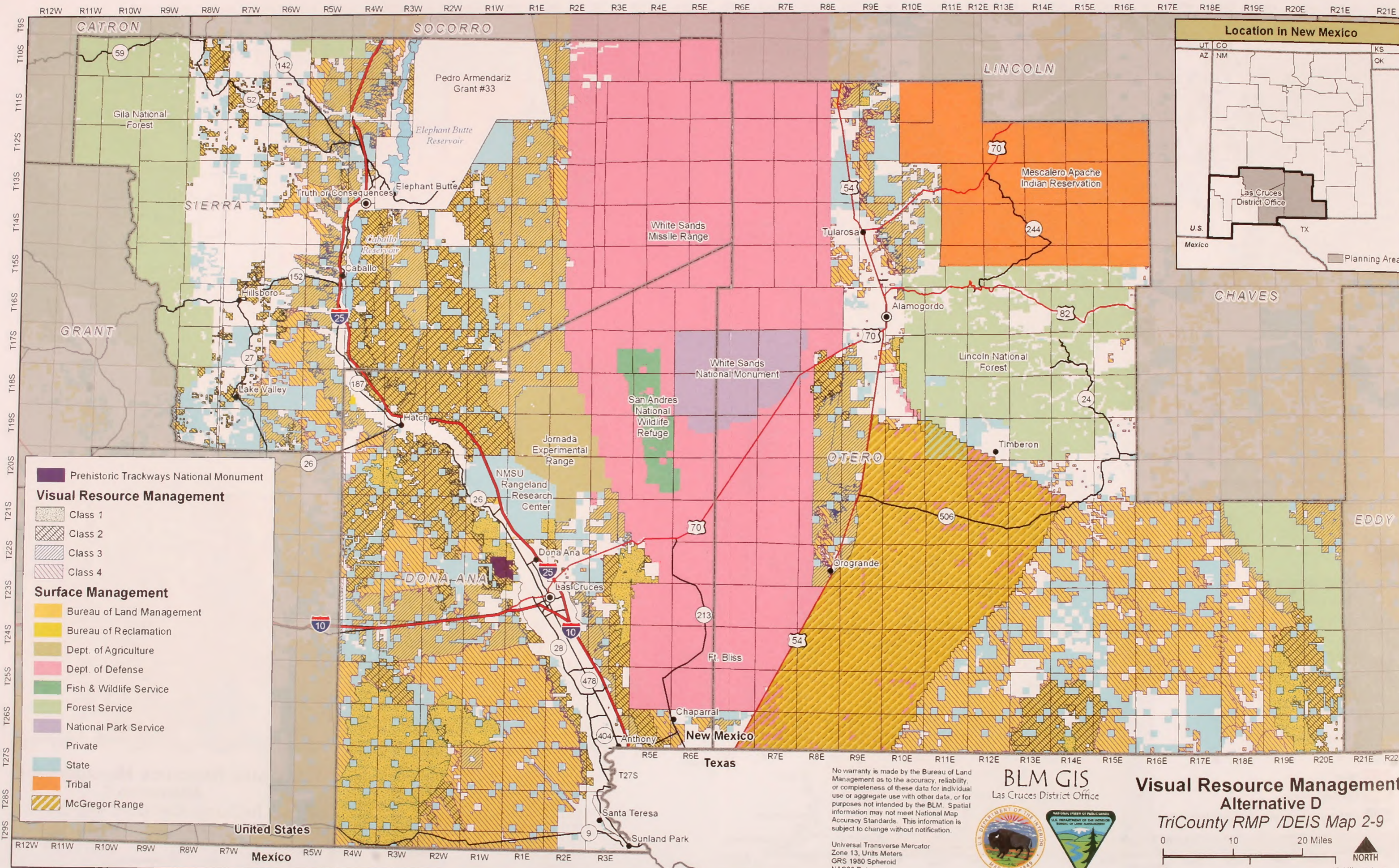


Visual Resource Management Alternative C

TriCounty RMP/DEIS Map 2-8



Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



Prehistoric Trackways National Monument

Visual Resource Management

- Class 1
- Class 2
- Class 3
- Class 4

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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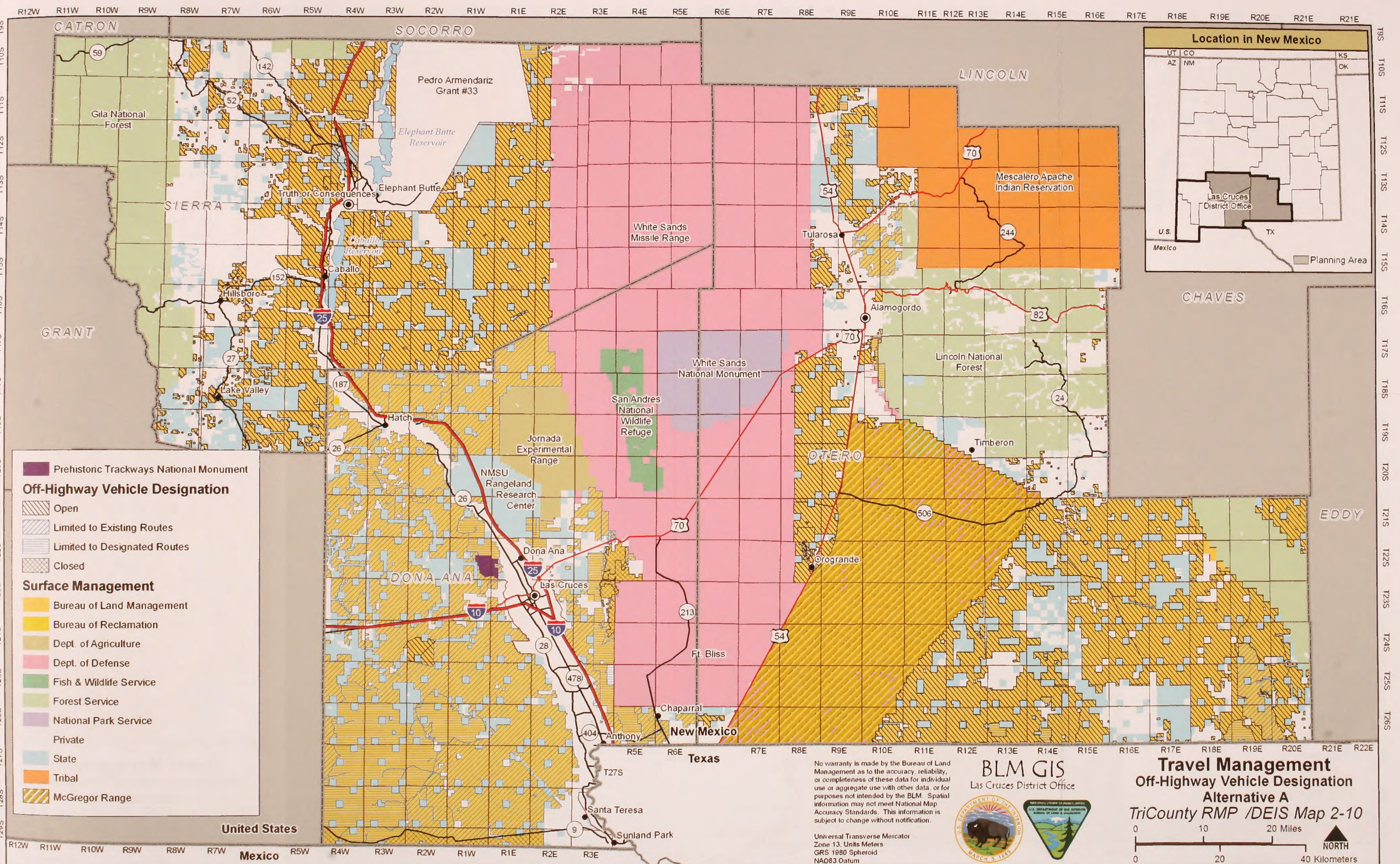
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Las Cruces District Office

Visual Resource Management
Alternative D
TriCounty RMP / DEIS Map 2-9

0 10 20 Miles
0 20 40 Kilometers

NORTH

Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NA083 Datum



Prehistoric Trackways National Monument

Off-Highway Vehicle Designation



- Open
- Limited to Existing Routes
- Limited to Designated Routes
- Closed

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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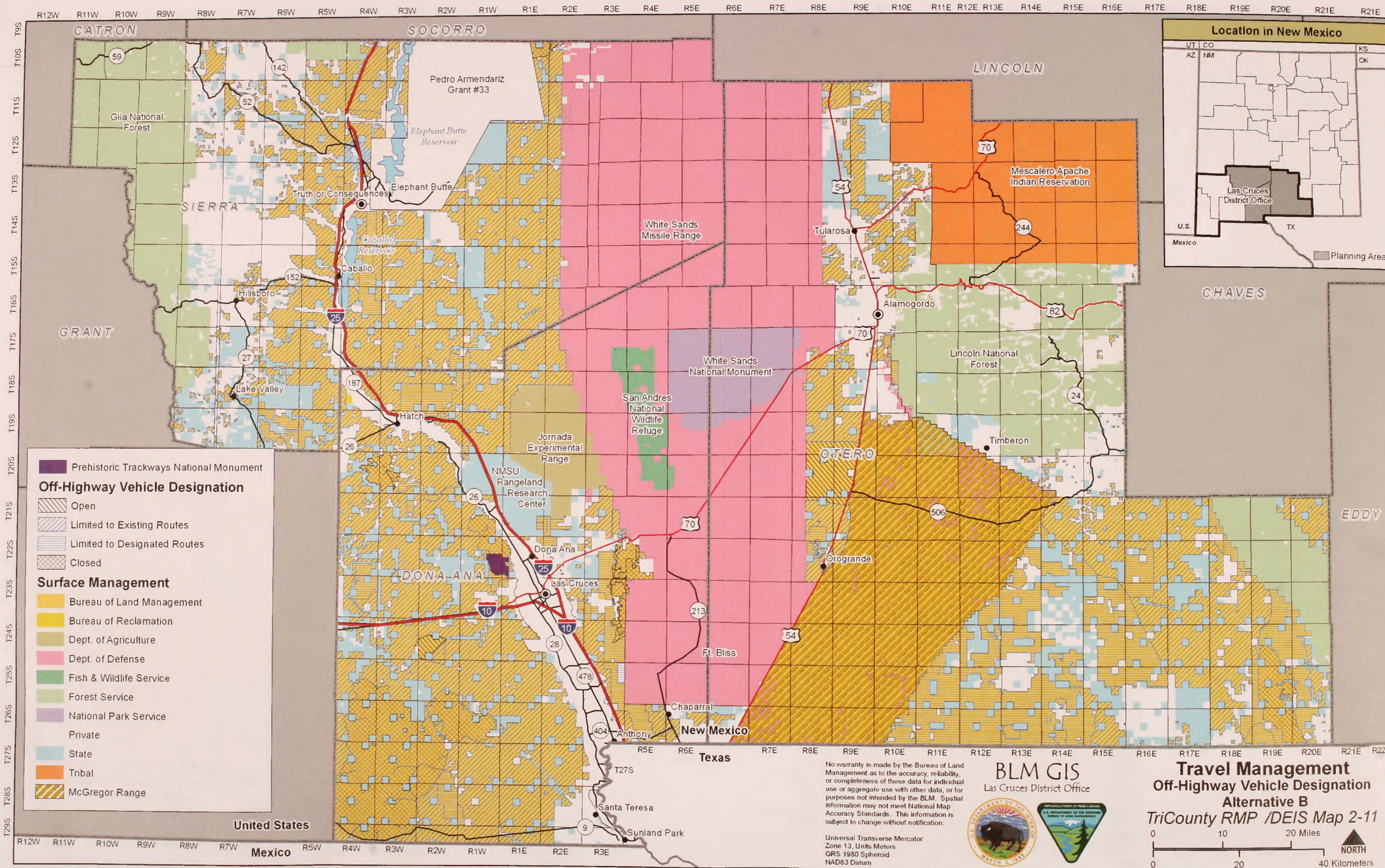



Travel Management
Off-Highway Vehicle Designation
Alternative A
TriCounty RMP /DEIS Map 2-10



Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAO83 Datum

United States
Mexico



Prehistoric Trackways National Monument

Off-Highway Vehicle Designation

- Open
- Limited to Existing Routes
- Limited to Designated Routes
- Closed

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum

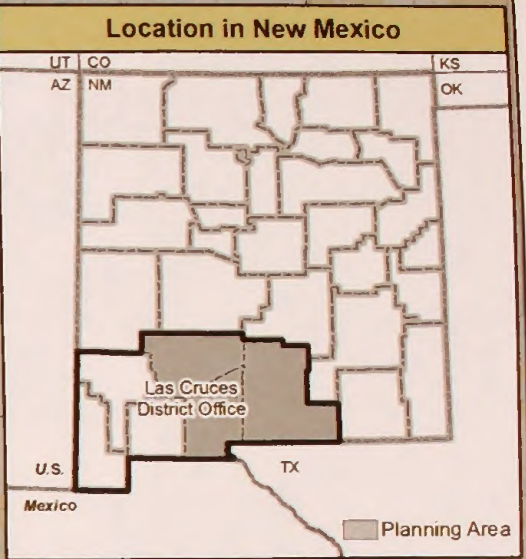
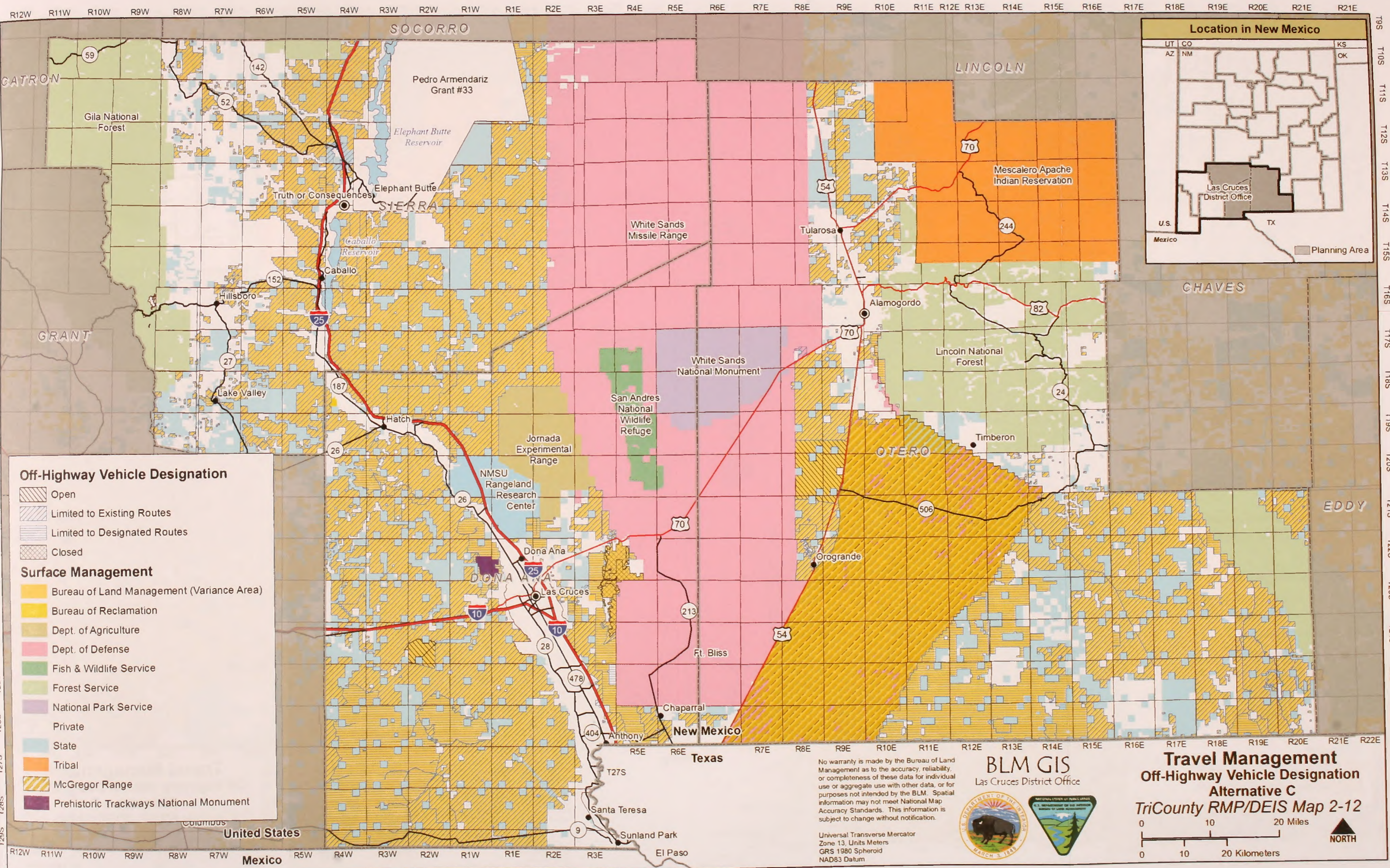


**Travel Management
Off-Highway Vehicle Designation
Alternative B
TriCounty RMP /DEIS Map 2-11**

0 10 20 Miles

0 20 40 Kilometers

NORTH



Off-Highway Vehicle Designation

- Open
- Limited to Existing Routes
- Limited to Designated Routes
- Closed

Surface Management

- Bureau of Land Management (Variance Area)
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range
- Prehistoric Trackways National Monument

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BLM GIS
Las Cruces District Office

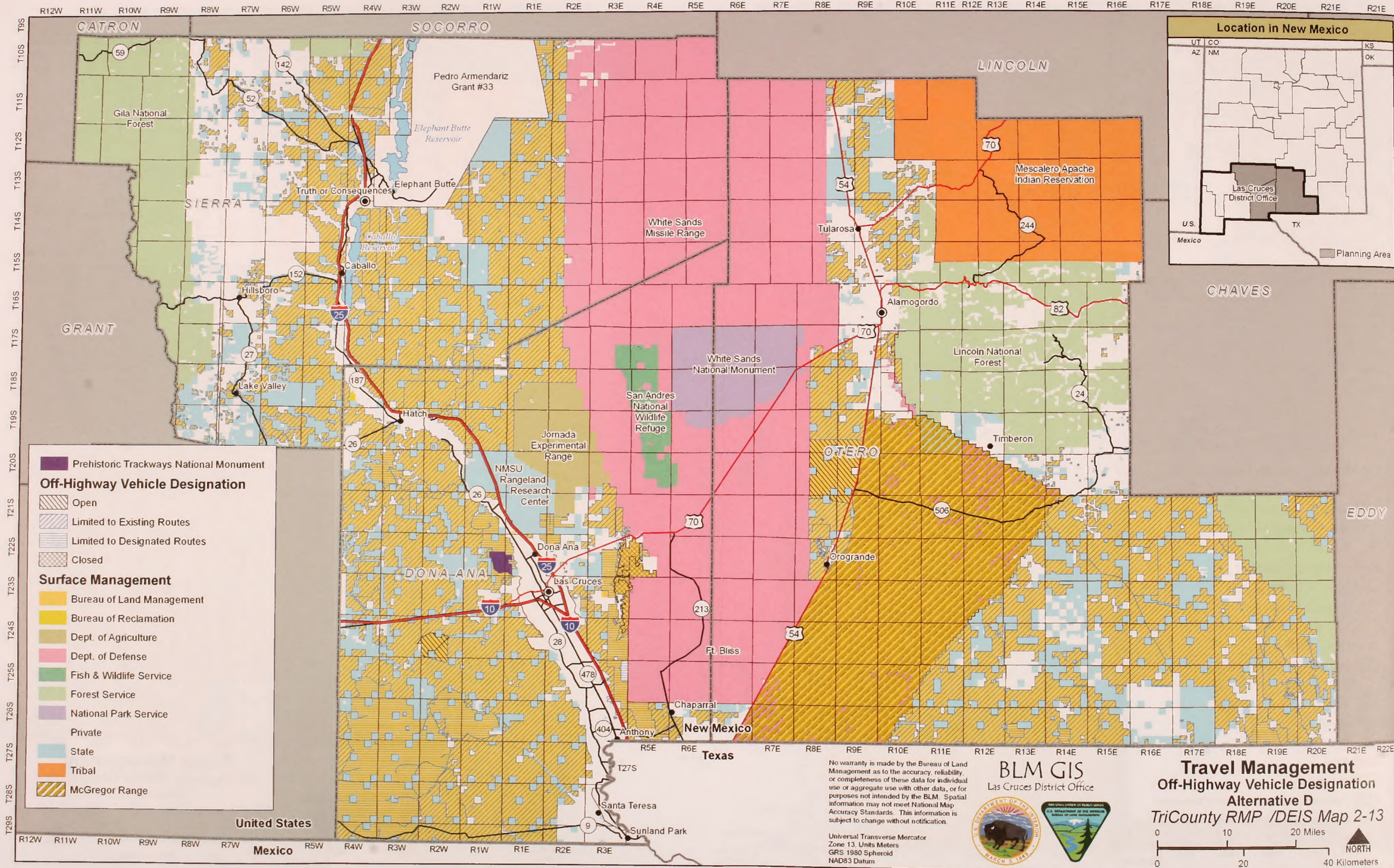
Travel Management
Off-Highway Vehicle Designation
Alternative C
TriCounty RMP/DEIS Map 2-12

0 10 20 Miles

0 10 20 Kilometers

NORTH

Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



Prehistoric Trackways National Monument

Off-Highway Vehicle Designation

- Open
- Limited to Existing Routes
- Limited to Designated Routes
- Closed

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum

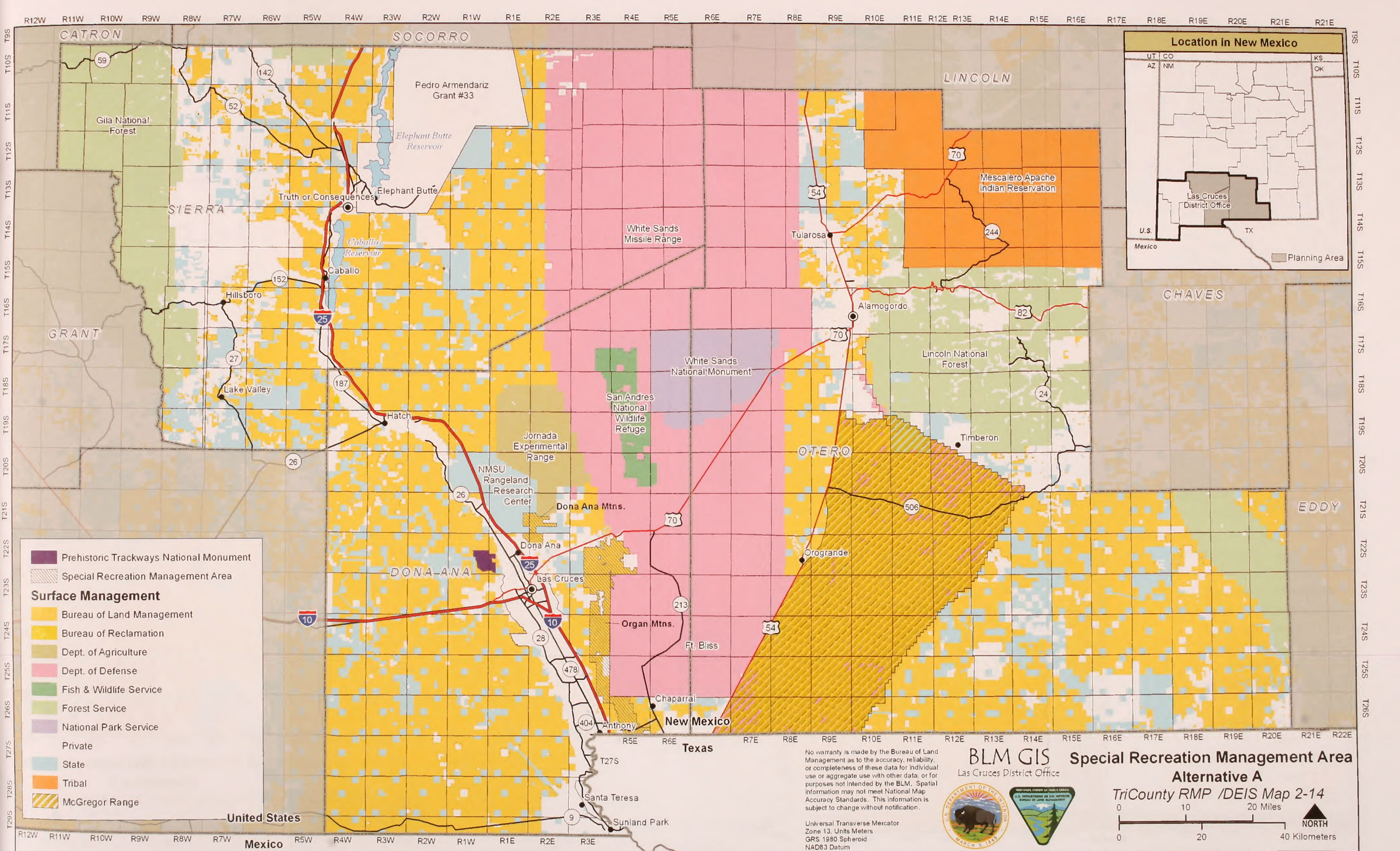


Travel Management
Off-Highway Vehicle Designation
Alternative D
TriCounty RMP /DEIS Map 2-13

0 10 20 Miles
0 20 40 Kilometers

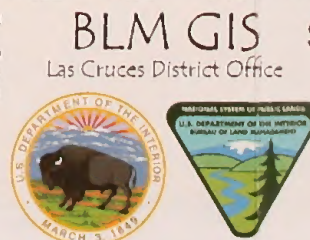
NORTH

United States
Mexico



- Prehistoric Trackways National Monument
- Special Recreation Management Area
- Surface Management**
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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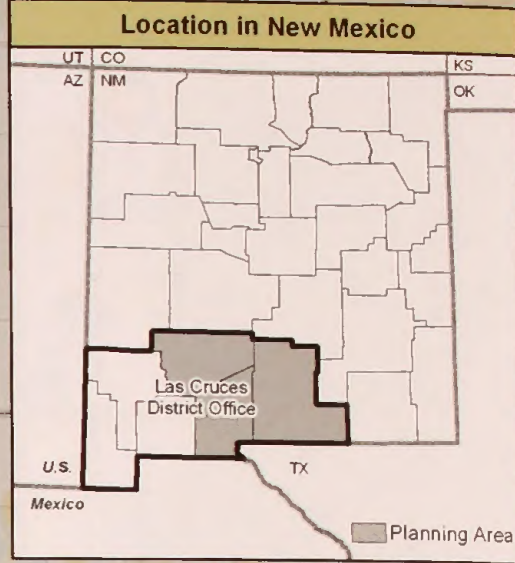
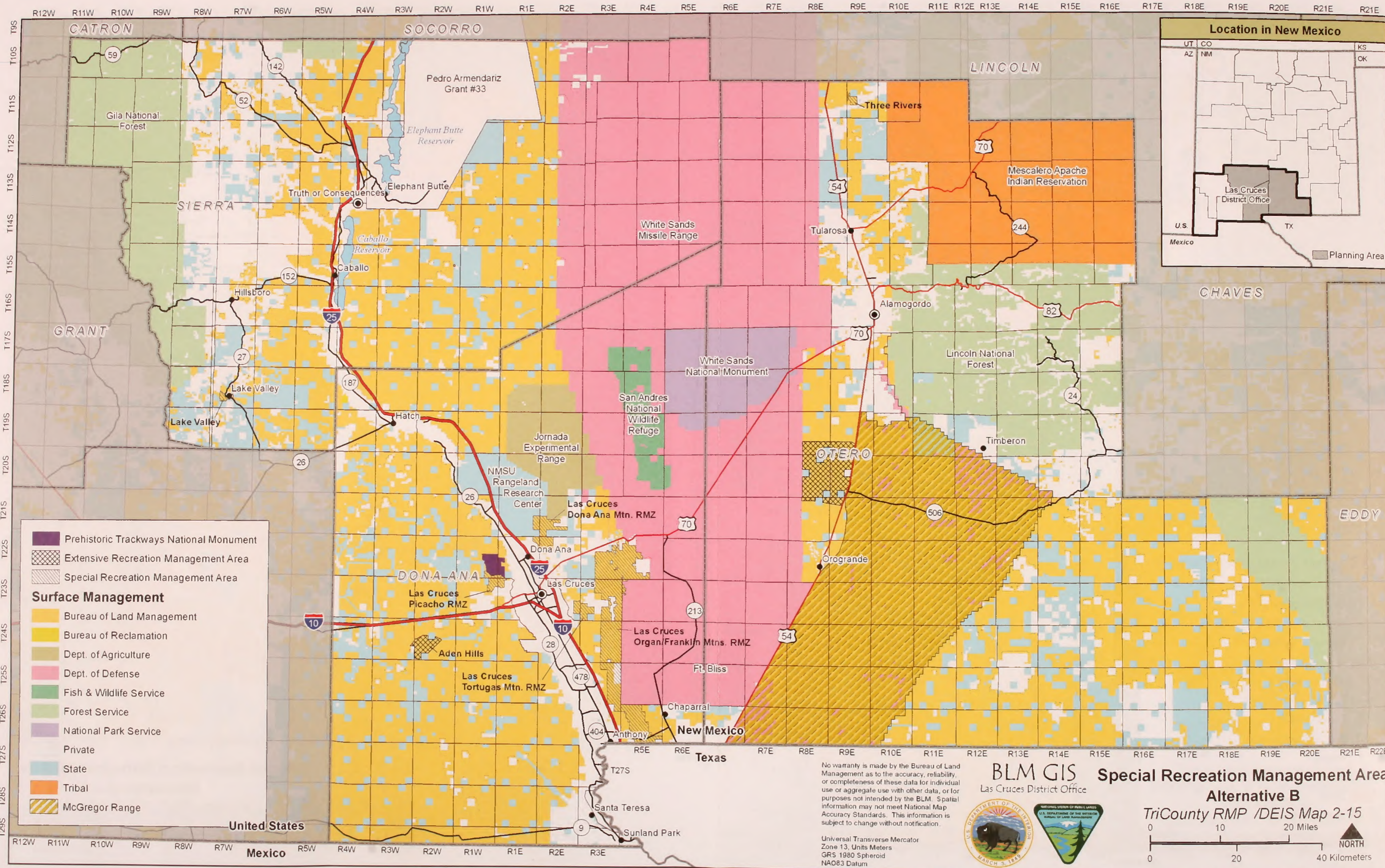
BLM GIS Special Recreation Management Area
Las Cruces District Office

Alternative A
TriCounty RMP /DEIS Map 2-14

0 10 20 Miles
0 20 40 Kilometers

NORTH

Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



Prehistoric Trackways National Monument

Extensive Recreation Management Area

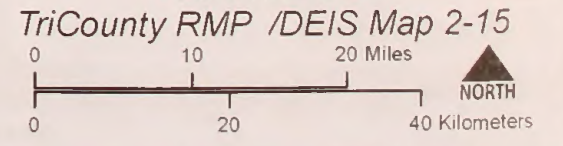
Special Recreation Management Area

Surface Management

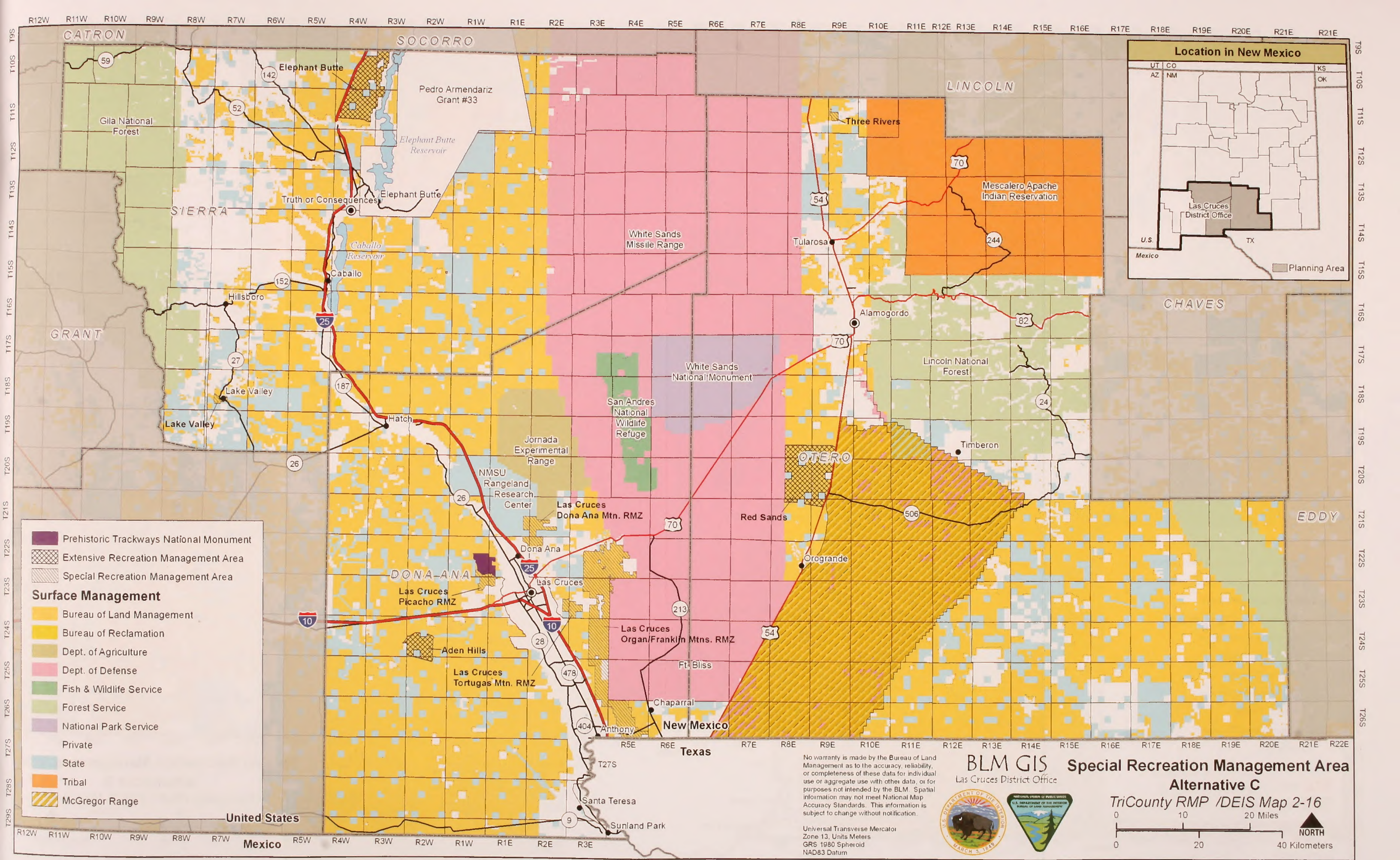
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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BLM GIS Special Recreation Management Area
 Las Cruces District Office
Alternative B



Universal Transverse Mercator
 Zone 13, Units Meters
 GRS 1980 Spheroid
 NAD83 Datum



- Prehistoric Trackways National Monument
 - Extensive Recreation Management Area
 - Special Recreation Management Area
- Surface Management**
- Bureau of Land Management
 - Bureau of Reclamation
 - Dept. of Agriculture
 - Dept. of Defense
 - Fish & Wildlife Service
 - Forest Service
 - National Park Service
 - Private
 - State
 - Tribal
 - McGregor Range

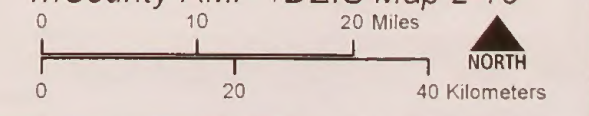


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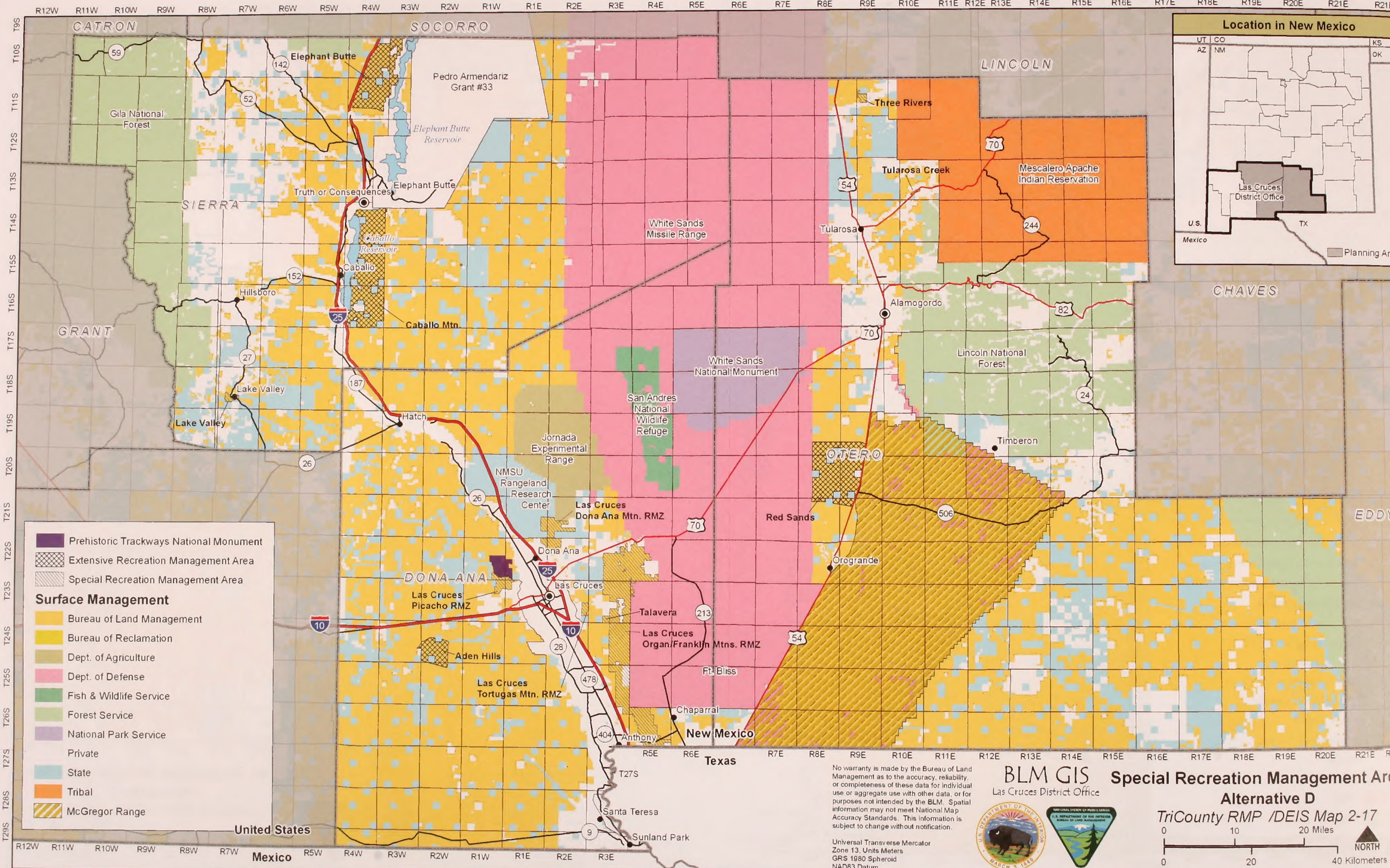
BLM GIS
Las Cruces District Office









**Special Recreation Management Area
Alternative C**

TriCounty RMP / DEIS Map 2-16



Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum

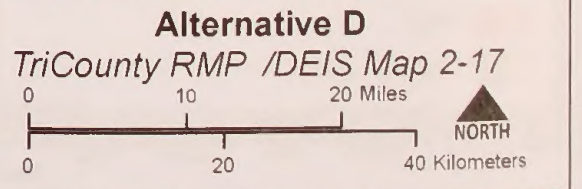


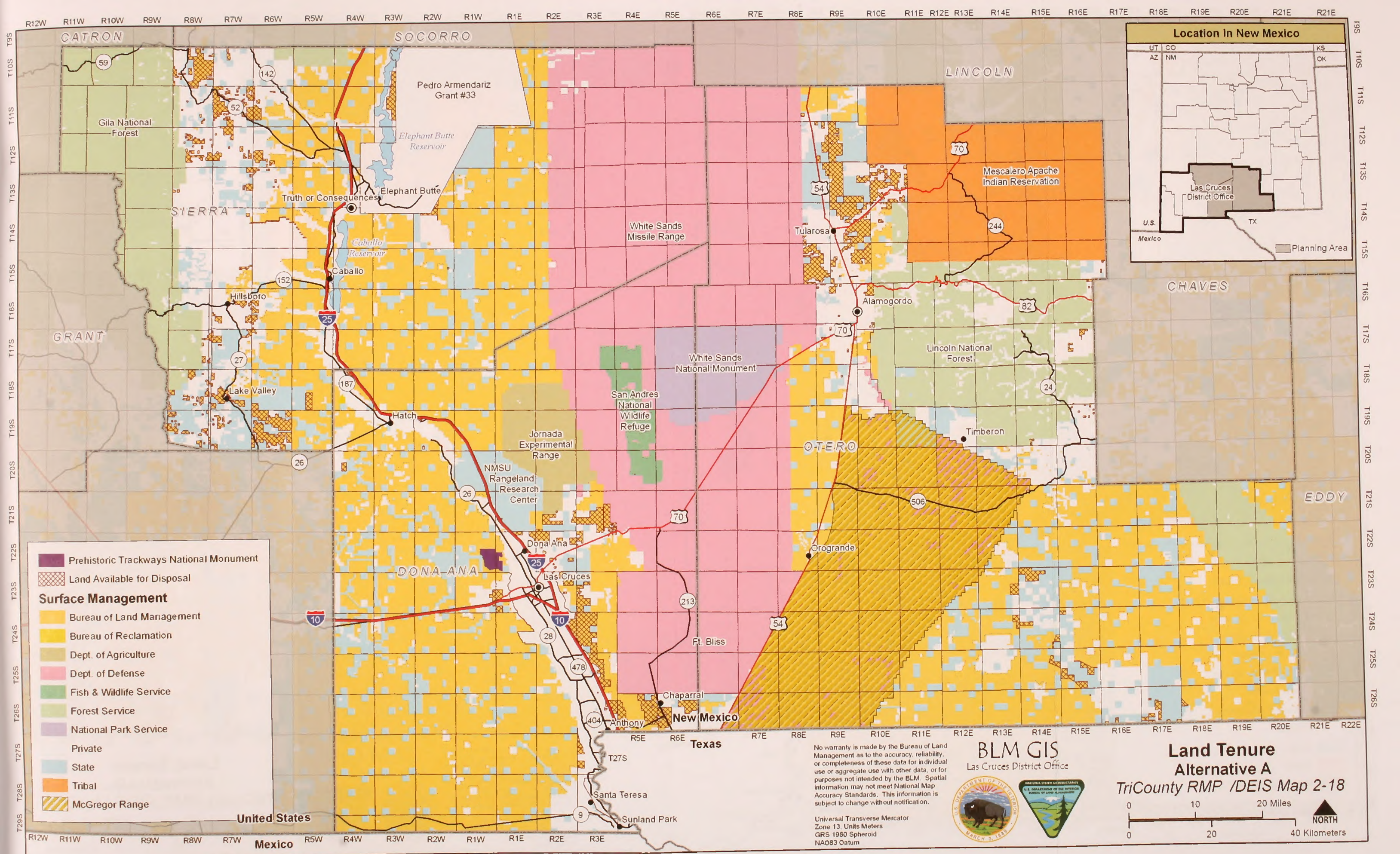
-  Prehistoric Trackways National Monument
 -  Extensive Recreation Management Area
 -  Special Recreation Management Area
- Surface Management**
-  Bureau of Land Management
 -  Bureau of Reclamation
 -  Dept. of Agriculture
 -  Dept. of Defense
 -  Fish & Wildlife Service
 -  Forest Service
 -  National Park Service
 -  Private
 -  State
 -  Tribal
 -  McGregor Range

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum

BLM GIS Special Recreation Management Area
Las Cruces District Office





Prehistoric Trackways National Monument

Land Available for Disposal

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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BLM GIS
Las Cruces District Office

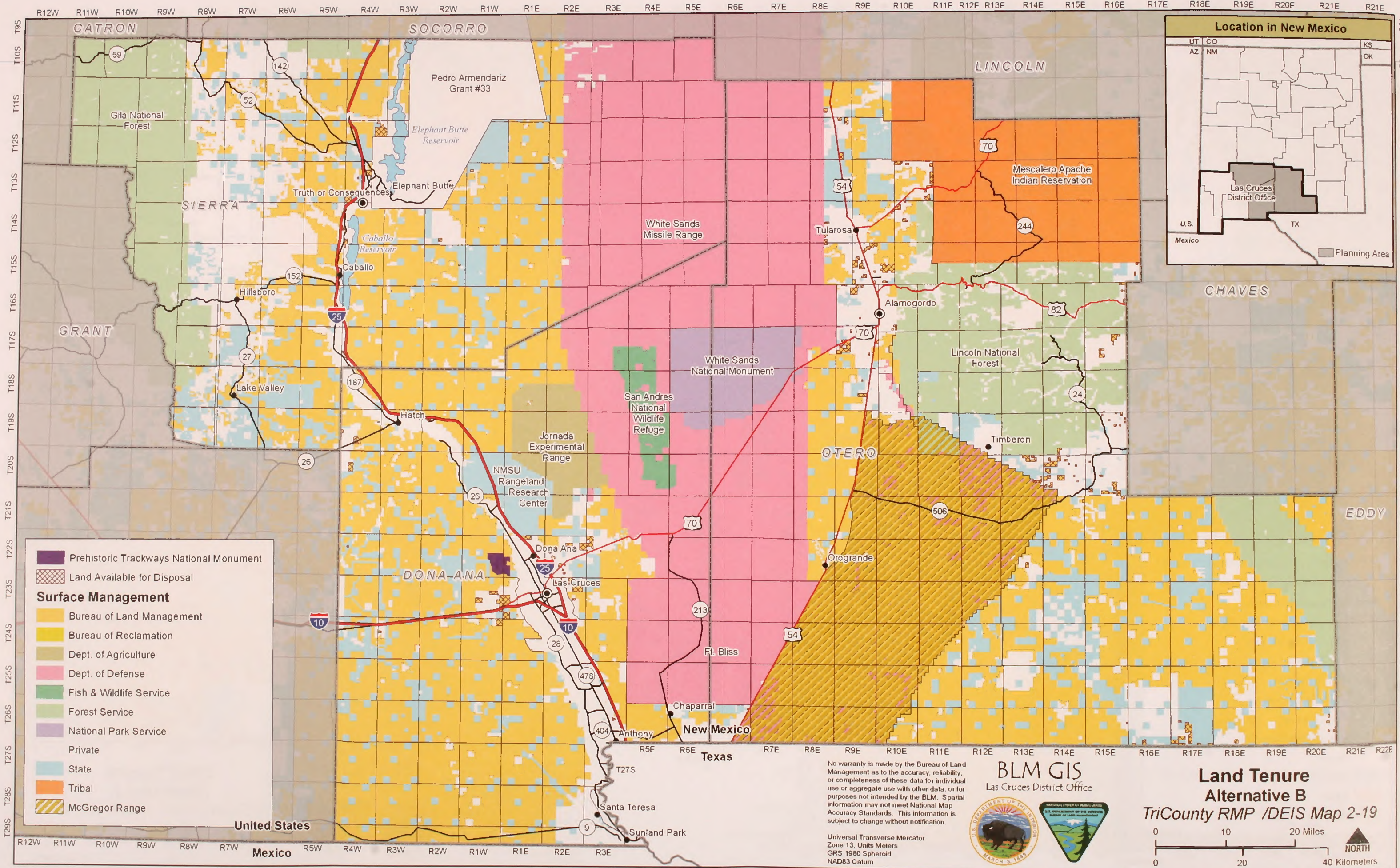
Land Tenure
Alternative A
TriCounty RMP /DEIS Map 2-18

0 10 20 Miles

0 20 40 Kilometers

NORTH

Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAO83 Datum



Prehistoric Trackways National Monument

Land Available for Disposal

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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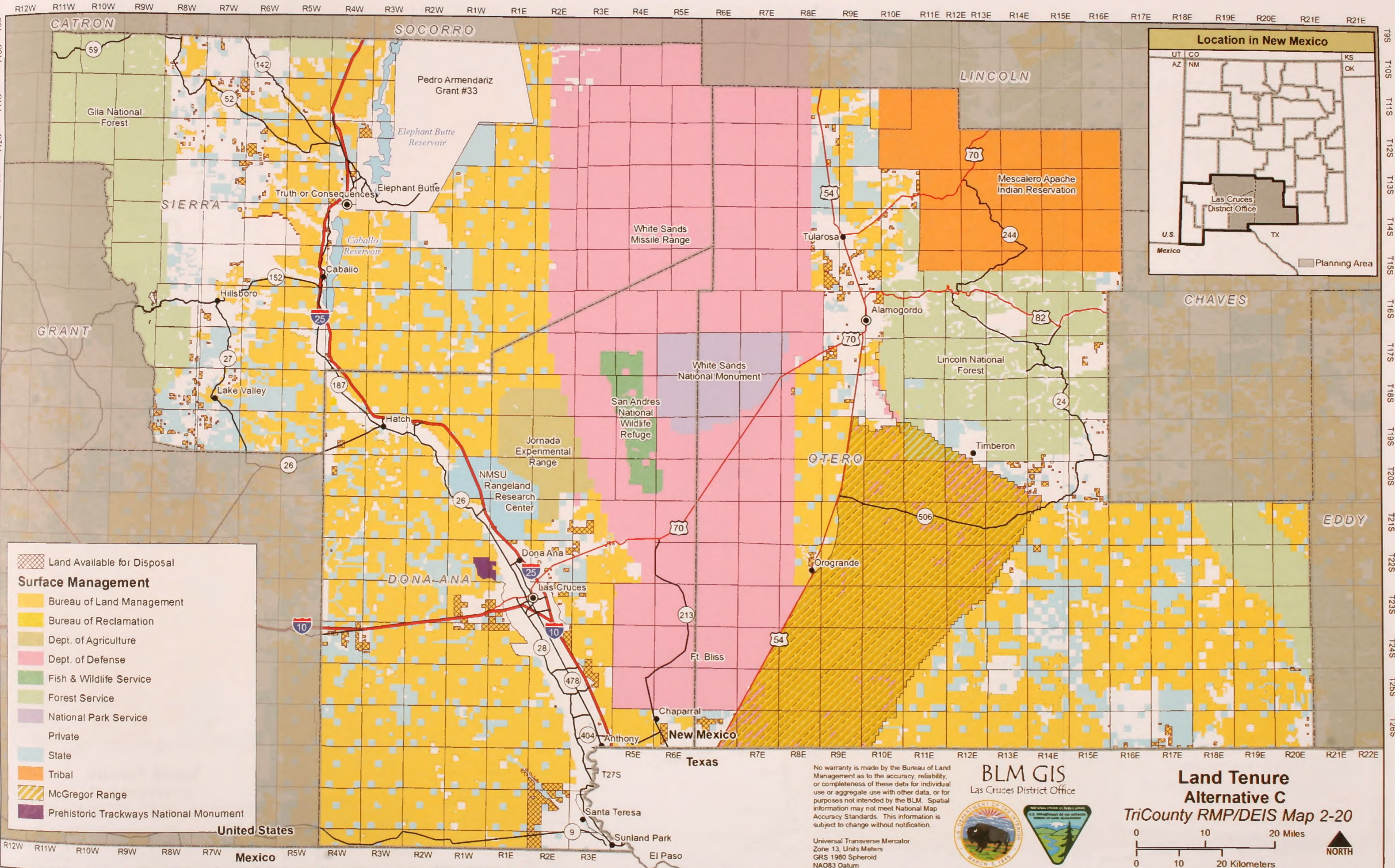
BLM GIS
Las Cruces District Office

Land Tenure Alternative B
TriCounty RMP /DEIS Map 2-19

0 10 20 Miles
0 20 40 Kilometers

NORTH

Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum

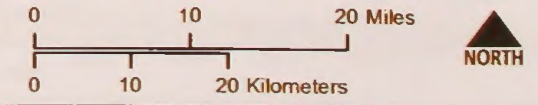


- Land Available for Disposal
- Surface Management**
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range
- Prehistoric Trackways National Monument

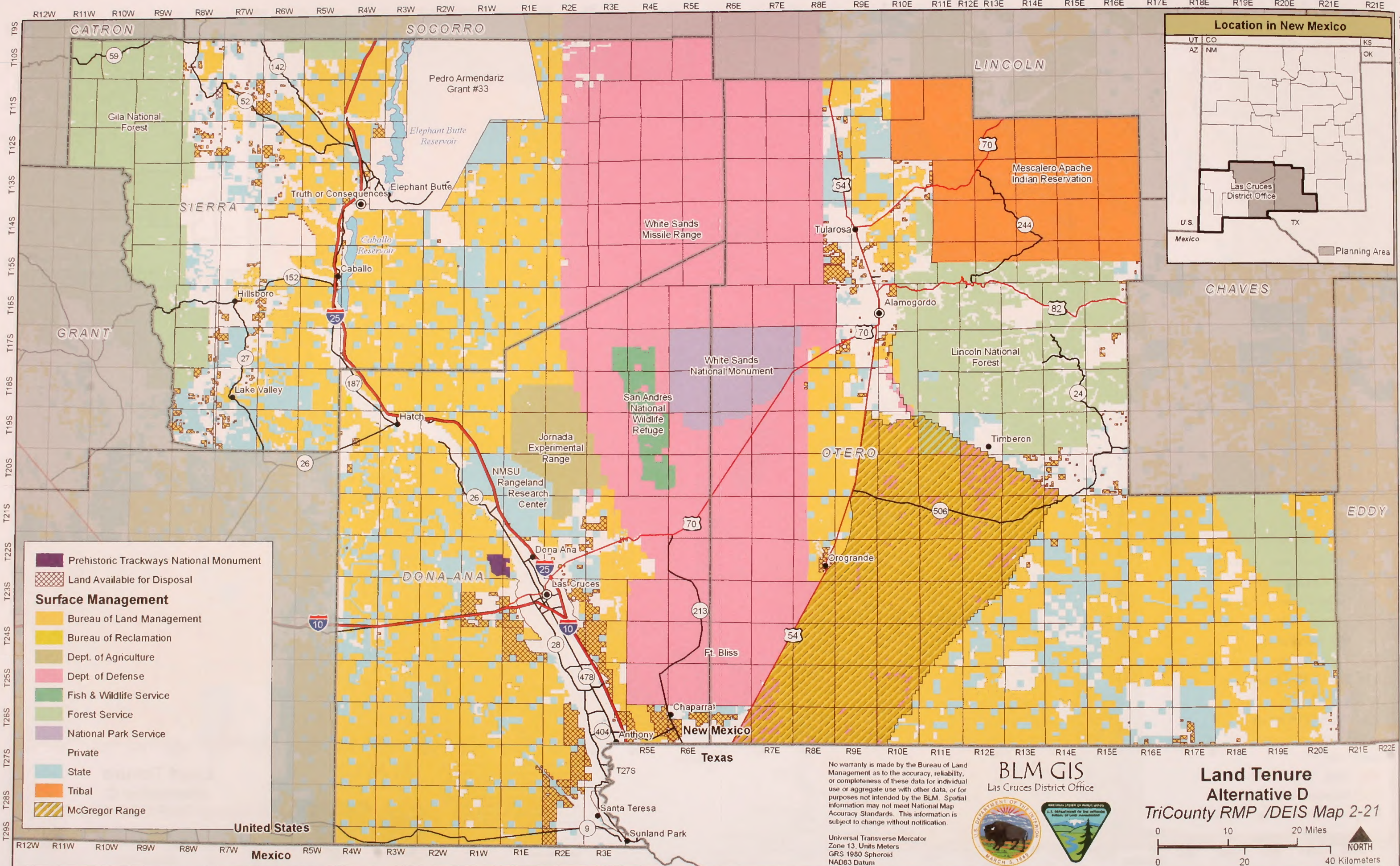
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Land Tenure Alternative C
TriCounty RMP/DEIS Map 2-20



Universal Transverse Mercator
 Zone 13, Units Meters
 GRS 1980 Spheroid
 NAD83 Datum



Prehistoric Trackways National Monument

Land Available for Disposal

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

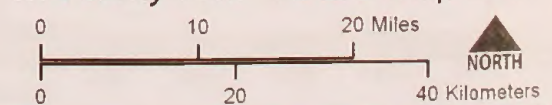
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by the BLM. Spatial information may not meet National Map Accuracy Standards. This information is subject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

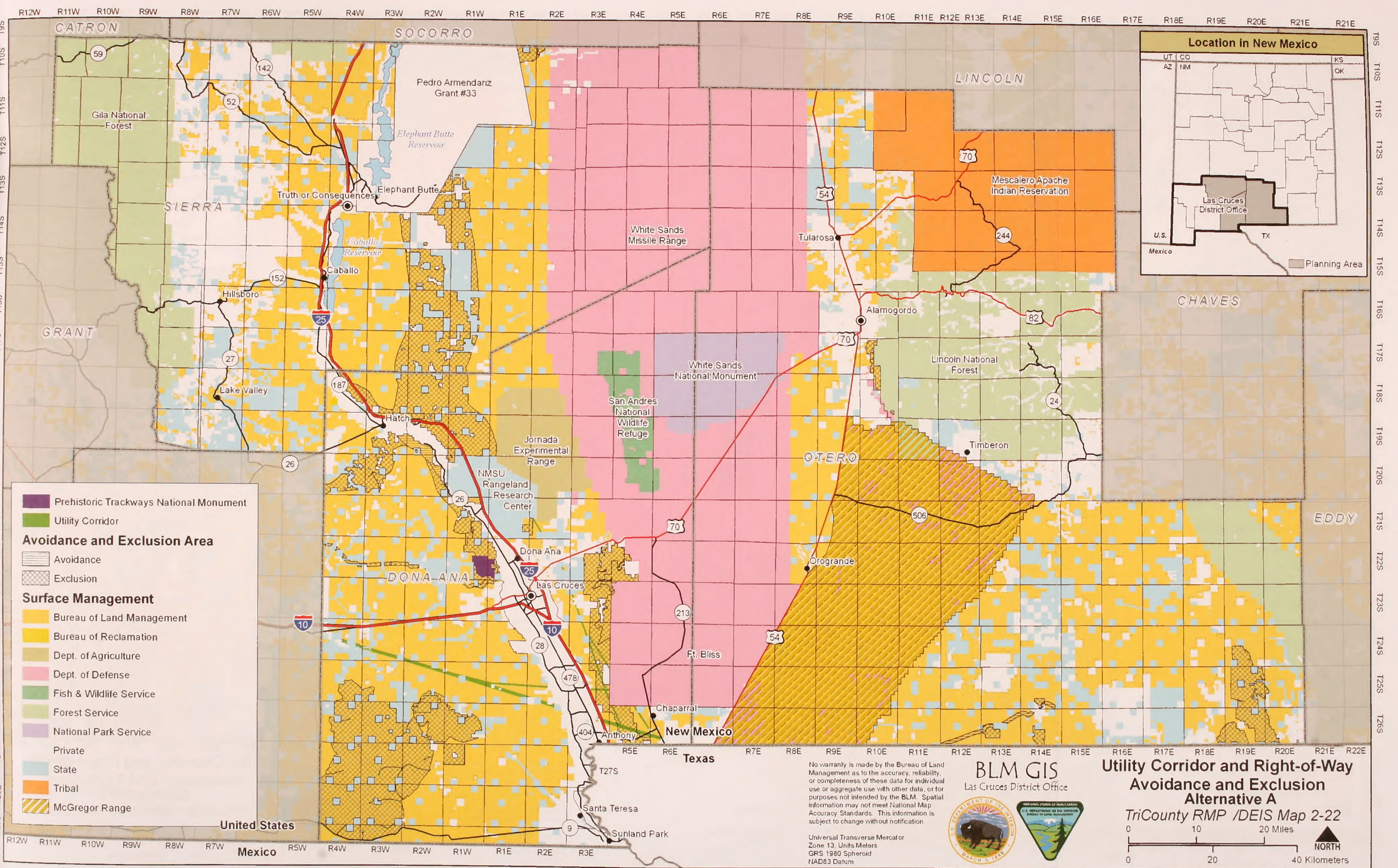
BLM GIS
Las Cruces District Office



Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum

**Land Tenure
Alternative D**
TriCounty RMP /DEIS Map 2-21





Prehistoric Trackways National Monument

Utility Corridor

Avoidance and Exclusion Area

- Avoidance
- Exclusion

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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Universal Transverse Mercator
Zone 13, Units: Meters
GRS 1980 Spheroid
NAD83 Datum



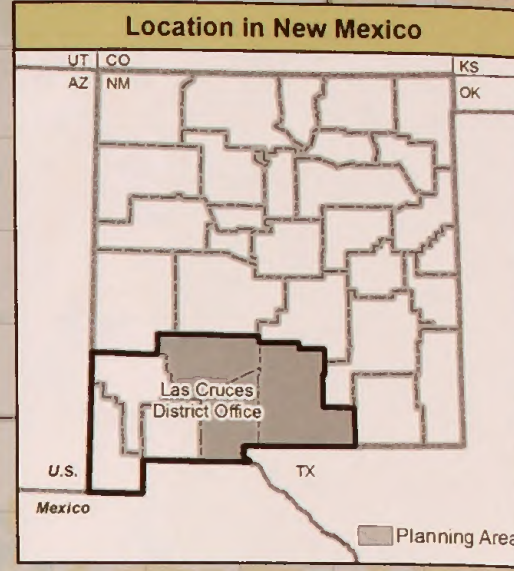
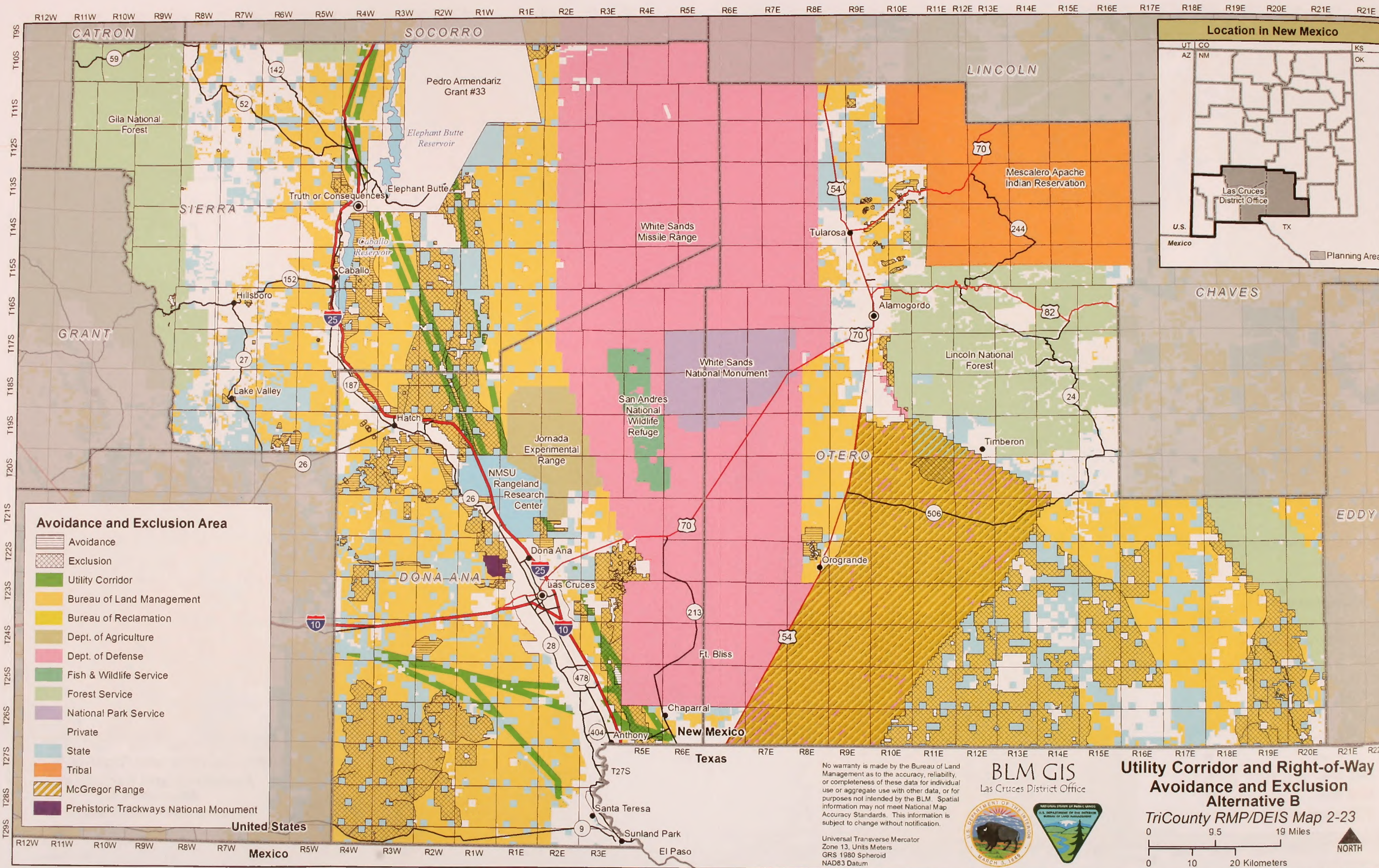
Utility Corridor and Right-of-Way Avoidance and Exclusion Alternative A

TriCounty RMP / DEIS Map 2-22

0 10 20 Miles

0 20 40 Kilometers

NORTH

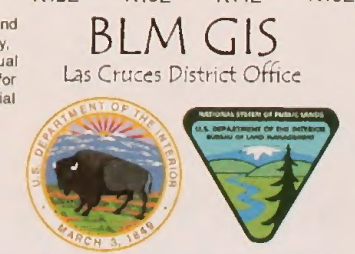


Avoidance and Exclusion Area

- Avoidance
- Exclusion
- Utility Corridor
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range
- Prehistoric Trackways National Monument

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum

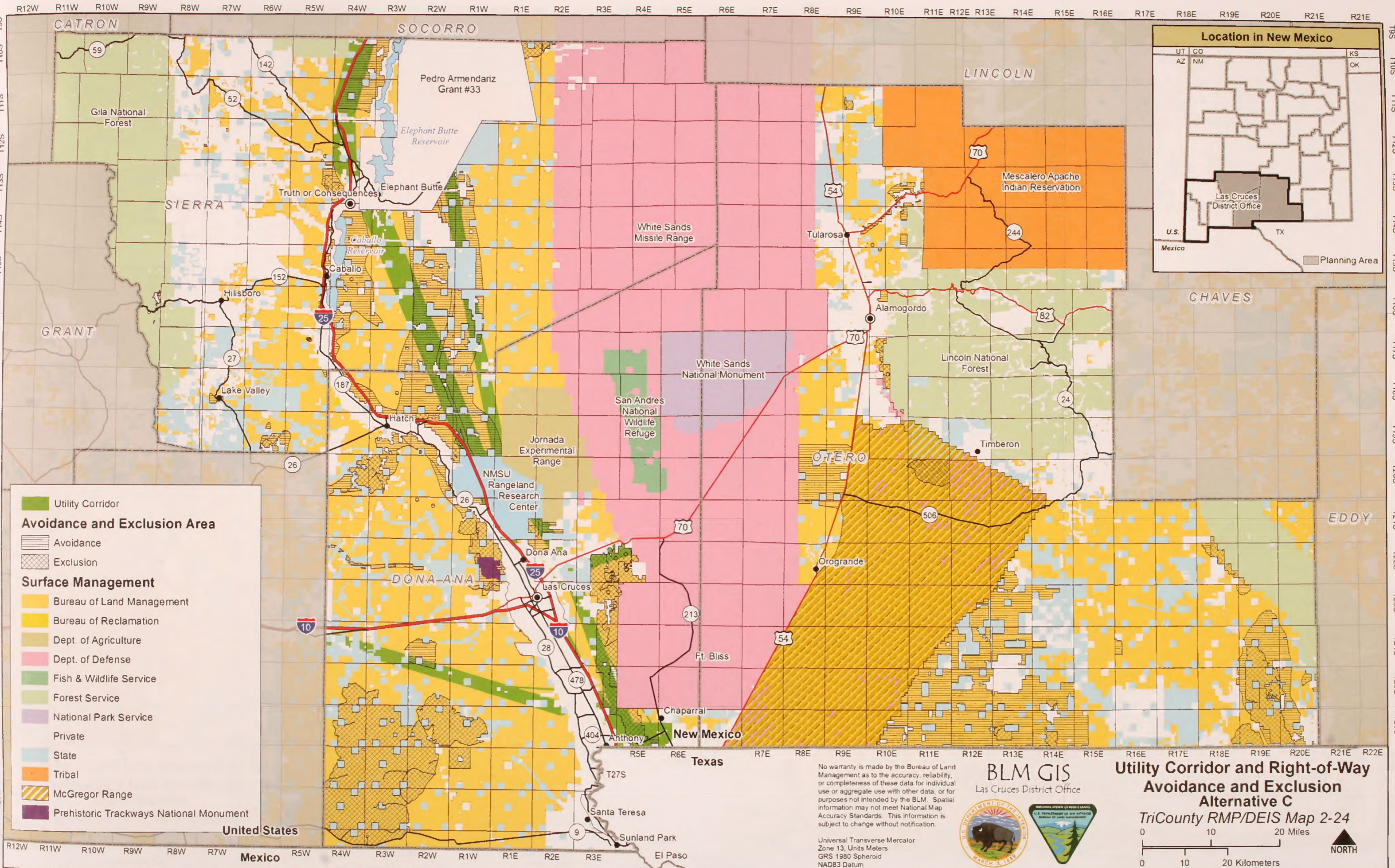


Utility Corridor and Right-of-Way Avoidance and Exclusion Alternative B
TriCounty RMP/DEIS Map 2-23

0 9.5 19 Miles

0 10 20 Kilometers

NORTH



- Utility Corridor
- Avoidance and Exclusion Area**
- Avoidance
- Exclusion
- Surface Management**
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range
- Prehistoric Trackways National Monument

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



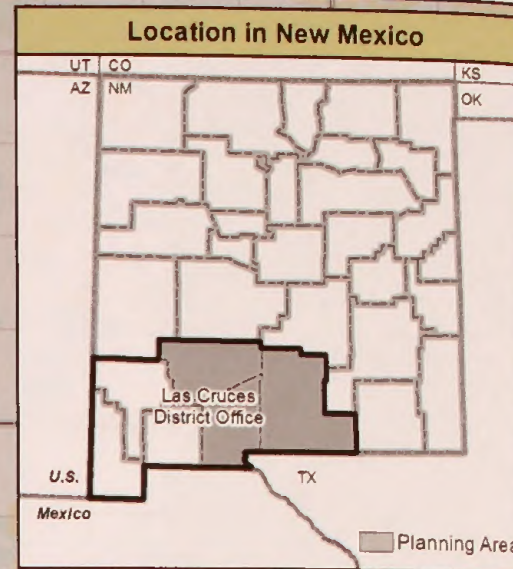
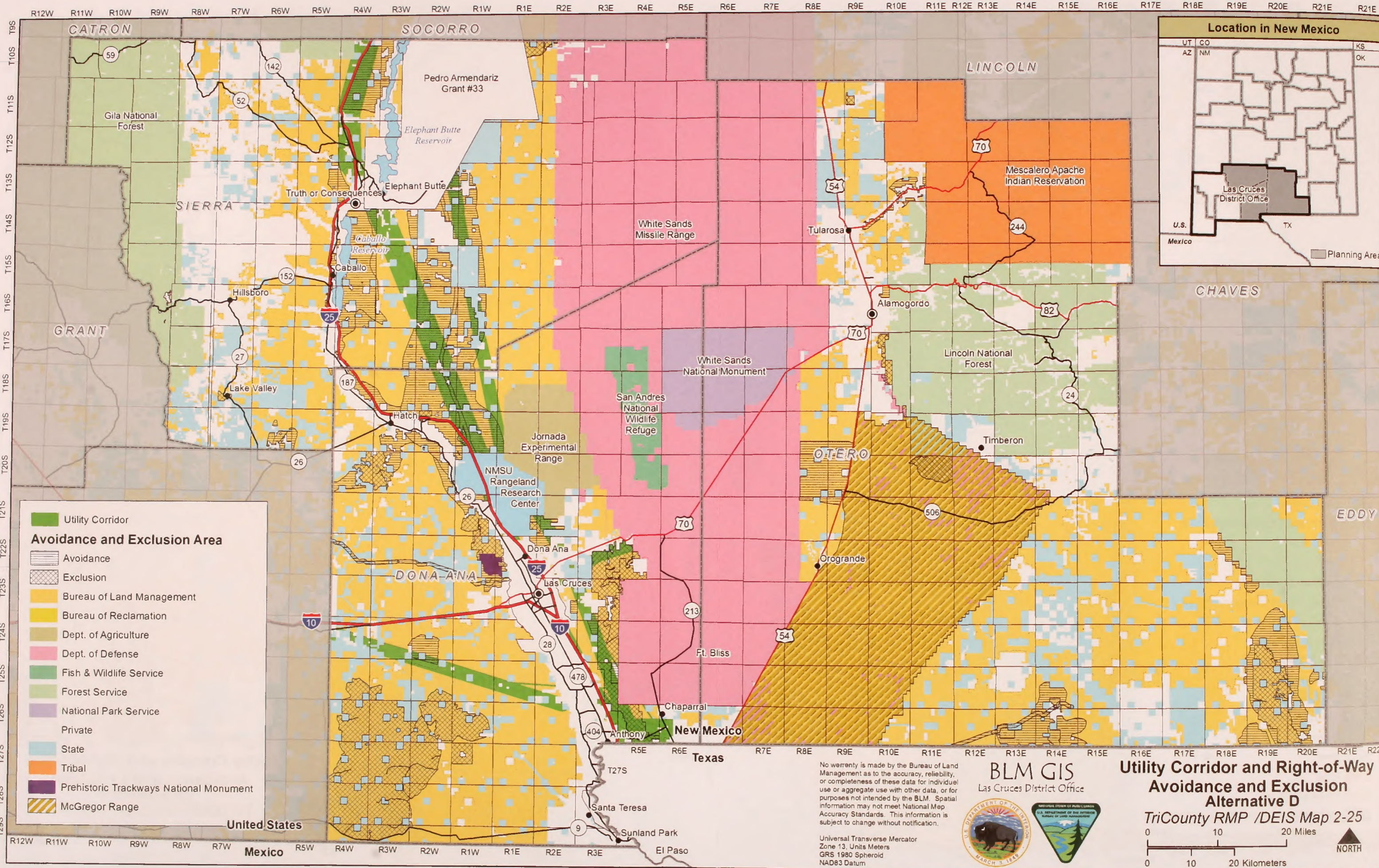
Utility Corridor and Right-of-Way Avoidance and Exclusion Alternative C

TriCounty RMP/DEIS Map 2-24

0 10 20 Miles

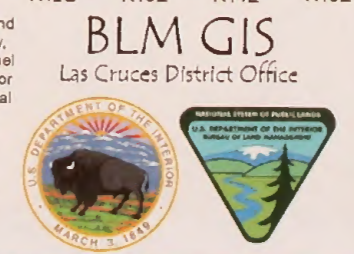
0 10 20 Kilometers

NORTH



- Utility Corridor
- Avoidance and Exclusion Area**
- Avoidance
- Exclusion
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- Prehistoric Trackways National Monument
- McGregor Range

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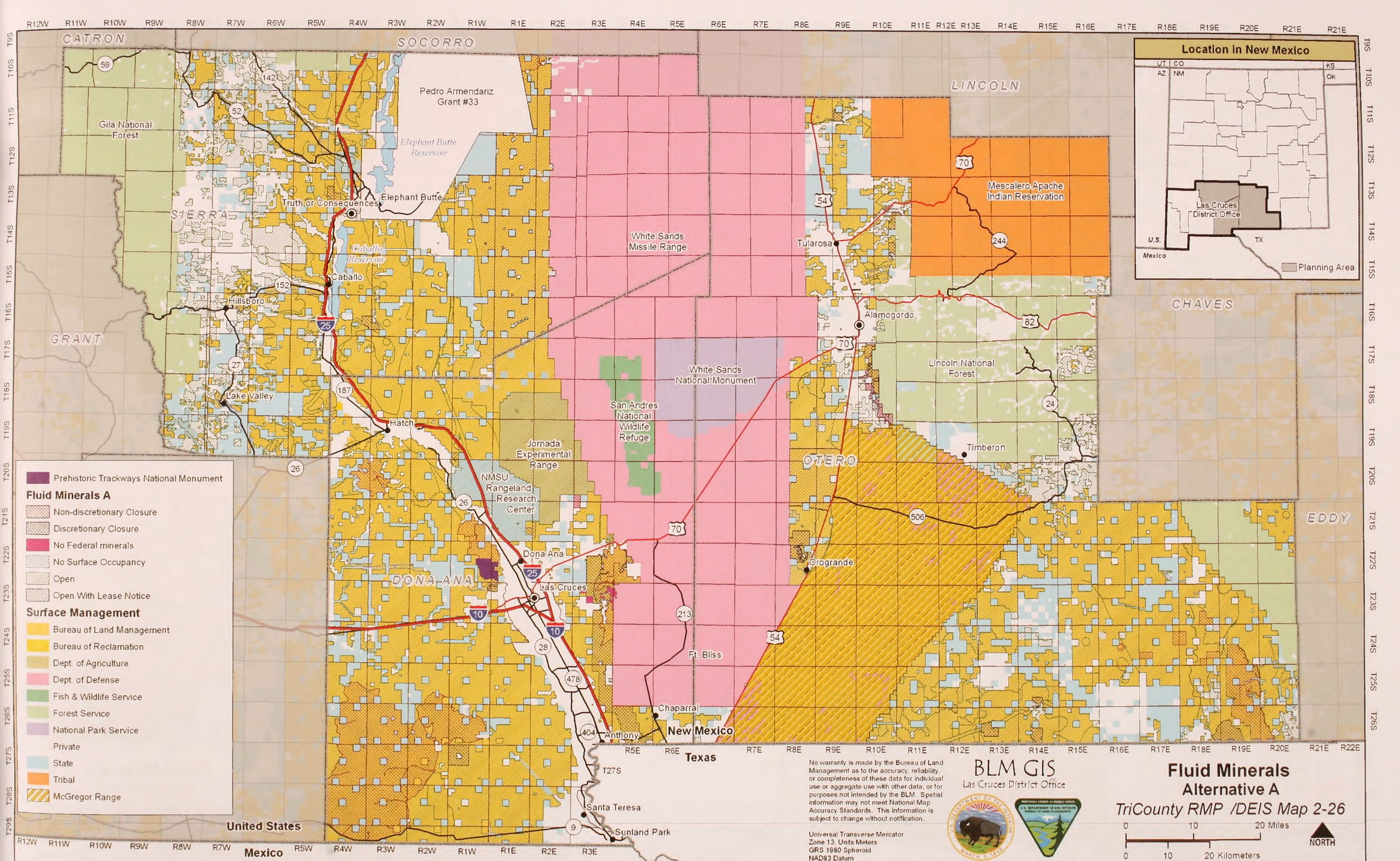


Utility Corridor and Right-of-Way Avoidance and Exclusion Alternative D
TriCounty RMP /DEIS Map 2-25

0 10 20 Miles
 0 10 20 Kilometers

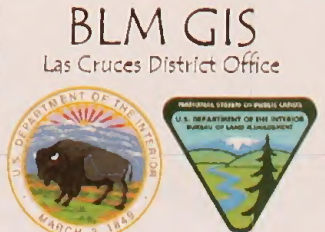
NORTH

Universal Transverse Mercator
 Zone 13, Units Meters
 GRS 1980 Spheroid
 NAD83 Datum

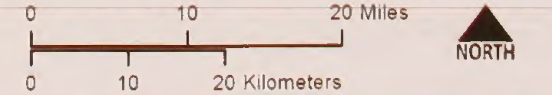


- Prehistoric Trackways National Monument
- Fluid Minerals A**
- Non-discretionary Closure
- Discretionary Closure
- No Federal minerals
- No Surface Occupancy
- Open
- Open With Lease Notice
- Surface Management**
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

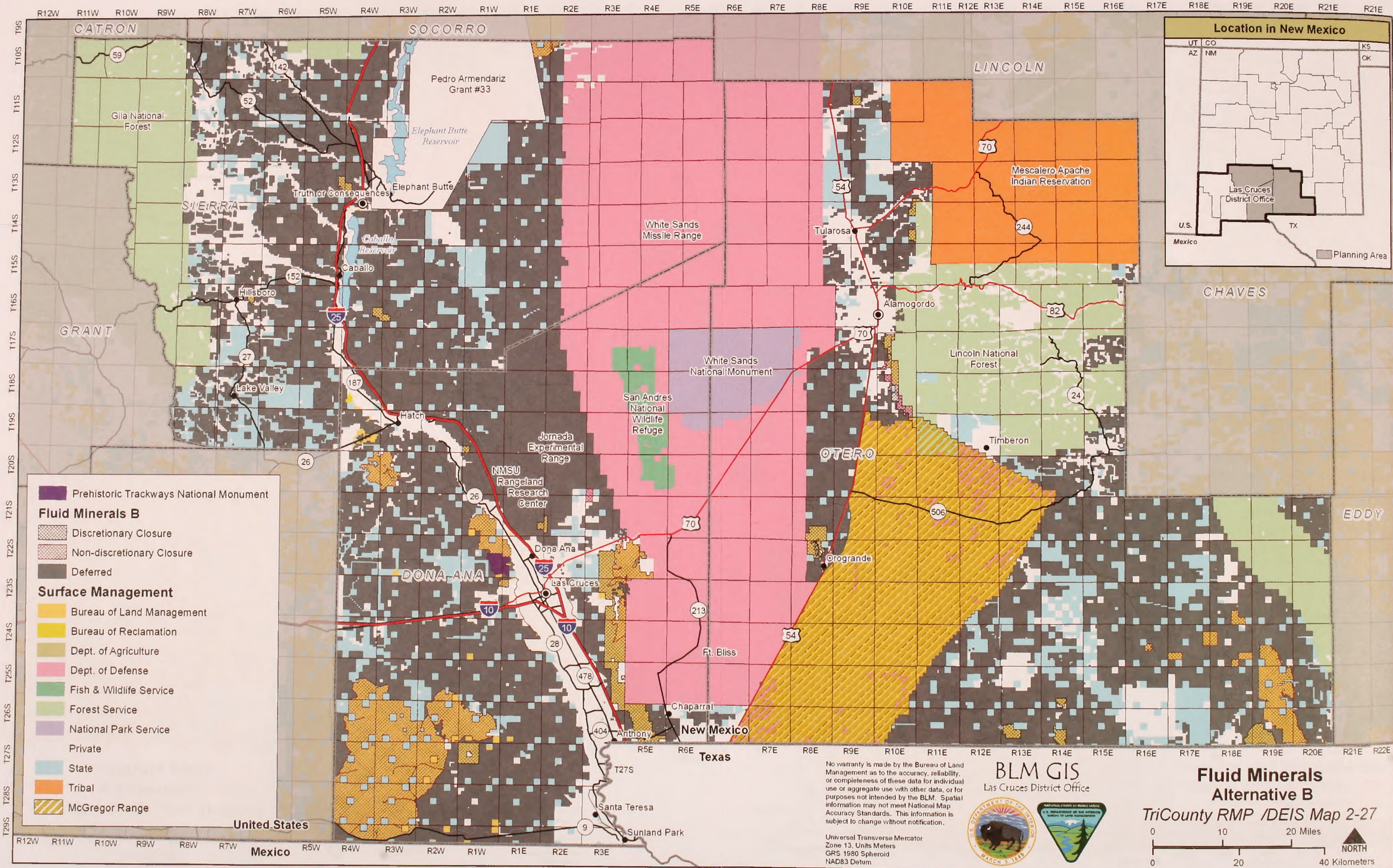
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Fluid Minerals Alternative A
TriCounty RMP / DEIS Map 2-26



Universal Transverse Mercator
 Zone 13, Units Meters
 GRS 1980 Spheroid
 NAD83 Datum



Prehistoric Trackways National Monument

Fluid Minerals B

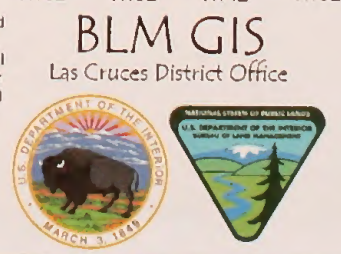
- Discretionary Closure
- Non-discretionary Closure
- Deferred

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



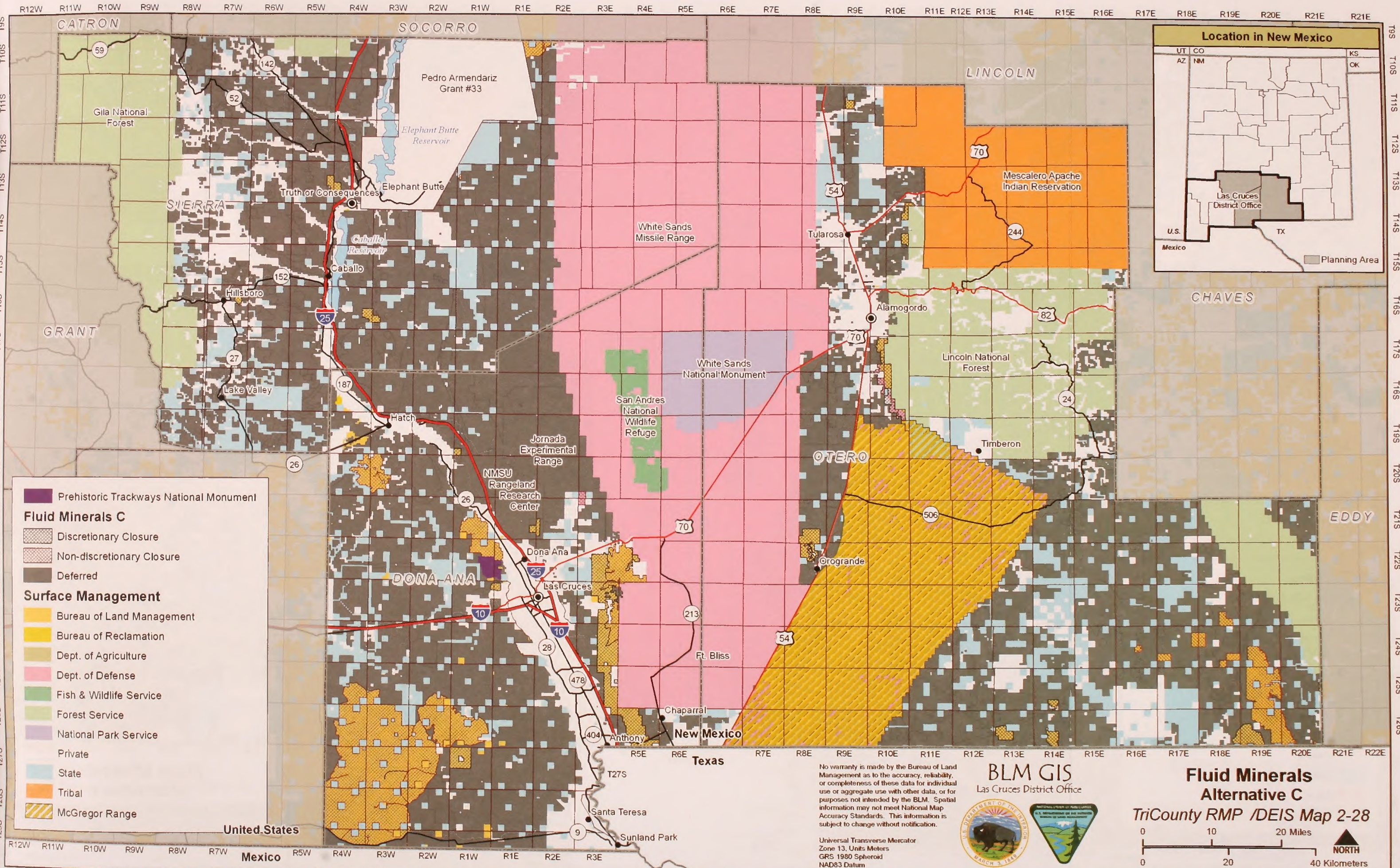
Fluid Minerals Alternative B

TriCounty RMP /DEIS Map 2-27

0 10 20 Miles

0 20 40 Kilometers

NORTH



Prehistoric Trackways National Monument

Fluid Minerals C

- Discretionary Closure
- Non-discretionary Closure
- Deferred

Surface Management

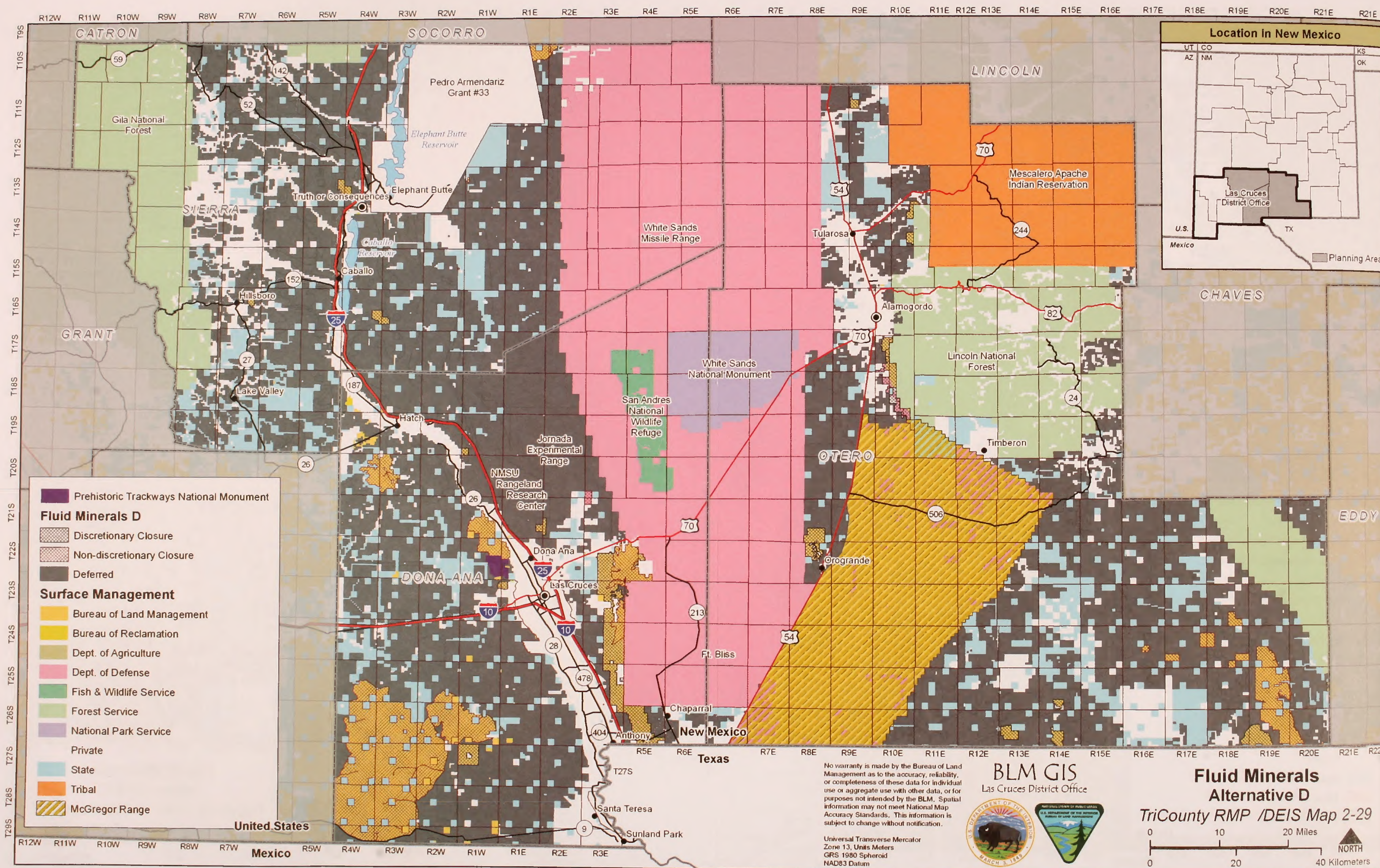
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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BLM GIS
Las Cruces District Office

Fluid Minerals Alternative C
TriCounty RMP /DEIS Map 2-28

Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



- Prehistoric Trackways National Monument
- Fluid Minerals D**
- Discretionary Closure
- Non-discretionary Closure
- Deferred
- Surface Management**
- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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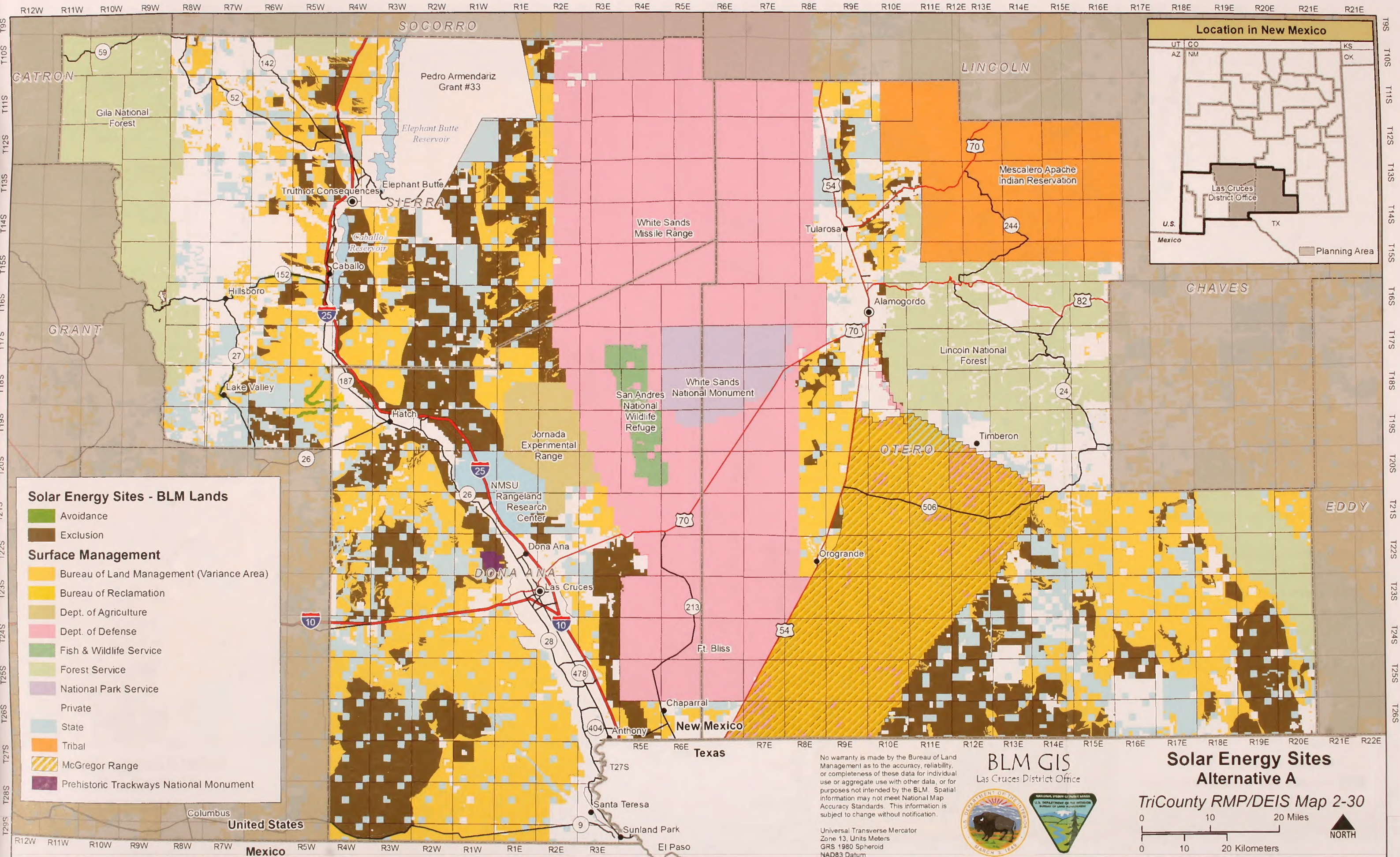
Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



Fluid Minerals Alternative D
TriCounty RMP /DEIS Map 2-29

0 10 20 Miles
0 20 40 Kilometers

NORTH



Solar Energy Sites - BLM Lands

- Avoidance
- Exclusion

Surface Management

- Bureau of Land Management (Variance Area)
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range
- Prehistoric Trackways National Monument

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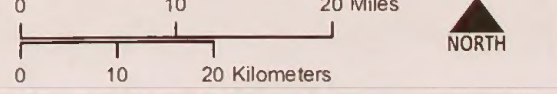
BLM GIS
Las Cruces District Office

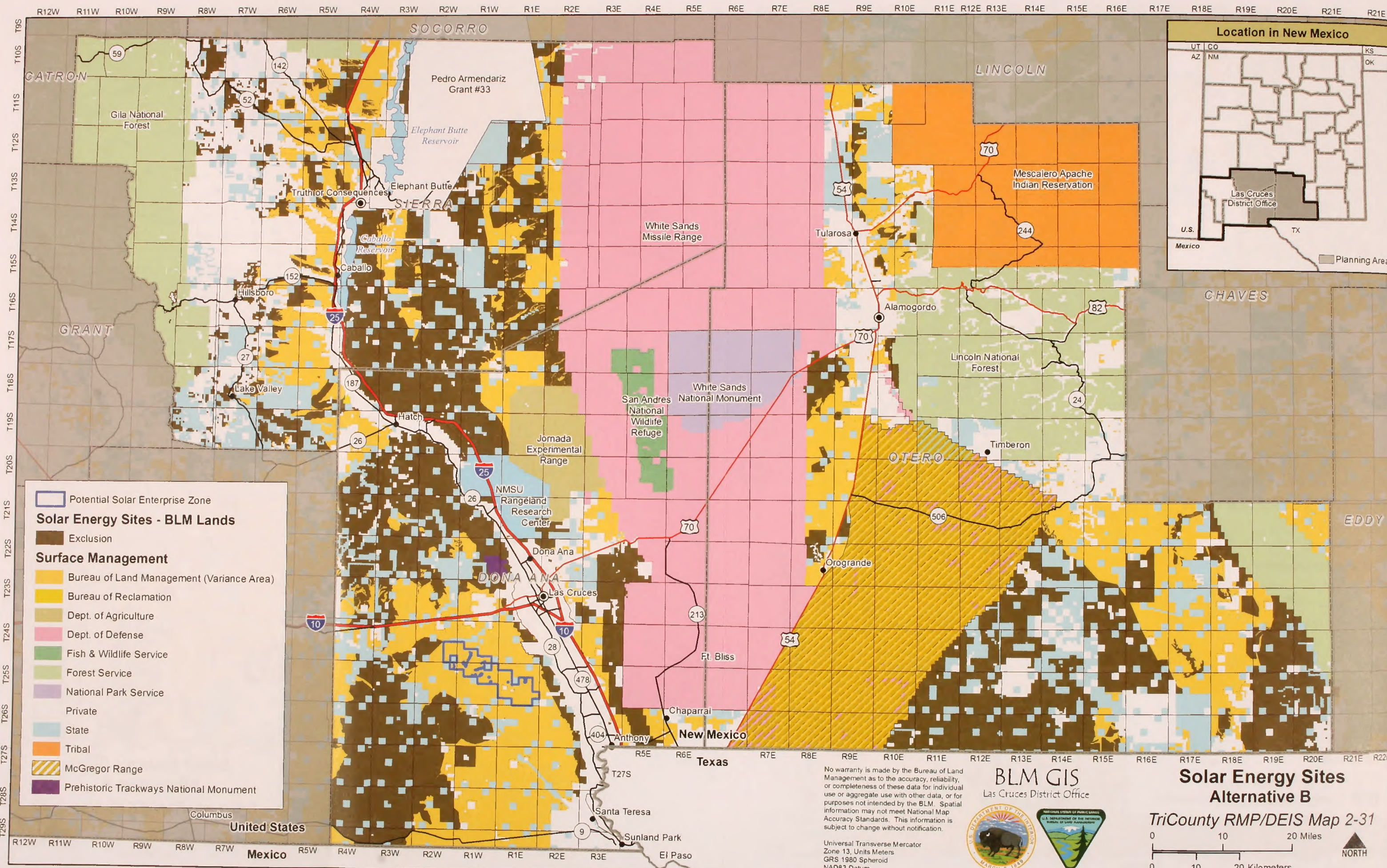


Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum

**Solar Energy Sites
Alternative A**

TriCounty RMP/DEIS Map 2-30





Potential Solar Enterprise Zone

Solar Energy Sites - BLM Lands

- Exclusion

Surface Management

- Bureau of Land Management (Variance Area)
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range
- Prehistoric Trackways National Monument

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BLM GIS
Las Cruces District Office

Solar Energy Sites
Alternative B

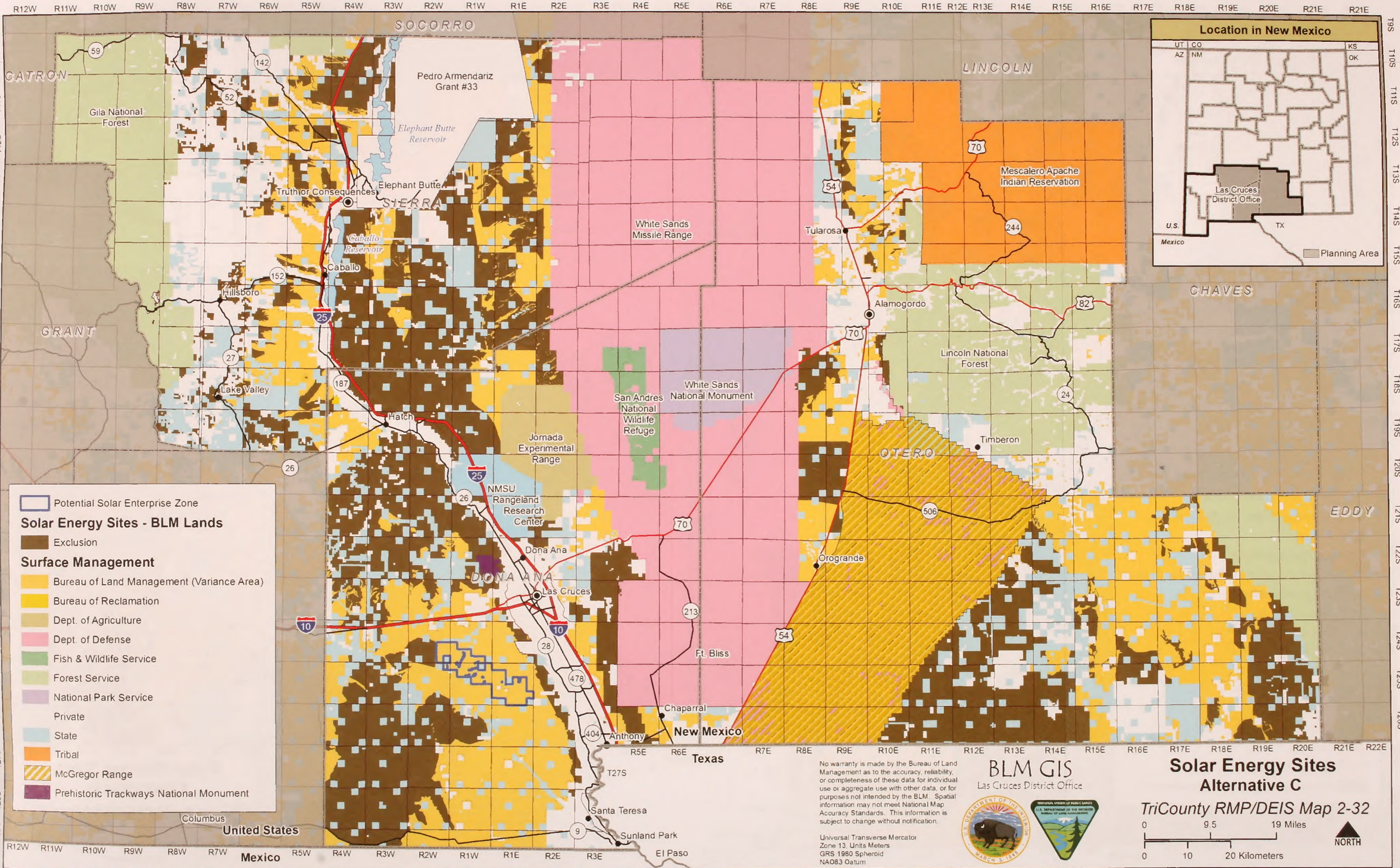
TriCounty RMP/DEIS Map 2-31

0 10 20 Miles

0 10 20 Kilometers

NORTH

Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



Potential Solar Enterprise Zone

Solar Energy Sites - BLM Lands

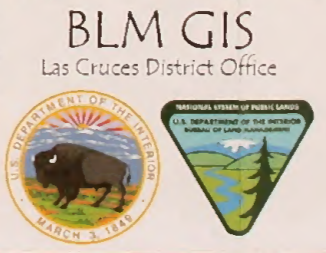
- Exclusion

Surface Management

- Bureau of Land Management (Variance Area)
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range
- Prehistoric Trackways National Monument

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NA083 Oatium



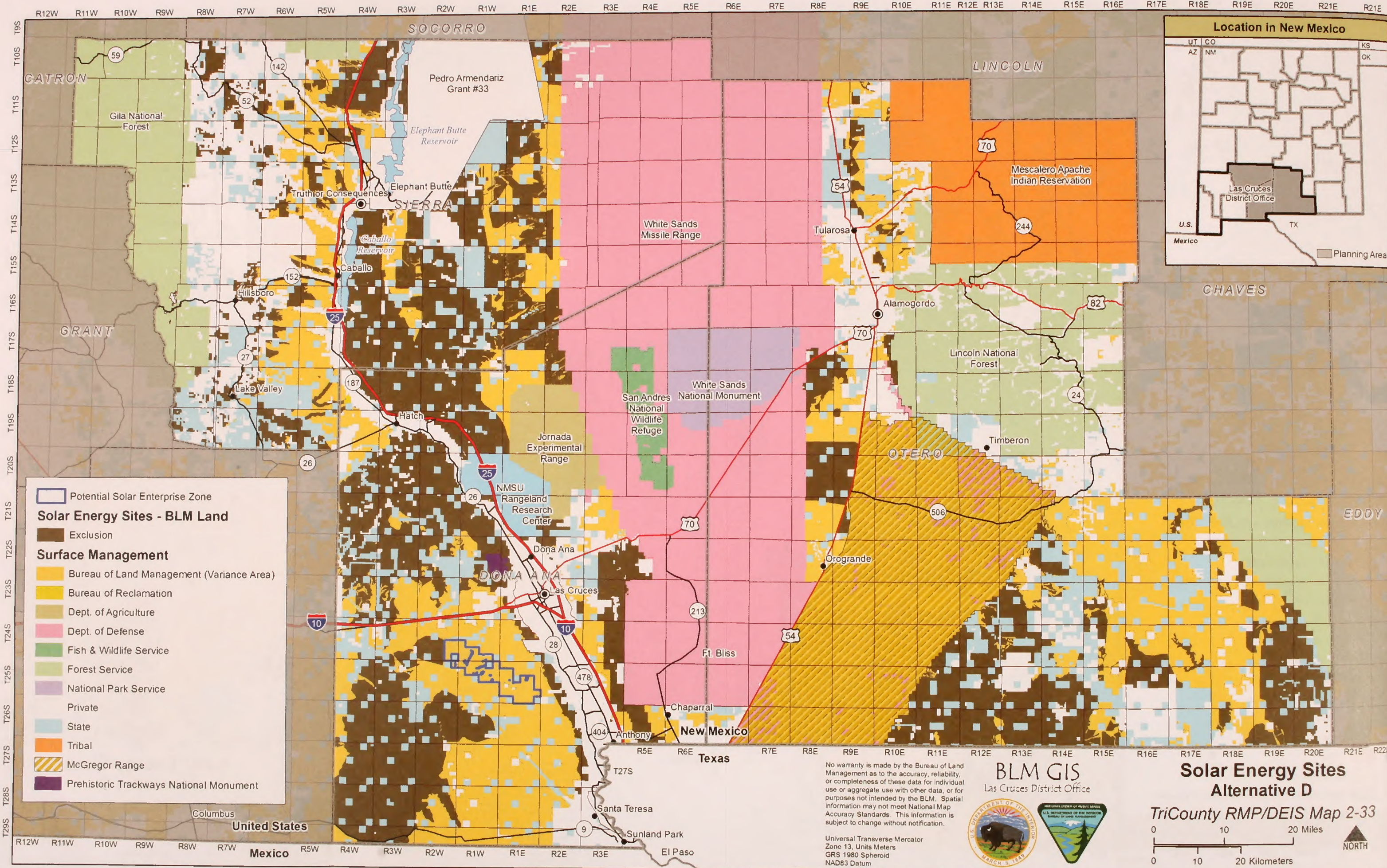
**Solar Energy Sites
Alternative C**

TriCounty RMP/DEIS Map 2-32

0 9.5 19 Miles

0 10 20 Kilometers

NORTH



Potential Solar Enterprise Zone

Solar Energy Sites - BLM Land

- Exclusion

Surface Management

- Bureau of Land Management (Variance Area)
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range
- Prehistoric Trackways National Monument

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BLM GIS
Las Cruces District Office

Solar Energy Sites
Alternative D

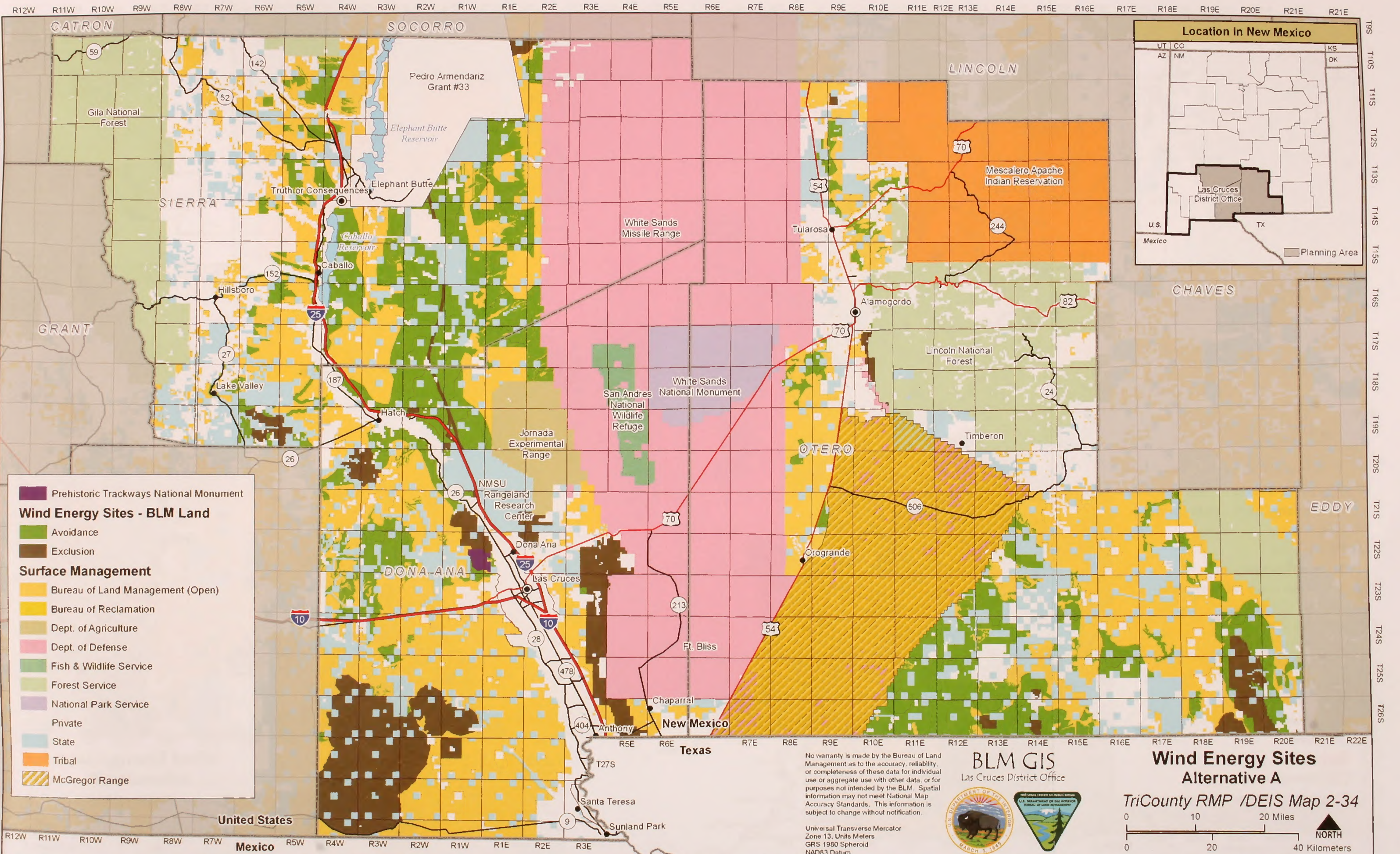
TriCounty RMP/DEIS Map 2-33

0 10 20 Miles

0 10 20 Kilometers

NORTH

Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



Prehistoric Trackways National Monument

Wind Energy Sites - BLM Land

- Avoidance
- Exclusion

Surface Management

- Bureau of Land Management (Open)
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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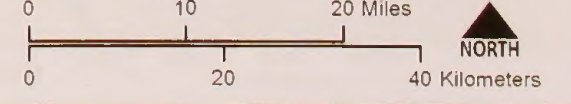
BLM GIS
Las Cruces District Office



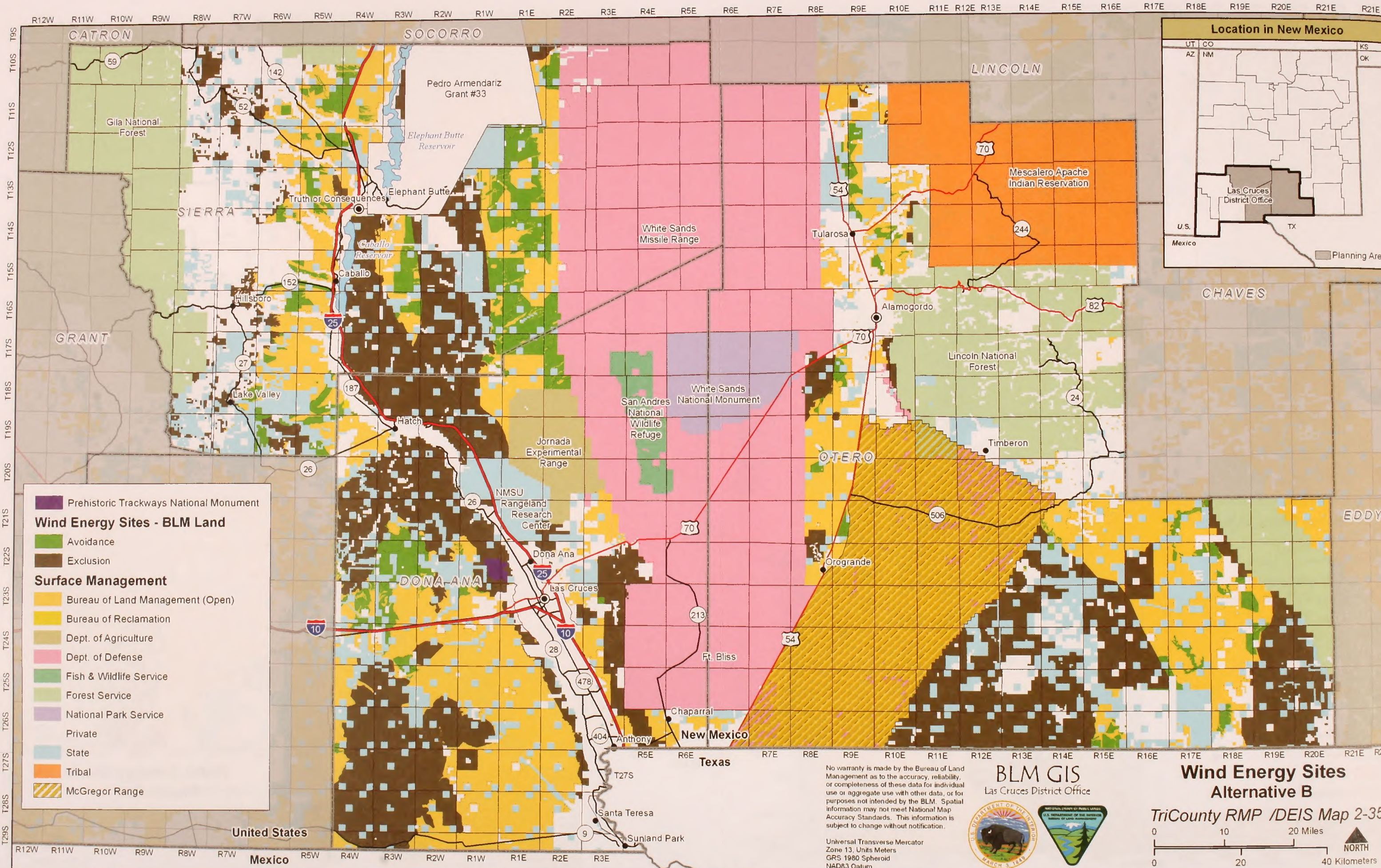
Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum

**Wind Energy Sites
Alternative A**

TriCounty RMP /DEIS Map 2-34



United States
Mexico



Prehistoric Trackways National Monument

Wind Energy Sites - BLM Land

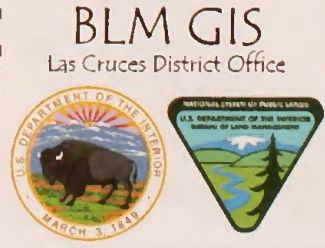
- Avoidance
- Exclusion

Surface Management

- Bureau of Land Management (Open)
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 datum



BLM GIS
Las Cruces District Office

**Wind Energy Sites
Alternative B**

TriCounty RMP /DEIS Map 2-35

0 10 20 Miles

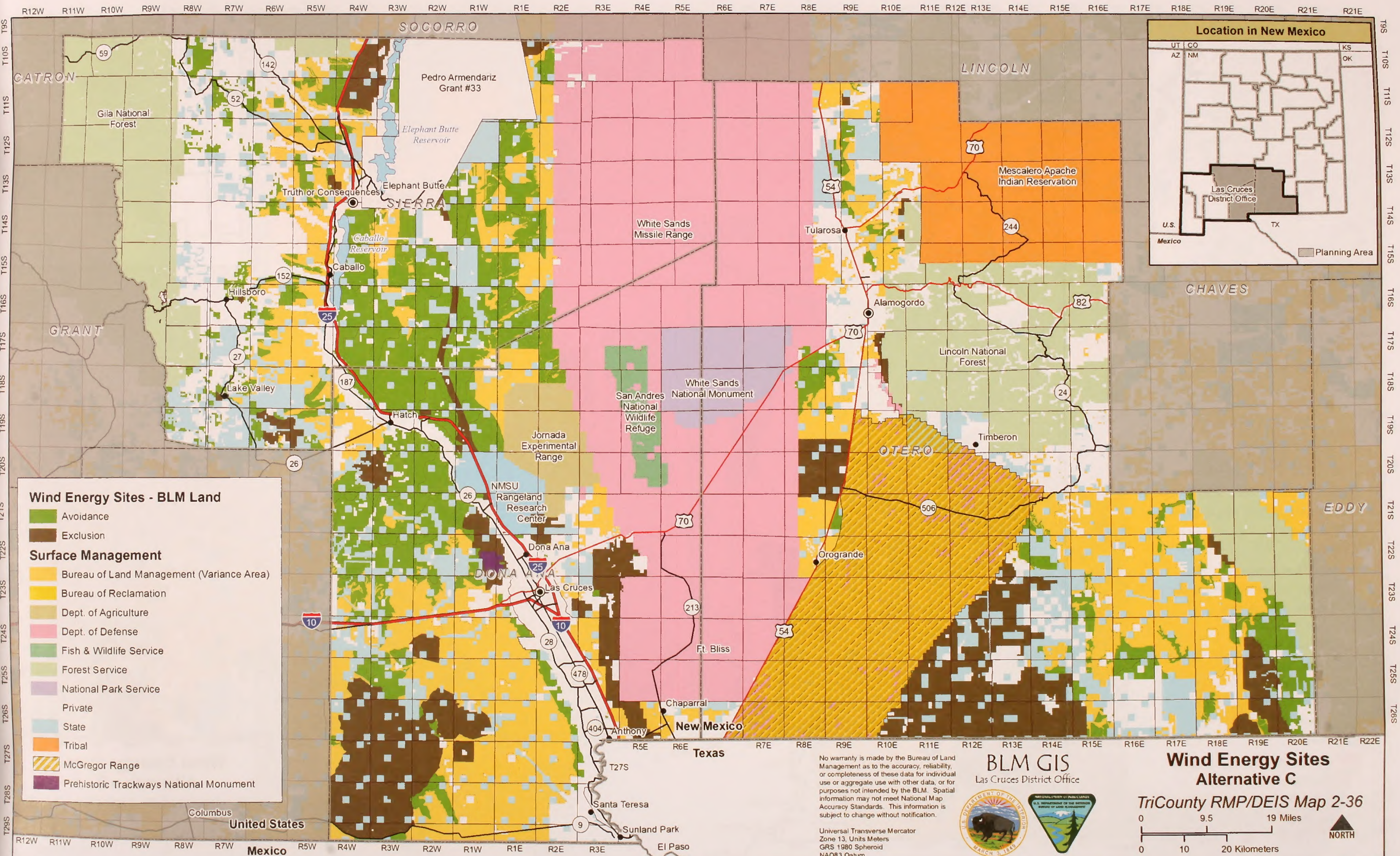
0 20 40 Kilometers

NORTH

United States

Mexico

New Mexico
Texas



Wind Energy Sites - BLM Land

- Avoidance
- Exclusion

Surface Management

- Bureau of Land Management (Variance Area)
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGreggor Range
- Prehistoric Trackways National Monument



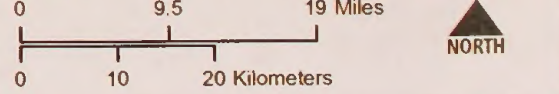
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by the BLM. Spatial information may not meet National Map Accuracy Standards. This information is subject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

BLM GIS
Las Cruces District Office

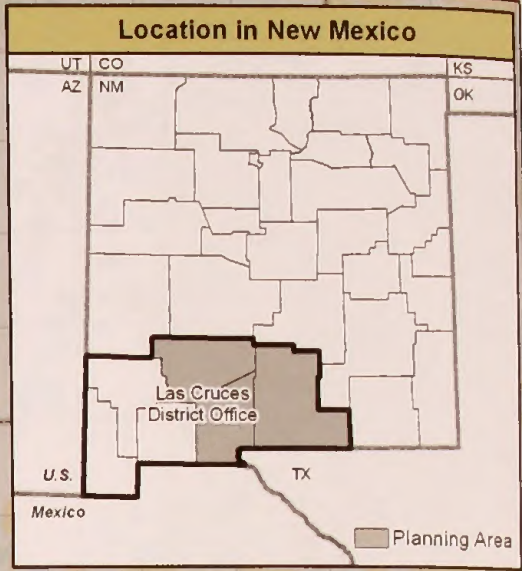
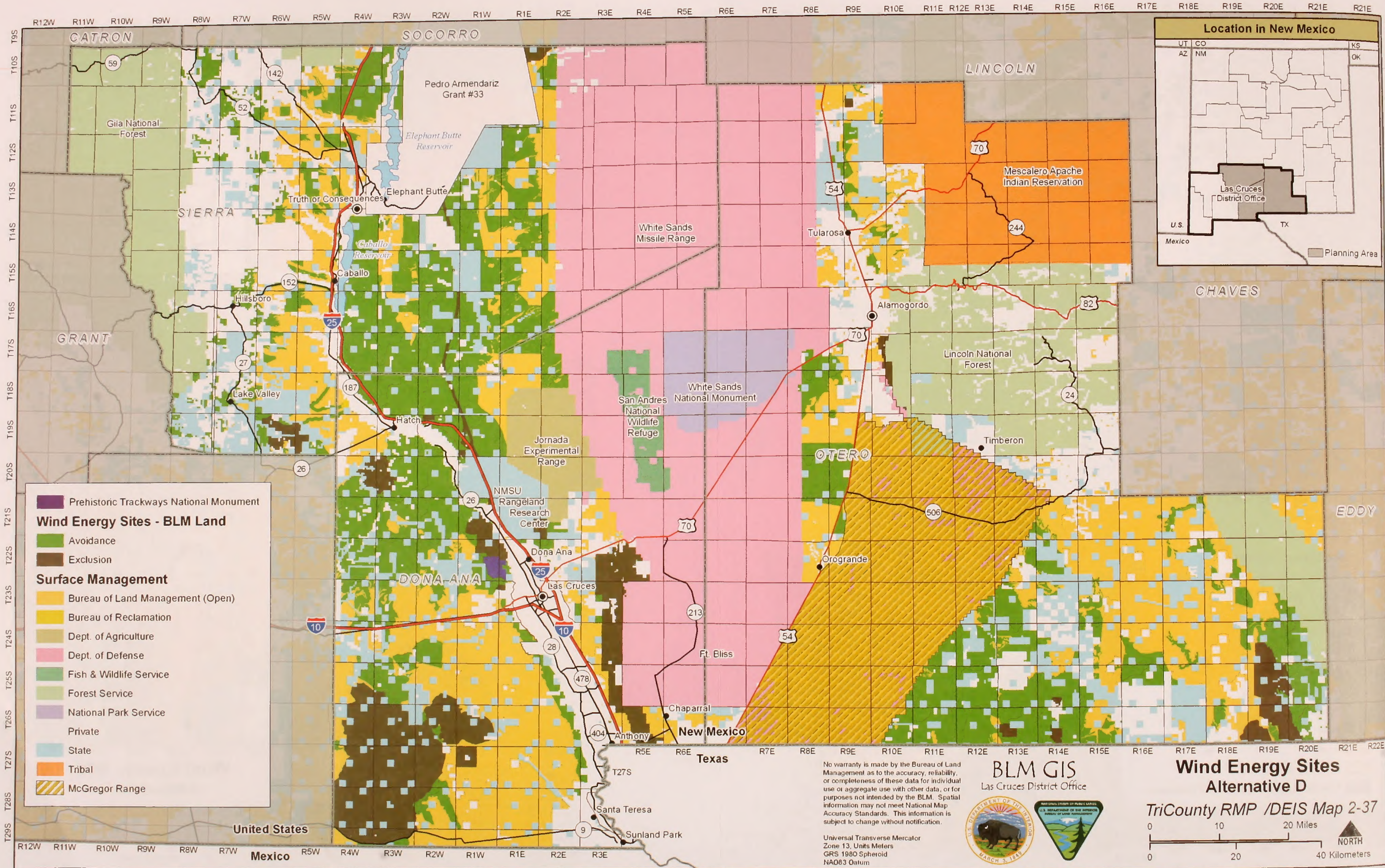


**Wind Energy Sites
Alternative C**

TriCounty RMP/DEIS Map 2-36



Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NA083 Datum



Prehistoric Trackways National Monument

Wind Energy Sites - BLM Land

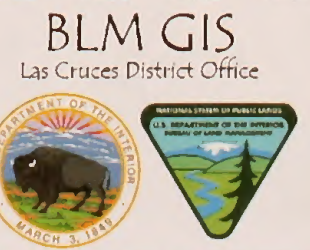
- Avoidance
- Exclusion

Surface Management

- Bureau of Land Management (Open)
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NA083 Datum



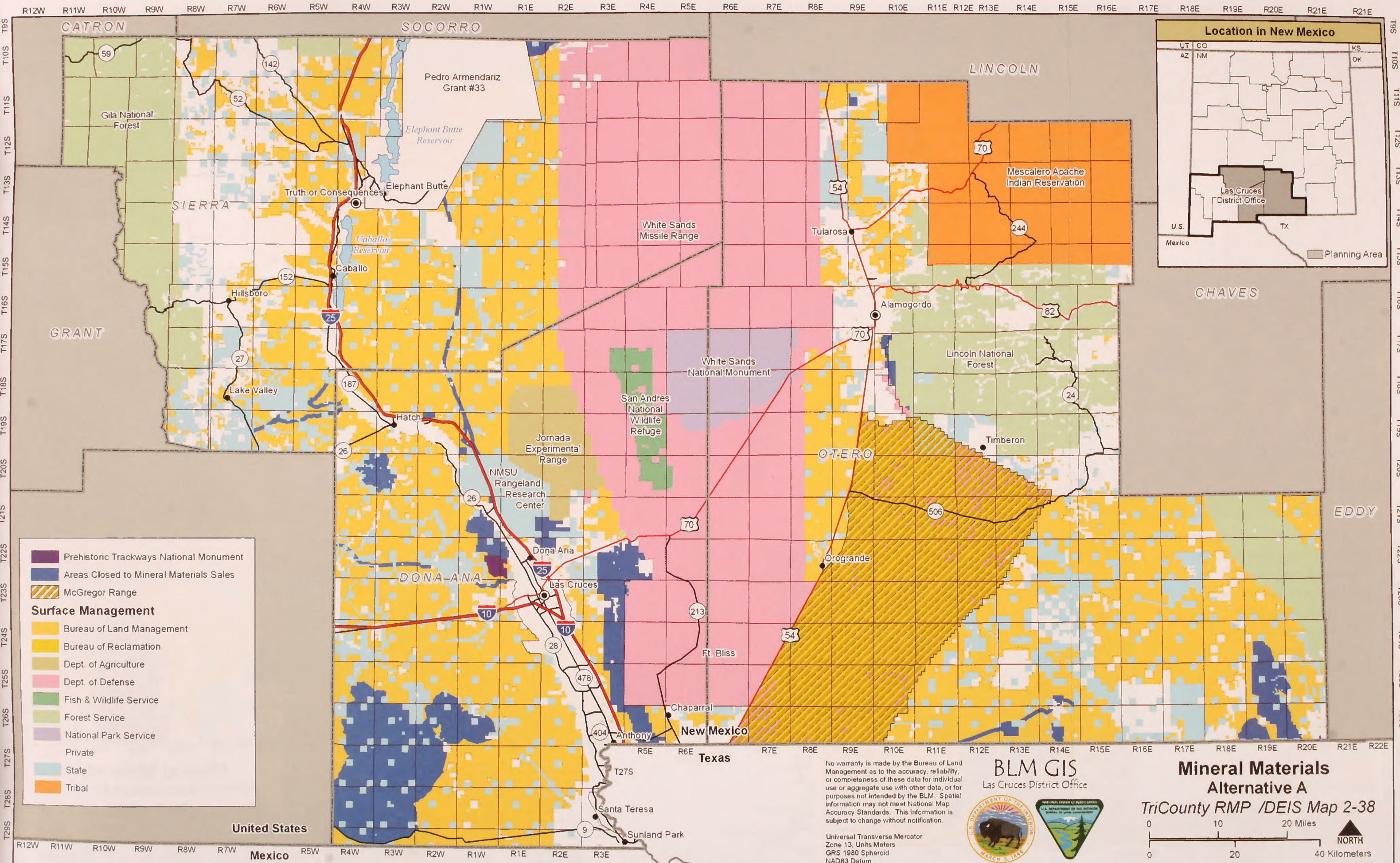
**Wind Energy Sites
Alternative D**

TriCounty RMP /DEIS Map 2-37

0 10 20 Miles

0 20 40 Kilometers

NORTH



- Prehistoric Trackways National Monument
- Areas Closed to Mineral Materials Sales
- McGregor Range

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal

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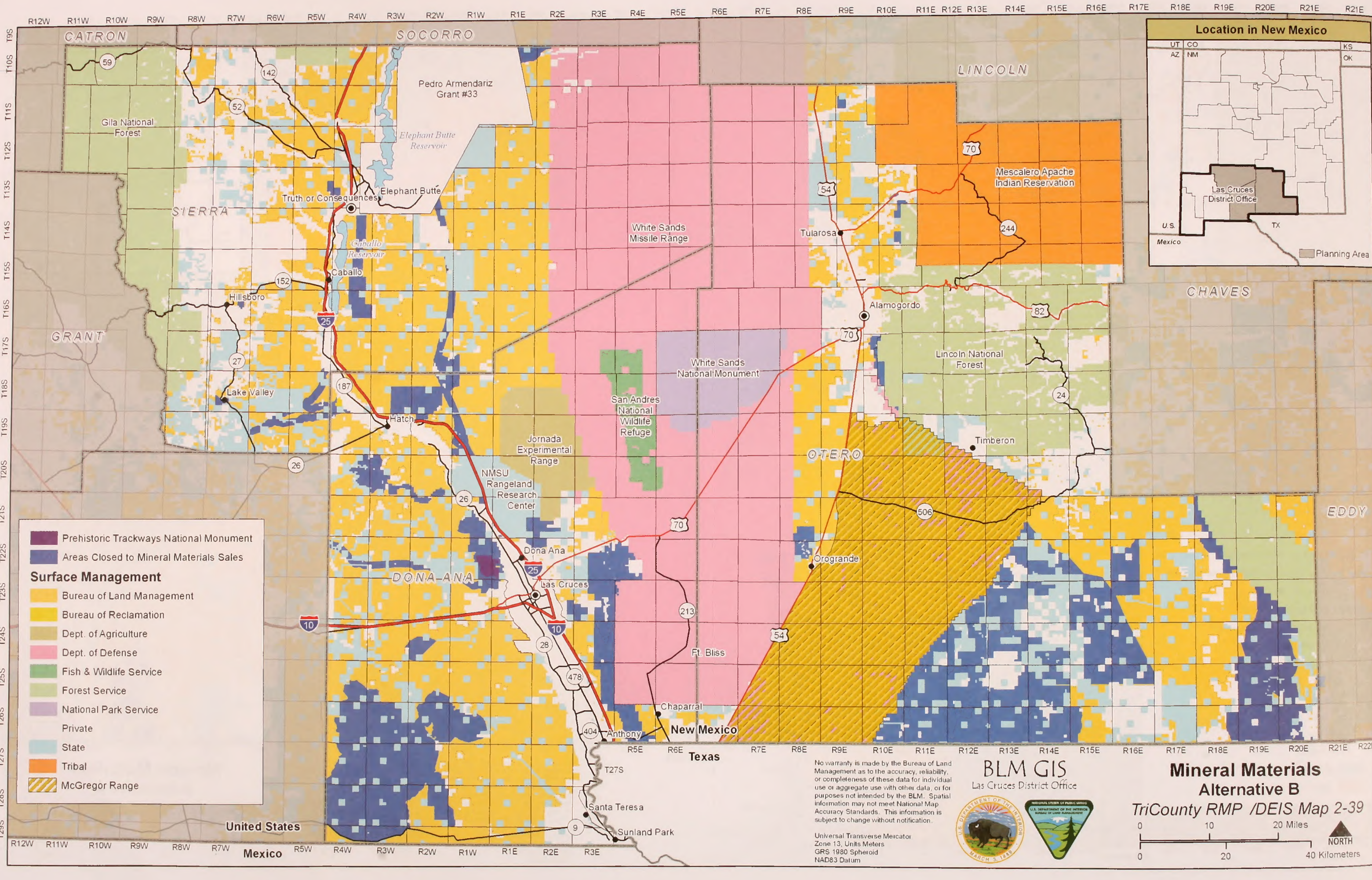
Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



Mineral Materials Alternative A
TriCounty RMP /DEIS Map 2-38

0 10 20 Miles
0 20 40 Kilometers

NORTH



Prehistoric Trackways National Monument

Areas Closed to Mineral Materials Sales

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



**Mineral Materials
Alternative B**

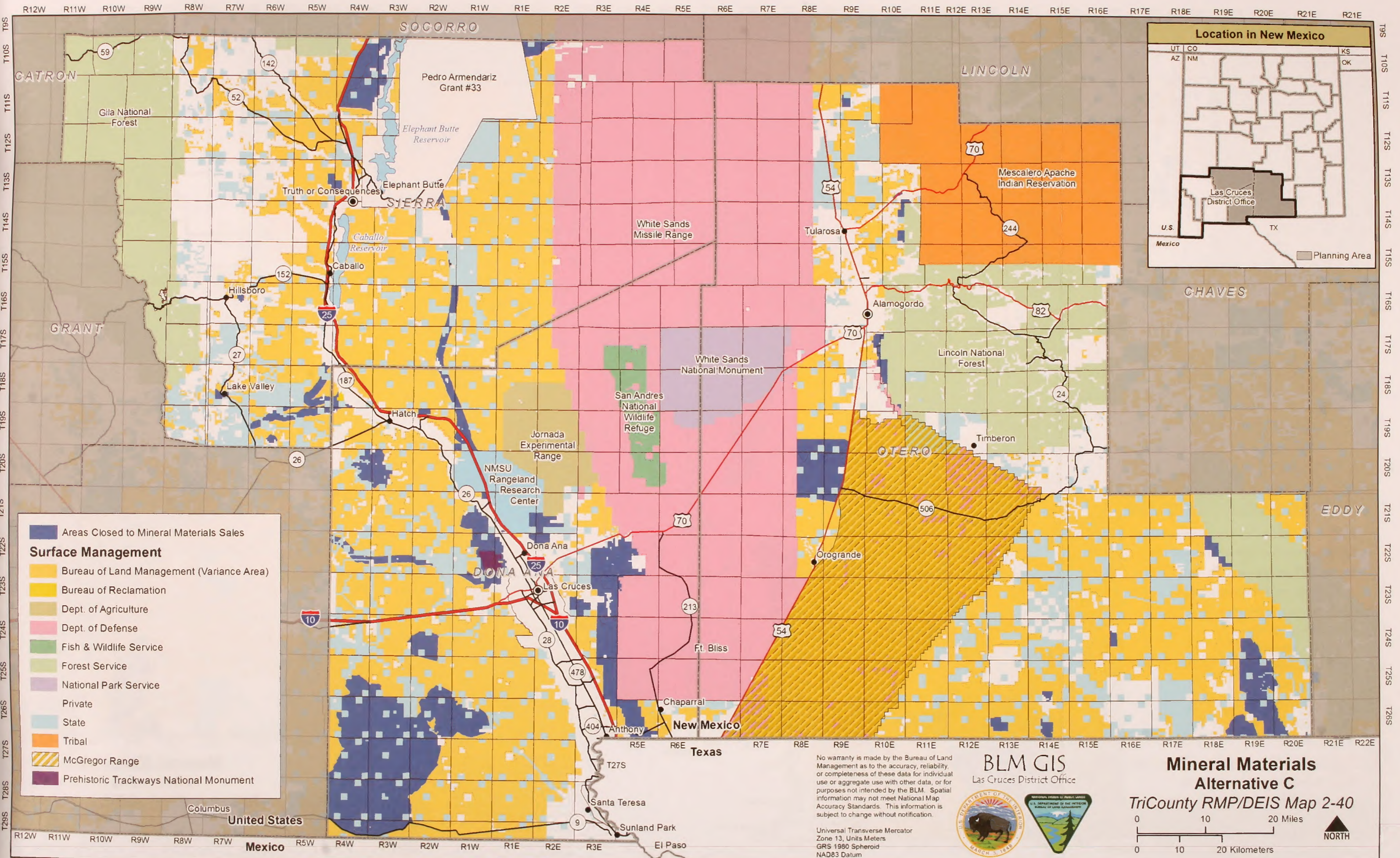
TriCounty RMP /DEIS Map 2-39

0 10 20 Miles

0 20 40 Kilometers

NORTH

United States
Mexico



Areas Closed to Mineral Materials Sales

Surface Management

- Bureau of Land Management (Variance Area)
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range
- Prehistoric Trackways National Monument

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



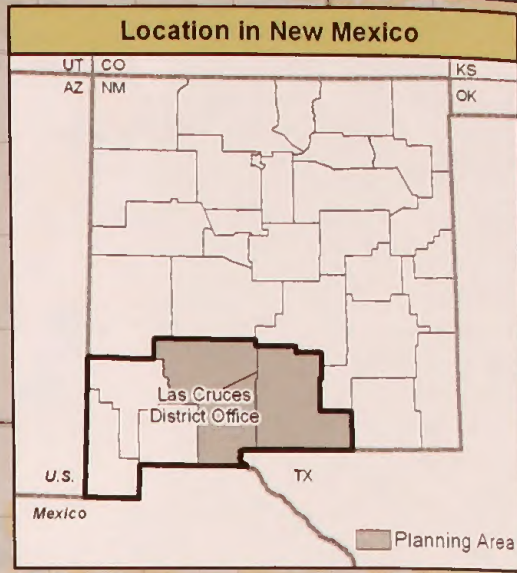
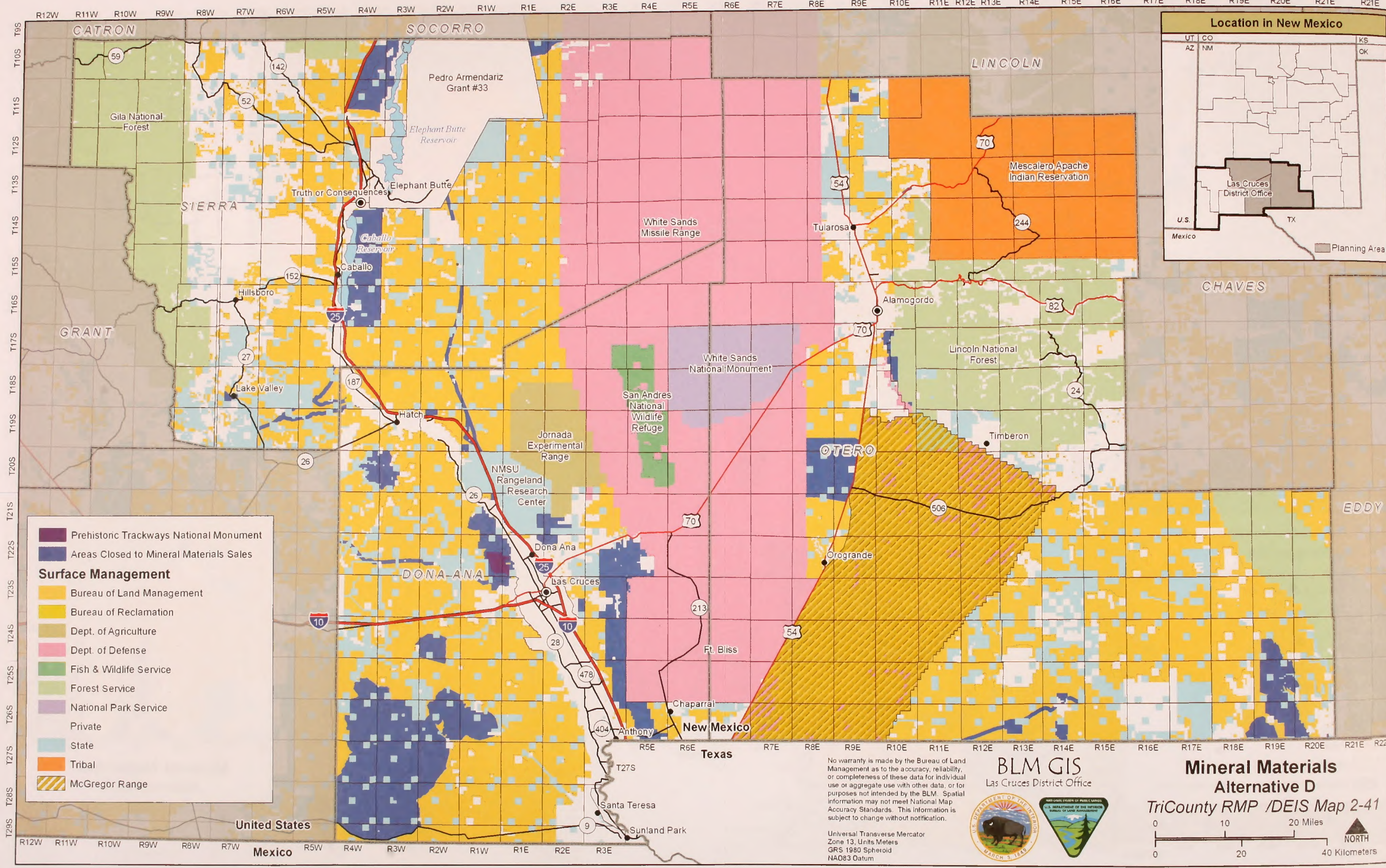
**Mineral Materials
Alternative C**

TriCounty RMP/DEIS Map 2-40

0 10 20 Miles

0 10 20 Kilometers

NORTH



Prehistoric Trackways National Monument

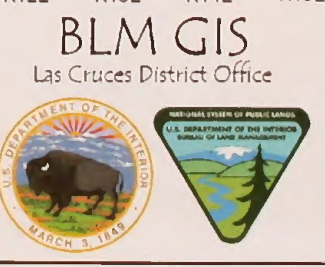
Areas Closed to Mineral Materials Sales

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NA083 Datum



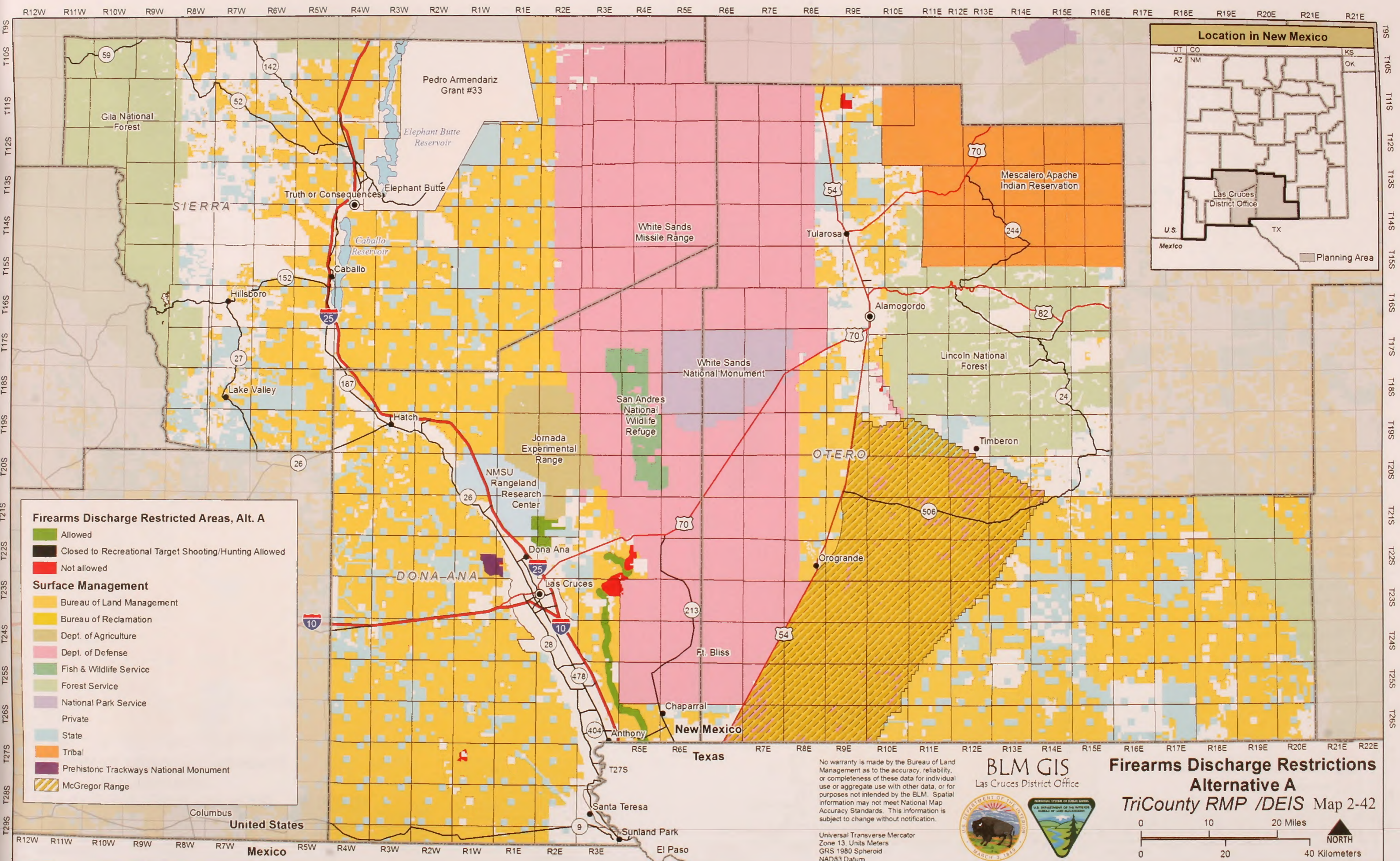
Mineral Materials Alternative D

TriCounty RMP /DEIS Map 2-41

0 10 20 Miles

0 20 40 Kilometers

NORTH



Firearms Discharge Restricted Areas, Alt. A

- Allowed
- Closed to Recreational Target Shooting/Hunting Allowed
- Not allowed

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- Prehistoric Trackways National Monument
- McGregor Range

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Firearms Discharge Restrictions Alternative A
TriCounty RMP /DEIS Map 2-42

0 10 20 Miles
 0 20 40 Kilometers

NORTH

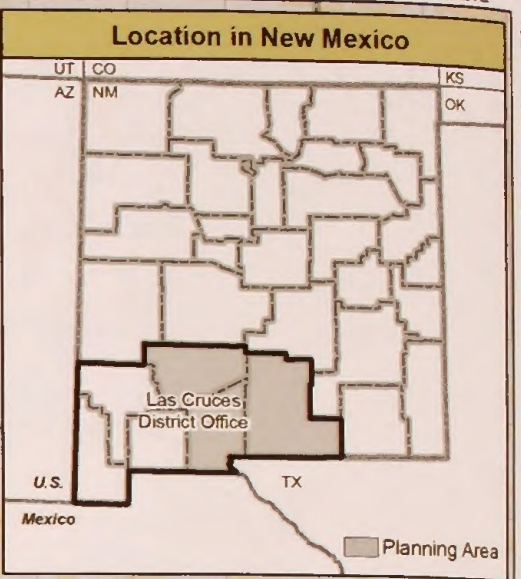
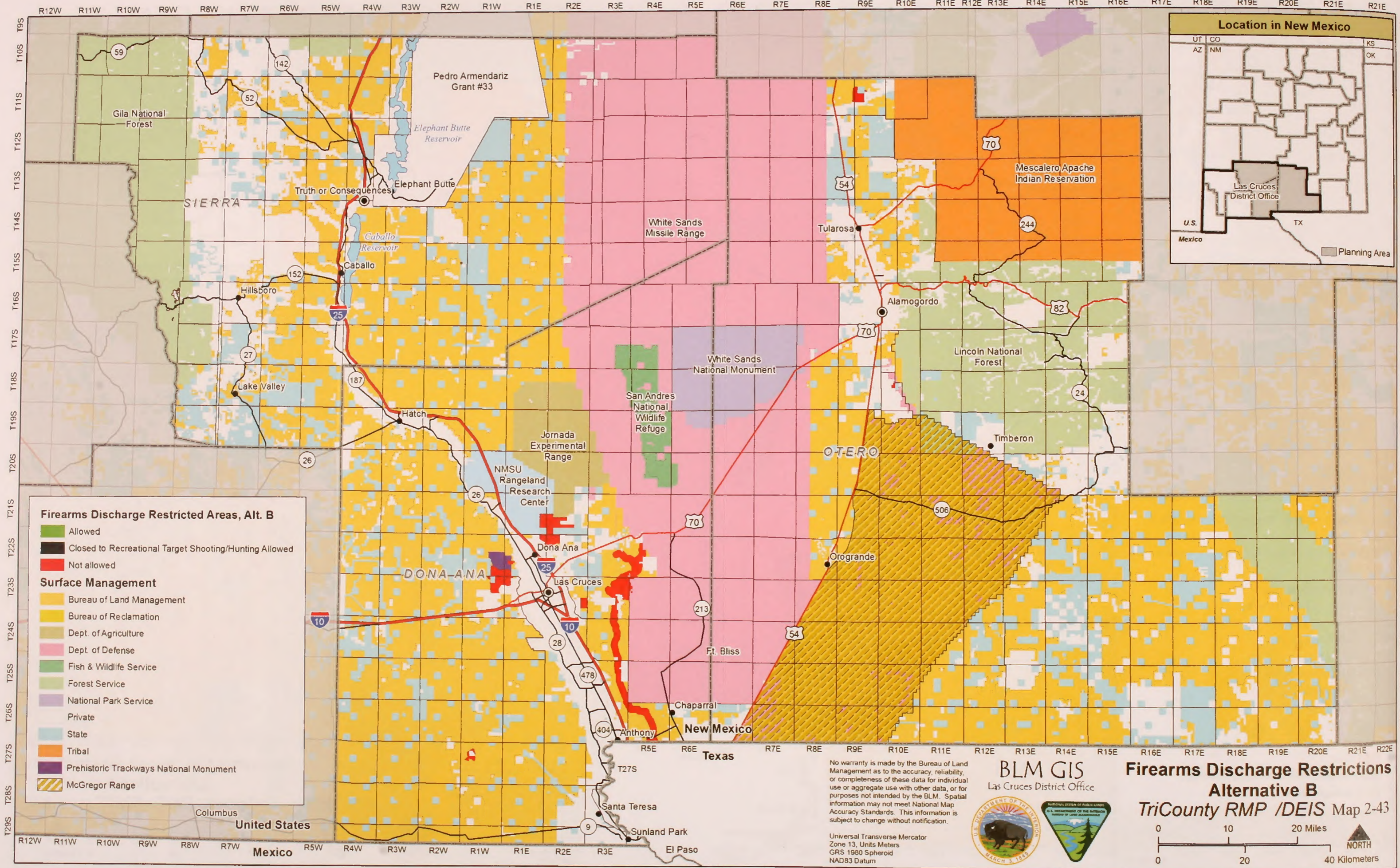
R12W R11W R10W R9W R8W R7W R6W R5W R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E R8E R9E R10E R11E R12E R13E R14E R15E R16E R17E R18E R19E R20E R21E R22E

T10S T11S T12S T13S T14S T15S T16S T17S T18S T19S T20S T21S T22S T23S T24S T25S T26S T27S T28S T29S

United States Mexico

New Mexico Texas

El Paso



Firearms Discharge Restricted Areas, Alt. B

- Allowed
- Closed to Recreational Target Shooting/Hunting Allowed
- Not allowed

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- Prehistoric Trackways National Monument
- McGregor Range

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



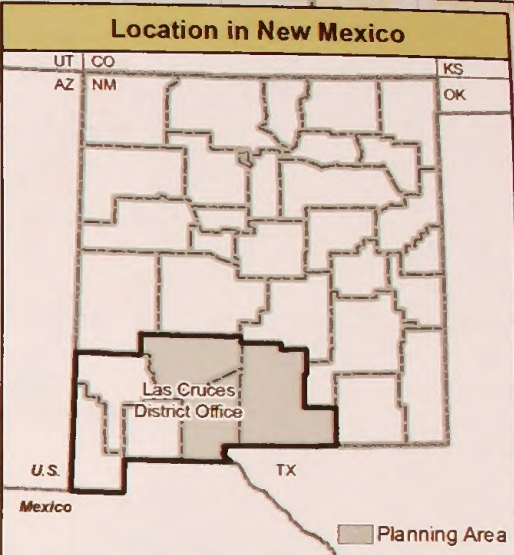
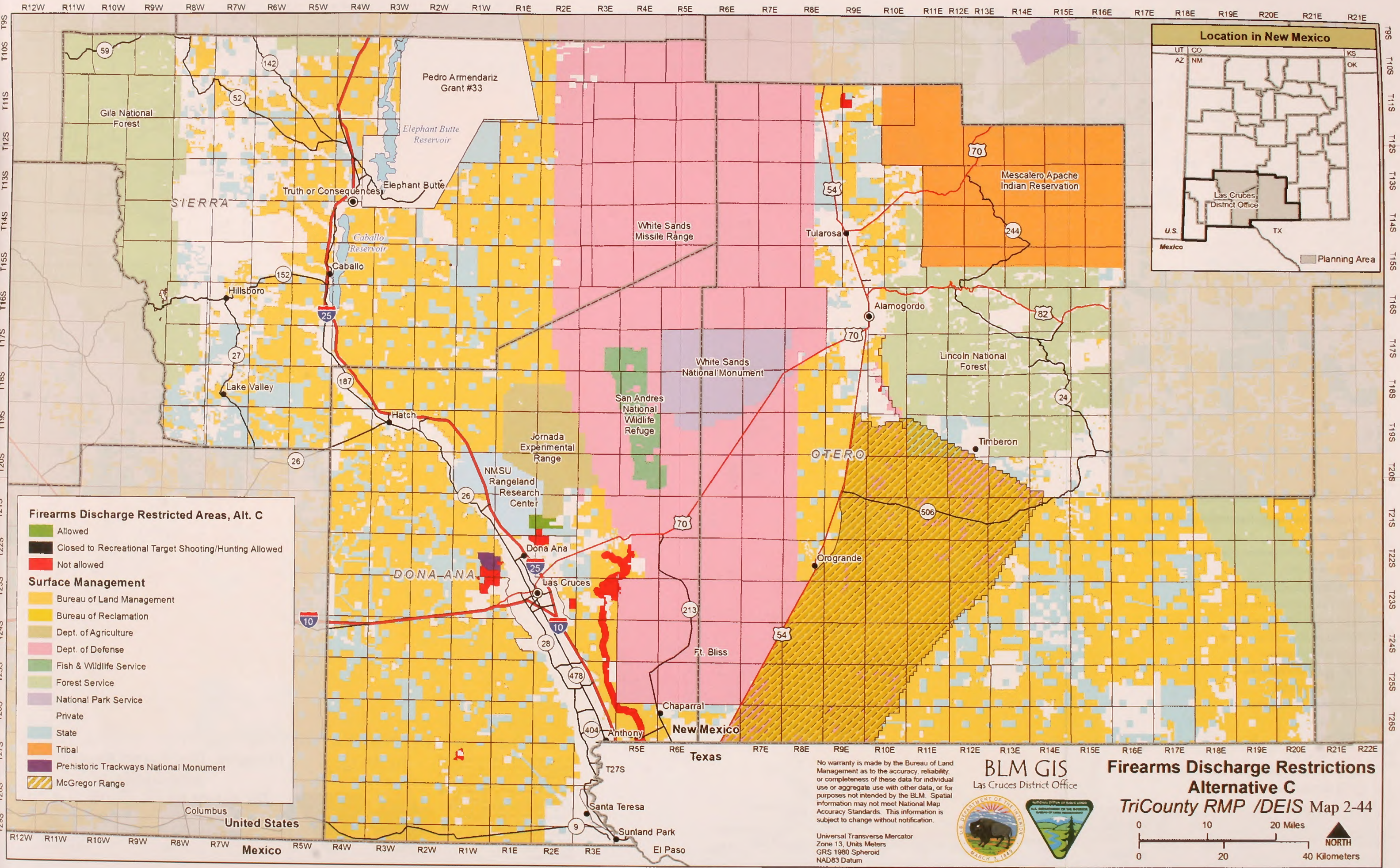
Firearms Discharge Restrictions Alternative B

TriCounty RMP /DEIS Map 2-43

0 10 20 Miles

0 20 40 Kilometers

NORTH



Firearms Discharge Restricted Areas, Alt. C

- Allowed
- Closed to Recreational Target Shooting/Hunting Allowed
- Not allowed

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- Prehistoric Trackways National Monument
- McGregor Range

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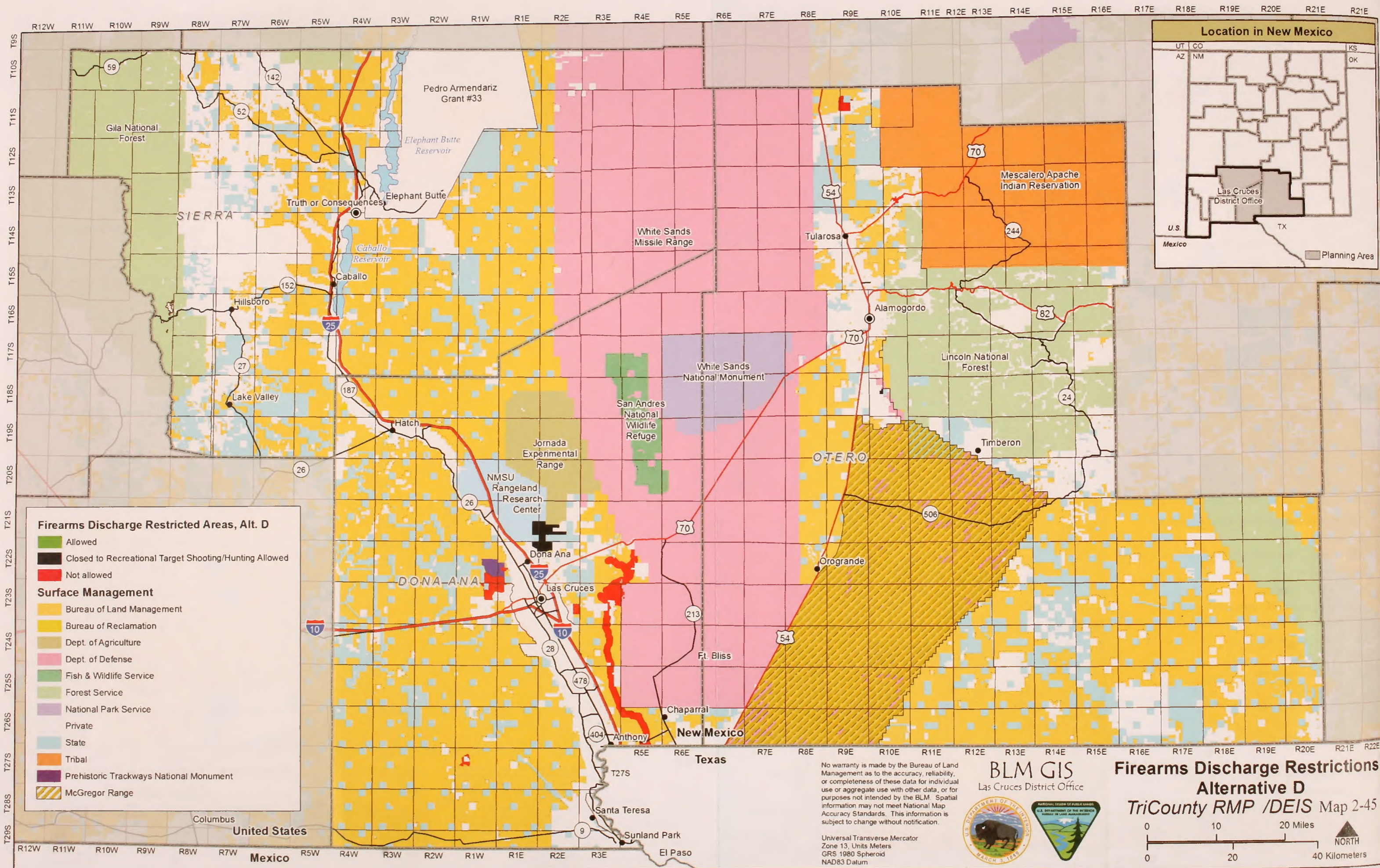
Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



**Firearms Discharge Restrictions
Alternative C
TriCounty RMP /DEIS Map 2-44**

0 10 20 Miles
0 20 40 Kilometers

NORTH



Firearms Discharge Restricted Areas, Alt. D

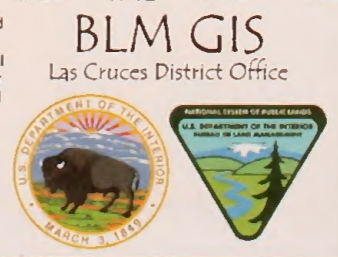
- Allowed
- Closed to Recreational Target Shooting/Hunting Allowed
- Not allowed

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- Prehistoric Trackways National Monument
- McGregor Range

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



Firearms Discharge Restrictions Alternative D

TriCounty RMP /DEIS Map 2-45

0 10 20 Miles

0 20 40 Kilometers

NORTH

Chapter 3 Affected Environment



CHAPTER 3 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

Chapter 3 describes the existing condition of the resources, resource uses, and other features of the *Planning Area* and the *Decision Area*. The affected environment serves as the baseline of existing conditions. Changes to these existing conditions as a result of implementing proposed actions in Chapter 2 Alternatives are analyzed as impacts in Chapter 4.

This Chapter is organized into four sections. The first section describes special designations. The second section describes the resources in terms of existing conditions. The third section describes uses of resources in terms of both potential and existing uses and the last section describes existing social and economic conditions.

3.2 SPECIAL DESIGNATIONS

The BLM, through previous inventory and land planning efforts, has identified public land for special designation including Wilderness Study Areas (WSAs), Areas of Critical Environmental Concern (ACECs), Backcountry Byways, and National Historic Trails. These existing special designations are shown on Map 2-2, Special Designations - Alternative A. Special designations in the *Planning Area* include 10 WSAs, 13 ACECs, one Research Natural Area, and one National Natural Landmark. The WSAs and ACECs overlap in certain areas. The *Planning Area* also includes one Backcountry Byway.

3.2.1 AREAS OF CRITICAL ENVIRONMENTAL CONCERN

ACECs are designated by the BLM where special management attention is needed to protect human life and safety from natural hazards or to protect and prevent irreparable damage to important historical, cultural, and scenic values; fish and wildlife resources; or other natural systems or processes (USDOI BLM 2003a). There are 13 existing ACECs located within the *Planning Area*, plus one Research Natural Area and one National Natural Landmark. All of these areas are located in Otero and Doña Ana Counties; none are located in Sierra County.

The acreage of each designation within the *Decision Area* is presented in Table 3-1 as is a summary of the resource values protected by the designation. Locations of the existing ACECs, the Research Natural Area, and National Natural Landmark are shown on Map 2-2.

3.2.2 HISTORIC TRAILS

Three historic trails pass through the *Planning Area*. One of these, El Camino Real de Tierra Adentro National Historic Trail is a Congressional designation under the National Trails System Act of 1968. The other two trails, the Mormon Battalion Trail located in Sierra County and the Butterfield Trail which passes through southern Otero County and Doña Ana County were used historically and are still evident in some places. These trails have potential to be National Historic Trails; however, neither one has yet been designated. The BLM continues to manage these trails under administrative designations and land use plans to protect their historic value. Approximate locations of these trails are shown on Map 2-2, Special Designations–Alternative A.

**TABLE 3-1
ACECs, RESEARCH NATURAL AREA, AND NATIONAL NATURAL LANDMARK
ON BLM-ADMINISTERED LAND**

SPECIAL DESIGNATION	COUNTY	ACRES	RESOURCE VALUES PROTECTED
Aden Lava Flow Research Natural Area	Doña Ana	3,746	Scenic and geologic
Alamo Mountain ACEC	Otero	2,528	Cultural, visual, and biological
Alkali Lakes ACEC	Otero	6,348	Biological and cultural
Cornudas Mountain ACEC	Otero	852	Scenic, biological, and cultural
Doña Ana Mountains ACEC	Doña Ana	1,427	Scenic, biological, and cultural
Los Tules ACEC	Doña Ana	24	Cultural
Organ/Franklin Mountains ACEC	Doña Ana	58,417	Scenic, special status species, and cultural
Rincon ACEC	Doña Ana	856	Cultural
Robledo Mountains ACEC	Doña Ana	7,077	Paleontological, cultural and scenic, and State endangered plant species
Sacramento Escarpment ACEC	Otero	4,474	Scenic and special status species
San Diego Mountain ACEC	Doña Ana	623	Research and cultural
Three Rivers Petroglyph ACEC	Otero	1,043	Cultural and scenic
Wind Mountain ACEC	Otero	2,308	Scenic, biological, and cultural
Kilbourne Hole National Natural Landmark	Doña Ana	5,500	

3.2.3 BACKCOUNTRY BYWAY

A BLM backcountry byway, a component of the National scenic byway system, focuses primarily on corridors along backcountry roads that have high scenic, historical, archaeological, or other public interest values (USDOJ BLM 1993). The Lake Valley Backcountry Byway is the only one within the *Planning Area*. As the name implies, it is a narrow, albeit paved, winding backcountry highway extending approximately 43 miles total, 12 of which is across public land. Beginning about 18 miles south of Truth or Consequences at the junction of Interstate 25 and State Highway 152 in western Sierra County, the Byway extends west along State Highway 152 to Hillsboro, New Mexico. From Hillsboro, it follows State Highway 27 to Lake Valley and terminates at Nutt, New Mexico at the junction of State Highways 26 and 27 in northeast Luna County. The Lake Valley Backcountry Byway provides excellent opportunities for scenic views and for area recreation and tourism. The Black Range Mountains, Caballo Mountains, Cooke's Peak, and Las Uvas Mountains are visible from the route. Located in an area formerly used for mining and ranching purposes during a historical settlement period, the Byway is also of historical value and promotes tourism in the area.

3.2.4 WILDERNESS STUDY AREAS

Per the mandate of the Federal Land Policy and Management Act (FLPMA), the BLM conducted a wilderness inventory in the Las Cruces District in 1979 and 1980 to determine presence and location of areas with wilderness characteristics. Wilderness characteristics are defined as (1) roadless areas of at least 5,000 acres of public land or of a manageable size; (2) land that generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; and (3) areas that provide outstanding opportunities for solitude or primitive and unconfined types of recreation. The criteria used to identify these characteristics are based on BLM's 1978 *Wilderness Inventory and Study Procedures Handbook*.

As a result of that inventory, a number of WSAs were designated in the District. All or parts of ten of these WSAs are within the *TriCounty Decision Area*. During the 1980s, the BLM completed the wilderness study and analysis and prepared the *New Mexico Statewide Wilderness Study EIS* (USDOJ BLM 1988a) and forwarded its recommendations to the Secretary of the Interior and subsequently to the President and to Congress. A more complete description of the majority of the WSAs in the Las Cruces

District and the evaluation of its wilderness values are contained in the *New Mexico Statewide Wilderness Study, Volume 3: Wilderness Analysis Reports* (USDOI BLM 1988). BLM's recommendations to Congress regarding which WSAs or portions of WSAs should be designated as wilderness are described in the *New Mexico Wilderness Study Report, Volume 1: WSA Recommendations* (USDOI BLM 1991a) and the *Statewide Summary* (USDOI BLM 1991b). The WSAs are listed in Table 3-2 and are shown on Map 2-2.

Two WSAs in the Organ Mountains - Organ Needles and Peña Blanca - were designated through the land-use planning process as WSAs in the 1993 Mimbres RMP, (in accordance with Section 202 of FLPMA).

Since November 1980, the WSAs have been managed under *the Interim Management Policy for Lands under Wilderness Review* (USDOI BLM 1995) and are now managed under the *Management of Wilderness Study Areas Manual* (USDOI BLM 2012), until Congress either designates them as wilderness or releases them from further wilderness review.

3.2.5 WILD AND SCENIC RIVERS

Currently, no wild and scenic rivers (WSR) or Congressionally designated study rivers exist within the *Planning Area*. In an effort to ensure that no potentially eligible rivers were inadvertently missed, the BLM initiated a WSR review of all BLM-administered public land along waterways within the *Decision Area*.

The review was done to determine if any of the public land meets WSR eligibility criteria and suitability factors, as identified in the Wild and Scenic Rivers Act of 1968, as amended. The Act defines a river as "a flowing body of water or estuary or a section, portion, or tributary thereof, including rivers, streams, creeks, runs, kills, rills, and small lakes."

Five river segments were found to be eligible for consideration of suitability for inclusion into the Wild and Scenic Rivers System (Table 3-3). The eligibility inventory criteria are: the river must be free flowing and, with its adjacent land area, possess one or more outstandingly remarkable value. Three rivers in the initial inventory, the Sacramento River, the Rio Grande, and Tierra Blanca were determined to not be free flowing and were dropped from further evaluation. The WSR Eligibility Evaluation and descriptions of the river segments are contained in Appendix P.

None of the five segments met the suitability factors. Tentatively, they have been recommended to be dropped from further consideration, pending public review through the RMP process. The factors that caused the review team to arrive at a non-suitable determination were: Factor 1- Characteristics that do not make the public land involved a worthy addition to the National Wild and Scenic Rivers System; and Factor 6- Ability of the BLM to manage and (or) protect the public land involved as part of the National Wild and Scenic Rivers System, or by other mechanism (existing and potential) to protect identified values other than by WSR designation. See *BLM Manual 6400* for a listing of all 7 factors.

**TABLE 3-2
WILDERNESS STUDY AREAS**

WSA	COUNTY	ACRES¹	DESCRIPTION
Aden Lava Flow	Doña Ana	25,287	The main feature of the area is the lava flow, which occurred over 10,000 years ago. Chihuahuan Desert grassland and shrub associations make up the majority of the plant cover. The rugged terrain has excluded much human use which helps maintain its naturalness.
Brokeoff Mountains	Otero	31,606	The topography is characterized by gently sloping to flat westward radiating alluvial fans and numerous rugged, rocky, and steep canyons. These canyons provide outstanding hiking, rock climbing, photography, and sightseeing opportunities.
Jornada del Muerto ²	Sierra	4,319	The topography is characterized by grasslands with old lava flows and associated cinder cones. The area provides outstanding opportunities for solitude and hiking cross-country with no marked or maintained trails.
Organ Mountains	Doña Ana	7,283	The area contains extremely rugged terrain with steep-sided crevices, canyons, and spires; and several perennial springs. There are many opportunities for solitude and primitive and unconfined recreation including hiking, backpacking, horseback riding, and birding.
Organ Needles	Doña Ana	7,630	This area is characterized by canyons of angular block rocky outcrops and needle-like spires of almost barren rock cleft with narrow chasms and green oak trees. Large boulders are found at the base of the spires. Elevations range from 4,000 to 9,000 feet.
Peña Blanca	Doña Ana	4,470	The landscape is characterized by rugged terrain, such as steep-sided crevices, canyons, and spires. Vegetation includes mixed desert scrub, piñon-juniper woodlands, mixed mountain shrub, and ponderosa pine. Some historical mining sites, earthen dams, and fences are scattered throughout the proposed wilderness area but the area still remains primitive allowing for solitude and recreational opportunities as well as unique and outstanding scenery.
Robledo Mountains	Doña Ana	12,946	Elevation in this area ranges from 4,000 to over 6,000 feet. Elevation ranges coupled with varied geology provides for a diverse range of landscape forms and habitat types. Many areas are far away from significant human development and provide opportunities for solitude.
Sierra de las Uvas	Doña Ana	11,067	The landscape is typically rugged terrain with opportunities for primitive and unconfined recreational opportunities. Unique landforms in the area include craters, volcanoes, lava flows, prominent mountains, rolling creosote covered plains, and mesquite dunes.
West Potrillo Mountains/ Mount Riley ³	Doña Ana	157,185	The West Potrillo area is characterized by a volcanic landscape with elevations up to 5,400 feet. Broad creosote-covered plains slope gently to the east and west and portions of the area are covered with extensive grasslands. Characteristics of the Mount Riley area include three steep, intrusive peaks clustered together. Grasses and desert shrubs comprise most of the vegetation with isolated junipers on the mountain slopes. There are many opportunities for primitive and unconfined recreation
TOTAL		261,793	

NOTES:

¹Acres in this table were calculated using different technologies from what was used in the New Mexico Wilderness Study Report which may result in different values.

²Portion of the Jornada del Muerto WSA within the *Planning Area*. Most of the 31,147-acre area is in Socorro County and is managed by the BLM Socorro Field Office.

³Does not include approximately 10,300 acres of the WSA in Luna County.

**TABLE 3-3
WILD AND SCENIC RIVER ELIGIBLE SEGMENTS**

RIVER SEGMENT NAME	LOCATION/LEGAL DESCRIPTION	COUNTY	MILES ON BLM
Cuchillo Negro Creek	T. 12 S., R. 7 W., Section 9	Sierra	0.52
Three Rivers	T. 11 S., R. 9 E., Section 21	Otero	0.57
Tularosa Creek	T. 13 S., R. 10 E., Section 32	Otero	1.4
Percha Creek	T. 16 S., R. 7 W., Section 14	Sierra	1.0
Palomas Creek	T. 13 S., R. 8 W., Section 19	Sierra	0.15

3.3 RESOURCES

3.3.1 LANDS WITH WILDERNESS CHARACTERISTICS

In accordance with Section 201 of FLPMA, the BLM is required to maintain a current inventory of land under its jurisdiction and identify within that inventory lands with wilderness characteristics that are outside of the areas designated as WSAs. Through land use planning, the BLM may manage lands newly found to have wilderness characteristics to affect, protect or preserve all wilderness characteristics within those lands.

Between 2002 and 2005, the Las Cruces District Office received citizen's proposals for wilderness designation along with maps, photos, and descriptions of areas totaling approximately 713,000 acres in Sierra, Otero and Doña Ana Counties. A BLM Las Cruces District Office interdisciplinary team evaluated the proposals and determined that two areas, Nutt Grasslands and Bar Canyon met the wilderness criteria.

The Nutt Grasslands located in southwestern Sierra County provides outstanding opportunity for naturalness, solitude, and primitive and unconfined recreation, within a 6,000-acre roadless landscape. A prominent landform feature in the area is Nutt Mountain, surrounded by Chihuahuan Desert terrain, grasslands, and drainages. Also, the Nutt Grasslands provide potential habitat for the aplomado falcon and the black-tailed prairie dog, both of which BLM considers special status species.

Bar Canyon is located adjacent to the Organ/Franklin Mountains ACEC and is contiguous to the Peña Blanca WSA in Doña Ana County. The Bar Canyon area is land that was acquired in the Soledad Canyon Land Exchange in 2001. Peña Blanca South (260 acres) was acquired in 1994 and Peña Blanca North (120 acres) was acquired in 1995. The Organ Mountains area has outstanding recreation opportunities, exceptional scenic values and a variety of other natural resource values. This area provides outstanding opportunities for naturalness, solitude and primitive and unconfined recreation. Although these areas are less than 5,000 acres, they are manageable as wilderness because they are contiguous to the Peña Blanca WSA.

3.3.2 AIR RESOURCES

Three indicators were used to quantify existing air quality in the *Planning Area*: (1) measured ambient concentrations of criteria air pollutants, (2) observed levels of visibility, and (3) presence of permitted and unpermitted air pollutant sources. In portions of the *Planning Area* and locations in the surrounding region, information regarding concentrations of ambient air pollutants and observed levels of visibility is available in the form of air quality monitoring data, air permit data, and visibility data.

3.3.2.1 Ambient Air Quality

Criteria air pollutants associated with National Ambient Air Quality Standards (NAAQS) include nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), ozone (O₃), particulate matter equal to or less than 10 microns in diameter (PM₁₀), particulate matter equal to or less than 2.5 microns in diameter (PM_{2.5}), and lead. The State of New Mexico has promulgated standards for ambient air that differ from the NAAQS. The New Mexico Ambient Air Quality Standards (NMAAQS) applicable within the *Planning Area* are summarized in Table 3-4 (US EPA 2011).

No air quality monitors are located within Sierra and Otero Counties; however, nine air quality monitoring stations are located within Doña Ana County. Doña Ana County borders El Paso, Texas and Ciudad Juarez, Mexico. Because of the proximity of these urban areas, southern Doña Ana County has historically had air quality problems, including particulate matter and ozone pollution. Monitored pollutant concentrations reported to the U.S. Environmental Protection Agency (EPA) are summarized in Table 3-5.

Anthony, New Mexico, which lies on the border of Texas and New Mexico in southern Doña Ana County is within a particulate matter 10 microns or less in size (PM₁₀) nonattainment area. This area was designated nonattainment for PM₁₀ by the US EPA in 1991. In 1995, the EPA declared a 42 square-mile region in the southeast corner of the County on the border of Texas and Mexico as a marginal nonattainment area for the 1-hour ozone standard. The nonattainment area includes the City of Sunland Park, Santa Teresa, and La Union, New Mexico as well as adjacent public land to the west.

The New Mexico Environment Department has noted that in recent years, Doña Ana County has not met the Federal ambient air quality standards for PM₁₀. These high levels of PM₁₀ are largely due to dust storms in the region. While much of the dust in the Doña Ana County area is generated by natural events such as high wind speeds and dry soil conditions, man-made dust sources have increased as the County becomes more populated and development increases. In December 2000, a Natural Events Action Plan (NEAP) for Doña Ana County was submitted to EPA for review. The NEAP requires control of man-made sources of wind-blown dust in the County. This Plan includes agreements between primary stakeholders (such the New Mexico Department of Transportation, Doña Ana County, and New Mexico State University) and the New Mexico Environment Department. Specific actions including dust ordinances on the city and county levels, educational outreach tools, documentation of exceedances, and tools to minimize the public's exposure to PM₁₀ are part of the NEAP (www.nmenv.state.nm.us/aqb/control_strat/sip/dona_ana_county_new_mexico.html).

3.3.2.2 Emission Sources

Numerous air emission sources are located within the *Planning Area*, which include major, minor, mobile, and unpermitted sources, as described in this section. Very few of these sources are actually on land administered by the BLM. The greatest concentration of these sources is in and around Las Cruces, New Mexico.

Major Sources: A major source, for permitting purposes, is defined as a source or facility that has the potential to emit 100 tons or more per year of any single criteria pollutant, 10 tons per year of any single hazardous air pollutant, or 25 tons per year of any combination of hazardous air pollutants. The predominant facility with a major source permit in Sierra County is a copper mine. However, this facility is not operating currently. Major sources in Otero County include a U.S. Air Force base and an aluminum foundry. Major sources located in Doña Ana County include power plants, space research and technology facilities, missile ranges, and natural-gas compressor stations.

**TABLE 3-4
NEW MEXICO AMBIENT AIR QUALITY STANDARDS**

POLLUTANT	PRIMARY STANDARDS	AVERAGING TIMES
Carbon monoxide	8.7 ppm (9.67 mg/m ³)	8 hours
	13.1 ppm (15 mg/m ³)	1 hour
Nitrogen dioxide	0.05 ppm (94.34 µg/m ³)	Annually (arithmetic mean)
	0.10 ppm (188.7 µg/m ³)	24 hour
Total suspended particulate matter	60 µg/m ³	Annually (geometric mean)
	90 µg/m ³	30 days
	110 µg/m ³	7 days
	150 µg/m ³	24 hour
Hydrogen sulfide	0.010 ppm	1 hour (statewide)
	0.003 ppm	0.5 hour (within 5 miles of municipalities of more than 20,000)
Total reduced sulfur	0.003 ppm	0.5 hour
Sulfur dioxide	0.02 ppm	Annually (arithmetic mean)
	0.10 ppm	24 hours
	None	3 hours

SOURCE: New Mexico Environment Department, 2006.

NOTES:

µg/m³ = micrograms per cubic meter

mg/m³ = milligrams per cubic meter ppm = parts per million

**TABLE 3-5
CRITERIA POLLUTANT MONITORED CONCENTRATIONS IN DOÑA ANA COUNTY**

POLLUTANT	DESIGN VALUE	AVERAGING TIME	OBSERVATION PERIOD	NAAQS	NMAAQS
O ₃	0.069 ppm	8-hour	2009-2011	0.075 ppm	
NO ₂	8 ppb	Annual	2011	53 ppb	50 ppb
NO ₂	42, 50 ppb ¹	1-hour	2009-2011	100 ppb	
PM ₁₀	11 exceedances	24-hour	2011	150 µg/m ³	150 µg/m ³
PM _{2.5}	11.9 µg/m ³	Annual	2009-2011	15 µg/m ³	60 µg/m ³
PM _{2.5}	38 µg/m ³	24-hour	2009-2011	35 µg/m ³	

SOURCE: US Environmental Protection Agency ¹ maximum values

KEY: µg/m³ = micrograms per cubic meter; NAAQS = National Ambient Air Quality Standard; NMAAQS = New Mexico Air Quality Standard; O₃ = ozone; NO₂ = nitrogen dioxide; ppb = parts per billion; ppm = parts per million;

PM₁₀ = particulate matter with an aerodynamic diameter equal to or less than 10 microns; PM_{2.5} = Particulate matter with an aerodynamic diameter equal to or less than 2.5 microns

NOTE: ¹ There are 2 monitors for the 1-hour NO₂ standard in Doña Ana County.

Minor Sources: A minor source, for air permitting purposes, is defined as a source or facility that has a potential to emit criteria air pollutants in amounts greater than the “*significance*” threshold, but less than a major source. The significance threshold provides an emission baseline for criteria pollutants that determines which facilities must obtain permits. Sources that have emissions below the threshold would not be required to obtain a permit unless there are other applicable Federal, State, or County regulations that apply to the equipment at their facility.

Minor sources include a variety of industrial and commercial operations, including rock product and construction material industries such as portable crushing and screening plants, hot-mix asphalt plants, and concrete-batch plants. Stationary industrial sources in this category include paint shops, dry cleaners, and a broad range of manufacturing facilities such as those for consumer goods.

Mobile Sources: Vehicles represent the largest single air pollutant source category in the *Planning Area*. Emissions from vehicles include hazardous air pollutants, NO₂, CO, and particulate matter, which may warrant consideration in any assessment of ambient air quality in the *Planning Area*. The EPA Mobile Source Emissions Characterization and Prevention section states that emissions from vehicles are highly variable due to several factors including the driver, vehicle type, the grade of the roadway, and the vehicle load. Consideration of mobile source emissions may be reasonably limited to the major traffic routes that run through the *Planning Area* such as Interstate 25, U.S. Highway 70, and U.S. Highway 54.

Unpermitted Sources: There are many small, stationary emission sources that are not required to have an operating permit. These types of sources individually do not produce levels of air pollution that would substantially affect regional air quality, but may have a significant impact cumulatively. An air quality assessment of the *Planning Area* should treat such sources on the basis of expected distribution of generic emission-source categories in and around the *Planning Area*. In addition to stationary sources, other unpermitted sources of air pollution include vehicular travel on paved and unpaved roads, open burning (including prescribed fire for woodland management), and agricultural operations.

3.3.2.3 Visibility Conditions

Defined by the Clean Air Act, Class I areas include National parks greater than 6,000 acres, wilderness areas and National memorial parks greater than 5,000 acres, and International parks. These areas must have been in existence at the time the Clean Air Act was passed by Congress in August 1977. A network of monitoring stations in or near Class I areas are operated by land management agencies under the Interagency Monitoring for Protected Visual Environments (IMPROVE) program. The network collects data to identify and evaluate patterns and trends in regional visibility and the pollutants which contribute to reductions in visibility. Data from IMPROVE monitors located in three of the four Class I areas near the *Planning Area* provide the standard visual range for each monitor, which is the maximum distance at which a person can identify a black object against the horizon (US EPA 1999). Standard visual ranges for each of the three monitors on their best (highest visibility), worst (lowest visibility), and intermediate (average visibility) days are provided in Table 3-6.

The Guadalupe Mountains National Park monitor, located outside the southeastern corner of the *Planning Area*, recorded the lowest standard visual ranges in each category. The two monitors that demonstrated the best standard visual ranges, the Gila Wilderness and White Mountain Wilderness, are outside the northwestern corner of the *Planning Area* and north of the *Planning Area*, respectively.

**TABLE 3-6
STANDARD VISUAL RANGES FROM “IMPROVE” MONITORS NEAR THE PLANNING AREA**

MONITOR	STANDARD VISUAL RANGE (KM) ¹		
	AVERAGE OF BEST VISIBILITY DAYS	AVERAGE OF INTERMEDIATE VISIBILITY DAYS	AVERAGE OF WORST VISIBILITY DAYS
Gila Wilderness ²	275	196	116
Guadalupe Mountains National Park ²	219	138	79
White Mountain Wilderness ²	262	174	105

SOURCE: Interagency Monitoring of Protected Visual Environments, 2011.
 NOTES:
¹Standard visual range represents the maximum distance at which one can identify a black object against the horizon.
²The averaging period was 2002 to 2010 for monitoring data.
 IMPROVE = Interagency Monitoring of Protected Visual Environments; km = kilometers

3.3.2.4 Climate

The BLM land in the *Planning Area* is located at the northern edge of the Chihuahuan Desert. The climate is characterized by hot summers and mild to cool winters. Precipitation is generally less than 10 inches per year with much of that falling in the summer as a result of the Southwest monsoon. Tables 3-7, 3-8, and 3-9 summarize average monthly temperatures and precipitation for Las Cruces (Doña Ana County), Alamogordo (Otero County), and Truth or Consequences (Sierra County).

**TABLE 3-7
CLIMATE NORMALS (1981-2010) LAS CRUCES**

LAS CRUCES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Temperature (°F)	43.8	48.1	54.1	61.4	70.2	78.6	81.4	79.4	73.8	63.0	51.5	43.5
Avg. Max Temperature (°F)	58.6	63.5	70.1	77.8	86.8	94.8	94.9	92.1	87.7	78.6	67.3	57.8
Avg. Min Temperature (°F)	29.1	32.7	38.2	44.9	53.7	62.4	68.0	66.8	59.9	47.4	35.7	29.1
Avg. Precipitation (inches)	0.51	0.41	0.22	0.29	0.40	0.66	1.53	2.22	1.33	0.94	0.46	0.77

**TABLE 3-8
CLIMATE NORMALS (1981-2010) ALAMOGORDO**

ALAMOGORDO	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Temperature (°F)	43.9	48.6	54.8	62.6	71.4	79.8	80.9	78.8	73.4	63.1	51.5	43.6
Avg. Max Temperature (°F)	56.1	61.2	68.1	76.7	85.7	93.7	93.4	90.9	85.9	76.2	64.8	55.8
Avg. Min Temperature (°F)	31.6	36.0	41.5	48.4	57.1	65.8	68.4	66.8	60.9	49.9	38.3	31.4
Avg. Precipitation (inches)	0.72	0.63	0.42	0.38	0.49	0.79	1.81	2.19	1.48	1.17	0.72	0.93

**TABLE 3-9
CLIMATE NORMALS (1981-2010) TRUTH OR CONSEQUENCES**

TRUTH OR CONSEQUENCES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Temperature (°F)	42.0	47.0	53.1	61.0	70.4	78.9	81.2	78.7	72.9	62.0	50.0	41.4
Avg. Max Temperature (°F)	56.7	62.5	69.0	77.5	86.6	95.4	95.4	92.3	87.4	77.1	65.3	55.5
Avg. Min Temperature (°F)	27.4	31.6	37.3	44.5	54.1	62.5	67.0	65.1	58.4	46.8	34.6	27.3
Avg. Precipitation (inches)	0.46	0.37	0.33	0.23	0.36	0.84	2.04	2.10	1.62	1.13	0.60	0.85

Climate Impacts and Greenhouse Gas Emissions: Greenhouse gases (GHG) are chemical compounds in the Earth's atmosphere that allow incoming short-wave solar radiation but absorb long-wave infrared radiation re-emitted from the Earth's surface, trapping heat. Although GHG levels have varied for millennia (along with corresponding variations in climate), industrialization and burning of fossil carbon sources have caused GHG concentrations to increase measurably (IPCC 2007, 2001). Most studies indicate that the Earth's climate has warmed over the past century due to increased emissions of GHGs and human activities affecting emissions to the atmosphere are likely an important contributing factor (U.S. Energy Information Administration 2009).

Computer-based modeling suggests that rising GHG concentrations generally produce an increase in the average temperature of the Earth, which may produce changes in sea levels, rainfall patterns, and intensity and frequency of extreme weather events. Collectively, these effects are referred to as "*climate change*." The Intergovernmental Panel on Climate Change (IPCC), in its Fourth Assessment Report, stated that warming of the Earth's climate system is unequivocal and that warming is very likely due to anthropogenic GHG concentrations (IPCC 2007).

The Earth's global mean surface temperature rose 1.3°F (0.74°C) from 1906 to 2005 (IPCC 2007). In 2007, the IPCC predicted that by the year 2100, global average surface temperatures will rise 2.0-11.5°F (1.1-6.4°C) above 1990 levels. Increasing concentrations of GHGs are likely to accelerate the rate of climate change in the future, and there is evidence of this happening already (IPCC 2007). However, uncertainties remain as to how climate change will affect different regions. Computer model predictions indicate increases in temperature will not be equally distributed but are likely to be accentuated at higher latitudes. Data collected by the Goddard Institute for Space Studies indicate that northern latitudes have exhibited temperature increases of nearly 2.1°F since 1900, with a nearly 1.8°F increase since 1970 (Goddard Institute for Space Studies 2007).

Recent warming in the Southwest has been "*among the most rapid in the nation*" (U.S. Global Change Research Program, 2009). Across the West, the increase in average temperature during the past 5 years has been 70 percent higher than in the world as a whole (Saunders 2008). In New Mexico, rapid warming has occurred year-round since the 1960s. Temperatures have increased approximately 2°F in the winter and 3°F in the summer. These increases are significantly greater than the annual global trend of 1°F over the 20th century (Gutzler 2007). Climate models' projections for the future of the western US consistently predict higher temperatures. Warming is predicted to be greatest at higher elevations and in winter and early spring (Gutzler 2005).

Greenhouse Gas Emission Sources: GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), water vapor, and several trace gases. Some GHGs, such as CO₂, occur naturally and are emitted into the atmosphere through both natural processes and human activities, while others are created and emitted solely through human activities. The GHGs that enter the atmosphere due to human activities include CO₂ from the burning of fossil fuels, solid waste, and trees and wood products; CH₄ emitted during the production and transport of coal, natural gas, and oil, as well as by livestock, deforestation, and agricultural practices; N₂O from agricultural and industrial activities and the combustion of fossil fuels and solid waste; and fluorinated gases that result from a variety of industrial processes.

Total GHG emissions in the United States rose 10.5 percent from 1990 to 2010. The primary GHG emitted by human activities in the United States is CO₂. It totals approximately 83.6 percent of all GHG emissions, with the largest source being fossil fuel combustion. According to the EPA *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2010*, total greenhouse gas emissions in 2010 were 6,821.8 teragrams. These GHG emissions are partly offset by carbon sequestration in forests, trees, urban areas, and agricultural soils, resulting in a net emission of 5,747.1 teragrams in 2010 (U.S. Environmental Protection Agency 2012).

Total GHG emissions in New Mexico rose 16.7 percent from 1990 to 2007. The largest sources of GHG emissions in the State are electricity production, the fossil fuel industry and transportation fuel use. GHG emissions in New Mexico grew by an estimated 3 percent annually from 1990-2000 and then remained essentially the same from 2000-2007, despite a 6.7 percent growth in the State's population during that time. New Mexico's total greenhouse gas emissions in 2007 were 76.2 million metric tons of CO₂ (New Mexico Environment Department 2010). One teragram is equal to 1 million metric tons.

Regional Climate Trends and Impacts: The average temperature in the Southwest has already increased approximately 1.5°F (0.83°C) above a baseline period of 1960-1990 and is projected to rise 4.0-10.0°F (2.2°C-5.6°C) by the end of the century (Justus 2007). It is not possible to predict with certainty the effects of climate change on local- or regional-scale ecosystems, but climate change is certain to affect natural and human systems within the *Planning Area* and is likely to have a large impact on BLM management strategies. The U.S. Government Accountability Office Report on Climate Change states:

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:

- *Physical effects, such as droughts, floods, glacial melting, and sea level rise;*
- *Biological effects, such as increases in insect and disease infestations, shifts in species distribution, and changes in the timing of natural events; and*
- *Economic and social effects, such as adverse impacts on tourism, infrastructure, fishing, and other resource uses (Government Accountability Office 2007).*

In the Chihuahuan Desert, the most likely effects of climate change include the following:

- Higher average temperatures, particularly at night;
- More episodes of extreme heat;
- Greater evaporative loss from water bodies;
- Less runoff and more soil drought;
- Reduced groundwater recharge;
- Earlier peak stream flows in rivers;
- More extreme weather events, such as torrential rains and severe droughts;
- Higher rates of soil erosion;
- Increased invasive plant species, particularly non-native annual grasses;
- Increased frequency and intensity of wildfires;
- Shifting habitats for wildlife, including the development of "novel" ecosystems in which species that have been geographically separate in the past begin to share habitat; and
- Worsening air pollution problems as increased temperatures and drought contribute to ozone and PM₁₀ production.

The most important way climate change is likely to affect the *Planning Area* is by decreasing already scarce water resources. Tree ring records show that New Mexico has alternated between multi-decadal drought and wet spell events for hundreds of years (Gutzler 2007). January through July 2011 was the driest on record for New Mexico. The *TriCounty* area was in severe to extreme drought for the years 2011 and 2012 (National Oceanic and Atmospheric Administration 2012).

Historically, most rain in the *TriCounty* area falls during the summer monsoon and winter rainy seasons, while the spring and fall "shoulder" seasons may see no rain at all. The monsoon season, typically mid-July to mid-September, is defined by a shift in wind patterns that brings moisture up from the Gulf of California, the Gulf of Mexico, and the eastern Pacific. In the coming century, projections show an

increased probability of drought for the region with a northward shift in winter and spring storm tracks. This is consistent with observations from the past few decades. There is presently no scientific consensus on how the summer monsoon may be affected by climate change (U.S. Global Change Research Program 2009).

The effect that higher temperatures, both observed and projected, will have on the region's water supplies is much clearer. Snowpack currently supplies approximately 70 percent of all water in the West (Saunders 2008) and almost all the water to the rivers that flow into the *TriCounty* area. The timing and capacity of these supplies are dependent on overall precipitation and temperature, which determines when the snowpack melts. Recent years have seen snowmelt push the timing of peak stream flows in spring as much as a month earlier than normal, thereby reducing flows in the summer and fall, when demand typically peaks (Saunders 2008). Reduced stream flows in the summer will leave ecosystems more dependent on summertime rains. Further exacerbating this vulnerability is the increasing tendency of rain to fall during infrequent, large-scale events that drain quickly and cause flooding and soil erosion. Such changes to the hydrologic cycle of the Chihuahuan Desert could have massive impacts on the region's wildlife and vegetation.

Current conditions in the Chihuahuan Desert represent the extreme range for many plant species, and the combination of increasing temperatures and decreasing water availability is likely to shift the range of many plants and animals northward or even cause them to become extinct (Saunders 2008). Increasing CO₂ concentrations also lead to fertilization and growth of specific plant species. The "novel" ecosystems created by climate change-induced habitat shifts also could lead to significant management challenges as plants and animals that once were geographically distinct combine in new ways.

As climate change causes an increase in air temperatures in the *Planning Area*, pollutants such as ozone and particulate matter that are formed more readily in warm air are likely to increase and cause a decline in air quality. Southern Doña Ana County ozone levels are elevated, and there is currently a small portion of the County that is designated nonattainment for coarse particulate matter. As air quality decreases further due to changes in climate, there is a possibility that areas within the *TriCounty Planning Area* could be designated as nonattainment for these pollutants.

3.3.3 SOIL RESOURCES

The U.S. Department of Agriculture, Soil Conservation Service (now the Natural Resource Conservation Service [NRCS]) mapped soils in Sierra County (USDA NRCS 1984), in areas of Otero County (USDA NRCS and US Forest Service 1981) and Doña Ana County (USDA NRCS and US DOI BLM 1980). The soil resources of the *Planning Area* are categorized according to soil associations, or in the recent terminology of the NRCS surveys, general soil map units.

Soils in the *Planning Area* are primarily the product of soil forming factors including climate, parent material, biological activity, the nutrient and hydrologic cycles, and landscape or topography. The soil associations mapped by NRCS are most closely correlated to the various landforms of the *Planning Area*, and the following description is primarily developed from the soil survey references. The soils in Sierra, Otero, and Doña Ana Counties are derived from a variety of rock types, including granitic, volcanic, metamorphic, sedimentary formations and alluvium deposits. Young and poorly-developed soils are typically formed by alluvial and eolian depositional processes. There are three broad categories of soils within the counties: (1) very shallow to deep, well-drained gravelly to sandy loams with varying concentrations of rock fragments (gravel, cobbles) found on mesas, hills, mountains, ridges, slopes, and bajadas; (2) deep, well-drained mix of clay and silty loams found on fan terraces, gentle piedmont slopes, distal ends of bajadas, swales, and ephemeral lake-beds or playas; and (3) deep, poorly- to well-drained clay loams to loams, and very fine sands in the floodplains and draw bottoms.

Some areas within the *Planning Area* exhibit soil piping, gully, and head-cutting. Even though these erosional features can occur in any soil type and a wide variety of landforms, these conditions typically occur in finer-grained soils and locations that receive heavy rainfall runoff as well as areas of past and present surface disturbance. Soils in swales and draw bottoms typically are clays or silty clays that have a high potential to shrink and swell, which can contribute to soil cracking and tunneling.

3.3.4 WATER AND WATERSHED RESOURCES

Located mostly in the Chihuahuan Desert, the *Planning Area* normally functions under conditions in which evaporation rates exceed rainfall in most years. The Rio Grande and Tularosa basins dominate the physical conditions and watershed and hydrologic systems in the *Planning Area*.

3.3.4.1 Groundwater

All water rights in New Mexico are acquired in accordance with the State's substantive and procedural law, except where Congress or the Executive Branch has created a Federal reservation with a reserved water right. The New Mexico Office of the State Engineer, as delineated by statute and judicial decision, has divided the State into declared groundwater basins to assess and adjudicate water resources (see Map 3-1). The *Planning Area* contains 12 groundwater basins.

Located in Sierra County are the Las Animas, Rio Grande, Hot Springs Artesian, northern edge of the Mimbres, eastern portion of the Gila San Francisco, and western side of the Tularosa Basins. Otero County is dominated by the Tularosa and Salt Basins in addition to much of the Hondo and Peñasco Basins. Given the high number of groundwater basins occurring in the *Planning Area*, this section will focus on the two primary basins, the Lower Rio Grande and Tularosa Basins. These Basins were chosen for analysis due to their size, available data, and are generally impacted by the highest percentage of the population in the three-county area.

Groundwater in the Lower Rio Grande Basin (Mesilla Bolson), which underlies public land on both the east and west mesas above the Mesilla Valley in Doña Ana County, is generally of good quality. Most of the groundwater problems in this Basin are typically confined to specific areas. In general, communities in this region depend heavily on groundwater for domestic sources. However, based on the most recent report from the New Mexico Environment Department (NMED), the Lower Rio Grande groundwater basin has declined in groundwater quality (2007). The Source Water Assessment by the NMED Drinking Water Bureau in a 2010 report for the City of Las Cruces determined that city drinking was primarily good quality. However, low levels of uranium and arsenic have been detected in some wells.

The *New Mexico Lower Rio Grande Regional Water Plan* (LRGWUA 2004) also reported several problems. Sulfate (S) and chloride (Cl) concentrations have exceeded the New Mexico Water Quality Control Commission criteria in wells near or at Las Cruces, Mesquite, La Mesa, Vado, Berino, and La Union. Nitrate concentrations exceeding the standard of 10 milligrams per liter were reported in wells near or at Mesquite and La Union. Septic tanks, dairies, feedlots, and irrigated croplands are all potential nitrate sources.

Dissolved solids (salts) are the primary concern in the Tularosa and Salt basins. Groundwater quality ranges from fresh to brine and is highly dependent upon geology, landform, and usage (pumping rates and quantities available). Locations with saline to brine water quality have limited potential for development of groundwater resources. The primary contaminants in these waters are sodium chloride (NaCl), sodium (Na), and S. Concentrations of these contaminants are typically controlled by the type of rock in the aquifer and often vary with depth. In addition, leaking underground storage tanks in Alamogordo and at Holloman Air Force Base, White Sands Missile Range, and Fort Bliss have been detected in the past.

However, there are no reported water-supply wells in the Tularosa and Salt basins that have been contaminated from the potential sources described above (SCMRCDC 2002).

Detrimental changes can occur to aquifers from prolonged pumping rates, diminished aquifer recharge rates, and possibly subsurface mining activities. Significant depletions of groundwater within an aquifer could decrease pore water pressures and increase void space allowing the weight of the overlying rock to compact the aquifer and potentially lead to subsidence. These effects are essentially irreversible and could decrease the aquifer's holding capacity or render the aquifer nonfunctional.

3.3.4.2 Surface Water

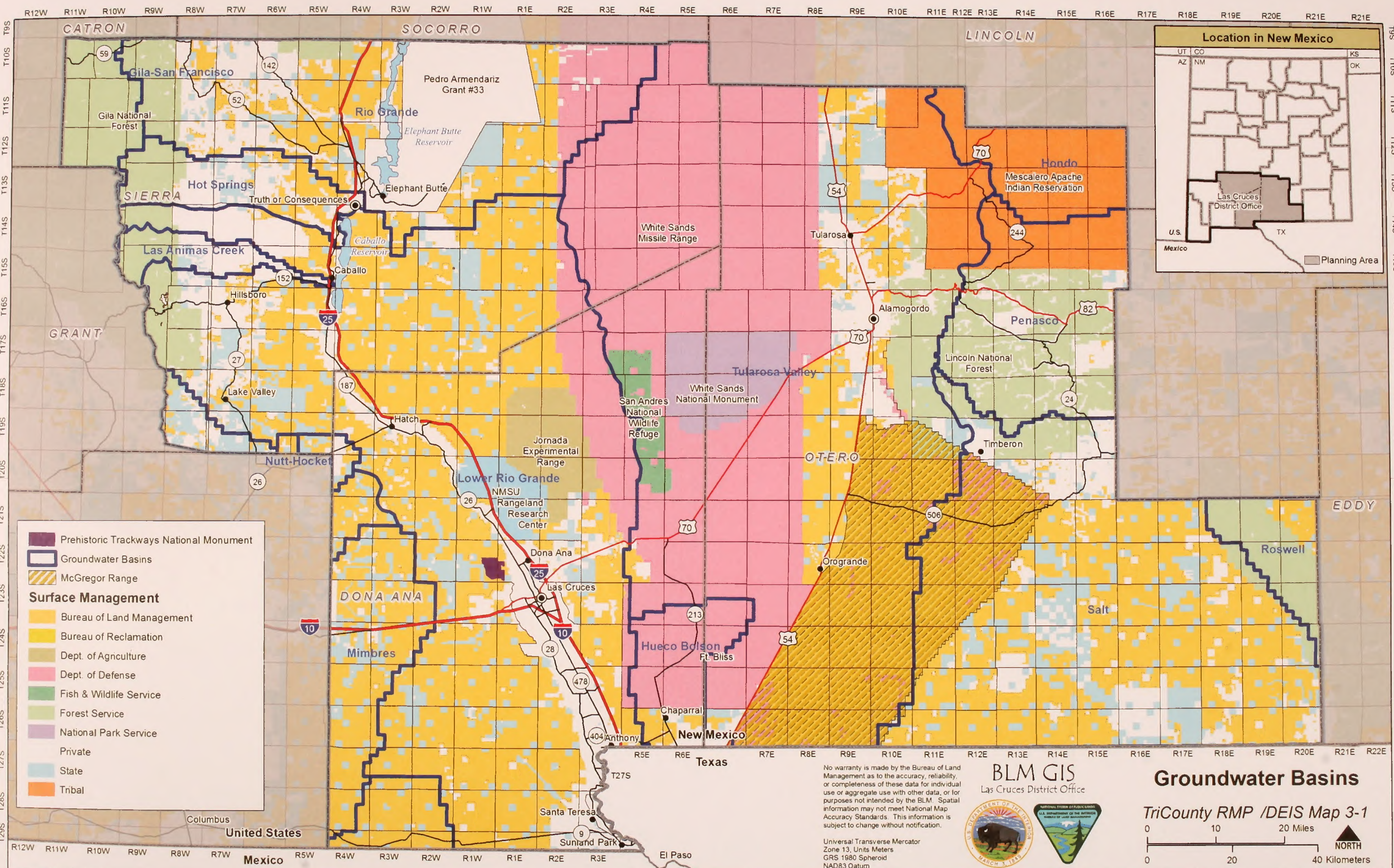
The Clean Water Act is the primary law in controlling water quality. It provides instream water quality standards and maximum permissible pollution discharge levels. In New Mexico, water quality authority is vested in the New Mexico Water Quality Control Commission and is administered primarily by the various units of NMED. Surface-water quality standards are established by NMED and approved by the EPA. Under Section 401 of the Clean Water Act, the State can deny certification of Federal permits based on anticipated water quality impacts.

Surface-water rights in New Mexico are based on the principles of beneficial use and first appropriation, meaning that water rights are ranked in priority according to first beneficial use, and all unappropriated water belongs to the State. BLM provides management for surface waters that are on BLM land. Although perennial surface waters are sparse in southern New Mexico, the *Planning Area* contains the Rio Grande, Percha Creek, Three Rivers, Cuchillo Negro Creek, and Tularosa Creek along with numerous ephemeral and intermittent streams and springs. The *Planning Area* includes approximately 75 miles of the Rio Grande, the Nation's third longest river. This River provides water for agricultural irrigation in the Hatch, Mesilla, and El Paso valleys, and a portion of the City of El Paso's drinking water. Surface waters are important in supporting vegetation and fish and wildlife and in increasing water quality and providing opportunities for recreation. Desert washes function primarily as areas of overland flow collection and recharge areas for the surrounding watershed, differing in this respect from streams in more humid climates.

The designation of watersheds has been standardized for the Department of the Interior. In using the U.S. Geological Survey (USGS) hydrologic unit system, BLM watershed planning generally occurs at the fourth-level hydrologic unit, or "*sub-basin*" level.

The towns of Carrizozo and Tularosa and the City of Alamogordo have historically relied on existing surface water flowing from the perennial streams of the Sacramento Mountains and Sierra Blanca. All three communities have had to look to groundwater for future water supplies. The USGS stream-gauging records for Tularosa Creek over the past 10 years indicate a 30 percent decline in discharge (USDOI Geological Survey 2005).

Surface-water quality is measured by the concentrations of contaminants that cause impairment of designated, existing, or past uses. Surface water is necessary on public land to maintain existing riparian vegetation, to provide water for fish and wildlife and livestock, to enable authorized recreational activities, and to recharge aquifers. If surface-water quality is degraded to the point that the water cannot be used, or degrades human or ecological health, then public land use is also impaired. Surface-water quality problems are detailed in New Mexico's 303(d) list of impaired waters, which designates all impaired waters as Category 5 watersheds. The 303(d) list of impaired surface waters are those that are defined as impaired by point sources and nonpoint sources of pollutants. Each watershed is given a Hydrologic Unit Code, which is an eight-digit code defined by the USGS. These codes, and the



Legend

- Prehistoric Trackways National Monument
- Groundwater Basins
- McGregor Range

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal

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BLM GIS
Las Cruces District Office

Groundwater Basins

TriCounty RMP / DEIS Map 3-1

0 10 20 Miles

0 20 40 Kilometers

NORTH

Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum

associated names that identify various watersheds, are shown in Table 3-10 (NMED 2007). The Total Maximum Daily Load determines the amount of pollutants that a body of water can receive.

**TABLE 3-10
WATERSHEDS WITH 303(d) LISTED WATERS IN THE *PLANNING AREA***

IMPAIRED WATERS	HYDROLOGIC UNIT CODE
Tularosa Valley	13050003
Rio Grande - Elephant Butte Reservoir	13020211
Rio Grande - Caballo	13030101
Rio Grande - Las Cruces – El Paso	13030102

The surface-water quality is generally good in the rural parts of the *Planning Area*, and the trend has been to improve the protection of bodies of water from point and nonpoint source pollution over the last 10 to 20 years, resulting in improved surface-water quality. However, surface-water quality in the expanding urban, commercial, and industrial areas of the Mesilla Valley shows a different trend. The expansion and complexity of these areas have increased stormwater runoff and nonpoint source pollutants and have decreased water infiltration to shallow groundwater aquifers. This trend, mixed with increased litter, pet wastes, and other urban pollutants, have caused higher concentrations of bacteria to be routed to rivers, such as the Rio Grande. This scenario may partially explain bacteriological pollutants (fecal coliform and *E. coli*) in excess of the Total Maximum Daily Load allowed for the lower Rio Grande from the Caballo Reservoir to the Texas-New Mexico border.

The surface-water body in the *Planning Area* that would be potentially most influenced by public land management is the Rio Grande. Its watershed constitutes nearly 50 percent of BLM land in the *Planning Area* and according to the New Mexico’s 303(d) list of impaired waters is not meeting water quality standards with respect to fecal coliform. The probable listed sources of impairment includes livestock on public land, dairy and feedlot operations, runoff from impervious surfaces such as streets and parking lots, septic systems, and other sources. In the urban areas of Doña Ana County, it has been shown that a significant emergent source of fecal coliform is the transformation of undisturbed or rural land uses into developed urban or suburban land.

3.3.5 GEOLOGY

The geologic resources of the *Planning Area* are best understood within the context of the regional physiography, the mode of formation and spatial occurrence of the various rock types within the area, and the geologic structures and history that combined to produce the geologic conditions that exist in the area (see Map 3-2). The physiography, rock units, geologic structure and tectonic history of the *Planning Area* are discussed in this section. Rather than describing current conditions for each county, conditions are summarized for the entire *Planning Area*, with specific counties mentioned as applicable.

The most prominent geologic resources are located in the rugged and colorful mountain ranges found throughout the *Planning Area*. The unique or scenic geologic features in the many north-trending mountain ranges, including the San Andres, Organ, Caballo, and Mimbres Mountains, add value to the existing and proposed ACECs and WSAs that are managed for other resources.

3.3.5.1 Physiography

Portions of four major physiographic provinces are located within the boundaries of New Mexico: the Colorado Plateau, Basin and Range, Southern Rocky Mountains, and Great Plains. The *Planning Area* is primarily within the Basin and Range province, but includes a small portion of the Great Plains province

in northeast Otero County and a small portion of what is known as a Transition Zone in western Sierra County that has characteristics of both the Colorado Plateau and the Basin and Range provinces (Chamberlin and Cather 1994; Grant and Foster 1989).

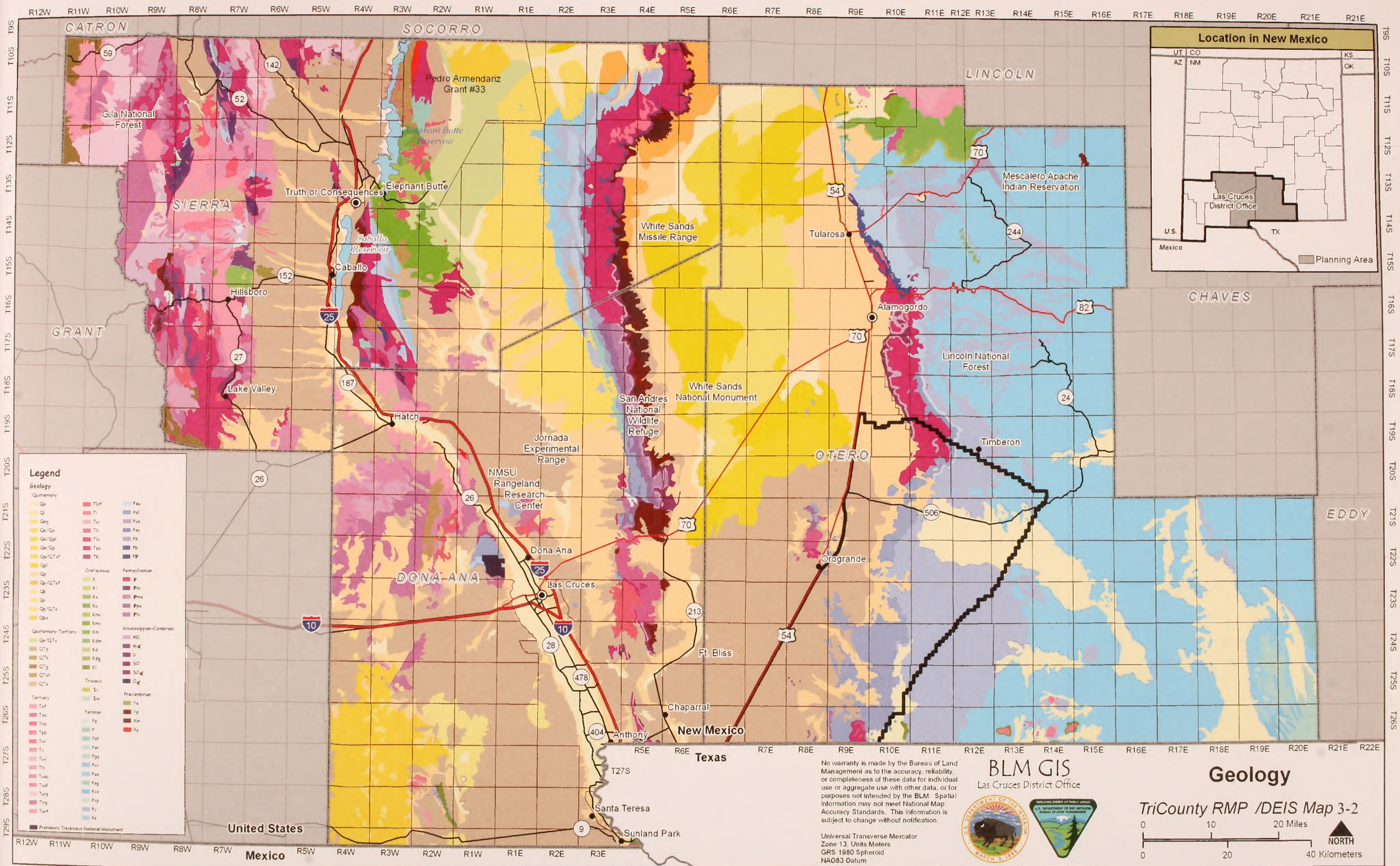
The Basin and Range province contains the Rio Grande Rift, a dominant tectonic feature that has influenced the geomorphic features and geologic history of the *Planning Area*. Land within Sierra and Doña Ana Counties has been subjected to severe deformation by Cenozoic extensional tectonism associated with the Rio Grande Rift. The rift system was superimposed on a weakened crustal region of block faults and thrust faults that were active during Pennsylvanian-age tectonism. The Rift is characterized by deep, asymmetric north-trending horsts, grabens, and half-grabens superimposed on the older structure (Butler 1996). The deep Jornada del Muerto and Mesilla Basins are part of the extensional rift zone. Block-faulted, uplifted mountains are located on both sides of the Rio Grande Rift and expose Precambrian granite and metamorphic basement rocks near the eastern flank of the San Andres and Organ Mountains, the western edge of the Caballo Mountains, and the center of the Mimbres Mountains.

3.3.5.2 Rock Units

The lithology, areal extent, and thickness of the major rock types present in New Mexico are described by Grant and Foster (1989) in an introduction to their discussion of future petroleum provinces. A general stratigraphic chart for the south-central New Mexico region, prepared by Butler (1996), is presented on Figure 3-1. It is useful to mention that the formation names for Figure 3-1 may not match those for Map 3-2 and corresponding legend because the USGS geologic map includes formation names for age-correlative formations in other areas of New Mexico. This report describes the rock types, areal extent, stratigraphic thicknesses, and general thickness trends for rock units in the *Planning Area*, beginning with the oldest known rocks.

Precambrian (Proterozoic): Precambrian rocks exposed in the *Planning Area* include granites, quartzites, gabbros, metasedimentary, and metavolcanics. In Sierra County, significant exposures of Precambrian rocks are found in the San Andres, San Mateo and Caballo Mountains, and lesser outcrops are found in the Sierra Cuchillo Mountains and Fra Cristobal and Black Ranges. In Doña Ana County, Precambrian rocks are found in the San Andres and Organ Mountains. The only Precambrian rocks exposed in Otero County are in Pajarito Mountain and near the town of Bent, New Mexico, both of which are in the far northeast corner. Some Precambrian rocks host metallic minerals and have been mined for gold, silver, and other minerals at several locations in the *Planning Area*.

Cambrian – Ordovician: Sedimentary rocks of Cambrian–Ordovician age exposed in the *Planning Area* include quartz sandstones, shales, limestones and dolomites. In Sierra County, significant exposures of Ordovician–Cambrian rocks are found in the San Andres, San Mateo and Caballo Mountains, and lesser outcrops are found in the Sierra Cuchillo Mountains and Fra Cristobal and Black Ranges. In Doña Ana County, Ordovician–Cambrian rocks are found in the San Andres and Organ Mountains. Ordovician rocks are exposed in the Sacramento Mountains in Otero County. Formations include quartz sandstones of the Upper Cambrian-Lower Ordovician Bliss Formation, and dolomites of the Lower Ordovician El Paso Formation and Middle Ordovician Montoya Group.



Legend

Geology

Quaternary	Qe	Ql	Qes	Qe/Qs	Qe/Qpl	Qe/Qp	Qe/QTef	Qpl	Ql	Q/QTef	Qs	Q	Q/QTef	Qp	Q	Q/QTs	Qbs
Quaternary-Tertiary	Qe/QTs	QTp	QTb	QTg	QTef	QTs											
Tertiary	Tsf	Tos	Tob	Tpb	Ttr	Tv	Tuv	Th	Tub	Tul	Tup	Tirp	Turf				
Quaternary	Qe	Ql	Qes	Qe/Qs	Qe/Qpl	Qe/Qp	Qe/QTef	Qpl	Ql	Q/QTef	Qs	Q	Q/QTef	Qp	Q	Q/QTs	Qbs
Cretaceous	K	Ki	Ke	Ku	Kmc	Km	Kdm	Kd	Kdg	Kl							
Quaternary-Tertiary	Qe/QTs	QTp	QTb	QTg	QTef	QTs											
Tertiary	Tsf	Tos	Tob	Tpb	Ttr	Tv	Tuv	Th	Tub	Tul	Tup	Tirp	Turf				
Permian	Pz	P	Fat	Par	Pgt	Pcc	Psa	Pag	Pca	Pp	Py	Pa					
Triassic	Ts	Sm															
Permian	Pz	P	Fat	Par	Pgt	Pcc	Psa	Pag	Pca	Pp	Py	Pa					
Carboniferous	Car																
Mississippian-Cambrian	MD	Mk	Ms	Mo	So	Soe	Qg										
Pre-Cambrian	Ye	Yp	Xm	Xp													

■ Prehistoric Trackways National Monument

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Universal Transverse Mercator
Zone 13 Units Meters
GRS 1980 Spheroid
NA083 Datum

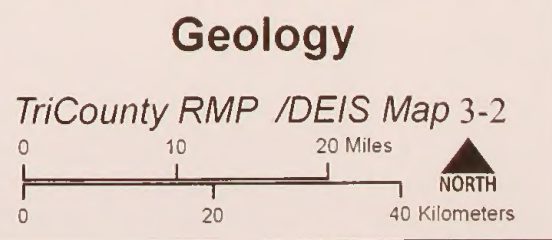
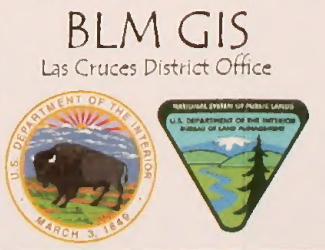
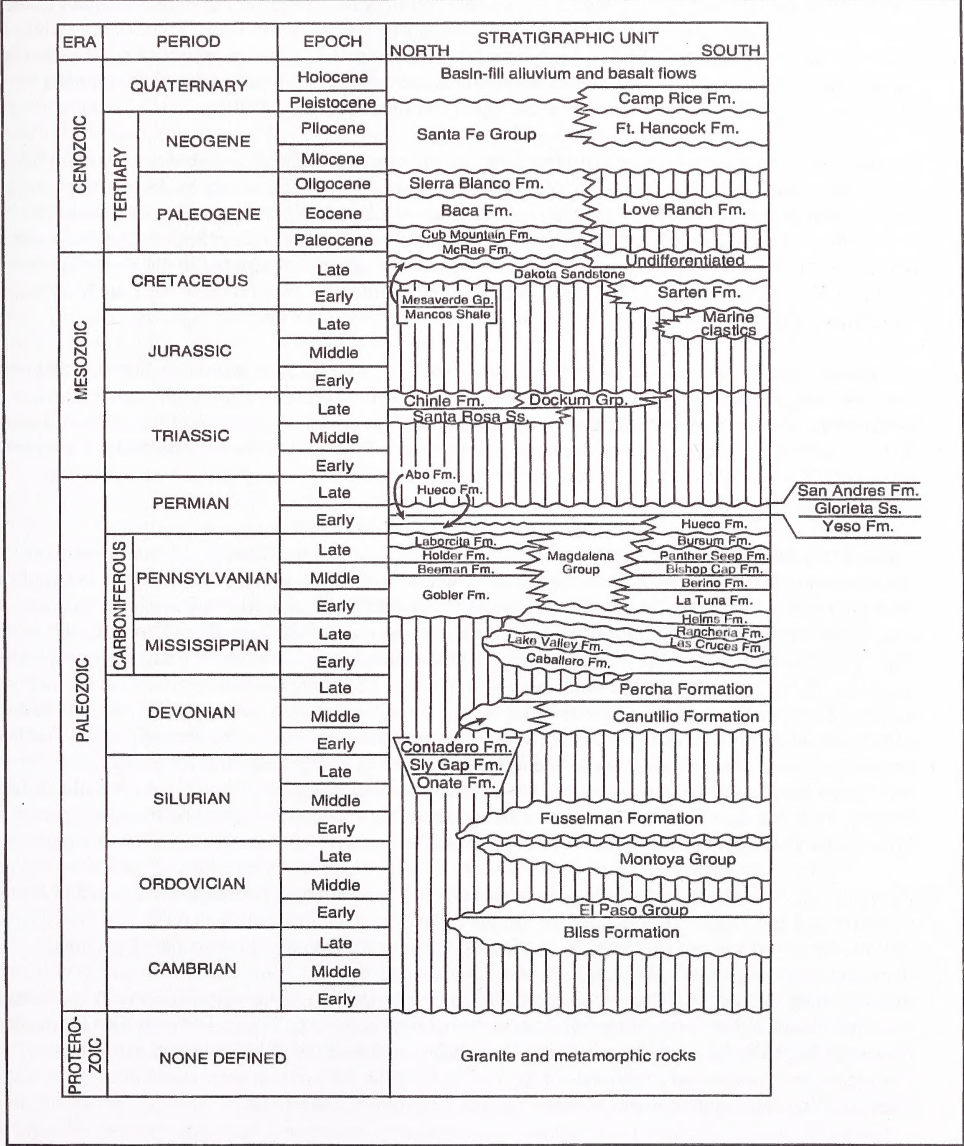


FIGURE 3-1 GENERAL STRATIGRAPHIC CHART



Silurian-Devonian: Sedimentary rocks of Silurian-Devonian age exposed in the *Planning Area* include shales, limestones, and dolomites. In Sierra County, significant exposures of Silurian and Devonian rocks are found in the San Andres, San Mateo and Caballo Mountains, and lesser outcrops are found in the Sierra Cuchillo Mountains and in the Fra Cristobal and Black Ranges. In Doña Ana County, Silurian and Devonian rocks are found in the San Andres and Organ Mountains. Ordovician rocks are exposed in the Sacramento Mountains in Otero County. Formations include the cherty dolomite of the Silurian Fusselman Formation, and black shale of the Late Devonian Percha Formation.

Mississippian: Sedimentary rocks of Mississippian age exposed in the *Planning Area* consist of dark, cherty limestone. In Sierra County, significant exposures of Mississippian-age rocks are found in the San Andres, San Mateo and Caballo Mountains, and lesser outcrops are found in the Sierra Cuchillo Mountains and Fra Cristobal and Black Ranges. In Doña Ana County, Mississippian-age rocks are found in the San Andres and Organ Mountains. Mississippian-age rocks are exposed in the Sacramento Mountains in Otero County. Lithologies include porous carbonate shelf facies of the Late Mississippian Lake Valley Formation.

Pennsylvanian: The abundance of isolated outcrops of Pennsylvanian strata in New Mexico that resulted from the complex geological history of the region has led to a confusion of multiple names and descriptions for Pennsylvanian sediments that are difficult to correlate. Grant and Foster (1989) observed that extensive tectonism during the Pennsylvanian orogeny “*resulted in the accumulation of a varied suite of rocks.*” The variation in Pennsylvanian-age rocks is evident in the long list of Pennsylvanian-formation names in New Mexico.

Sedimentary rocks of Pennsylvanian age are exposed in outcrops throughout Sierra and Doña Ana Counties and have been penetrated by the drill bit in much of the *Planning Area*. Isopach maps of the Pennsylvanian System show a sedimentary sequence in the Rio Grande Rift ranging from 1,000 to more than 3,000 feet thick. Compression toward the Rift caused thrust faulting and thickening of the Pennsylvanian section in deep basins of northern Doña Ana County and southern Sierra County. Uplift of the Otero Platform resulted in thinning and non-deposition of Pennsylvanian sediments in the eastern half of Otero County. Formations within the Magdalena Group include the Lower Pennsylvanian Lead Camp Limestone; and gray limestone, shaly limestone, and black shale of the Upper Pennsylvanian Panther Seep Formation. Pennsylvanian rocks are exposed in the San Andres, San Mateo, and Caballo Mountains, and lesser outcrops are found in the Sierra Cuchillo Mountains and Fra Cristobal and Black Ranges. In Doña Ana County, Pennsylvanian-age rocks are found in the San Andres and Organ Mountains. Pennsylvanian-age rocks are exposed in the Sacramento Mountains in Otero County.

Permian: Rocks of Permian age are present in mountain range outcrops throughout Sierra and Doña Ana Counties and are common throughout the western *Planning Area* in subsurface rocks penetrated by the drill bit during oil and gas exploration. An isopach map of the Permian System shows sediment thicknesses ranging from 1,000 feet in western Doña Ana County to more than 3,000 feet in northern Sierra County and western Otero County (Grant and Foster 1989). Relatively flat-lying Permian rocks outcrop extensively in eastern Otero County. Formations include the Lower Permian Abo Formation consisting of red bed sandstones, siltstones, and shale; limestones of the Lower Permian Hueco Formation; evaporates and sandstones of the Lower Permian Yeso Formation; sandstones of the Lower Permian Glorieta Formation; and Middle Permian San Andres Limestone.

Triassic: Minor outcrops of Triassic rocks occur in northern Otero County. Outcrops are recognized as the Upper Triassic Chinle Group and Moenkopi Formation.

Jurassic: Jurassic rocks are recognized in the deep Mesilla Basin in southern Doña Ana County. No outcrops have been mapped in the *Planning Area*. The rocks consist of Upper Jurassic marine sandstones and shales.

Cretaceous: Rocks of Cretaceous age are exposed east of the Caballo Mountains in central Sierra County along the slopes of the Sierra Blanca Range and Cornudas Mountains in Otero County, and in the East Potrillo Mountains in southern Doña Ana County. Although relatively thin in outcrops, the deposits near the Caballo Mountains thicken under the Jornada del Muerto Basin and attain subsurface thicknesses of up to 2,000 feet (Grant and Foster 1989). Cretaceous formations have been grouped into depositional packages associated with a series of transgressive-regressive marine shoreline features that include interbedded sand, shale, and coal sequences. Formations include the Upper Cretaceous Dakota Formation and Upper Cretaceous Mesaverde Group. The Mesaverde Group has been mined for coal in the Engle field east of Truth or Consequences and in the Sierra Blanca field northeast of Tularosa.

Tertiary: Tertiary-age rocks are present throughout the *Planning Area* and consist primarily of volcanic lava flows, ash-fall tuffs, and pyroclastic flows. The Sierra de las Uvas, Organ Mountains, Black Range, and Sierra Cuchillo Mountains are dominated by Tertiary volcanic rocks. Minor occurrences also are found in the southern Caballo Mountains, northern Sacramento Mountains, and northern San Andres Mountains. Because of their abundance, localized extent, and discontinuity, these rocks have local names too numerous to mention here.

Tertiary-Quaternary: Outcrops of Tertiary- and Quaternary-age sedimentary rocks are extensive throughout the *Planning Area*. An isopach map of the Quaternary-age sedimentary rocks reveals thick sequences of alluvial sediments in Cenozoic structural basins, such as the Tularosa, Rio Grande, Jornada del Muerto, and Palomas Basins. The Tertiary rocks in south-central New Mexico are a complex suite of sedimentary and volcanic rocks. In the Rio Grande Rift basins, the Tertiary System can be greater than 5,000 feet thick (Grant and Foster 1989). Formations include Tertiary intrusives and volcanics, the Miocene-Pliocene Popotosa Formation, and the Plio-Pleistocene Santa Fe Group.

Quaternary: Rocks of Quaternary age in the *Planning Area* are diverse, widespread, and have up to a few hundred feet thick. Quaternary deposits include alluvial and colluvial sands, silts, and gravels; piedmont slope and valley border fan conglomerates grading from proximal boulder alluvium to distal sandsilt-clay mixtures; basin floor playa and lacustrine mudstones and siltstones; fine-grained eolian sand sheets and dunes; terrace, valley fill, floodplain, and channel sand, silt and clay deposits along major streams; angular cobble- and boulder-size talus deposits; and basalt flows. Quaternary deposits locally may intertongue with Plio-Pleistocene Santa Fe Group deposits. The surface accumulation and local abundance of these sediments make them convenient sources for construction aggregate.

3.3.5.3 Structural Geology and Tectonics

The location of the *Planning Area* at the intersection of the Basin and Range, Great Plains, and Transition Zone physiographic provinces has resulted in a complex structural regime (Butler 1996; Chamberlin and Cather 1994; Grant and Foster 1989). The structural geology is dominated by the Rio Grande Rift system.

The majority of the *Planning Area* is in the Basin and Range province and has been subjected to severe deformation by Tertiary-age extensional tectonism associated with the Rio Grande Rift. The rift system was superimposed on a weakened crustal region of block faults and thrust faults that were active during Pennsylvanian-age tectonism. The rift is characterized by deep, asymmetric north-trending horsts, grabens, and half-grabens superimposed on the older structure (Butler 1996). Deep north-trending basins that formed during Rio Grande rifting include the Tularosa-Hueco, Jornada del Muerto-Mesilla, and Palomas-Mimbres Basins. These basins are filled with thousands of feet of sedimentary rocks and

interbedded lava flows. The basins are separated by block-faulted, uplifted mountains located on both sides of the Rio Grande Rift that expose Precambrian granite and metamorphic basement rocks. The Sacramento, San Andres, Organ, and Caballo Mountains, and the Sierra Cuchillo and Sierra de las Uvas all are block-faulted horst mountains.

The western part of Sierra County is characterized by thick volcanic deposits of the Mogollon-Datil Volcanic Field, which is situated in the Transition Zone between the Basin and Range province and the Colorado Plateau province to the northwest. These Tertiary-age volcanic rocks were deposited during the opening of the Rio Grande Rift beginning about 30 million years ago. The thickness of the volcanic rocks has made investigation of underlying structures and rock types difficult, and not much is known of the deep subsurface.

The eastern part of the *Planning Area* in Otero County is part of the stable Great Plains province. The area is characterized by older buried structural features including Permian-age basins enclosed by a shallow marine shelf where carbonate reef, sandstone, and mudstone sediments predominate. North to northwest trending faults are present in the northeast and southeast corners of Otero County but do not have the large displacements of the Rio Grande Rift faults.

The historical record of earthquakes in the *Planning Area* from 1962 through 1998 lists only four earthquakes of magnitude 3.0 or greater (Sanford et al. 2002). Those earthquakes were located within the Rio Grande Rift system north and east of Las Cruces. Although New Mexico is in a seismically active area, the average earthquake intensity is a moderate 4.5 on the Richter scale. As such, a strong, damaging earthquake is not likely to occur in the *Planning Area*.

3.3.5.4 Geologic Value

Geologic resources may have an intrinsic aesthetic value that is often appreciated in scenic views or unique geomorphic features formed by geologic processes. Several locations within the *Planning Area* have received special designation to preserve natural geologic features having scenic value or unusual features that are valued by the public. These locations and a description of the geologic or scenic value responsible, at least in part, for the special designation are discussed in the section on Special Designations.

The trend for geologic resources is one of continued interest for scenic value or unique geologic interest, particularly in areas proposed for or having special designation. During the past 19 years, several areas of geologic or scenic interest have been included in areas given special designation by the BLM. There were eight ACECs (including two RNAs), seven WSAs, one trail, and one>NNL listed as special designations within Doña Ana County in the 1993 Mimbres RMP. The Prehistoric Trackways National Monument was established by Congress in the Omnibus Public Land Management Act of 2009. A stand-alone management plan is being prepared for the Monument so it is not addressed in this RMP. The White Sands RMP designated one ACEC and the 1997 White Sands RMP Amendment designated five ACECs.

The Scoping Report for the *TriCounty* RMP/EIS lists 15 proposed ACECs or WSAs, of which 10 are mentioned as having scenic or geologic value. Although some of those proposed designations are additions or changes to existing designations, frequency of proposals indicates that BLM and the public continue to designate new land to protective status for geologic and scenic values.

3.3.6 VEGETATION

This section addresses vegetation communities (upland, woodland, riparian, and wetland) and noxious weeds and invasive species. The information used to characterize vegetation communities (or land cover types) within Sierra, Otero, and Doña Ana Counties was obtained from NRCS ecological site descriptions of Major Land Resource Areas (USDA NRCS 2005), and land cover information was derived from the Southwest Regional Gap Analysis Project (SWReGAP) data (USGS 2004). While the Major Land Resource Areas use a soil-based approach to identify and describe potential vegetative communities and habitat, the SWReGAP data emphasize the vegetative communities and provide greater detail when describing the plants associated with land cover categories.

Land cover in the *Decision Area* is grouped into five categories based on the dominant natural or semi natural vegetation in a location. Those categories are based on the satellite imagery of the SWReGAP, which maps dominant vegetation types on a regional scale (see Map 3-3) and Table 3-11 (Lowery et al. 2005). The New Mexico Department of Game and Fish (NMDGF) uses that land cover data set including riparian, wetland, and playa data to identify key habitats in its *Comprehensive Wildlife Conservation Strategy for New Mexico* (2006).

**TABLE 3-11
LAND COVER IN DECISION AREA**

ACRES AND PERCENT OF LAND COVER IN EACH COUNTY

LAND COVER TYPE	SIERRA	%	OTERO	%	DOÑA ANA	%	TOTAL	%
Forest-woodland	41,000	1.4	19,000	0.7	27,000	0.9	87,000	3.1
Grassland-herbaceous	290,000	10.3	460,000	16.2	253,000	8.9	1,003,000	35.4
Shrub-scrub	429,000	15.1	413,000	14.6	805,000	28.4	1,647,000	58.1
Barren	19,000	0.7	39,000	1.4	34,000	1.2	92,000	3.2
Developed and agricultural	1,100	>0.1	60	>0.1	2,000	>0.1	3,160	0.1
Unassigned ¹	20	>0.1	100	>0.1	100	>0.1	220	>0.1

NOTE: ¹Unassigned acres are acres within the *Planning Area* that were not included in any of the other categories.

3.3.6.1 Land Cover

Forest-Woodland: Woodland cover types consist of upland forests, woodlands, and savannas and are generally differentiated by aspect, by elevation, and by soil moisture, texture, and depth. They occupy approximately 87,000 acres within the *Planning Area* and have the largest elevational range of any cover type—from 3,800 feet to 12,000 feet.

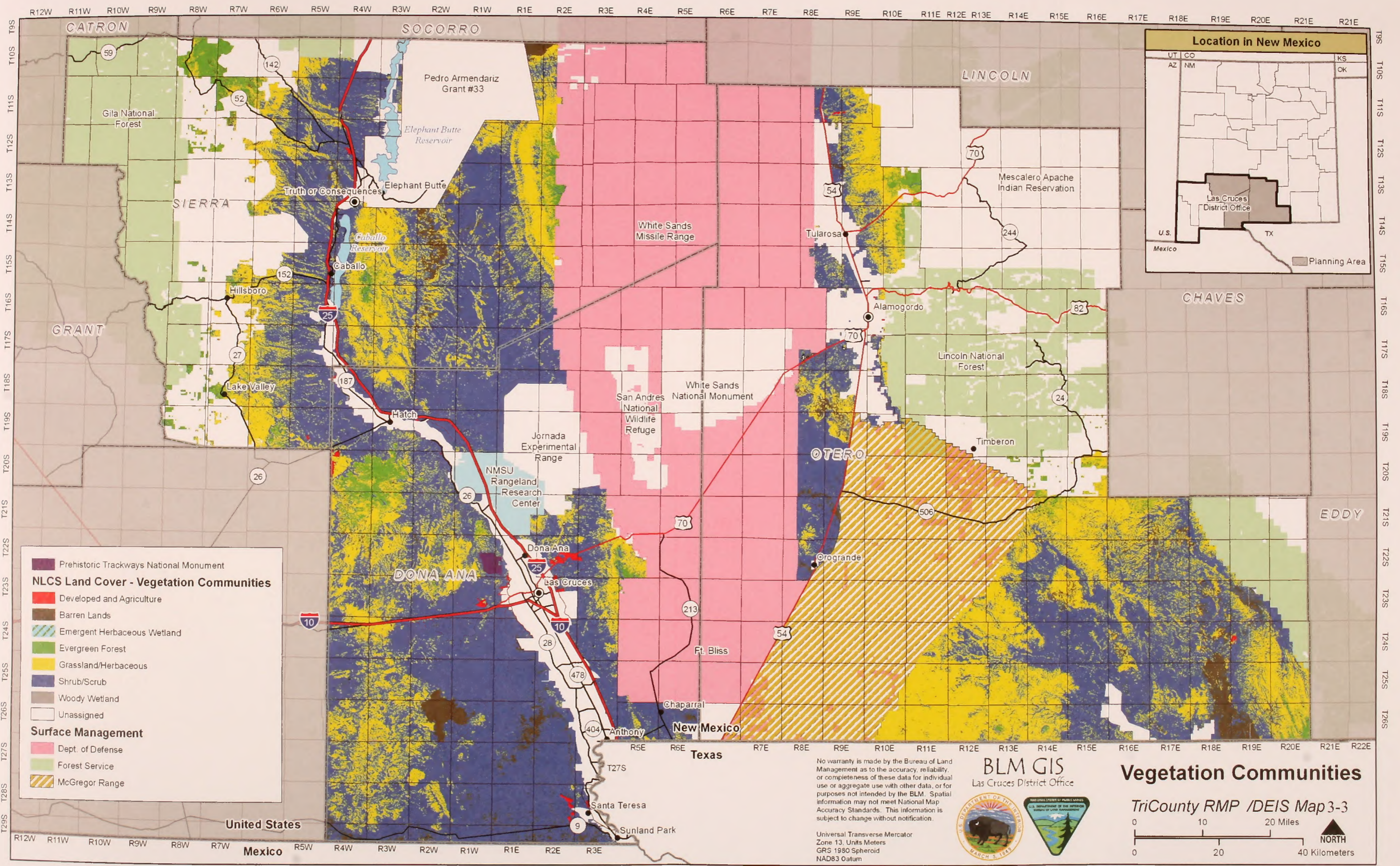
Of the 87,000 acres of forest and woodland, 7,278 acres are classified under Fire Regime Condition Class (FRCC) 1; 57,909 acres are classified under FRCC 2; and 20,813 acres are classified under FRCC 3. Lands in the FRCC 1 category are close to historical conditions. Lands in FRCC 2 and 3 have potential for restoration. There is approximately 78,000 acres of forest-woodland restoration potential within the *Planning Area*. Due to environmental conditions such as drought and increased insect population dynamics, many forest and woodland areas in the southwestern United States and the *Planning Area* have declined in overall health. More than a century of fire suppression has led to excessive amounts of small diameter trees which degrades overall woodland health. Forest and woodland cover types are limited to places with adequate soil moisture. In the *Planning Area*, forests and woodlands are most often found at elevations above 5,000 feet, which are areas that receive a range of 15 to 20 inches of annual precipitation generally in the form of snowpack and seasonal rain. The understory can range from a dense mix of shrub and herbaceous layers to a sparse monoculture or to bare ground, depending on the site's characteristics and use. Within the *Planning Area*, forest-woodlands may be further differentiated into small stands of Ponderosa pine forest, piñon-juniper, pine-oak, and Madrean encinal.

Shrub-Scrub: Shrubland communities occur throughout the *Planning Area* and dominate most of the public land administered by the BLM. Shrub-scrub areas are normally found at elevations between 3,800 feet and 7,800 feet within the *Planning Area* and occupy 1,647,000 acres. These areas are usually drier than forests and woodlands and receive a range of 5 to 10 inches of annual precipitation, generally in the form of short, intense summer thunderstorms. Such areas are commonly associated with a less moist, more coarsely textured substrate (composed of materials such as limestone, basalt, or alluvium) that can range from shallow rocky alkaline to deep sandy loam. Some shrub-scrub and shrubland cover types are the results of degradation of the grassland herbaceous cover type. Shrub-scrub areas typically occur on dry flats and plains, alluvial fans, rolling hills, mesas, upper bajadas, rocky hillslopes, saddles, and ridges. They are normally open-canopy sites with herbaceous grass or forb understories. The density of the understory varies depending on the characteristics and use of the site.

Grassland-Herbaceous: Grassland-herbaceous land cover types are typically found at lower elevations (3,800 feet to 7,600 feet) and occupy 1,003,000 acres within the *Planning Area*. This cover type is usually associated with drier areas of the region such as low mountain slopes, gently sloping bajadas, rolling hills, plateaus, mesas, swales, playas, alluvial flats, and basins. Soils are generally, though not always, sedimentary and range from poorly infiltrating shallow clay pans to deep sites that are well drained and have a sandy or loamy texture. High variation in the amount and timing of precipitation affects the relative amount of cover of cool- and warm-season herbaceous species. These sites are typically dominated by grass with an open shrub or juniper layer. The density of grass on the site varies depending on the site characteristics and use. Chihuahuan Desert grasslands were formerly characterized by extensive areas of tobosa and black grama, with blue grama dominating at higher elevations. These tend to occur on the higher elevations where precipitation is higher and temperature is lower. Historically, these grasslands had few associated shrubs and currently reduced in range due to encroachment by woody species (Basurto, et al. 2006).

Barren: Barren and sparsely vegetated cover types—areas with generally less than 10 percent plant cover—are found from foothills to subalpine elevations. This cover type usually is found on steep cliff faces and their associated unstable scree and talus slopes, in narrow canyons, and on small rock outcrops composed of various igneous, sedimentary, and metamorphic bedrock. This cover type can also be found on lava flows and playa lake beds. Soil development and herbaceous cover is limited. This cover type occupies 92,000 acres within the *Planning Area*, typically appearing as scattered trees or shrubs, although some areas may exhibit small patches of dense vegetation.

Riparian, Wetlands and Playa Areas: Riparian and wetland areas are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and which, under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (BLM Technical Reference 1737-15: *Riparian-Wetland Area Management*). Although riparian and wetland areas only occupy a small percentage of land in the *Decision Area*, they provide a wide range of functions that are important to fish and wildlife species and habitat, water quality, vegetation, soil conservation, and recreation. The *New Mexico Standards for Rangeland Health* contains ecologically based riparian standards that BLM must meet or are progressing toward. The ecological conditions of riparian and wetland areas are determined using proper functioning condition (PFC) assessments, which provide a consistent approach to evaluate the condition and function. Table 3-12 summarizes the PFC assessment in the *Decision Area*, and Appendix H provides information on the PFC assessment of each riparian or wetland area.



Prehistoric Trackways National Monument

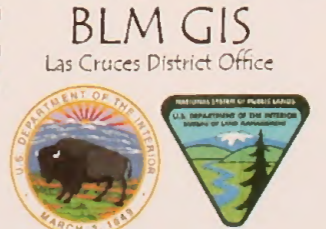
NLCS Land Cover - Vegetation Communities

- Developed and Agriculture
- Barren Lands
- Emergent Herbaceous Wetland
- Evergreen Forest
- Grassland/Herbaceous
- Shrub/Scrub
- Woody Wetland
- Unassigned

Surface Management

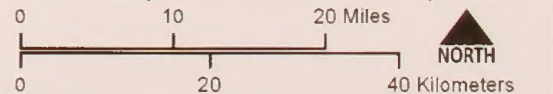
- Dept. of Defense
- Forest Service
- McGregor Range

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



Vegetation Communities

TriCounty RMP / DEIS Map 3-3



Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum

United States
Mexico

**TABLE 3-12
DECISION AREA RIPARIAN CONDITION**

FUNCTIONAL STATUS	TREND	MILES EVALUATED	PERCENTAGE OF MILES EVALUATED	ACRES EVALUATED	PERCENTAGE OF ACRES EVALUATED
Nonfunctioning N=9	N/A	2.2	11	31.4	12
Functioning at risk	Downward N=10	2.9	15	30.1	11
	Upward N=11	1.8	9	11.8	5
	Not Apparent N=6	4.9	25	43.5	17
Proper functioning condition N=21	N/A	7.8	40	145.2	55
TOTAL		19.6	100	262	100

SOURCE: Bureau of Land Management Las Cruces District Office Riparian-Wetland Files, 2009.

Playas are lower-elevation areas in closed drainage basins. Playas are dry for most of the time; however, shallow standing water may remain up to a few weeks following heavy rains. Playas contain a higher diversity of grasses and shrubs and a higher content of silt and clay soils than surrounding areas.

Vegetation in playa areas varies depending on the amount salts and frequency of inundation. Vegetation varies from salt tolerant species such as salt grass (*Allenrolfea occidentalis*) and salicornia (*Salicornia rubra*) to saltbush (*Atriplex* spp.). Playas provide habitat diversity and increase water-holding capacity in the arid environment and are important for invertebrate species and consequently are important stopover points for feeding and resting for migrating birds, particularly waterfowl.

3.3.6.2 Vegetation Community Conditions

The natural range or “*limit of occurrence*,” for a vegetation community varies depending on soils, climate, topography, aspect, slope, and elevation. According to BLM Technical Reference 4400-4, an ecological site is “*a kind of land with specific physical characteristics which differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation and in its response to management.*” A biotic community would become established on an ecological site if all successional sequences were completed without interferences by man under the present environmental conditions. For example, an ecological site’s potential natural community may be described as 20 to 30 percent trees, 50 to 60 percent grasses, 10 to 20 percent shrubs, and 10 to 20 percent forbs.

Changes in climatic conditions, and disturbances such as fire and livestock grazing, can favor one species over another, altering the mix of species. When this happens to the extent that one vegetative community displaces all or part of another community, the displacement is called “*succession.*” These changes are described in terms of ecological condition, which refers to the present state of the vegetation in relation to the potential natural community for that particular ecological site (USDOI BLM 2000).

In southern New Mexico, state-and-transition models are used to describe patterns and hypothetical causes of succession and persistent transitions in vegetation for particular ecological sites, as well as indicators of the mechanisms underlying those dynamics (Bestelmeyer et al. 2004). These models classify land condition (state) and describe the factors that might cause a shift to another state (a transition). As defined in New Mexico’s *Rangeland Ecological Assessment*, areas categorized as being in

a “reference state” reflect conditions under natural disturbance regimes (e.g., prior to intensified settlement and land use in the late 1800s). Using ecological site data, state-and-transition models predict effects of multiple processes on ecosystem properties, including plant community composition and soil stability. The *Rangeland Ecological Assessment* uses the state-and-transition models to estimate condition and restoration opportunities across large areas. Table 3-13 lists the reference, non-reference, and unclassified acres in the *Planning Area* from the *Rangeland Ecological Assessment* data for each of the *Planning Area* land cover types. This regional assessment is designed to assist decision-makers in identifying key restoration opportunities by combining the expert opinion of professionals with soils, soil vegetation inventory method, and ecological site data.

**TABLE 3-13
NEW MEXICO RANGELAND ECOLOGICAL ASSESSMENT STATUS FOR LAND COVER TYPES**

LAND COVER TYPE	REFERENCE		NON-REFERENCE		UNCLASSIFIED ¹	
	Acres	Percentage	Acres	Percentage	Acres	Percentage
Forest-woodland	39,000	8	9,000	0.7	37,000	4
Grassland-herbaceous	291,000	57	284,000	21	426,000	43
Shrub-scrub	167,000	33	997,000	74	485,000	49
Barren	7,200	1	52,000	4	33,000	3
Developed and agricultural	210	.04	1,700	0.1	1,200	0.1
Unassigned ²	60	.001	480	0.004	90	0.009
TOTAL	504,470	100	1,344,180	100	982,290	100

NOTES:

¹ “Unclassified” refers to areas where experts did not agree or that were not evaluated.

² “Unassigned” acres are areas within the *Planning Area* that were not included in any of the other land cover type categories.

The *Rangeland Ecological Assessment*’s broad scale is appropriate for summarizing general information, such as estimates of total acres in different conditions, and as a general baseline to assess changes in vegetation community condition. *Rangeland Ecological Assessment* data are largely based on expert knowledge and have not been field validated or compared with satellite imagery, although these efforts are now under way as part of the second phase. Monitoring of rangeland conditions includes the regular collection of data to evaluate whether objectives or land health standards are being achieved and the effectiveness of management actions.

The Las Cruces District has been conducting vegetation restoration projects for 50 years or longer. Most restoration projects have been done using herbicides. While all projects are analyzed through an environmental assessment as required by NEPA, the overall program is governed by the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Land in 17 Western States Programmatic EIS (PEIS)*. This document was released in 2007 and identifies 18 herbicide active ingredients for use on BLM land and analyzes the effects of using herbicides for treating vegetation on public land in the western U.S., including Alaska. The document also prescribes restrictions, standard operating procedures and mitigation measures for the use of herbicides. The PEIS does not make decisions regarding number of acres of treatment and defers to approved land use plans for this decision.

Consequently, the treatment project proponent is presented with a hierarchical form of guidance. Overall broad guidance regarding herbicides approved for use is contained in the PEIS; acres, areas, and vegetation types to be treated are contained in the local resource management plan; and specific herbicide, specific area and size, method of herbicide application and other details are contained in the project specific environmental assessment. Between 2005 and 2010, the District completed approximately 250,000 acres of grassland restoration projects (see Table 3-14).

**TABLE 3-14
ANNUAL ACREAGE OF VEGETATION RESTORATION PROJECTS UNDER RESTORE NEW
MEXICO IN THE TRICOUNTY PLANNING AREA, 2005-2010**

VEGETATION TARGET SPECIES	YEAR	ACRES
Creosote Bush	2006	2,280
Creosote Bush	2007	89,652
Creosote Bush	2008	28,702
Creosote Bush	2009	39,236
Creosote Bush	2010	10,157
TOTAL CREOSOTE BUSH		170,027
Mesquite	2007	2,443
Mesquite	2009	62,926
Mesquite	2010	13,438
TOTAL MESQUITE		78,807
Piñon/Juniper	2009	5,201
Piñon/Juniper	2010	407
TOTAL PIÑON-JUNIPER		5,608
Salt Cedar	2008	154
Tasajilla	2009	2,758
TOTAL ALL SPECIES		257,354

In 2005, the BLM in partnership with State and local organizations initiated a program entitled Restore New Mexico. Restore New Mexico partners include the following agencies and organizations:

- BLM
- Natural Resources Conservation Service
- New Mexico State Land Office
- Local Soil and Water Conservation Districts
- New Mexico Association of Conservation Districts
- Livestock grazing permittees
- New Mexico Department of Game and Fish
- New Mexico State University
- Agriculture Research Service
- New Mexico Department of Agriculture

Restore New Mexico is an aggressive partnership to restore New Mexico's grasslands, woodlands and riparian areas to a healthy and productive condition. Since its inception in 2005, Restore has become a model for rangeland conservation in the western United States. Table 3-15 lists acres with restoration opportunities and acres with limited restoration opportunities in Sierra, Otero, and Doña Ana counties in each land cover type. However, prior to implementing a project on-the-ground, further analysis and field validation would be completed. This could show that the numbers of acres within each category may change. Approximately 156,000 acres within the *Planning Area* been classified as having higher restoration potential and approximately 950,000 acres have been classified as having lesser potential for restoration to reference conditions. In addition, there are approximately 261,000 acres yet to be classified as to their potential for restoration. Once these acres are classified and as the classified acres are field evaluated, the above acreages would change.

**TABLE 3-15
RESTORATION OPPORTUNITIES FOR LAND COVER TYPES**

LAND COVER TYPE	ACRES WITH RESTORATION OPPORTUNITIES BY COUNTY			ACRES WITH LIMITED RESTORATION OPPORTUNITIES BY COUNTY			UNCLASSIFIED ACRES		
	Sierra	Otero	Doña Ana	Sierra	Otero	Doña Ana	Sierra	Otero	Doña Ana
Forest-woodland	19,072	4,631	376	1,100	4,800	160	1,400	1,100	0
Grassland-herbaceous	8,300	22,000	20,000	93,000	23,000	42,000	12,000	52,000	12,000
Shrub-scrub	21,000	17,000	39,000	261,000	109,000	381,000	18,000	79,000	71,000
Barren	4,000	460	280	9,200	6,800	17,000	1,400	12,000	540
Developed and agricultural	0	10	150	260	30	770	0	15	90
Unassigned ¹	0	0	20	120	10	320	0	0	10
Total	52,372	43,831	59,826	364,680	143,640	441,250	32,800	144,115	83,640

According to the New Mexico's *Rangeland Ecological Assessment*, the term "restoration opportunities" means that, with some certainty, the area could return to a reference state. "Limited restoration opportunities," on the other hand, means that this is not economically or ecologically feasible. Further on-the-ground analysis and assessment would be needed to determine the feasibility of the project. Forest-woodland acreages were derived from NM Fire plan FRCC levels 2 and 3.

NOTE: ¹ Unassigned acres within the *Planning Area* that were not mapped and need further review prior to placing them into one of the categories.

3.3.6.3 Noxious and Invasive Species

The establishment and spread of invasive species can directly affect vegetation by increasing competition with native species for water, nutrients and space. This limits the capacity of native communities to reestablish and to flourish. Over time, invasive species can alter the structure and function of the ecosystem, such as hydrologic function or fire return intervals (Barbour et al. 1999; West 1993).

Noxious weeds are non-native plants that have been designated "noxious" by State law because of their potential harm to the State economy, and are generally associated with agriculture and livestock husbandry. Under the New Mexico Noxious Weed Act of 1963, "noxious weeds" are identified as "any species of plant, which is liable to be detrimental or destructive, and difficult to control or eradicate." The Las Cruces District Office has identified 21 noxious weed species in 146 distinct populations in the *Planning Area* (see Table 3-16). Common locations for noxious weed infestations in the *TriCounty* region include roadsides and areas that are highly disturbed or degraded.

The Las Cruces District Weed Management Program focuses on inventorying existing infestations, preventing noxious-weed invasion, monitoring revegetation efforts for invasive weeds, and assessing the success of weed control efforts. Executive Order 13112 also requires Federal agencies to (1) identify actions that may affect invasive species; (2) use relevant programs to prevent introduction of invasive species; (3) detect, respond, and control such species; (4) monitor invasive species populations; (5) provide for restoration of native species; (6) conduct research on invasive species; and (7) promote public education. Additionally, goals and associated actions established in the *Partners Against Weeds-An Action Plan for the Bureau of Land Management* (USDOI BLM 1996) would be implemented.

**TABLE 3-16
NOXIOUS WEEDS PRESENT (BY SPECIES) IN SIERRA, OTERO, AND DOÑA ANA COUNTIES**

NOXIOUS PLANT SPECIES		NOXIOUS SPECIES PRESENT		
COMMON NAME	SCIENTIFIC NAME	SIERRA	OTERO	DOÑA ANA
Russian knapweed	<i>Acroptilon repens</i>	X	X	X
Jointed goatgrass	<i>Aegilops cylindrica</i>		X	X
Camelthorn	<i>Alhagi maurorum</i>	X		X
Onionweed	<i>Asphodelus fistulosus</i>		X	X
Whitetop	<i>Cardaria draba</i>	X	X	X
Musk thistle	<i>Carduus nutans</i>		X	
Spotted knapweed	<i>Centaurea stoebe</i>		X	
Purple starthistle	<i>Centaurea calcitrapa</i>		X	
Malta starthistle	<i>Centaurea melitensis</i>	X	X	X
Canada thistle	<i>Cirsium arvense</i>		X	
Bull thistle	<i>Cirsium vulgare</i>		X	
Poison hemlock	<i>Conium maculatum</i>		X	
Field bindweed	<i>Convolvulus arvensis</i>	X	X	X
Teasel	<i>Dispacus fullonum</i>		X	
Russian olive	<i>Elaeagnus angustifolia</i>	X	X	X
Leafy spurge	<i>Euphorbia esula</i>		X	
Perennial pepperweed	<i>Lepidium latifolium</i>	X		X
Eurasian watermilfoil	<i>Myrophyllum spicatum</i>	X		
African rue	<i>Peganum harmala</i>	X	X	X
Saltcedar	<i>Tamarix</i> spp.	X	X	X
Siberian elm	<i>Ulmus pumila</i>	X	X	X

SOURCES: New Mexico State University, 2005; Renz, 2005

In compliance with Executive Order 13112 and BLM Manual 1745, and subject to future revisions to Bureau policy and guidance, where restoration, rehabilitation, or reclamation efforts (including Bureau authorized actions such as rights-of way) require reseeding activities, or use of other plant materials (such as potted plants, poles, etc.), non-native plant species would be used only if native species are not readily available in sufficient quantities. Care would be taken in selecting non-native species that are not likely to become invasive. If non-native plant species are used or identified for use in restoration, rehabilitation, or reclamation projects, the BLM, through the Bureau Plant Conservation Program and partner organizations, would work to identify and develop native replacements for the non-native species. Additionally, seed mixes used in these actions would use the closest locally adapted selections, varieties, or cultivars of native species available to improve success of the seeding effort.

3.3.6.4 Woodland and Plant Products

Forest and woodland types within the *Planning Area* occur primarily in Otero County and the higher elevations in Sierra and Doña Ana Counties. The majority of BLM's 87,000 acres of forest and woodlands in the *Decision Area* are piñon-juniper woodlands. Most of the piñon-juniper woodlands grow at intermediate elevations, where precipitation is insufficient for commercial timber species. Woodland resources are used for firewood and fence posts, and they also have value for watershed, wildlife habitat, recreation, and visual resources. Trees harvested for posts are generally found on the more productive piñon-juniper sites where the soils are deep and well-drained.

There has been demand for the collection and sale of live plants in the *Planning Area*. Generally, this limited demand has focused on collection of plants from vegetation sale areas; however, the vegetation sales areas have been depleted. Where a right-of-way or other type of land use authorization is granted by BLM, if the vegetation is to be cleared from a piece of land, any plants that may be useful for transplanting are made available for sale or “*adoption*” to the public.

Woodcutting for commercial and personal uses occurs within the *Planning Area* to a limited degree. Fuelwood is the main wood product produced from the woodlands in the *Decision Area*. The BLM charges \$10 per cord for fuelwood for personal use. BLM formerly authorized the sale of vegetation in the *Planning Area*, including authorizing piñon nut harvest in certain areas. However, the sale areas have been pretty well exhausted and few plants are available. Since the existing forest and woodlands are managed for the enhancement and protection of the stands instead of the maximum production of wood products, no specific goals for allowable forest and woodland cutting have been established.

At this time forest, and particularly woodland, stands are considered to be classed in FRCC 2 and 3 Classes (based on deviations from pre-European settlement range of natural variation for community structure, fire frequency, and fire size). Changes that have occurred in these stands include live wildings as well as the following:

- Reduced tree growth
- Stagnated nutrient cycles
- Increased incidence of disease
- Insect and parasite infestations
- Decreased forage quality and quantity
- Increased fuel loading
- Increased vertical fuel continuity
- Increased canopy cover
- Increased severity of wildfires
- Decreased water availability and stream flow
- Fewer and smaller openings
- Shifts in habitat quality
- Lower aesthetic value

Forest and woodland stands within the BLM’s *Decision Area* could continue to deteriorate without implementation of corrective management actions. Severe drought stress and insect infestation in piñon, in particular, has been occurring in the past few years.

3.3.7 WILDLIFE AND FISH HABITAT

This section describes the fish and wildlife habitat in the *Planning Area*. The data supporting the discussion of wildlife and fish habitat resources were obtained primarily from BLM and other Federal and State agencies. The BLM is responsible for managing fish and wildlife habitats while management of fish and wildlife species is overseen by State and Federal wildlife management agencies. Fish habitats include perennial and ephemeral streams, lakes, and reservoirs that support fish through at least a portion of the year. Wildlife species throughout this document have been grouped into categories of game species and nongame species to facilitate discussion.

3.3.7.1 Standard Habitat Sites

The Standard Habitat Site (SHS) system was designed by the BLM to assist in accumulating, storing, retrieving, and analyzing data on wildlife, vegetation, and other ecosystem determinants as they relate to wildlife resources. The BLM-based SHSs are used as indicators because they provide the best available data on current condition, trends, and forecasts of fish, wildlife, and habitat. However, SHS data are only available for the *Decision Area* (Map 3-4). For that reason, land cover types (derived from the SWReGAP) are used to supplement SHS data, particularly for those regions of the *Planning Area* not covered by SHS data. Land cover types are good indicators of wildlife habitat because they represent habitat requirements for a broad range of species. Furthermore, it is a more efficient use of agency resources to monitor changes in land covers and extrapolate these changes to a broad range of wildlife and fish species. Finally, the key habitats identified in the NMDGF *Comprehensive Wildlife Conservation Strategy for New Mexico*, which is based upon SWReGAP vegetation classifications (NMDGF 2006), is included out of a desire on the part of BLM to identify cooperative and collaborative approaches with the NMDGF to addressing important wildlife and habitat conservation needs.

SHS inventories of the Tri-County area were conducted in the late 1970s and early 1980s (USDOI BLM 1984a). Since the inventories were completed, large acreages of creosote-dominated types (Creosote Hill, Creosote Rolling Upland), Grass Rolling Upland and Mesquite Rolling Upland have been converted to grassland through vegetation restoration treatments. Since 1980, over 500,000 acres of grassland restoration has been completed (see Vegetation section). The acreages of SHSs shown in Table 3-17 represent what existed within the *Decision Area* at the time of the original inventories.

**TABLE 3-17
STANDARD HABITAT SITE ACREAGES IN THE DECISION AREA**

STANDARD HABITAT SITE	DOÑA ANA COUNTY	OTERO COUNTY	SIERRA COUNTY
Arroyo	6,921	62	33,738
Riparian	3,071	0	3,756
Creosote Breaks	102,905	0	65,332
Creosote Hill	41,394	5,785	17,484
Creosote Rolling Upland	348,482	383,390	499,026
Grass Flat	28,479	100,123	59,996
Grass Hills	3,319	24,877	4,514
Grass Mountain	66,709	111,158	45,271
Grass Rolling Uplands	35,313	188,929	78,902
Half-shrub Hill	0	0	137
Half-shrub Rolling Uplands	108,881	0	41,780
Malpais-Rock/Lava	23,300	0	4,616
Mesquite Rolling Uplands	51,984	9,179	24,705
Mesquite Sand Dunes	520,629	60,324	67,899
Mixed Shrub Hills	9,968	235,026	28,047
Mixed Shrub Mountain	38,937	31,488	27,781
Mixed Shrub Rolling Upland	9,851	113,269	32,732
Pinon-Juniper Grass Mountain	N/A	36,767	36,642
Salt Flat	0	28,905	0

Arroyo: This SHS is defined as drainages or arroyos with only brief intermittent water flow supporting vegetation not characteristic of surrounding uplands. Grass and forb species are often sparse. Typical shrub and tree species are desert willow, hackberry, Apache plume, western soapberry, littleleaf sumac, honey mesquite, ash, and bristlebush. Species diversity is high for birds, herptiles, and mammals. Arroyo habitats support most or all wildlife species found in surrounding habitats, plus additional species that are restricted to these habitats (riparian obligates) such as Southwestern willow flycatchers, yellow-billed cuckoos, and leopard frogs. Arroyo habitats are critical for breeding birds and mule deer.

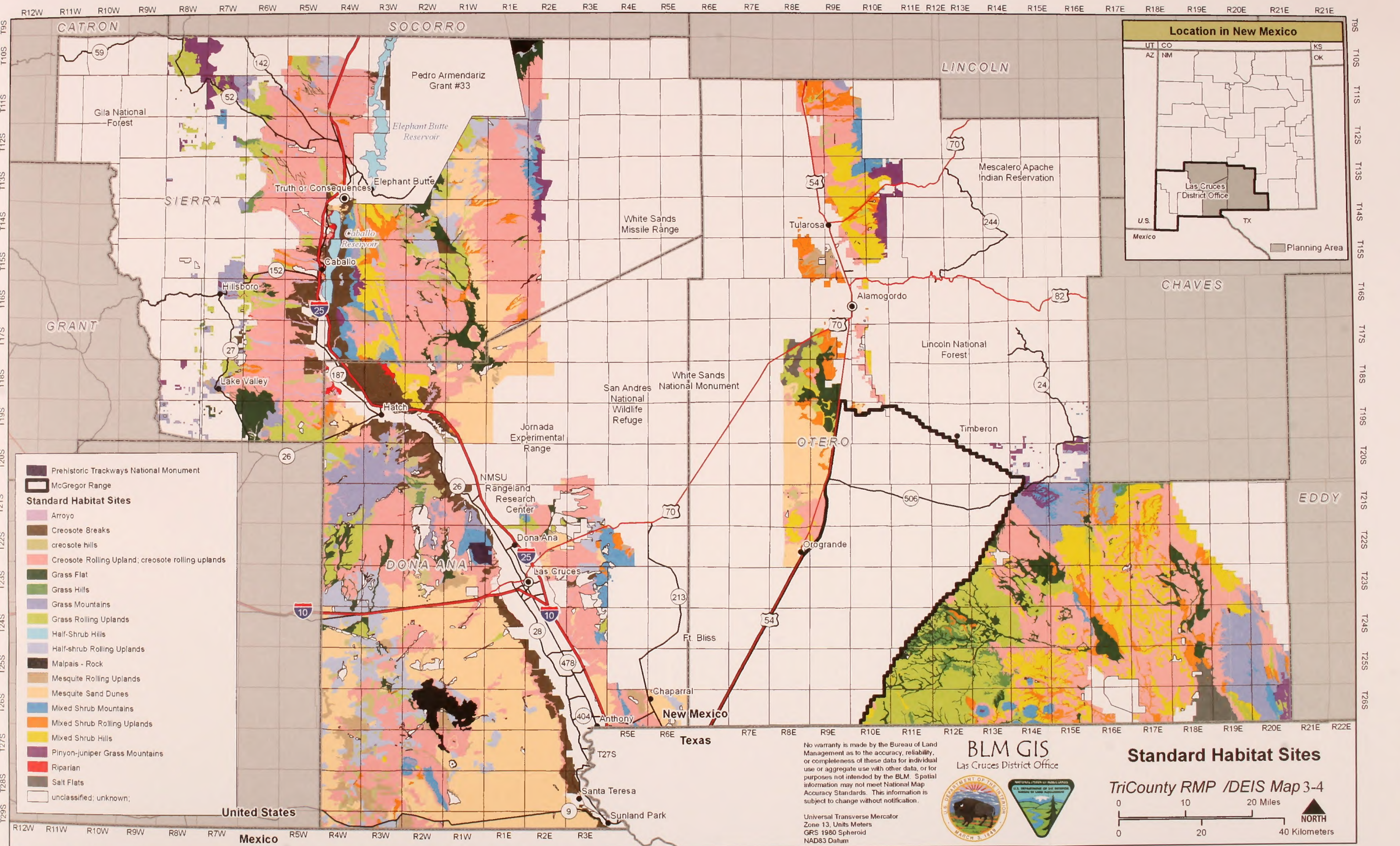
Riparian: This SHS refers to areas along perennial streams and sometimes around permanent water sources. Dominant plant species vary but can include willows (*Salix* spp.), cottonwoods (*Populus* spp.), Arizona sycamore, boxelder, and ash. Understory cover consists of seepwillows, bristlebrush, and diverse grasses and forbs. Species diversity is high for birds, herptiles, and mammals (Degenhart et al. 1996; Findley et al. 1975). Typical wildlife species of riparian habitats include leopard frogs, checkered garter snakes, Chihuahuan whiptails, Bell's vireo, Southwestern willow flycatchers, western red bats, and raccoons. Most wildlife species of the *Planning Area* can be found in riparian habitats. Species diversity has not been identified for mammals. Key wildlife species have not been identified for this SHS. Riparian habitats support the highest diversity of wildlife species of any SHS.

Creosote Breaks: Vegetation in this SHS is dominated by creosotebush found on steep slopes and gravel ridges. This SHS experiences a high degree of soil erosion. Ecological condition and species diversity has not been identified for this SHS. Typical wildlife species of creosote breaks include Couch's spadefoots, western whiptails, side-blotched lizards, western diamondback rattlesnakes, cactus wrens, Merriam's kangaroo rats, and black-tailed jackrabbits. Because of proximity to the Rio Grande, this is an important habitat.

Creosote Hill: Vegetative composition is predominantly creosotebush which typically exists with a variety of subordinate species. These include bush muhly, burrograss, buffalo grass, broom snakeweed, tarbush, and littleleaf sumac. It is similar to the other creosotebush SHSs, but grama grasses are more prevalent and there is a higher diversity of shrub species, such as mariola, spicebush, whitethorn acacia, and fourwing saltbush. Bird species diversity for this SHS is low. Species diversity for herptiles and mammals has not been identified. Typical wildlife species of the creosote hills include red-spotted toads, western diamondback rattlesnakes, black-chinned sparrows, and black-tailed jackrabbits.

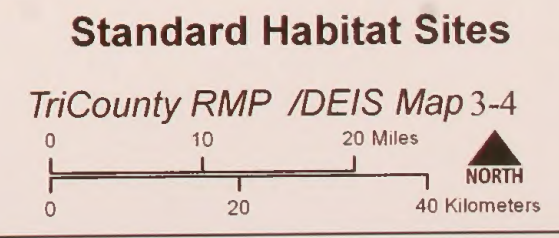
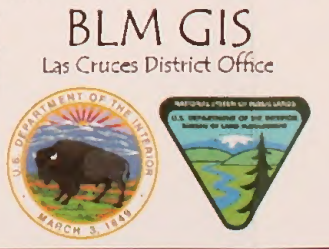
Creosote Rolling Upland: Vegetation in this SHS is dominated by creosotebush. Other subordinate species include bush muhly, burrograss, tobosa, desert holly, broom snakeweed, tarbush, and littleleaf sumac. Upland areas are drained by numerous arroyos and consist primarily of eroded soils and gravelly inclusions. Species diversity is moderate for herptiles, birds, and mammals. Creosote rolling uplands generally exhibit some of the lowest species diversities and densities of any SHS in the *Planning Area*. Typical wildlife species include side-blotched lizards, Big Bend patch-nosed snakes, black-chinned sparrows, and black-tailed jackrabbits.

Grass Flat: Grass flats typically occur in low swales and consist primarily of grass species, the dominant being tobosa grass. Other grasses include vine mesquite, grammas, muhlys, burrograss, dropseeds, and lovegrasses. Some areas are dominated by alkali sacaton. Shrub species are found in low numbers with soap tree yucca being most common along with broom snakeweed, honey mesquite, and althorn. Species diversity is moderate for herptiles, and low for birds and mammals. Grass flats in good condition can provide excellent wildlife habitat, particularly for ground-nesting and seed-eating birds. Grass flats often support playa lakes that are key breeding habitats for toads and spadefoots, and key wintering areas for shorebirds and waterfowl. Typical wildlife species include western box turtles, horned larks, meadowlarks, Ord's kangaroo rats, silky pocket mice, coachwhips, and pronghorn.



- Prehistoric Trackways National Monument
- McGregor Range
- Standard Habitat Sites**
- Arroyo
- Creosote Breaks
- creosote hills
- Creosote Rolling Upland; creosote rolling uplands
- Grass Flat
- Grass Hills
- Grass Mountains
- Grass Rolling Uplands
- Half-Shrub Hills
- Half-shrub Rolling Uplands
- Malpais - Rock
- Mesquite Rolling Uplands
- Mesquite Sand Dunes
- Mixed Shrub Mountains
- Mixed Shrub Rolling Uplands
- Mixed Shrub Hills
- Pinyon-juniper Grass Mountains
- Riparian
- Salt Flats
- unclassified; unknown;

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United States
Mexico

Grass Hill: Grama and tobosa grasses are the primary vegetation in this SHS. Forbs are seasonally abundant. Succulents are represented by ocotillo and yuccas. Shrub overstory is limited to Apache plume, skunkbush sumac, and broom snakeweed. Species diversity has not been identified for this SHS. Typical wildlife species of the grass hills include desert grassland whiptails, mountain patch-nosed snakes, scaled quail, canyon wrens, rock pocket mice, eastern cottontails, and mule deer.

Grass Mountain: This SHS occurs on slopes of mountain ranges above the surrounding uplands. It typically supports a high percentage of grama grasses with inclusions of tobosa grass, Kentucky bluegrass, June grass, and bluestems. Shrubby vegetation is widely scattered and represented by Datil yucca, Engelmann prickly pear, mountain mahogany, ocotillo, oaks, beargrass, Apache plume, rabbitbrush, and fringed sage. Species diversity is moderate for herptiles and mammals, and low for birds. Typical wildlife species of the grass mountain areas include eastern fence lizards, tree lizards, mountain patch-nosed snakes, scaled quail, Montezuma quail, and eastern cottontails.

Grass Rolling Upland: This SHS occurs in nonswale or isolated pocket settings with a lower density of grass species than the grass flat SHS. Grama grasses are common along with other grasses such as tobosa grass. Desert shrubs occur along with perennial forbs. Species diversity is moderate for herptiles, birds, and mammals. Typical wildlife species of the grass rolling upland include desert grassland whiptails, western box turtles, silky pocket mice, lesser earless lizards, prairie rattlesnakes, horned larks, lark buntings, western meadowlarks, silky pocket mice, eastern cottontails, and pronghorn.

Half-Shrub Hill: Half-shrub hill SHS occurs on slopes where vegetation is dominated by broom snakeweed, tarbush and other vegetation components such as burrograss. The 137 acres of this SHS only occur in Sierra County. Ecological condition and species diversity has not been identified for this SHS. Typical wildlife species of this SHS includes mourning dove, Gambel's quail, western whiptails, and mule deer.

Half-Shrub Rolling Upland: Half-shrub rolling uplands are composed mostly of broom snakeweed with few other shrub components such as Mormon tea and soap tree yucca. Sandy soils are dominated by honey mesquite and scattered grasses including tobosa grass, blue grama, and bush muhly. Forbs include leatherweed, globemallow, sandmat, and desert daisy. Ecological condition and species diversity has not been identified for this SHS. Typical wildlife species of the half-shrub rolling upland include side-blotch lizards, Merriam's kangaroo rats, and black-tailed jackrabbits.

Malpais-Rock/Lava: This SHS is composed of broken and cracked basalt lava beds. Grass is the dominant vegetation of the area. Dominant grass species include grama grasses, tobosa grass and dropseed. Shrubby vegetation is represented by broom snakeweed, Wright's buckwheat, four-wing saltbush, and littleleaf sumac. Ecological condition and species diversity is high for this SHS. Typical wildlife species of the malpais-rock/lava types include red-spotted toads, tree lizards, checkered whiptails, black-tailed rattlesnakes, canyon wrens, rock wrens, rock pocket mice, cottontails, and mule deer.

Mesquite Rolling Upland: The dominant plant species in this SHS is honey mesquite. Other shrub species associated with mesquite rolling upland include creosotebush, little leaf sumac, soap tree yucca, skunkbush sumac, Mormon tea, broom snakeweed, and four-wing saltbush. Tobosa grass is the dominant grass in this SHS. Vine mesquite, black grama, and bush muhly occur in lesser amounts. Species diversity is moderate for birds and mammals. Species diversity has not been identified for herptiles. Typical wildlife species of the mesquite rolling upland include western whiptails, coachwhips, common kingsnakes, western diamondback rattlesnakes, Gambel's quail, curve-billed thrashers, Chihuahuan ravens, white-throated woodrats, and black-tailed jackrabbits.

Mesquite Sand Dune: The dominant plant species in this SHS is honey mesquite. Other commonly associated plants include four-wing saltbush, sand sagebrush, broom snakeweed, and a variety of annual and perennial forbs. Grasses are typically scarce with mesa dropseed being most common. Dunes vary in height from 2 to 10 feet depending on soil depth. Species diversity is low for herptiles, birds, and mammals. Typical wildlife species of the mesquite sand dunes include western whiptails, coachwhips, common kingsnakes, western diamondback rattlesnakes, Gambel's quail, curve-billed thrashers, mourning doves, white-throated woodrats, and black-tailed jackrabbits. Oryx have become established in this habitat type in all three counties.

Mixed Shrub Hill: Dominant species of this SHS are desert-type shrubs with local occurrence of succulents including yuccas, beargrass, and cacti. Typical shrubs are broom snakeweed, honey mesquite, creosotebush, feather dalea, Wrights lemon verbena, mariola, and tarbush. Clumps of grama grasses are common. Species diversity is moderate for herptiles, birds, and mammals. Typical wildlife species of the mixed shrub hills include Great Plains toads, eastern fence lizards, Albert's towhees, rock squirrels, white-throated woodrats, and mule deer.

Mixed Shrub Mountain: Shrub species dominate the vegetation composition of this SHS along with an understory of grama grasses (*Bouteloua* spp.), bush muhly, slim tridens, and three-awn. Characteristic shrubs are broom snakeweed, whitethorn acacia, Apache plume, skunkbush sumac, and mountain mahogany. This SHS is located between surrounding uplands and below the piñon-juniper vegetation community. Species diversity is high for mammals, moderate for herptiles, and low for birds. Typical wildlife species of the mixed shrub mountain habitat type include tree lizards, Chihuahuan whiptails, Great Plains skinks, rock rattlesnakes, canyon wrens, white-throated swifts, rock squirrels, and mule deer. This is the primary habitat for exotic barbary sheep in the Las Cruces District.

Mixed Shrub Rolling Upland: Shrub species dominate the vegetation. Characteristic shrubs are broom snakeweed, whitethorn acacia, catclaw acacia, Apache plume, fragrant sumac, Wright's buckwheat, and mountain mahogany. Understory vegetation is composed mostly of grama grasses. The vegetation is similar to mixed shrub mountain species, but has more grasses and less shrub species. Species diversity is moderate for herptiles, birds, and mammals. Typical wildlife species of the mixed shrub rolling upland include Couch's spadefoots, green toads, western whiptails, Big Bend patch-nosed snakes, cactus wrens, crissal thrashers, eastern cottontails, and mule deer.

Piñon-Juniper Grass Mountain: Dominant plant species of this SHS are piñon pine and one-seed juniper with sparse to medium dense grass cover of grammas, muhlys, and three-awns grasses. The shrubs understory consists of mountain mahogany, oaks, rubber rabbitbrush, skunkbush sumac, and *Opuntia* species. Several annual and perennial forb species are represented. Species diversity is high for birds and moderate for mammals. Species diversity has not been identified for herptiles. Typical wildlife species associated with this SHS include Chihuahuan whiptail, Southern Prairie lizard, piñon jay, gray vireo, Montezuma quail, cliff chipmunk, piñon mouse, and mule deer.

Salt Flat: This SHS consists of areas that collect runoff water and have saline, gypsiferous, or highly alkaline soils. Vegetation is characteristically dominated by alkali sacaton, dropseeds, inland saltgrass, tobosa grass, and galleta grass. Forbs are common, with typical species consisting of seepweed, sunflowers, and Russian thistle. Species diversity is high for herptiles and low for birds.

3.3.7.2 Game Species

Big Game: Of the big game species found in New Mexico, those occurring within the *Planning Area* include mule deer, white-tailed deer, pronghorn antelope, desert bighorn sheep, javelina, mountain lion, and elk, which are found on BLM land at higher elevations. Exotic big game species found in the

Planning Area include oryx and barbary sheep. Within the *Planning Area*, mule deer can be found throughout forest and woodland, riparian, grasslands, and shrub-scrub habitat types. Data from NMDGF (2003) indicate that the State's mule deer populations have declined over the past 30 years for a variety of reasons, including changes in habitat conditions.

Pronghorn antelope occur within the *Planning Area*, primarily in grasslands. Grassland habitats currently occupied by pronghorn can be found in the Otero Mesa grasslands, Jornada del Muerto Basin, Tularosa Basin, and the Uvas/Nutt Valley area. Habitat requirements for pronghorn include grasslands that are in good ecological condition with an abundant supply of forbs, good visibility, and little topographic relief. Populations within the State have declined slightly, primarily due to drought (WAFWA 2006).

Mountain lions occur throughout a variety of habitat types within the *Planning Area*, but are most common where prey is abundant. Habitats suitable for the mountain lion require adequate habitat (sufficient browse) for mule deer or other prey species such as desert bighorn sheep. Hunting opportunities are managed by NMDGF based on the number of mountain lions in specified management zones. Hunting of mountain lions is permitted within desert bighorn sheep ranges year-round.

Desert bighorn sheep are found in dry, generally inaccessible mountainous areas, in foothills near rocky cliffs, and near seasonally available water sources. Bighorn sheep require access to freestanding water during the summer months, and throughout the year during drought conditions. The diet of bighorn sheep consists primarily of grasses, shrubs, and forbs. In 1998, the desert mountain ranges of the southwestern United States and Mexico were inhabited by an estimated 22,500 desert bighorn sheep (Toweill and Geist 1999). The subspecies found in New Mexico (*O. c. mexicana*) range from New Mexico west into southern Arizona and south into Sonora, Mexico. Desert bighorn number about 3,000 in Arizona (Wakeling 2003), approximately 2,000 in Mexico (Toweill and Geist 1999), and 340 to 396 (Rominger and Goldstein 2006) in New Mexico (as of spring 2003) (NMDGF 2003).

Within the *Planning Area*, desert bighorn sheep historically were found in the southern Sacramento Mountains, Brokeoff/Guadalupe Mountains, Organ Mountains, and West Potrillo Mountains. Potential suitable habitat was identified in the Caballo Mountains in August 2003 by the NMDGF in the *Plan for the Recovery of Desert Bighorn Sheep in New Mexico: 2003-2013* (NMDGF 2003). The species currently occurs in the Organ, Caballo, and Red House Mountains, where they have migrated from nearby reestablished populations in the San Andres Mountains north of the San Andres National Wildlife Refuge and the Fra Cristobal Mountains. The range of the desert bighorn sheep in Otero County has decreased because there is potential for disease transmission in areas where domestic sheep or goats graze. The NMDGF 2002-2013 *Recovery Plan for Bighorn Sheep* identifies "issues" associated with recovery (i.e., transplants) of desert bighorn within potential unoccupied habitats. In addition to feral goats and domestic sheep issues in the Sacramento Mountains and the Guadalupe Mountains, the presence of exotic species (barbary sheep or aoudads) is also identified as a management constraint.

The oryx was released on White Sands Missile Range in 1969 as a game species. Since that time, the oryx population has grown and expanded its range beyond the White Sands Missile Range. The oryx is a native of Africa and is highly adapted to arid environments such as those found in the *Planning Area*. The species generally subsists on grassland vegetation as well as desert shrubs and forbs and has become well established in shrub-scrub habitats. The species can now be found in low numbers throughout the *Planning Area* east of Interstate 25. Due to the expansion of the species onto public land, the NMDGF authorizes hunting to control the population numbers.

Barbary sheep, a species native to northern Africa, was introduced on private land in the Hondo Valley in the 1950s. Subsequent introductions on private land and natural growth of these populations have led to its spread across rugged terrain over much of southeastern New Mexico. Barbary sheep are well adapted

to the rugged, barren, and dry shrub-scrub habitats also used by the native sheep. The species can be found throughout the rocky hills and steep mountains of Otero County and in small numbers east of the Rio Grande in Sierra and Doña Ana Counties. The NMDGF authorizes hunting of barbary sheep to control population numbers on public land.

Small Game: Common upland game bird species within the *Planning Area* that may be harvested legally in New Mexico include Gambel's quail, mourning dove, scaled quail, and Montezuma quail. Gambel's quail and scaled quail are found in brushy habitats and are generally associated with grasslands, shrub-scrub, and riparian habitats and Montezuma's quail in the higher elevations of the *Planning Area*.

Protected small game furbearers in the *Planning Area* include the following animals, which may be harvested for their fur subject to seasonal harvests outlined by the NMDGF: muskrat, beaver, weasel, raccoon, ringtail, fox, badger, and bobcat. Unprotected furbearers that have no seasonally limited harvest include skunk species and the coyote.

Other small game, sport fishes, migratory birds, and waterfowl also are managed and regulated by NMDGF. The population numbers of small game are known to fluctuate depending on multiple factors, but particularly due to the level of precipitation, available food, and residual cover for habitat. Other specifics pertaining to game animals and hunting can be obtained on the NMDGF's Web site at www.wildlife.state.nm.us.

3.3.7.3 Nongame Species

Diverse species of wildlife that are typical of the Chihuahuan Desert, Mexican Highlands, southern Rocky Mountains, and Mogollon Plateau regions occupy the various wildlife habitats in the *Planning Area*. The land cover types that compose the primary wildlife habitats in the *Planning Area* include forest and woodland, shrub-scrub, grassland, riparian, and barren areas.

Mammals: In addition to game species, common mammals in the *Planning Area* include a diverse array of rodents, including gophers, pocket mice, voles, wood rats, mice, kangaroo rats, tree, ground, and chipmunks. The desert cottontail, Manzano Mountain cottontail, and black-tailed jackrabbit are the three lagomorphs in the *Planning Area*. As many as four species of shrew, family Insectivora, occur in the *Planning Area*. These include the desert shrew, Merriam's shrew, dwarf shrew, and New Mexico shrew.

Numerous bat species are known to occur within the *Planning Area*, including the California myotis, Yuma myotis, Arizona myotis, southwestern myotis, fringed myotis, cave myotis, and long-legged myotis. Other species include the silver-haired bat, canyon bat, big brown bat, western red bat, hoary bat, spotted bat, Allen's big-eared bat, Townsend's big-eared bat, pallid bat, Mexican free-tailed bat, and big free-tailed bat.

Birds: A wide variety of bird species are found throughout the *Planning Area*, including many resident, migratory, wintering, and transient species. With a high diversity of habitats, New Mexico has recorded the second-highest number of bird species of any landlocked state in the United States. More than 280 bird species breed in New Mexico, and the extensive grasslands are important for wintering birds. Riparian habitats, such as those found in the Rio Grande Valley, serve as important flyways and stopover areas for migratory bird species.

Bird species within the *Planning Area* occur in all habitat types and are most abundant in riparian areas, which are used for nesting, breeding, and foraging, and as migration corridors for many species. Bird species that commonly occur within the *Planning Area* include the horned lark, meadowlark, cactus wren, canyon wren, rock wren, Chihuahuan raven, curve-billed thrasher, crissal thrasher, and Albert's towhee.

Migratory, wintering, and transient bird species also occur throughout the *Planning Area*. These birds receive protection under Executive Order 13186 (66 Code of Federal Regulations [CFR] 3853) and the Migratory Bird Treaty Act (Title 16 United States Code [U.S.C.] 703-711). Migratory species likely to occur in the *Planning Area* include the lark bunting, black-chinned sparrow, and gray vireo. Migratory species depend on high-quality habitats that contain adequate nesting substrate with sufficient cover to hide the female on the nest, diverse vegetation to supply insects during brood rearing, and seeds or fruits (for some species) for the remainder of the year.

Raptors known to exist within the *Planning Area* include the golden eagle, bald eagle, Cooper's hawk, sharp-shinned hawk, northern harrier, ferruginous hawk, red-tailed hawk, rough-legged hawk, Swainson's hawk, common black hawk, prairie falcon, peregrine falcon, merlin, American kestrel, turkey vulture, and aplomado falcon.

Reptiles and Amphibians: Reptiles and amphibians are well represented within the *Planning Area* and are found throughout the various habitat types. Rattlesnakes are common throughout many parts of the *Planning Area*, and species that may occur include the western diamondback rattlesnake, black-tailed rattlesnake, prairie rattlesnake, and rock rattlesnake. Other snake species include the Big Bend patch-nosed snake, gopher snake, common king snake, checkered garter snake, and black-necked garter snake. There are many species of lizards, including whiptails and skinks, which occur within the *Planning Area*. Species that are likely to be found include the western whiptail, checkered whiptail, Chihuahuan whiptail, Great Plains skink, side-blotched lizard, tree lizard, and prairie lizard.

Amphibians are present within the *Planning Area*, although to a lesser extent than reptiles. Species that occur in the *Planning Area* include the northern leopard frog, red-spotted toad, Great Plains toad, green toad, and Couch's spadefoot toad.

Fish: Approximately 41 fish species occur within the *Planning Area*; few reaches of fish-bearing streams occur on BLM-administered public land because of desert environment and the fragmented ownership pattern. The fish-bearing reaches of streams in the *Planning Area* mostly occur on land under other Federal (primarily Forest Service), State trust, or private jurisdiction. Primary fish bearing streams in the *Planning Area* are the Rio Grande in Sierra and Doña Ana Counties, Percha Creek and Palomas Creek in Sierra County, and Tularosa Creek in Otero County. Game fish species include the rainbow trout and brown trout found in Tularosa Creek. Warm-water game fish species are mostly found in Elephant Butte and Caballo reservoirs. These species include smallmouth bass, white bass, flathead catfish, channel catfish, blue catfish, bluegill, smallmouth buffalo, and crappie. Nongame fish species include longnose dace, fathead minnow, Rio Grande sucker, and Rio Grande chub.

3.3.8 SPECIAL STATUS SPECIES

Special status species are plant and animal Federally-listed or proposed and Bureau sensitive species, which include both Federal candidate species and delisted species within 5 years of delisting (BLM Manual 6840).

Known geographic distribution and habitat requirements were considered for each species in comparison with habitat types in the *Planning Area*. The results of this analysis are that 78 special status animal species potentially occur within the *Planning Area* (Appendix I, Table I-1) including 36 State-listed species. State-listed species are currently not considered special status species unless they are listed as Federally-Endangered, Threatened, proposed, or candidate. The BLM State Director periodically reviews and updates the sensitive species list. Appendix I lists counties of known occurrence for special status and State-listed species.

The presence of special status plant species and their habitats in the *Planning Area* were considered using Las Cruces District species occurrence/habitat records and New Mexico Natural Heritage Program species records. Species descriptions and distributions were derived from Las Cruces District office records and the New Mexico Rare Plant Technical Council [NMRPTC 1999: New Mexico Rare Plants. Albuquerque, NM: New Mexico Rare Plants Home Page <http://nmrareplants.unm.edu> (Latest update: 18 January 2006)]. Based on evaluation of the above information, 41 special status species plus an additional 44 State-listed plant species or habitats could occur in the *Planning Area* (Appendix I).

3.3.8.1 Federally-Listed Threatened and Endangered Birds

Northern Aplomado Falcon: In the United States, aplomado falcons (*Falco femoralis*) historically occurred in southern Texas, southern New Mexico, and southeastern Arizona. Although aplomado falcons once were considered fairly common throughout their range in the United States, populations declined rapidly after the 1930s, and the aplomado falcon was Federally-listed as endangered in 1986. The falcon was extirpated from its northern range due to high levels of pesticide contamination in the eastern Mexico population and to habitat loss from agricultural development and changes to the vegetation community. Starting in the early 1990s, increases in reliable falcon sightings prompted additional interest in recovery of the species in New Mexico. At that time, the closest known free-ranging population to New Mexico was in northern Chihuahua, Mexico (Young et al. 2002). In 2006, the USFWS approved a proposal to release a nonessential experimental population of aplomado falcons in Arizona and all of New Mexico under the Endangered Species Act (ESA)'s 10(j) rule.

Within New Mexico, aplomado falcons historically were reported from Sierra, Otero, Doña Ana, Eddy, Grant, Hidalgo, Lea, and Luna Counties. The species formerly occurred regularly in summer (casually in winter) in the Southwest and possibly reached as far east as the Tularosa Basin, with the last specimen taken in 1939 and the last nesting documented in 2002 (Young et al. 2002). Historical sightings are concentrated in the *Planning Area* in the southwestern corner of New Mexico from Sierra and Doña Ana Counties to the “*bootheel*” region.

There have been sightings of aplomado falcons in Otero County in 2005 and subsequent years (NMDGF 2007, Meyer 2008). To date, 316 captive-hatched aplomado falcons have been released in New Mexico since 2006, although most of these releases have been outside the *Planning Area*. Falcon releases have occurred in Sierra County, but not in Doña Ana or Otero Counties. To date, these releases have not resulted in known aplomado falcon nests in the *Planning Area*.

Least Tern (Interior Population): The least tern (*Sterna antillarum*) is a robin-sized bird found along the playa lakes of New Mexico; the sandbars and shorelines of the river systems of the Colorado (Texas), Red, Rio Grande (Texas), Arkansas, Missouri, Ohio, and Mississippi; the braided rivers of southwest Kansas and northwest Oklahoma; and the salt flats in northwest Oklahoma (USFWS 1985a). The interior least tern was Federally-listed as endangered on May 28, 1985, as being without critical habitat (50 FR 21784; USFWS 1985a). Riverine areas with sparsely vegetated sand-and-gravel bars or salt flats along shorelines provide nesting habitat for the interior least tern.

Modifications of riverine systems from channelization, surface impoundments, and irrigation have led to the loss of much of the interior least tern's habitat. Increased recreational use of sandbars also has caused disturbance of nesting birds. In New Mexico, the interior least tern is found as a summer resident mainly in the southeast, in and around Bitter Lake National Wildlife Refuge. Presently, the only known nesting population is in Chaves County along the Pecos River within the Bitter Lake National Wildlife Refuge. However, it also occurs as a rare vagrant at other wetlands in the State. Within the *Planning Area*, the least tern is found occasionally on playa lakes.

Mexican Spotted Owl: The Mexican spotted owl (*Strix occidentalis lucida*) is one of three subspecies of spotted owl found from western Canada to central Mexico. In response to declines in populations of Mexican spotted owls, due primarily to alteration and fragmentation of their habitat and the threat of catastrophic forest fire events, the species was Federally-listed as threatened throughout its range on March 16, 1993 (58 FR 14248). The most recent critical habitat designation for the species was published on August 31, 2004, and remains in effect (69 FR 53181).

The most serious threat to Mexican spotted owls appears to be habitat loss due to human activities. Historically, this species occupied low-elevation riparian forests, but these forests are now drastically altered or destroyed in most areas of the Southwest. The loss of riparian areas eliminated dispersal opportunities between isolated mountain ranges and breeding areas. The harvesting of wood for fuel eliminated or altered owl habitat in ponderosa pine forests, where large Gambel oaks once provided shade, nesting, and roosting habitat. As more of these trees were harvested, important habitat components for the owl were eliminated (Ganey 1998). Currently, there are additional threats to the owl, including grazing; agriculture or development for human habitation; forest insects; recreational activity; road development; and oil, gas, and mining development (USFWS 1995b).

Typically, Mexican spotted owls occupy a variety of habitats for breeding and foraging. They breed in dense, old-growth mixed-conifer forests along steep slopes and ravines. Within this habitat, the trees form a closed canopy, have a high basal area, and contain numerous downed logs and snags. The large trees provide suitable nest cavities, and the combination of numerous smaller trees with large trees provides roosting and foraging habitat (USFWS 2004).

In New Mexico, the Mexican spotted owl has been recorded in all montane regions from the San Juan, Jemez, and Sangre de Cristo mountains in the north to the Guadalupe and Animas mountains in the south. The largest concentration occurs in the Mogollon and Sacramento mountains, but other sightings include Mountainair, lower San Francisco Valley, Grants, Hurley, Burro Mountains, and San Andres National Wildlife Refuge (USFWS 2004). Within the *Planning Area*, the Mexican spotted owl may occur in piñon-juniper and cliff habitats; however, there are no known nest sites or activity centers.

Southwestern Willow Flycatcher: One of four recognized willow flycatcher subspecies (Browning 1993) the southwestern willow flycatcher (*Empidonax traillii extimus*) is a neotropical migratory species that breeds in the southwestern United States from mid-April to early September and migrates to wintering grounds in Mexico, Central America, and portions of South America during the nonbreeding season (Ridgely and Tudor 1994).

In response to the dramatic decrease in the number of southwestern willow flycatchers in the southwestern states, the USFWS proposed to list the species as endangered on July 23, 1993. The species was subsequently listed as Federally-endangered on February 27, 1995 (60 FR 10694), under the ESA of 1973, as amended. Critical habitat was designated formally for the species on October 19, 2005, which included 15 management units totaling 737 miles of river in New Mexico, Arizona, California, Nevada, and Utah (70 FR 60886). Critical habitat for the southwestern willow flycatcher was not designated within the *Planning Area*. The USFWS is currently revising the critical habitat rule for the southwestern willow flycatcher (FR Volume 76, No. 157, 50541-50629) to include the Rio Grande Valley north of Leasburg Dam in the *Planning Area*.

Throughout its range, the southwestern willow flycatcher has shown both historical and recent population declines. The most significant factor in the cause of these declines is the extensive loss, fragmentation, and adverse modification of its riparian breeding habitat, particularly cottonwood-willow associations (Unitt 1987; USFWS 1995b). Losses have occurred in association with urban and agricultural development, livestock grazing, off-highway vehicle use and recreation, replacement of native habitats

by introduced plant species, fire, water diversion and impoundment, and hydrological changes resulting from these and other land uses (Tibbitts et al. 1994; USFWS 1993). Brood parasitism by the brown-headed cowbird is another major threat to the southwestern willow flycatcher (Brown 1988; Sogge 1995; USFWS 1993, 1995b).

The southwestern willow flycatcher is a riparian obligate that breeds along rivers, streams, and other wetlands where a dense growth of willow (*Salix* spp.), seepwillow, buttonbush, boxelder, saltcedar, or other similarly structured riparian vegetation is present, often with a scattered overstory of cottonwood). Southwestern willow flycatchers in low-elevation riparian systems are associated with both tamarisk and cottonwood-willow riparian forests (Hubbard 1987; Sogge et al. 1997; Paradzick and Woodward 2003).

Within the *Planning Area*, the southwestern willow flycatcher is found on private land, State trust land, and Federal land administered by the Bureau of Reclamation in the Rio Grande Valley. There are no known records of southwestern willow flycatcher on BLM-administered public land in the *Planning Area* where there is very little potential habitat for the species.

Yellow-Billed Cuckoo: The western yellow-billed cuckoo (*Coccyzus americanus*) is a medium-sized neotropical migratory bird. The yellow-billed cuckoo historically ranged from southern British Columbia to northern Mexico (Bent 1940). The species was common and widespread in California and Arizona and was found locally in New Mexico, Oregon, Washington, western Colorado, western Wyoming, Idaho, Nevada, and Utah. Due to decreases in the western distinct population segment of yellow-billed cuckoos, it was proposed for listing as a Category 2 threatened or endangered species (47 FR 58458). In 2001, the species was determined to warrant listing under the ESA, but it was precluded due to other, higher-priority listing actions (66 FR 38611).

The western yellow-billed cuckoo breeds in large blocks of riparian habitats, especially in cottonwood-willow woodlands (Ehrlich et al. 1988). Cottonwood trees provide important foraging habitat for the species, and a dense understory of vegetation is important for nest-site selection. Nesting in the western United States occurs close to water, possibly due to humidity requirements for hatching and rearing young (Hamilton and Hamilton 1965; Rosenberg et al. 1991).

Habitat loss, fragmentation from groundwater pumping, surface-water impoundment, agricultural and urban conversion, invasive species, and overgrazing are the main threats to survival of the western yellow-billed cuckoo. Fragmentation effects include the loss of patches of habitat large enough to sustain local populations, leading to local extinctions and the potential loss of migratory corridors, which in turn affect the ability of the species to recolonize habitat patches (Hunter et al. 1987).

This species was historically rare in New Mexico, but locally common along the Pecos River and Rio Grande, as well as uncommon to common locally along portions of the Gila, San Francisco, and San Juan rivers. In the mid-1980s, the species was fairly common along the Pecos River and along the Rio Grande between Albuquerque and Elephant Butte Reservoir. The yellow-billed cuckoo is a known resident in the *Planning Area*. Yellow-billed cuckoos have been seen near Percha Dam State Park and Elephant Butte State Park in Sierra County, near Three Rivers and Otero Mesa in Otero County, and along the Rio Grande in Doña Ana County (New Mexico Ornithological Society 2007).

3.3.8.2 Federally-Listed Threatened and Endangered Reptiles/Amphibians

Chiricahua Leopard Frog: One of nearly 30 recognized species in North America under the genus *Lithobates*, the Chiricahua leopard frog (*Lithobates* {*Rana*} *chiricahuensis*) is a medium- to large-sized frog that is endemic to wetlands in southern and central Arizona, western New Mexico, and northern Mexico. The Chiricahua leopard frog became Federally-listed as threatened on July 13, 2002 (67 FR

40789), under the ESA of 1973, as amended. Concurrent with this decision, the USFWS published a special rule under Section 4(d) of the ESA, stating that take of the Chiricahua leopard frog caused by livestock use of or maintenance activities at livestock tanks located on private, State trust, or Tribal lands would be exempt from the prohibition of Section 9 of the ESA (67 FR 40789).

The Chiricahua leopard frog is considered to be an aquatic habitat generalist, occurring in a wide variety of habitats at a wide range of altitudes in pine and pine-oak forests with permanent water. It lives and breeds in a variety of aquatic habitats, including cienegas, pools, livestock tanks, reservoirs, streams, and rivers at elevations of 3,281 to 8,890 feet, where adequate depth enables escape from predators (Frost and Bagnara 1977; Scott and Jennings 1985; Zweifel 1968).

Throughout its range, the Chiricahua leopard frog has shown both historical and recent population declines. Although causes of the species' decline are not entirely clear, it is believed that it is threatened by the cumulative effects of the loss, fragmentation, and adverse modification of riparian and wetland habitats; environmental contamination; disease; and predation by introduced, nonnative bullfrogs and fish. Habitat loss from water diversions, dams, groundwater pumping, livestock grazing, mining, urban and agricultural development, and road construction have contributed to reduced quality and quantity of riparian and wetland habitat (Belsky and Blumenthal 1997; Ohmart 1995). In addition, disease is another factor implicated in population declines of the Chiricahua leopard frog. Postmetamorphic Death Syndrome has been implicated in the extirpation of several Chiricahua leopard frog populations in New Mexico (Declining Amphibian Populations Task Force 1993). Problems associated with small population numbers and size also threaten the species. Additional evidence suggests that adverse effects from waterborne contaminants and problems associated with small population numbers and size also may threaten this species (USFWS 2002a).

The historical range of the Chiricahua leopard frog extended across portions of southern and central Arizona, western New Mexico, and northern Mexico. The species is known historically from some 231 sites in Arizona, 182 sites in New Mexico, and about 12 sites in Mexico. The Chiricahua leopard frog is now absent from more than 75 percent of its historical sites, including numerous mountain ranges, valleys, and drainages within its former range. In areas where it is still present, populations are often small, widely scattered, and occupy marginal and dynamic habitats (USFWS 2002a).

The current range of the Chiricahua leopard frog is divided into two population segments: (1) a southern population located in mountains and valleys south of the Gila River in southeastern Arizona, extreme southwestern New Mexico, and Mexico; and (2) northern montane populations in west-central New Mexico and along the Mogollon Rim in central and eastern Arizona (Platz and Mecham 1979).

This species is found in the southwestern portion of New Mexico and is most abundant in the Gila and San Francisco river drainages. Other localities include the Mimbres River drainage in Grant and Luna Counties and the numerous stock tanks and intermittent creeks of southwestern Hidalgo County. Chiricahua leopard frogs may be found in the northwestern portion of the *Planning Area* within Sierra County. Populations are known to occur in Cuchillo Creek and in at least three other drainages (and in dirt tanks in the vicinity of these drainages) in the *Planning Area*, mostly on private land. One breeding population occurs on BLM public land.

3.3.8.3 Federally-Listed Threatened and Endangered Plants

Kuenzler's Hedgehog Cactus: Kuenzler's hedgehog cactus (*Echinocereus fendleri* var. *kuenzleri*) is known to occur in only four counties in New Mexico. The species is found in piñon-juniper habitat at elevations from 5,200 feet to 6,600 feet, typically on southern to southeastern aspects (USFWS 1985b). The cactus was Federally-listed as endangered in 1979, with no critical habitat, and the recovery plan was

completed in 1985. There are currently seven documented locales where the cactus is found (Blue Earth Ecological Consultants 2002). The total number of known plants found on land administered by Forest Service and BLM is approximately 1,600 (Chauvin et al. 2001).

The cactus was considered to be near extinction in the early 1980s, with population estimates below 500 plants. The plant is threatened by private and commercial collection and by destruction caused by livestock, OHVs, and road construction (Fletcher 1985). By 2005, over 2,200 plants had been documented, and the species is recommended for down listing from endangered to threatened (USFWS 2005). This would not affect BLMs management and protection of habitat, populations, or plants. Kuenzler's hedgehog cactus is known to occur in the *Planning Area* in extreme northeastern Otero County on the eastern flank of the Guadalupe Mountains; however, additional potential habitat exists in Otero County in the limestone hills of the southern Sacramento Mountains above 5,200 feet in elevation.

Sacramento Prickly Poppy: The Sacramento prickly poppy (*Argemone pinnatisecta*) is a robust herbaceous perennial that occurs from the Chihuahuan Desert through the piñon-juniper zone to the lower edge of ponderosa pine forests (4,300 feet to 7,100 feet). It is found only in Otero County on the western slope of the Sacramento Mountains between Escondido Canyon and La Luz Creek. Within this area, the poppy occurs in seven canyon systems. The poppy is adapted to disturbance and is often found in sites that have been recently disturbed and have enhanced soil-moisture conditions. The poppy was listed as Federally-endangered in 1989, without critical habitat, and the recovery plan was completed in 1994 (USFWS 1994).

Major threats identified in the recovery plan include road construction, road maintenance (mowing and herbicide use), OHVs, trampling by livestock, drought, and flash floods (USFWS 1994). Additionally, a fungal stem canker was found in some plants that led to failure to set fruit and then death of the plant (USFWS 2009).

Sneed Pincushion Cactus: The Sneed pincushion cactus (*Coryphantha sneedii* var. *sneedii*) is found in the northern Chihuahuan Desert east of Las Cruces, New Mexico, and north of El Paso, Texas (50 CFR 64741). The Sneed pincushion cactus was Federally-listed as endangered without critical habitat in 1979. All known populations are located in Doña Ana County, New Mexico, and El Paso County, Texas.

The Sneed pincushion cactus range is from the southern Organ Mountains and Bishop's Cap east of Las Cruces, New Mexico, and from the Franklin Mountains north of El Paso, Texas. The cactus is generally found in grasslands and shrub-scrub on limestone outcrops and rocky slopes. Threats to Sneed pincushion cactus include habitat destruction and modification, illegal collection, disease and predation, and limited distribution on limestone-derived soils. Within the *Planning Area*, the species occurs in the Fusselman dolomite of the Organ and Franklin Mountains.

Todsen's Pennyroyal: Todsen's pennyroyal (*Hedeoma todsenii*) is a perennial herb found in the Great Basin conifer-woodland community in Texas and New Mexico (USFWS 2001). Due to its extremely restricted range and small population size, Todsen's pennyroyal was listed as Federally-endangered in 1981 with critical habitat. The two critical habitat units are 250 acres each and are located on the White Sands Missile Range, which is managed by the U.S. Department of Defense (DOD). A recovery plan for Todsen's pennyroyal was approved in 1985 (USFWS 2001).

Potential threats to the species include soil erosion, minerals exploration, military activities, illegal grazing, and changes in land use management. There do not appear to be any immediate threats to the pennyroyal sites from the three land managing agencies (USFWS, BLM, and DOD), and if present management continues, it is likely that natural threats will have a greater potential than human activities

to cause extinction of the species. Natural threats include low sexual reproduction, limited suitable habitat, wildfire, and limited dispersal ability (USFWS 2001).

Todsen's pennyroyal is known to exist in the San Andres and Sacramento mountain ranges of southern New Mexico. There are 14 known colonies (M. Howard 2011) in the San Andres Mountains, all on the White Sands Missile Range in Sierra County, New Mexico. There are 15 sites in the Sacramento Mountains in Otero County, New Mexico, that are under the management of the Forest Service, Lincoln National Forest, and the BLM Las Cruces District Office. There are eight sites near Domingo Peak and seven near Mountain Lion Peak (USFWS 2001). Todsen's pennyroyal is found at elevations between 6,200 and 7,400 feet within the Sacramento Mountains. Gypseous-limestone soils occurs at all known Todsen's pennyroyal sites. The species occurs southeast of Tularosa in Otero County and potentially on the western slopes of the San Andres Mountains in Sierra County.

3.3.9 CULTURAL RESOURCES

Cultural resources are prehistoric or historic districts, sites, buildings, structures, or objects considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes. Cultural resources include archaeological resources, historic architectural and engineering resources, and traditional cultural resources. Archaeological resources are areas where prehistoric or historic activity altered the earth or where deposits of physical remains (e.g., arrowheads, pottery) have been discovered. Architectural and engineering resources include standing buildings, districts, bridges, dams, and other structures of historic or aesthetic significance. Traditional cultural resources can include archaeological resources, structures, topographic features, habitats, plants, wildlife, and minerals that American Indians or other groups consider essential for the preservation of traditional culture.

3.3.9.1 Cultural History

The cultural history of the *Planning Area* extends back in time approximately 12,000 years and perhaps longer based on excavations in Pendejo Cave in Otero County (MacNeish and Libby 2004). Paleoindians, the earliest well-documented occupants, occupied the region from about 10,000 to 7,000 or 6,000 B.C. Paleoindian phases or complexes (such as, Clovis, Folsom, Midland, Belen, Portales, Firstview, Cody, and Eden) have been defined primarily on the basis of different styles of stone points used on spears or darts for hunting. The distinctive projectile points are the most common evidence of this period, but they often are found in isolation without other archaeological remains or are mixed with later deposits, suggesting the points were collected and perhaps reused by later occupants of the region.

Archaeologists call the long period from about 7,000 or 6,000 B.C. to about A.D. 200 the Archaic era. The Archaic era represents a continuation of the Paleoindian subsistence strategy of hunting game and gathering indigenous plant foods. The Archaic era commonly is divided into three or four periods based on changing styles of projectile points, but the overall hunting and gathering adaptation appears to have been quite stable.

The subsequent period from about A.D. 200 to about 1400 or 1500 is called the Ceramic or Formative era. The Formative era represents an era of increased population, increased reliance on farming, and less mobile populations who occupied more settlements year round. Most of the Formative sites in the western part of the *Planning Area* are classified as Mimbres. The Formative era is divided into the Early and Late Pit House Periods. The Early Pit House period (Cumbre phase in the Mimbres Valley), which dated from about A.D. 200 to 550, represents groups who lived in small villages, often on high, steep-sided knolls and mesas. The Late Pit House period is dated from about A.D. 550 to 1000, and is further divided into three phases primarily on the basis of changing types of pottery.

The Jornada and Mimbres branches of the Mogollon cultural system appear to have collapsed in the mid-1400s, or at least changed so drastically that they left an essentially invisible archaeological record. When the first Spanish expeditions passed through south-central New Mexico in the 1580s, they encountered various groups of hunters and gatherers. These native groups subsequently were devastated by warfare and disease or were largely blended into Mexican or Apache societies. Descendants of Piro and Tigua (or Tiwa), who moved south with the Spanish when the Pueblo Revolt of 1680 drove them out of New Mexico, reside at Ysleta del Sur Pueblo on the southern edge of El Paso, Texas. A composite community of Tigua, Piro, and Manso Indians formed a daughter colony known as Tortugas in Las Cruces, sometime between 1850 and 1900. Tortugas was formally incorporated in 1914, but the Federal government has not approved the colony's request for formal recognition as an American Indian tribe.

By the late 1500s (and perhaps earlier), Athapascan-speaking people moved into southern New Mexico and came to dominate this territory. The Athapascan speakers differentiated into the Navajo and several groups of Apaches. The Chiricahua Apache occupied the western parts of the *Planning Area* west of the Rio Grande and the Mescalero Apache occupied areas to the east.

The first Spanish explorers entered what is now New Mexico in the early sixteenth century, but left after finding no mineral wealth and did not return to settle the area until late in the century. A major route of travel between Mexico and the New Mexican colony—El Camino Real de Tierra Adentro (Inland Royal Road) or Chihuahua Trail—developed along the Rio Grande at that time.

Once the New Mexico Territory became part of the United States after the Mexican War, the Federal government invested considerable effort in establishing military posts to explore and map the country, describe local resources, and identify the best routes of travel, as well as to protect new settlers from Apache raids. Fort Bliss, Fort Fillmore, Fort Thorn, and Fort Craig were established in the Rio Grande Valley in 1853 and 1854 to protect immigrants moving west as well as travelers along the north-south Camino Real. In the late 1850s, Hispanics cautiously began to expand farther north along the Rio Grande. After the Civil War ended and more troops became available, the presence of the U.S. Army provided protection for travel through the region. One of the more famous routes was the Butterfield Overland Mail Company road, which John Butterfield established as a mail and passenger service from St. Louis to San Francisco in 1858.

Gold, silver, and copper were mined in the Tularosa and High Rolls Districts of the Sacramento Mountains in eastern Otero County, and in the Jarilla Mountains in western Otero County. More substantial mining efforts focused on the eastern slopes of the Black Range, where the discovery of gold and silver in the 1870s and 1880s led to establishment of numerous mining communities in western Sierra County, including Winston, Chloride, Kingston, Hillsboro, and Lake Valley. Ranching is a major theme of historic Euro-American settlement of the uplands. Large-scale cattle ranching dates only from the 1880s, although some livestock, particularly sheep, were raised in conjunction with the agricultural communities in the Rio Grande Valley. Early ranching was an expansion of the Texas cattle industry, and most ranching soon was consolidated into large, corporate ranches financed by Eastern and European capital. In 1916, the Bureau of Reclamation completed construction of Elephant Butte Dam on the Rio Grande, and stabilized the water supply for irrigation agriculture that was used particularly for raising cotton and alfalfa, as well as vegetables and pecans. Agriculture continues to be important to the regional economy.

The White Sands Proving Ground (now White Sands Missile Range) was established in 1945. On July 16 of that year, the world's first atomic bomb was detonated on the north end of the Range. Military training and research continues to be a prominent activity within the *Planning Area*.

3.3.9.2 Archaeological and Historical Sites

Information about the status of the inventory and evaluation of cultural resources within the *Planning Area* was compiled from two sources: (1) annual reports of the BLM cultural resource program, and (2) the New Mexico Cultural Resource Information System (NMCRIS). Both sources of information are incomplete and have limitations, but they provide a basis for characterizing and making approximate estimate of the numbers of the cultural resources of the *Planning Area*.

When the *White Sands RMP* was prepared in 1985, it was estimated that less than 0.2 percent of Sierra and Otero Counties, and less than 1 percent of the public land in those counties, had been surveyed for cultural resources. The RMP stated that 10 historic and 129 prehistoric sites had been recorded at that time on public land within those counties. Summary information for selected large surveys that, in the aggregate, had covered about 50 square miles, indicated that the densities of archaeological and historical sites varied from about 1 to more than 60 per square mile, with an average density of almost 5 sites per square mile. Those numbers suggest there could be more than 50,000 archaeological and historical sites in those two counties. No comparable statistics were compiled when the *Mimbres RMP* was issued in 1993.

Based on the BLM annual reports, it is estimated that since 1986 the BLM cultural resource program conducted cultural resource survey of almost 19,900 acres (31 square miles) of public land within Sierra and Otero Counties, recording more than 381 archaeological and historical sites. Survey projects included in the BLM annual reports are not limited to public land, because some projects within the purview of BLM review also cross non-public land. The annual reports indicate that almost 11,000 acres (17 square miles) of non-public land was surveyed, and more than 200 archaeological and historical sites were recorded in conjunction with those surveys. Based on the number of sites recorded by documented surveys, the estimated average site density on public land in Otero and Sierra Counties is three sites per square mile, compared with four sites per square mile for both counties. Those averages suggest there are more than 40,000 archaeological and historical sites in Otero and Sierra Counties. Based on the BLM annual reports, it is estimated that since 1993 the BLM cultural resource program surveyed about 12,480 acres (20 square miles) of public land within Doña Ana County, recording more than 164 archaeological and historical sites. About 7,170 acres (11 square miles) of non-public land was surveyed as part of projects within the purview of BLM review, and almost 139 archaeological and historical sites were recorded in conjunction with those surveys.

The NMCRIS database includes information about 3,838 archaeological and historical sites recorded in Doña Ana County, and 1,077 of those are on public land. The data indicate that 4 percent of the public land has been surveyed for cultural resources compared to 5 percent for the entire county. Although public land constitutes 46 percent of Doña Ana County, the archaeological and historical sites on public land constitute only 28 percent of the sites recorded within the county.

About 66 percent of the sites recorded on public land are in areas that are not documented in the NMCRIS database as having been surveyed, and about 68 percent of all sites recorded within Doña Ana County are not associated with documented surveys. This probably reflects early (pre-1970s) inventories that did not rigorously document survey areas, or the fact that information about some survey projects has not yet been entered into the NMCRIS database. Based on sites recorded by documented surveys in the NMCRIS database, it is estimated that the average site density on public land in Doña Ana County is six sites per square mile, which is the same as the estimated average density for the entire county. Those averages suggest there are approximately 20,000 to 25,000 archaeological sites in Doña Ana County, more than 10,000 of them on public land, with approximately 85 to 90 percent yet to be recorded.

3.3.9.3 Traditional Cultural Properties

Federally-recognized tribes in or near the *Planning Area* include the Mescalero Apache, who reside on the Mescalero Indian Reservation in Otero County, and Ysleta del Sur Pueblo (Tigua Reservation), located southeast of El Paso, Texas. The Tortugas, a composite community of Tigua, Piro, and Manso Indians and Hispanics, is a daughter colony of Ysleta del Sur Pueblo that formed in Las Cruces sometime between 1850 and 1900. Although the Tortugas formally incorporated in 1914, the Federal government has not recognized the community as an American Indian tribe.

Tribes that have expressed traditional cultural interests in the *Planning Area* or that historically used the *Planning Area* include the Hopi Tribe, Navajo Nation, Fort Sill Apache Tribe, White Mountain Apache Tribe, Kiowa Tribe, Comanche Indian Tribe, Isleta Pueblo, Pueblo Isleta del Sur, Acoma Pueblo, Laguna Pueblo, Tesuque Pueblo, and Zuni Pueblo.

3.3.9.4 Special Status Cultural Resources

Not all cultural resources are significant. Since the mid-1980s, criteria for inclusion in the National Register of Historic Places (National Register) have been used broadly for evaluating the significance of archaeological and historical sites, although BLM also has a system of allocating sites to various uses as another measure of significance. The annual reports indicate approximately 80 to 90 percent of the sites recorded in the study area have been evaluated as eligible for the National Register, which indicates they are worthy of preservation in place or the information they contain is worthy of recovery and preservation. Some cultural resources have special status designations, including National monuments, National historic sites, and cultural ACECs, as well as actual listing in the National Register. Resources determined eligible for the National Register are afforded the same consideration as those that are actually listed, but the additional effort entailed in listing properties often reflects a higher degree of publicly perceived significance or sentiment for preservation in place. Table 3-18 lists the types of special status cultural resources located within the *Planning Area*.

The White Sands National Monument is managed by the National Park Service (NPS) and is the only National monument in the *Planning Area*. It overlaps the boundary of Otero and Doña Ana Counties along U.S. Highway 70 about 15 miles southwest of Alamogordo. The Monument was set aside primarily for a natural feature--the largest gypsum dune field in the world--but the NPS also manages the cultural resources of the Monument for restoration, protection, maintenance, public visitation, and education. A White Sands Monument National Historic District also has been defined.

3.3.9.5 Management of Cultural Resources

The degree of management of cultural resources within the *TriCounty* area is commensurate with the scientific or socio-cultural values of the resource, the degree of threat, and the resources' vulnerability. Under this concept, Las Cruces District attempts to protect a representative sample of the full array of cultural resources, both historic and prehistoric, found within the *Decision Area*. Federal laws such as the *National Historic Preservation Act* (NHPA) of 1966, the *Archeological Resources Protection Act* (ARPA) of 1979, the *American Indian Religious Freedom Act* (AIRFA) of 1978, the *Native American Graves Protection and Repatriation Act* (NAGPRA) of 1990, and *Federal Land Policy and Management Act* of 1976 (FLPMA) provide for the protection and management cultural resources on public land.

**TABLE 3-18
SPECIAL STATUS CULTURAL RESOURCES IN THE PLANNING AREA**

TYPE	SITE NAME
National Monuments	Prehistoric Trackways National Monument
National Historic Trails	El Camino Real de Tierra Adentro
New Mexico State Register of Cultural Properties	Three Rivers Petroglyph Site Alamo Spring Stage Station Lake Valley Mining District Lake Valley Schoolhouse Escondida Ruin [on McGregor Range] Archaeological sites LA 1082 near Derry and LA 50751 near Arrey
Area of Critical Environmental Concern	Three Rivers Petroglyph Site Cornudas Mountain Alamo Mountain Los Tules Rincon San Diego Mountains Wind Mountain Doña Ana Mountains Organ/Franklin Mountains
Backcountry Byway	Lake Valley

SOURCES: New Mexico Historic Preservation Division 2005; National Park Service 2005

These laws and their implementing regulations determine how the NHPA shall be implemented by Federal agencies, State Historic Preservation Officers, and the Advisory Council. The BLM implements this process under a National Programmatic Agreement, and in New Mexico a Protocol Agreement with the New Mexico State Historic Preservation Office which further defines these roles.

Archeological and historic resources are evaluated initially under the eligibility criteria of the National Register. Sites listed or eligible for the National Register are managed under BLM procedures which have been developed in conformance with relevant laws and regulations. This may include designating and managing the area as an ACEC, closing or limiting the area to vehicle use, closing or limiting the area to mineral development, or other management actions.

To date, no tribes have formally identified traditional cultural properties (TCPs) within the *Decision Area*. Tribes are often reluctant to identify, locate, or say why a particular site or landscape has special significance. Regardless, any TCPs that might be recognized by a tribe at any time during BLM's resource management planning would be managed in accordance with the NHPA, AIRFA and NAGPRA, and relevant regulations which take into account concerns in the implementation of ARPA. The consultation with American Indian tribes concerning sites and locations of religious or cultural interest is ongoing in all BLM actions which may impact these values, and is intended to consider sites allocated under traditional use allocations, including preparing this RMP amendment and revision.

The BLM is required by policy to “*protect and preserve significant cultural resources and ensure that they are available for appropriate uses by present and future generations*” (BLM IB 2002-101). To achieve this effort, the BLM planning manual (*BLM Manual* Section 1601) and the *BLM Cultural Resource Manual* (*BLM Manual* Section 8110) direct that each cultural resource within the *Planning Area* should be assigned to at least one of six use allocation categories. This system is based on actual or potential use of individual sites or properties. This step generally occurs as part of the planning process, and following these decisions a Cultural Resource Management Plan is prepared. Table 3-19 shows the use allocation categories and their descriptions. Table 3-20 shows the desired management outcomes, the management actions, and the sites currently assigned to each use allocation. The majority of sites

recorded in the *Planning Area* are managed for scientific use as properties that have been informally determined to be eligible for the NRHP due to their potential to yield data important in understanding the history and prehistory of the region. A small proportion of sites are determined to be ineligible to the NRHP and receive no further management protection.

**TABLE 3-19
CULTURAL USE ALLOCATION CATEGORIES AND DESCRIPTIONS**

USE ALLOCATION	DESCRIPTION
Scientific Use	Cultural property determined to be available for scientific or historical study using currently available research techniques or to be preserved until the research potential is realized.
Conservation For Future Use	Unique cultural properties (those that are unusually scarce, have significant data that cannot be removed with current technology, have singular historic or other importance, and can be “banked” for future scientific study).
Traditional Use	Cultural resources known to be perceived by a specified social or cultural group as important in maintaining their cultural identity, heritage, or well-being.
Public Use	Cultural property that has qualities useful for onsite interpretation or for other related educational and recreational uses by the general public.
Experimental Use	Cultural property determined to be suitable for controlled experimental study to improve management techniques.
Discharged From Management	Cultural property with no remaining identifiable use. No cultural resources may be removed from management before documentation, but many sites may be removed following the appropriate level of documentation and/or study.

**TABLE 3-20
DESIGNATED CULTURAL USE ALLOCATIONS**

USE ALLOCATION	DESIRED OUTCOMES	MANAGEMENT	SITES
Scientific Use	Preserved until research potential is realized	Permit appropriate research, including data recovery	Rattlesnake Hills Archeological District Jarilla Mountains Lone Butte Bruton Bead Site Los Tules Site San Diego Mountain
Conservation For Future Use	Preserved until conditions for use are met	Propose protective measures or designations	Butterfield Trail Mormon Battalion Trail
Traditional Use	Long-term preservation	Consult with tribes, determine management strategy	Alamo Mountain
Public Use	Long-term preservation, on-site interpretation	Determine permitted use	Three Rivers Petroglyph El Camino Real de Tierra Adentro National Historic Trail
Experimental Use	Protected until used	Determine nature of experiment	No allocation
Discharged From Management	No use after recordation; not preserved	Remove protective measures	No allocation

Protection of cultural resources is accomplished through administrative measures (such as closing an area to vehicle use) and physical measures (such as fencing), depending on the resource value, vulnerability, and degree of threat. Interim management emphasizes patrol and surveillance until objectives and actions are developed and implemented. Las Cruces District currently has an active program of signing cultural resource properties that are threatened with active or potential vandalism.

Actions to stabilize ruins are done on an as-needed basis and will continue, contingent on availability of funding. Stabilization may involve physical measures to control erosion or arroyo cutting or applying sterile fill to contour or protect damaged sites.

Sites that have no remaining information potential, traditional values or other identifiable use would be discharged from management for cultural resource values. Sites would be allocated to this category on a case-by-case basis after inspection and recordation in the field and after compliance with Section 106 of the NHPA. Generally, this category would be limited to small scatters of artifacts on the surface that have been thoroughly documented. Larger, more complex sites may be discharged from management if they have been destroyed by human or natural causes. Sites in this category would be recorded in the field and would remain in the cultural resource inventory.

Cultural resource surveys would continue to be conducted prior to authorization of any ground-disturbing activity or land disposal, with the possible exception of land conveyed to the State of New Mexico under an existing Memorandum of Understanding. This would be done in accordance with the National Programmatic Agreement and New Mexico protocol. In accordance with the protocol, the BLM approves and proceeds with projects that do not affect properties listed on or identified as eligible for the National Register of Historic Places without consulting with the New Mexico SHPO. The BLM submits documentation of such projects to the SHPO quarterly and also submits an annual report of the program. Affiliated American Indian tribes would be consulted for all actions that may affect their interests. The BLM would continue to fund and conduct proactive cultural resource inventories in compliance with Section 110 of the NHPA and in accordance with cultural resource goals and evolving management priorities.

The following areas in the *Decision Area* have been designated ACECs to, in part, protect and manage cultural resources:

- Alamo Mountain
- Doña Ana Mountains
- Cornudas Mountain
- Los Tules
- Organ/Franklin Mountains
- Rincon
- San Diego Mountain
- Three Rivers Petroglyph Site
- Wind Mountain

Management prescriptions for these areas to protect cultural resources include limiting vehicle use, closing to fluid-mineral leasing, excluding new rights-of-way, and closing to mineral material extraction and are described in Chapter 2.

3.3.10 PALEONTOLOGY

Paleontological resources, usually thought of as fossils, include the bones, teeth, bodily remains, traces, or imprints of plants and animals preserved in the earth through geologic time. Paleontological resources also include related geological information, such as rock types and ages. All fossils offer scientific information, but not all fossils offer noteworthy scientific information. Fossils are considered to be scientifically noteworthy if they are unique, unusual, rare, diagnostically or stratigraphically important, or add to the existing body of knowledge in a specific area of science. Most fossils occur in sedimentary rock formations. Although paleontologists generally can predict which formations may contain fossils and what types of fossils may be found based on the age of the formation and its depositional environment, predicting the exact location where fossils may be found is not possible. Known fossil localities that occur either on or outside of BLM-managed public land may serve as an indication of possible resources that could be found in similar rock formations and outcrops on public land.

A potential fossil yield classification system has been developed by the BLM. This system serves as a first screen for ground disturbing activities by generally identifying those areas or landscapes where activities may be most likely or less likely to occur. The system is based on the geology, topography, soils and other physical aspects of the landscape. Probable fossil yields are divided into five classes; however Class 5 is not known to occur in the *Planning Area*, except for geologic units in the Prehistoric Trackways National Monument. These classes and the management concerns by class are described in Table 3-21. Map 3-5 shows the potential fossil yield classes for the *Planning Area*.

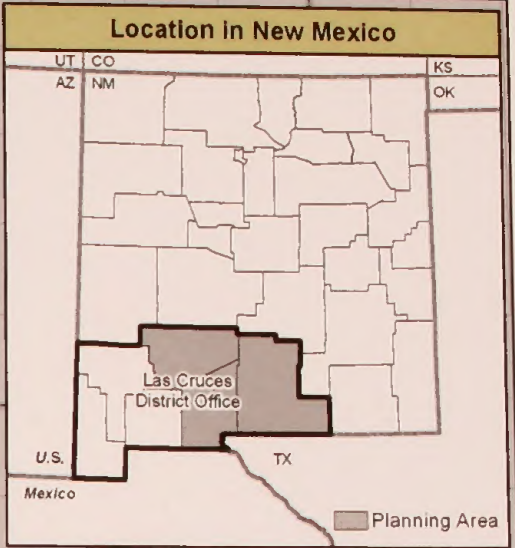
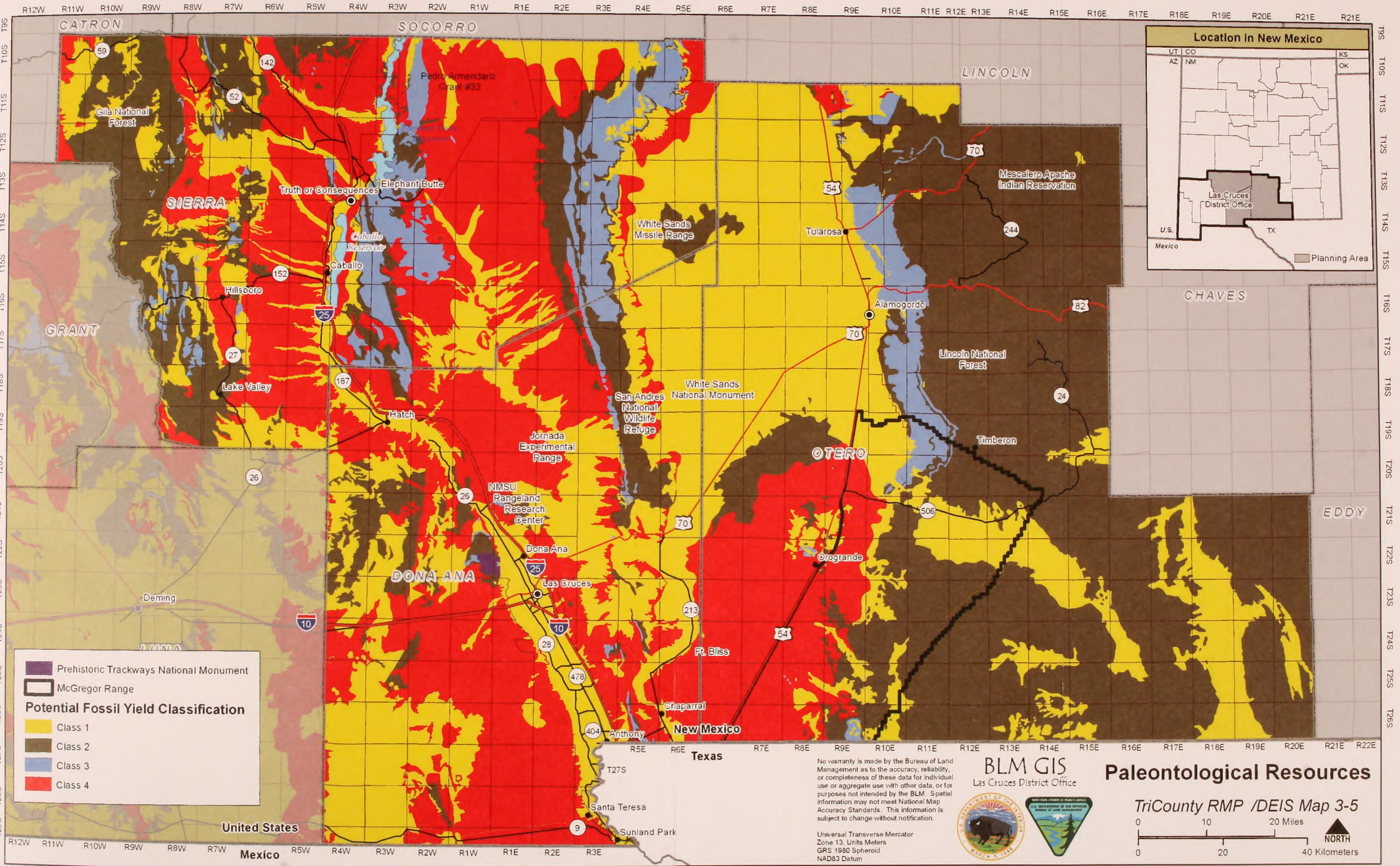
Sierra and Otero Counties have a broad range of geologic formations within their borders. The rocks of the Precambrian include a complex of gneiss with metasedimentary and metavolcanic rocks intruded by granites that are not fossil bearing. The formations of the Early Paleozoic (limestones, sandstones, shales, and conglomerates) are widespread in southern New Mexico, and include nearly 320 million years of deposition of marine sediments with invertebrate fossils.

Overall, the area of greatest potential for significant fossil finds in Otero County is in the southern Tularosa Valley (Doña Ana Bombing Range) and in portions of the Sacramento and Capitan mountains. In Sierra County, the greatest potential for fossils is in the alluvial and terrace deposits (including the Santa Fe Group) along the Rio Grande; in portions of the Caballo, Fra Cristobal, San Andres, and Mimbres mountains; and in the Jornada del Muerto area near Elephant Butte Reservoir. Fossils found in Sierra and Otero counties are listed in Table 3-22.

**TABLE 3-21
POTENTIAL FOSSIL YIELD CLASSIFICATION SYSTEM**

CLASSES	MANAGEMENT CONCERN BY CLASS	OTHER RESOURCES AVAILABLE
5	Management concern for paleontological resources on Class 5 areas is high. Class 5 areas have produced important fossils and site-specific mitigation would be required. Class 5 areas are determined as more data is collected.	For known occurrences, check the NMMNHS on line database by county and verify by USGS Topographic Map. Other screening tools can be used such as DOQQs for outcrop exposure and soils maps for depth to bedrock.
4	Management concern for paleontological resources on Class 4 areas is towards management and away from unregulated access. Proposed ground-disturbing activities require on-the-ground assessment to determine whether significant paleontological resources may occur in the area of the proposed action.	For known occurrences, check the NMMNHS on line database by county and verify by USGS Topographic Map. Other screening tools can be used, DOQQs for outcrop exposure and soils maps for depth to bedrock
3	Management concern for paleontological resources on Class 3 areas may extend across the entire range. Ground disturbing activities need to be evaluated on a case-by-case basis for the need to mitigate.	For known occurrences, check the NMMNHS on line database by county and verify by USGS Topographic Map. Other screening tools can be used such as DOQQs for outcrop exposure and soils maps for depth to bedrock.
2	Management concern for paleontological resources on Class 2 areas is low. Ground disturbing activities would not likely require mitigation.	Paleontological resources may be associated with caves.
1	Management concern for paleontological resources on Class 1 areas is not required.	Paleontological resources may be associated with caves

Doña Ana County also includes a broad range of geological formations. Rocks of the early Paleozoic crop out along escarpments of the San Andres, Organ, and other mountains in southern New Mexico. A phosphatic dermal plate similar to that of a heterostracan fish has been found in the Cambrian Bliss Formation (Mack 2004). There have not been any confirmed reports of Ordovician or Silurian vertebrates in New Mexico. Generally, the early Paleozoic (pre-Mississippian) is sparsely fossiliferous.



Prehistoric Trackways National Monument
 McGregor Range
Potential Fossil Yield Classification
 Class 1
 Class 2
 Class 3
 Class 4

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Paleontological Resources

TriCounty RMP /DEIS Map 3-5



Universal Transverse Mercator
 Zone 13, Units Meters
 GRS 1980 Spheroid
 NAD83 Datum

Mississippian limestones are present in the San Andres and Organ Mountains and contain abundant, yet common, invertebrate fossils. Overall, the greatest potential for fossils in Doña Ana County is in the Camp Rice Formation (Santa Fe Group) found along the alluvial and terrace deposits of the Rio Grande, in the Permian Abo and Hueco formations, and in portions of the Robledo, San Andres, and Organ Mountains. Fossils found in Doña Ana County are listed in Table 3-22.

There are several notable paleontological resources in the *Planning Area*, particularly the Paleozoic Trackways site in the Permian Abo Formation, and the numerous discoveries in the Camp Rice Formation and Hueco Formation along the Rio Grande. BLM has developed a paleoecological resource database for the State of New Mexico that enables the review of areas and geologic formations to determine their potential fossil yield. This is an important step to afford opportunities for discovery and proper curation of paleontological resources on public land where projects may be undertaken.

In 1987, a major deposit of Paleozoic Era fossilized footprint megatracks was discovered in the Robledo Mountains. The trackways contain footprints of numerous amphibians, reptiles, and insects (including previously unknown species), plants, and petrified wood dating back approximately 280 million years. Collectively, these trackways provide new opportunities to understand animal behaviors and environments from a time predating the dinosaurs.

The trackways discovery site and other tracksite locations in the Robledo Mountains are within the Wolfcampian red beds that are generally referred to as the Abo Tongue of the Hueco Formation. These strata along with an overlying upper member of the Hueco Formation represent a regional transition zone between marine limestones of the Hueco Formation to the south and nonmarine red beds of the Abo Formation to the North. The Paleozoic Trackways site is within the Prehistoric Trackways National Monument designated in 2009 through the Omnibus Public Land Management Act. A stand-alone management plan is being prepared for the Monument; therefore, it is not addressed in this RMP/EIS.

3.3.11 VISUAL RESOURCES

The Las Cruces District Office topography is varied and ranges from valley floor elevations of around 2,000 feet to mesas at around 5,000 feet and mountain elevations of over 8,000 feet. The broad valleys of the basin and range landscape trend generally north-south and can extend for more than 50 miles along this axis. These valleys afford panoramic vistas of the adjacent mountain ranges. Prominent geological features visible from major highways include the Organ Mountains, and White Sands.

Vegetation types range from Chihuahuan Desert shrub consisting mostly of creosote, mesquite, yucca, and ocotillo to surrounding alluvial fans and transition zones of grasses with juniper and piñon situated on higher-elevation mountain slopes. Riparian vegetation is limited but when present may consist of overstories of cottonwood, willow, and screwbean mesquite, with dense understories of seepweed, New Mexico olive, and non-native tamarix. The Chihuahuan Desert may be the most biologically diverse desert in the world. Major river systems include the Rio Grande, Gila, and Mimbres rivers. The Rio Grande is an important source of irrigation water for agricultural crops including pecans, chiles and onions.

**TABLE 3-22
FOSSILS FOUND IN PLANNING AREA**

COUNTY	GEOLOGIC PERIOD(S)	FORMATION	FOSSILS
Doña Ana	Quaternary-Tertiary (Neogene)	Camp Rice (Santa Fe Group)	Birds, bivalves, mammals (antelope, dogs, foxes, horses, camels, gomphotheres, leopards, mammoths, glyptodonts), reptiles, plants
Doña Ana	Quaternary-Tertiary (Neogene)	Otero	Mammals (horses, camels, elephants), reptiles
Doña Ana	Cretaceous	Del Norte	Anthozoa
Doña Ana	Cretaceous	Del Rio	Bivalves
Doña Ana	Cretaceous	Gallup	Bivalves
Doña Ana	Cretaceous	Mancos Shale	Bivalves, cephalopods
Doña Ana	Cretaceous	Mesilla Valley	Anthozoa, cephalopods
Doña Ana	Cretaceous	Sarten	Bivalves, cephalopods, and other invertebrates
Doña Ana	Cretaceous	U-Bar	Bivalves
Doña Ana	Permian	Abo	Amphibians, reptiles, plants, invertebrates
Doña Ana	Permian	Hueco	Amphibians, bivalves, arthropods, plants, brachiopods, cephalopods, sponges, crinoids, echinoids, gastropods, insects, reptiles, trilobites, miscellaneous other vertebrates and invertebrates
Doña Ana	Permian	Robledo Mountains	Bivalves, brachiopods, gastropods, amphibians
Doña Ana	Permian	Shalem Colony	Brachiopods, gastropods, bivalves, bryozoa, cephalopods, crinoids
Doña Ana	Carboniferous	Panther Seep	Anthozoa, bivalves, brachiopods, bryozoa, echinodermata, gastropods, trilobites, miscellaneous other invertebrates
Doña Ana	Cambrian	Bliss	Phosphatic dermal plates similar to heterostracan fish
Sierra and Otero	Quaternary-Tertiary (Neogene)	Otero	Mammals (horse, camel, mammoths), reptiles
Sierra	Tertiary (Neogene)	Palomas (Santa Fe Group)	Charaphyta, gar fish, crustaceans, mammals (dogs, horses, camels, gomphotheres, coryphodons, leopards), reptiles
Sierra	Tertiary (Paleogene)	Jordan Canyon	Mammal (merycoidodontidae)
Sierra	Tertiary (Paleogene)	Rubio Peak Formation	Brontothere
Sierra	Tertiary (Paleogene)	Love Ranch	Reptile
Sierra	Tertiary (Paleogene)	Palm Park	Mammals (horses, brontotheres, hyracodontidae, hyaenodontidae), reptiles, plants
Otero	Cretaceous	Mesa Rica Sandstone	Bivalves
Sierra	Permian	Abo	Arthropods and other insects, amphibians, reptiles, miscellaneous other vertebrates and invertebrates, conifers and other plants
Sierra	Permian	Bursum	Vertebrates
Otero	Permian-Pennsylvanian	Laborcita	Amphigastropods, bivalves, cephalopods, crustaceans, gastropods, holothuroids, mollusks, ophiuroids, pelecypods, rhizopods
Otero	Pennsylvanian	Beeman	Vertebrates
Otero	Pennsylvanian	Holden	Bivalves, cephalopods, gastropods, mollusks
Sierra and Otero	Mississippian	Lake Valley	Anthozoa, brachiopods, cephalopods, chondrichthyes, crinoids, crustaceans, echinodermata, echinoids, gastropods, holothuroids, ophiuroids, polychaeta, trilobites
Otero	Mississippian	Caballero	Acanthods, agnathas, bivalves, brachiopods, chondrichthyes, conodonts, crustaceans, osteichthyes, vertebrates
Otero	Devonian	Percha Shale	Algae, brachiopods, conodonts, placoderms, vertebrates, shark teeth
Otero	Devonian	Sly Gap	Brachiopods, chondrichthyes, crinoids, osteichthyes, placoderms
Sierra and Otero	Cambrian	Bliss	Phosphatic dermal plates similar to heterostracan fish

SOURCE: New Mexico Museum of Natural History and Science, 2005.

Visual resource inventory classes are designated through the inventory process. They are informational in nature and provide the basis for considering visual values in the RMP process. They do not establish management direction and should not be used as a basis for constraining or encouraging surface disturbing activities. They are considered a baseline data for existing conditions. Visual resources in the Las Cruces District Office were last inventoried in May 2010, based on a process to determine visual (scenic) values at a specific point in time. There are three primary components combined to develop VRM Inventory Classes. Those components are: Scenic Quality Evaluation, Sensitivity Level Analysis

and Delineation of Distance Zones (Visual Resource Inventories are conducted according to the guidelines in the BLM Manual Handbook H-8410-1 Visual Resource Inventory). The results of the 2010 Visual Resource Inventory are presented in Table 3-23.

**TABLE 3-23
VISUAL RESOURCES INVENTORY CLASSES ON BLM**

CLASS	ACREAGE	PERCENT BLM
Class I	0	0
Class II	706,111	25%
Class III	1,028,709	36%
Class IV	1,085,332	38%

Visual resource management classes are assigned for all BLM-administered land through the RMP process. The assignment of visual management classes is ultimately based on the decisions made in RMPs, which must take into consideration the value of visual resources. There are four visual resource management (VRM) classes. The visual resource inventory process and the management objectives for each class are based on criteria identified within BLM's *Visual Resource Inventory Handbook* (1984b). Dominant landforms with unique features have been designated as VRM Class I. This includes ACECs designated to protect scenic values. The following scenic ACECs are managed as VRM Class I:

- Alamo Mountain
- Cornudas Mountain
- Wind Mountain
- Sacramento Escarpment
- Organ/Franklin Mountains
- Doña Ana Mountains
- Robledo Mountains

All of the WSAs in the *Planning Area* are designated and managed as VRM Class I. The majority of the public land within the *Planning Area* is designated as VRM Class IV landscape interspersed with Class III landscapes located near roadways, with open and panoramic scenic views. Table 3-24 summarizes how much public land is within each VRM class. The 1993 Mimbres RMP determined that the WSAs in the Mimbres Resource Area would be managed as VRM Class II until such time as they were designated wilderness by Congress or dropped from wilderness study. However, Instruction Memorandum 2000-096, *Use of Visual Resource Management Class I Designation in Wilderness Study Areas* directed that all WSAs are to be managed as VRM Class I. This is the current management direction for VRM management of WSAs in the *Planning Area*; however, to be consistent with discussion of current management of other resources in this document, the tables and maps showing the VRM/WSA information reflects the Mimbres RMP decision.

**TABLE 3-24
ACRES OF PUBLIC LAND WITHIN EACH VISUAL RESOURCE MANAGEMENT CLASS**

MANAGEMENT CLASS	SIERRA COUNTY	OTERO COUNTY	DOÑA ANA COUNTY	TOTAL
	ACRES	ACRES	ACRES	ACRES
Class I	0	10,000	33,000	43,000
Class II	160,581	107,153	310,610	578,344
Class III	183,714	65,420	591,502	840,636
Class IV	435,585	750,071	189,457	1,375,113

3.3.12 FIRE AND FUELS MANAGEMENT

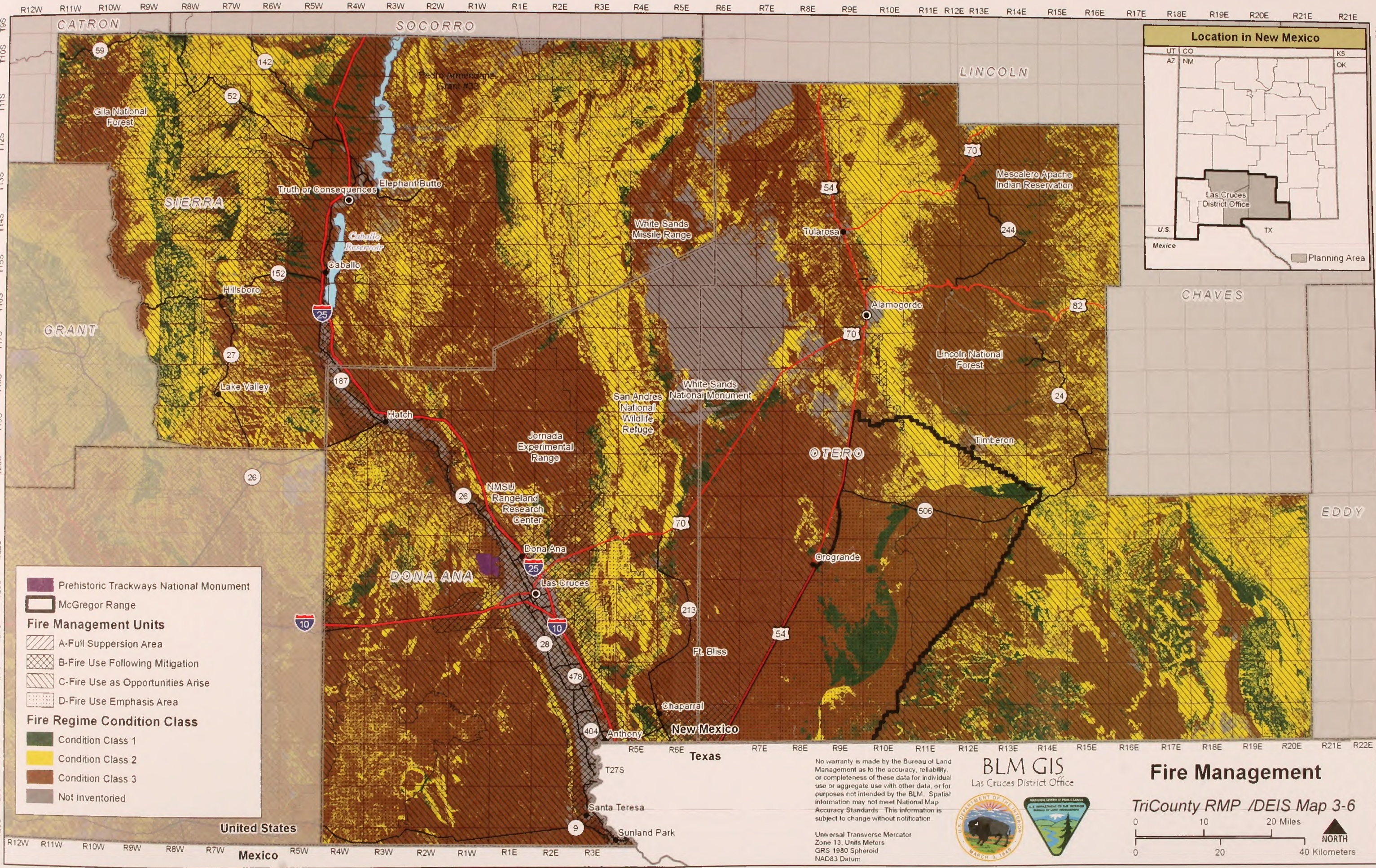
The nature of fire in ecosystems typically is discussed in terms of fire regime, which is the combination of fire frequency, predictability, periodicity, intensity, seasonality, and extent characteristic of fire in an ecosystem. Fire regimes may be based on the characteristics of the fire itself or on the effects produced by the fire (Agee 1993). The 2001 Federal Fire Policy references preliminary Fire Regime Condition Class (FRCC) data as a way of assigning risk to ecosystem sustainability and assessing the risk of uncharacteristic wildland fire behavior and effects (Schmidt et al. 2002). These are qualitative measures that incorporate the concept of historical fire regimes as a baseline against which current conditions are compared.

3.3.12.1 Fire Regimes

To understand the role of fire in ecosystems, it is first necessary to understand how fire regimes have altered over time and geographic area. Historical fire regimes may be thought of as a backdrop against which current FRCC can be considered. Restoration of historical fire regimes may or may not be a goal within a particular area due to social and political constraints. However, by delineating FRCCs within the context of historical fire regime, land managers may be able to predict fire extent, severity, intensity, and effects more accurately. Based on the historical fire regimes and on-the-ground conditions, BLM has assigned land within the *Planning Area* into the three FRCCs as shown in Table 3-25 (USDI BLM 2004b).

CLASS	ATTRIBUTES	EXAMPLE MANAGEMENT OPTIONS
1	Fire regimes are within or near a historical range. The risk of losing ecosystem components is low. Fire frequencies have departed from historical frequencies by no more than one return interval. Vegetation attributes (species composition and structure) are intact and functioning within a historical range.	Where appropriate, these areas can be maintained within the historical fire regime by treatments such as fire use.
2	Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components has increased to moderate. Fire frequencies have departed (either increased or decreased) from historical frequencies by more than one return interval. These result in moderate changes to one or more of the following: fire size, frequency, intensity, severity, or landscape patterns. Vegetation attributes have been moderately altered from their historical range.	Where appropriate, these areas may need moderate levels of restoration treatments, such as fire use and hand or mechanical treatments, to be restored to the historical fire regime.
3	Fire regimes have been significantly altered from their historical range. The risk of losing ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. These result in dramatic changes to one or more of the following: fire size, frequency, intensity and severity, or landscape patterns. Vegetation attributes have been significantly altered from their historical range.	Where appropriate, these areas may need high levels of restoration treatments, such as hand or mechanical treatments. These treatments may be necessary before fire is used to restore the historical fire regime.

According to Landfire FRCC data, approximately one-third of the public land in all three counties is FRCC 3 which is highly departed from historical conditions, another third is FRCC 2 which is moderately departed, and the last third is FRCC 1 and is close to historical conditions (see Map 3-6). The result is moderate changes in fire size, intensity, severity or landscape patterns. This has resulted in vegetation such as desert shrubs dominating former grasslands, and piñon and juniper invading grass-shrublands.



Prehistoric Trackways National Monument
 Prehistoric Trackways National Monument

McGregor Range
 McGregor Range

Fire Management Units



- A-Full Suppression Area
- B-Fire Use Following Mitigation
- C-Fire Use as Opportunities Arise
- D-Fire Use Emphasis Area

Fire Regime Condition Class

- Condition Class 1
- Condition Class 2
- Condition Class 3
- Not Inventoried

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Fire Management
 TriCounty RMP /DEIS Map 3-6

0 10 20 Miles
 0 20 40 Kilometers

NORTH

Universal Transverse Mercator
 Zone 13, Units Meters
 GRS 1980 Spheroid
 NAD83 Datum

Land managers have recognized fire as a natural disturbance that plays a significant role in a healthy ecosystem, and that there is a need to reintroduce fire into the landscape. The FRCC system is useful in determining an ecosystem's degree of departure from its historical fire regime and range of variability in terms of fire. Fire management units (FMUs) are predetermined areas that have similar fuels, topography, management objectives, and resource needs that allow each area to be managed as a unit. In terms of fire management, FMUs are important planning categorizations that allow management to determine how to respond to wildfire in a given area and where to focus fire suppression resources in case of multiple ignitions. Public land in New Mexico is assigned to one of four FMU categories as described in Table 3-26. These FMU categories are shown on Map 3-6.

TABLE 3-26
CATEGORY OVERVIEW OF APPROVED FIRE MANAGEMENT UNITS

FIRE MANAGEMENT UNIT CATEGORY		WILDLAND FIRE MANAGEMENT			VEGETATION TREATMENTS	
		Suppression Priority	Suppression Strategy	Wildfire for Resource Benefit Allowed	Prescribed Fire	Mechanical/Chemical/Biological
A	Full suppression areas: fire is not desired at all	High	Use an aggressive strategy and suppress fires to limit acreage burned.	No	No, except for pile burning of mechanically removed vegetation.	Yes, fuel hazard reduction to mitigate risks is a priority.
B	Fire use following mitigation: unplanned wildland fire is not desired.	High	Limit acreage burned, weighing suppression costs against potential damage from fire.	No	Yes, fuel hazard reduction to mitigate risks is a priority.	Yes, fuel hazard reduction to mitigate risks is a priority.
C	Fire use as opportunities arise: wildland fire is desired, with consideration of significant constraints.	Moderate	Use least costly suppression tactics where fire is not damaging resources.	Yes, under very limited prescribed conditions	Yes, used to attain desirable resource conditions.	Yes, used to attain desirable resource conditions.
D	Fire use emphasis are: wildland fire is desired, but with fewer constraints.	Low	Use least cost suppression tactics. Consider wildland fire use if appropriate.	Yes, under prescribed conditions	Yes, used to attain desirable resource conditions; fuel hazard reduction has a lower priority than for FMU Category C.	Yes, used to attain desirable resource conditions; fuel hazard reduction has a lower priority than for FMU Category C.

3.3.12.2 Wildland Fire Management Strategies

Within the defined FMUs, the BLM has developed specific strategies to meet public safety and resource objectives. For example, fires within ACECs and WSAs may not pose a threat to public safety if allowed to burn. However, the resource values associated with ACECs and WSAs may necessitate a high fire-suppression priority; therefore, these areas may be assigned to FMU Category A. Wildfire for Resource Benefit is the management of wildland fires to accomplish specifically stated resource management goals in defined geographic areas. For example, if a lightning strike ignites a fire in an area slated for prescribed fire in the following year, appropriate management response may include wildfire for resource

benefit as a tactic, as long as the intensity of the burn would not harm the soil, air, or other natural or cultural resource (see Table 3-27).

3.3.12.3 Wildland-Urban Interface Areas

By definition, any area where vegetative fuels and human development meet and intermingle is termed wildland-urban interface (WUI). Any residential or commercial developments, powerlines, communication sites, and pipelines that are adjacent to wildland in the *Planning Area* are termed WUI areas. These are high-priority suppression areas due to public safety concerns. The WUI areas in the *Planning Area* are full suppression areas. The community of Timberon also is listed on the *Federal Register* as a “community at risk” from wildfire. The National Fire Plan directs funding to identified communities for projects designed to reduce the WUI fire danger.

FIRE MANAGEMENT UNIT	SUPPRESSION PRIORITY	RESOURCE BENEFIT	FUELS TREATMENT	COMMUNITY ASSISTANCE/ PROTECTION	COUNTY
A1. Three Rivers Recreation Site and Three Rivers Petroglyph ACEC	High	Low	Medium	Low	Otero
A2. Timberon	High	Low	High	High	Otero
A3. Caballo Mountain Communication Site	High	Low	Medium	Low	Sierra
A4. Aguirre Spring Recreation Site	High	Low	Medium	Low	Doña Ana
A5. La Cueva Recreation Site	High	Low	Medium	Low	Doña Ana
A6. Cox Visitor Center	High	Low	Low	Low	Doña Ana
A7. Dripping Springs Recreation Site	High	Low	Medium	Low	Doña Ana
A8. Talavera Subdivision	High	Low	Low	High	Doña Ana
A9. Lake Valley	High	Low	Low	High	Sierra
B1. Sacramento Escarpment WSA/ACEC	Medium	Low	Low	Low	Otero
B3. Hillsboro	Medium	Low	Medium	High	Sierra
B4. Rio Grande Corridor	Medium	Low	Low	Medium	Doña Ana
B5. Chaparral Community	Medium	Low	Medium	High	Doña Ana
B6. Winston/Ladder Ranch	Medium	Medium	Low	Low	Sierra
C1. Tularosa Basin/Otero Mesa	Medium	Low	Medium	Medium	Otero
C2. Franklin Mountains	Medium	Medium	Low	Low	Doña Ana
C3. Rio Grande Valley Uplands	Low	Medium	Medium	Medium	Sierra
D1. McGregor Range	Low	High	Low	Low	Otero
D2. Brokeoff Mountain WSA	Low	High	Low	Low	Otero
D3. Organ Mountains WSA/ACEC	Low	High	Low	Low	Doña Ana
D4. Robledo Mountains WSA/ACEC	Low	High	Low	Low	Doña Ana
D5. West Potrillos WSA/ACEC	Low	High	Medium	Low	Doña Ana/Luna
D6. Las Uvas WSA/ACEC	Low	High	Medium	Low	Doña Ana

3.4 RESOURCE USE

3.4.1 LIVESTOCK GRAZING

Ranchers throughout the region have been authorized to use BLM-managed land to support livestock grazing operations. Allotments may be composed of a mix of Federal, State trust, and private lands, although BLM has the authority to permit grazing on public land only. Livestock grazing programs on public land are currently authorized by the *FLPMA*, the *Public Rangelands Improvement Act of 1978*, and the *Taylor Grazing Act of 1934*. Livestock grazing on public land in the *Planning Area* is managed under the 1986 *White Sands RMP*, 1993 *Mimbres RMP*, and the *Record of Decision for the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (New Mexico Standards and Guidelines)* (2001).

The BLM uses monitoring studies and rangeland health assessments to determine if proper grazing management will meet public land health standards as outlined in the *New Mexico Standards and Guidelines*. These guidelines describe the most beneficial approach to adjusting grazing management when it is determined that livestock grazing is preventing the range from meeting the health standards. Appendix B provides an expanded description of the *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing*.

The BLM assigns each grazing allotment a grazing management category (see Appendix E) to help identify those areas most in need of improvement and to resolve potential resource use conflicts. Where necessary, allotment management plans (AMPs) or cooperative management plans are developed to address the specific issues and conflicts. The AMP outlines specific goals and objectives consistent with the RMP. In addition, the AMP outlines a grazing system along with specific rangeland improvements that may be necessary to meet the goals and objectives. The BLM has completed AMPs for 42 allotments within the *Planning Area*.

3.4.1.1 Livestock Use of Grazing Allotments

Grazing allotments in the *Planning Area* can contain public land, State trust land, and privately held or managed land. Within these allotments, parcels of land may exist that are not owned or controlled by the public land grazing permittee and may or may not be used for grazing. The BLM-administered land and State trust land parcels may or may not be separated by fencing from each other or from private land used for grazing. There have been 597 total allotments issued by the BLM Las Cruces District Office, of which 378 are grazing permits issued under Section 3 of the Taylor Grazing Act and 193 authorized by leases under Section 15 of the Taylor Grazing Act. The BLM grazing permits are tied to a base property to which the BLM has attached “*preference*” for a grazing permit. The base property must be controlled by the permit applicant. Preference includes active use and suspended use. Active use is that portion of the grazing preference that is available for livestock grazing use based on livestock carrying capacity and resource conditions in an allotment and not in suspension. Total preference may be reduced after monitoring indicates that livestock are the cause of the allotment not meeting the Standard for Public Land Health as described in Appendix B. The total preference for the *Decision Area* is 382,316 AUMs (both active and suspended AUMs).

A total of 300 allotments are located partially or entirely within the *Planning Area*; the boundaries of 7 overlap both Sierra and Doña Ana Counties. The administration of allotments that overlap the *Planning Area*'s north and east boundaries are governed by existing mutual agreements or Memoranda of Understanding with the Albuquerque and Pecos BLM District Offices. Those allotments listed in Appendix E are administered under this Plan. For all other allotments with public land within the

Planning Area, the grazing is administered by those adjacent District's land use plans. The BLM authorizes livestock grazing on public land and other Federal land (e.g., BLM collects fees for the Bureau of Reclamation and administers grazing for the International Boundary and Water Commission) on 555,000 acres within Sierra County; 856,000 acres within Otero County; and 1,083,000 acres within Doña Ana County (See Map 3-7).

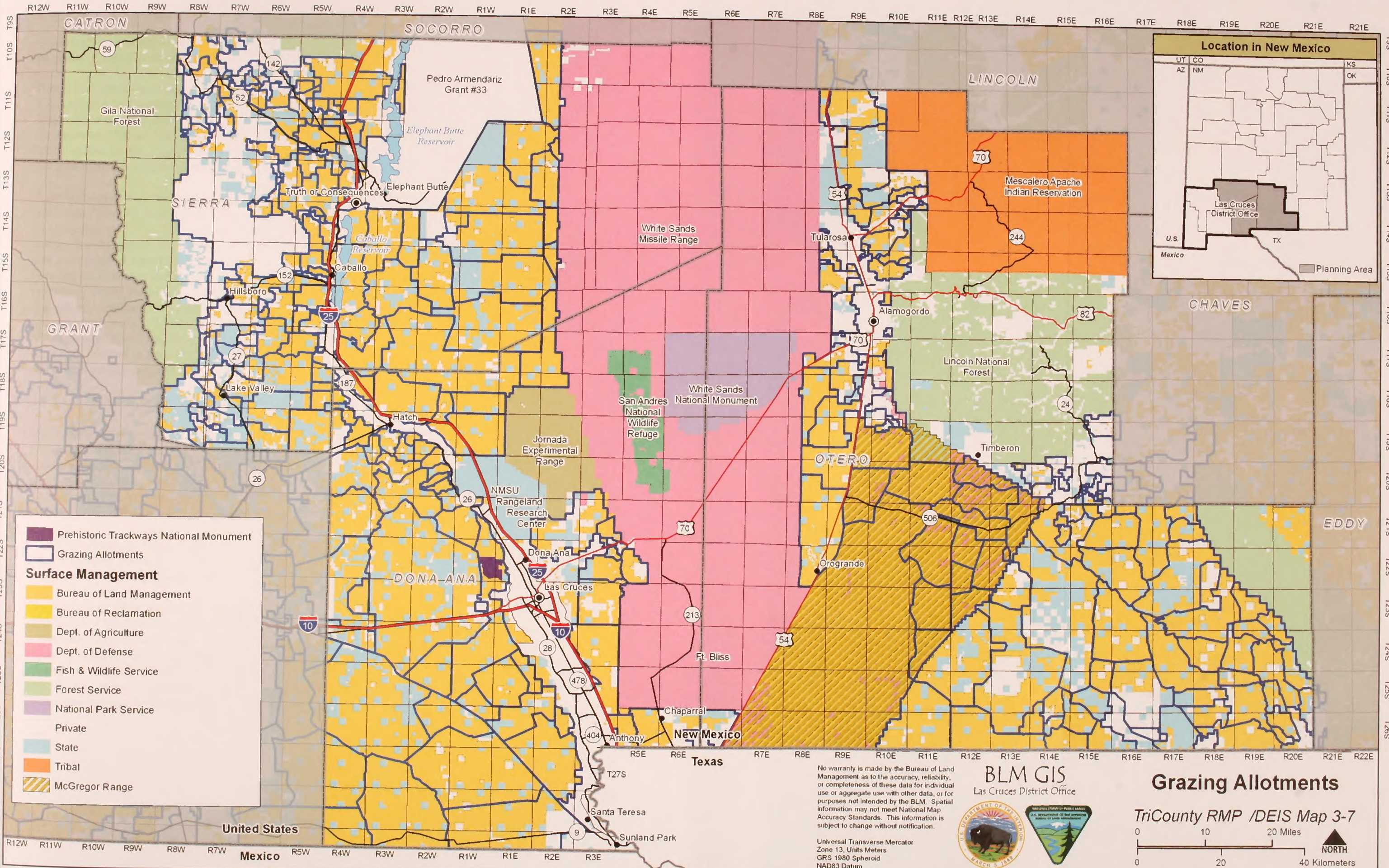
Livestock use is generally measured in animal unit months (AUMs). An AUM is the amount of forage needed to sustain one animal unit (e.g., a 1,000-pound cow and calf, five sheep, or five goats) for one month (USDOI BLM 2000). Table 3-28 shows the AUMs billed and paid for in the *Decision Area* from 1991 to 2010. Billed AUMs may be less than permitted AUMs (AUMs authorized by the permit or lease), and may be more than actually used. Permittees submit their planned grazing use prior to the beginning of the grazing year (March 1) and are billed for that amount. This use may be less than the active use for their allotment. Also, the permittee, because of lack of rainfall and forage growth or economic reasons, may reduce the number of livestock on the allotment during the year, thereby reducing the number of AUMs of use. The permittee can ask for an adjustment in his or her billing, but sometimes they do not. Hence, the billed use can be more than the actual use.

**TABLE 3-28
BILLED AUMS WITHIN THE TRICOUNTY PLANNING AREA, 1991 TO 2010**

YEAR	BILLED AUMS FOR DOÑA ANA COUNTY	BILLED AUMS FOR OTERO COUNTY	BILLED AUMS FOR SIERRA COUNTY	TOTAL AUMS BILLED
1991	137,402	200,801	157,497	495,700
1992	146,575	203,412	159,367	509,354
1993	137,745	195,494	168,852	502,091
1994	128,545	201,110	176,836	506,491
1995	109,341	168,159	165,115	442,615
1996	115,585	176,023	169,371	460,979
1997	124,302	190,593	174,661	489,556
1998	139,036	191,972	174,681	505,689
1999	141,114	207,816	177,262	526,192
2000	122,093	186,666	162,195	470,954
2001	118,394	156,945	164,216	439,555
2002	107,462	114,160	153,783	375,405
2003	93,483	114,236	137,649	345,368
2004	79,288	98,764	110,347	288,399
2005	87,996	128,640	105,914	322,550
2006	87,675	133,626	122,469	343,770
2007	98,153	151,283	138,064	387,500
2008	101,633	153,614	146,972	402,219
2009	104,212	153,199	143,124	400,535
2010	101,807	142,133	133,449	377,389

3.4.1.2 Rangeland Utilization and Condition

Allowable livestock use on individual allotments depends on range production and the overall balance with management of other resources. Range production is the amount of actual forage a site can produce per year (Holechek et al. 2001). To sustain grazing, consumption levels must be at rates equal to or less than the rate of production, allowing existing vegetation to reproduce and reestablish (Barbour et al. 1999). Utilization is defined as the degree of forage (grass, forbs, and shrubs) removed from rangelands by grazing animals, both domestic and wild. Livestock grazing in Sierra, Otero, and Doña Ana Counties



Prehistoric Trackways National Monument

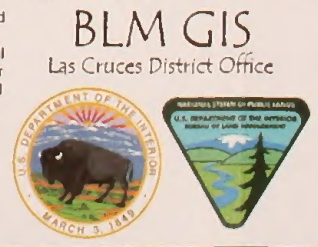
Grazing Allotments

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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

Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



Grazing Allotments

TriCounty RMP /DEIS Map 3-7

0 10 20 Miles

0 20 40 Kilometers

NORTH

is currently monitored to allow for an average of 40 to 60 percent utilization of most key forage species per year by domestic livestock (USDOI BLM 1993, 1986a).

Public land health assessments have been completed in portions of the Lower Rio Grande, Jornada, Tularosa, and Salt watersheds. These assessments are done in compliance with the *New Mexico Standards and Guidelines* (BLM 2000) to determine the current condition of land health within an allotment and the need or extent of use adjustments (duration, season, etc.) required to achieve sustainable levels of land health. Currently, the analyses of these assessments and existing data are in progress. Therefore, final conclusions about public land health in the *Planning Area* are not available.

A preliminary look at the existing vegetative data suggests, of the 2.8 million surface acres of public land within the *Planning Area*, approximately 1 million acres are within allotments with multiple years (ranging from 1982 to 2007) of data collected from monitoring studies. Allotments in the "I" category contain approximately 75 percent of the 1 million acres. A comparison of condition class and basal cover was completed on data collected from 180 sites. A site was assumed to have changed if the difference between the first year and the last year was greater than 7 percentage points for condition class and 10 percentage points for basal cover. This assumption compensates for the inherent variability in climatic changes and collector error. The results indicate condition class remained unchanged or improved on 69 percent of the studies. Basal cover remained unchanged or improved on 85 percent of the studies. Within the *Planning Area*, decisions based on the Analysis, Interpretation and Evaluations (AIEs) of some of these data resulted in a net reduction of 3,150 AUMs. On specific allotments decisions reduced authorized grazing use levels by 25 percent.

3.4.2 COMPREHENSIVE TRAILS AND TRAVEL MANAGEMENT

This section addresses transportation and access in the *Planning Area* for motorized surface travel. Road networks within the *Planning Area* comprise a series of Federal and State highways, county roads, BLM-maintained roads, and two-track roads. The use of these travel routes is an integral part of public land management, as these roads are used for both recreational and nonrecreational purposes. The following sections describe the current travel and transportation system within Sierra, Otero, and Doña Ana Counties in terms of the existing route network, and OHV area designation.

Within the *Planning Area*, routes, State and county roads, railroads, and airports provide access to the general area and public land. Most Federal, State, and county roads that continue through the *Planning Area* are regularly maintained; however, unimproved routes also extend from this main route network.

The majority of OHV use on public land occurs on unpaved roads and two-track roads. For management purposes, 43 CFR 8340 defines an OHV as "*any motorized vehicle capable of or designated for, travel on or immediately over land, water, or other terrain.*" There has been a change in the terminology used regarding off-highway travel due to the differences in the definitions. Off-road vehicles (ORV), according to 43 CFR 8340.0-05, are "*vehicles capable of or designed to be driven off roads*", while the term OHV is meant to describe "*motor vehicles that are used off artificially surfaced roads or trails.*" Within this document, the term OHV is used throughout to encompass both OHVs and off-road vehicles.

3.4.2.1 Existing Route Network

BLM's Technical Reference 9113-1, *Planning and Conducting Route Inventories*, provides three definitions of travel routes:

Primitive road: A type of transportation-related linear feature that is used by four-wheel drive or high-clearance vehicles. Primitive roads do not customarily meet any Bureau road design standards.

Road: A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.

Trail: A linear route managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

In Sierra and Otero Counties, the existing routes, approximately 7,826 miles, are located on BLM-administered land; 3,949 miles on State trust land; and 6,065 miles on county or private lands. Primary routes that extend through Otero County include U.S. Highways 54, 82, and 70. The primary route that continues through Sierra County is Interstate 25. Various state routes pass through Sierra and Otero counties, connecting to cities outside the *Planning Area*.

In Doña Ana County, existing routes consist of approximately 3,432 miles located on BLM-administered land; 2,375 miles on State trust land; and 3,303 miles on other land.

Primary routes that extend through Doña Ana County include Interstates 25 and 10; U.S. Highways 70 and 80; and State Highways 185, 28, and 26. Interstate 10 extends through Doña Ana County, linking the City of Las Cruces to the El Paso, Texas metropolitan area (located outside the *Planning Area*) and providing the primary access into New Mexico from Texas and across the International border with Mexico. Various state routes and county routes pass through Doña Ana County, connecting cities inside and outside the *Planning Area*.

3.4.2.2 Existing OHV Use Designations

OHV use designations from the *White Sands RMP* for Sierra and Otero Counties are shown on Map 2-10. Table 3-29 shows approximate acreages for the OHV use designations on public land within the *Decision Area* for Sierra and Otero Counties. The majority of the public land in Sierra and Otero Counties is designated as “open” to OHV use. The *White Sands RMP* was developed in the mid-1980s when standard practice was to leave OHV use on public land unrestricted; limitation of use was considered inherent based on the difficulties of access posed by the natural environment (e.g., desert vegetation and terrain).

OHV use on most BLM-administered land in Doña Ana County is “limited” to existing roads and trails; however, the Aden Hills area is open for OHV use. Three areas are designated as closed to OHV use in Doña Ana County: the 20-acre Los Tules ACEC, designated to protect cultural resources; an 8,800-acre scenic portion of the Organ/Franklin Mountains ACEC; and Alamo Mountain ACEC. The OHV designations for Doña Ana County are shown on Map 2-10, and Table 3-29 provides approximate acreages of the *Decision Area* OHV use designations within Doña Ana County.

In accordance with the BLM *Land Use Planning Handbook* (BLM 2005a) requirements and 43 CFR 8340, all public land must be designated as “open,” “limited,” or “closed” to motorized vehicle use.

These designations establish guidelines and limitations for OHV use and although cross-country OHV use is permitted in areas designated as “open,” undue and unnecessary degradation of resources is not permitted on any area of public land. The BLM’s OHV area designations are defined as follows:

- **Open:** BLM designates areas as “open” for intensive OHV use where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel.
- **Limited:** The “limited” designation is used where vehicular use must be restricted to meet specific resource management objectives. Limitations may include placing restrictions on the number or type of vehicles, limiting the time or season of use, allowing only permitted or licensed use, limiting the use to existing roads and trails, and limiting use to designated roads and trails.
- **Closed:** BLM designates “closed” areas as necessary to protect resources, ensure visitor safety, or reduce user conflicts.

Improvements in OHV technology including the type, size, and power of these vehicles and the growing popularity of using them on public land has required BLM to shift its policy away from designating or retaining large areas open to unregulated cross-country travel. Current policy emphasizes limiting open areas to a size that can be effectively managed, that can be geographically identified, and that provides a quality OHV opportunity for participants. Expansive “open” areas for cross-country travel are no longer considered in BLM land use or travel management planning unless there is an identified user need or demand.

**TABLE 3-29
DECISION AREA OHV USE DESIGNATIONS BY COUNTY**

COUNTY	DESIGNATION	ACRES OF PUBLIC LAND	PERCENTAGE (%)
SIERRA	Open	775,076	99.0
	Limited to existing routes	871	0
	Limited to designated routes	4,097	1.0
	Closed	0	0
OTERO	Open	852,567	91.4
	Limited to existing routes	57,804	6.2
	Limited to designated routes	17,523	2.0
	Closed	0	0
DOÑA ANA	Open	8,055	0.7
	Limited to existing routes	819,960	73.1
	Limited to designated routes	254,401	22.3
	Closed	42,953	3.8

3.4.3 RECREATION AND VISITOR SERVICES

3.4.3.1 Recreation Opportunities in the Planning Area

The *TriCounty Planning Area* offers a wide variety of recreational opportunities in diverse natural settings, including the Rio Grande, mountain ranges, lakes, sand dunes, and forests. Public recreational opportunities located in south-central New Mexico occur on land managed by the Forest Service, BLM, Mescalero Apache Tribe, NMDGF, New Mexico State Land Office, and counties and cities. Recreation activities within the *Planning Area* include hiking, sightseeing, fishing, boating, scenic driving, wildlife viewing, hunting, horseback riding, mountain biking, caving, picnicking, camping, and OHV use.

3.4.3.2 Recreation Opportunities in the Decision Area

Within BLM's *Decision Area*, developed recreation is centralized in recreation sites and trails, campgrounds, and picnic areas. Dispersed recreation (e.g., hunting, camping, etc.) occurs over large areas, encompassing most of the land, independent of developed facilities (USDOJ BLM 1993). Except for special designations, all areas that are not managed specifically to maintain recreational values are, by default, part of the extensive recreation management area (ERMA). The ERMA is open to dispersed recreational activities and is generally managed to limit use conflicts and resource damage. Two of the more popular dispersed activities are OHV use and hunting.

In 2004, a study of visitors to BLM land was conducted by the University of Idaho to determine how satisfied they were with their experiences on public land. One of the 18 study sites was under the jurisdiction of the BLM Las Cruces District Office. The most commonly listed recreational activities at the selected study sites included camping, sightseeing, and hiking. Overall, day trips accounted for 51 percent of all visits to public land. Approximately 63 percent of visitors indicated a preference for more educational and interpretive material about the area (University of Idaho 2004). Subsequently, Visitor Surveys have been conducted by University of Idaho for Three Rivers Petroglyph Site (2010) and Aguirre Spring Campground (2011). Both of these surveys reconfirmed the previous survey data.

Comments provided during the scoping period for the *TriCounty RMP/EIS* indicate that a wide variety of activities take place on public land in the *Planning Area*, including nonmotorized activities such as hiking, bird watching, wildlife viewing, horseback riding, and visits to areas that provide solitude, as well as motorized activities. A majority of commenters expressed their appreciation for the existing recreational opportunities on public land and a desire for more recreational opportunities.

The following sections describe OHV use, hunting, developed recreation sites, nonmotorized trails, special recreation management areas (SRMAs), and special recreation permits (SRPs) within Sierra, Otero, and Doña Ana Counties.

3.4.3.2.1 *Sierra and Otero Counties*

OHV Use: OHVs are used throughout the *Planning Area* for recreation (e.g., motorcycle racing and hill climbing) and for transportation to recreation sites (for example, to hunting sites). Some areas on public land, however, are completely or partially unavailable for OHV use. Land can be designated as open to OHV use, closed to OHV use, or open to OHV use with restrictions (where use is limited to existing roads and trails). Temporal restrictions also apply (for example, OHV use may not be allowed in some areas during certain seasons).

A popular OHV use area is known as Red Sands, an approximately 10-by-10-mile area on the west side of U.S. Highway 54, midway between Alamogordo and Orogrande. No specific use numbers are available, but the area can be heavily used on weekends. In addition, an annual motorcycle endurance race held in February, the Tarantula 100, normally draws 150 to 200 contestants from several states to the site (BLM 2003a).

Hunting: Most hunting in Sierra and Otero counties is for small game and birds (waterfowl and upland game species) such as ducks, geese, dove, and quail, but big game hunting for deer, antelope, and oryx also takes place within BLM's *Decision Area*. NMDGF divides New Mexico into Game Management Units (GMUs) to manage big game hunting within the state. The following are located in Sierra and Otero counties: GMUs 16b, 16c, 17, 19, 20, 21a, 21b, 28, and 29. Some units extend beyond the *Planning Area*. The primary big game species within these units include elk, deer, antelope, javelina,

barbary sheep, oryx, bear, cougar, and turkey. Other species hunted within the GMUs include raccoon, badger, weasel, fox, ringtail, bobcat, muskrats, beaver, nutria, coyote, and skunk.

Developed Recreation Sites: Developed recreation sites in BLM’s *Decision Area* in Sierra and Otero counties are limited to the Three Rivers Petroglyph ACEC and the Lake Valley BackCountry Byway. Various nonmotorized trails throughout BLM’s *Decision Area* accommodate recreational activities such as hiking, biking, and horseback riding, among others.

The Three Rivers Petroglyph ACEC is located 17 miles north of Tularosa in Otero County. The site, which includes rock art and a Jornada Mogollon pit house village, was made a recreation area in 1962. Facilities include a gravel parking lot, picnic shelters, a group area, recreational vehicle sites, restroom, and interpretive trails through the petroglyphs and the pit house village (USDOI BLM 1997a). Visitation to the Three Rivers Petroglyph site is shown in Table 3-30.

The Lake Valley BackCountry Byway is a paved, 48-mile-long two-lane highway that originates in southwestern Sierra County about 18 miles south of Truth or Consequences on Interstate 25. The scenic Byway follows State Routes 152 and 27, providing views of the historical mining towns of Hillsboro and Lake Valley, riparian habitats, and several mountain ranges (USDOI BLM n.d.). The Lake Valley Historic Townsite, located along the route, is open daily for visitation; the Lake Valley Schoolhouse has been restored to contain many of its original artifacts and furniture (USDOI BLM 2003a). The Byway also provides opportunities to view wildlife such as mule deer, antelope, quail, roadrunners, and red-tailed hawks.

Fiscal Year	Visitors
2000	22,223
2001	20,238
2002	18,663
2003	18,511
2004	18,824
2005	N/A
2006	18,097
2007	18,433
2008	16,642
2009	17,889
2010	15,400
2011	15,296

3.4.3.2.2 *Doña Ana County*

Doña Ana County affords recreational opportunities either at developed recreation sites or at sites dispersed throughout natural, undeveloped areas where visitors can enjoy activities such as wildlife viewing, sightseeing, rockhounding, rock climbing, horseback riding, hiking, and primitive camping. OHV use and hunting are among the most popular activities in the “*dispersed*” recreation category. According to the 1993 *Mimbres RMP*, public land provides 47 percent of the opportunities for dispersed recreation in the county.

OHV Use: OHV use is most prominent near populated cities, and most OHV use within Doña Ana County occurs near Las Cruces. The southern Robledo Mountains have a system of moderate-to-extreme

four-wheel drive (rock crawling) routes adjacent to Las Cruces. These trails are used for the annual Chile Challenge event. Although OHV use in the area is limited to existing roads and trails, increased OHV use in the vicinity of Las Cruces, Hatch, and the Mesilla Valley has resulted in a growing network of all-terrain and other vehicle trails. Unauthorized use of motorized vehicles has damaged resources.

Hunting: Hunting within Doña Ana County is largely for small game and birds (waterfowl and upland game species) such as ducks, geese, doves, and quail. Section 3.3.7.2 lists the most common upland species hunted and harvested, based on small game harvest surveys provided by the NMDGF. NMDGF GMUs 19, 20, 21b, and 25 are located within Doña Ana County. Some of the GMUs extend beyond the *Planning Area*. Primary game species hunted within the GMUs of Doña Ana County include deer, antelope, javelina, and cougar. Other species hunted within the GMUs may include raccoon, badger, weasel, fox, ringtail, bobcat, muskrat, beaver, nutria, coyote, and skunk.

Developed Recreation Sites: Recreation in developed sites within Doña Ana County includes Tortugas Mountain Recreation Area, Picacho Peak Recreation Area, Aguirre Spring Campground and Dripping Springs Natural Area. The latter two are within the Organ Mountains Special Recreation Management Area (SRMA). In addition, various nonmotorized trails exist throughout the BLM’s *Decision Area* for hiking, biking, horseback riding, and other recreation activities.

The Aguirre Spring Recreation Area, located east of Las Cruces in the Organ Mountains SRMA, has 55 camping/picnicking areas and two group sites. The 3,000-acre Dripping Springs Natural Area is managed by the BLM. The area features sheer canyons with permanent water sources and biologically diverse natural habitats (The Nature Conservancy 2004). Dripping Springs is a day-use area; it contains a visitor center, 12 picnic sites, and 4 miles of trails that are part of the National Recreation Trail System. Table 3-31 shows annual visitation at the two developed sites in the Organ Mountains. Hunting is not allowed in either the Aguirre Spring Recreation Area or Dripping Springs Natural Area. La Cueva Picnic Area and the A.B. Cox Visitor Center both provide access trails to the Dripping Springs Natural Area in addition to several other hiking trails in the area. The La Cueva Picnic Area includes 22 picnicking sites and one group site.

YEAR	VISITORS	
	AGUIRRE SPRING	DRIPPING SPRINGS
2000	59,950	22,972
2001	54,550	22,118
2002	54,139	21,644
2003	55,294	21,260
2004	58,891	22,084
2005	55,152	21,412
2006	57,224	19,399
2007	59,300	22,047
2008	59,110	35,164
2009	61,375	21,773
2010	60,020	22,720
2011	58,506	19,464

Nonmotorized Trails: The BLM manages several nonmotorized trails in the Organ Mountains, including Bar Canyon (hiking), Pine Tree (hiking), Baylor Pass (hiking, mountain bike, equestrian), and Sierra Vista (hiking, mountain bike, equestrian). The Tortugas Mountain, Doña Ana Mountains, and Picacho Peak Trail Systems also are located in Doña Ana County and are managed by the BLM.

Special Recreation Management Areas: The Organ/Franklin Mountains SRMA and the Doña Ana Mountains SRMA provide opportunities for camping, hiking, picnicking, horseback riding, and mountain biking (see Map 2-14). The Organ/Franklin Mountains SRMA includes two developed recreation sites (Aguirre Spring Campground and the Dripping Springs Natural Area).

The Doña Ana Mountains SRMA is just north of the City of Las Cruces near the southeastern portion of the NMSU Chihuahuan Desert Rangeland Research Center. The SRMA extends beyond the Doña Ana Mountains ACEC, which is managed for protection of biological, scenic, and cultural values. Recreational activities occur across the SRMA, including the areas within the ACEC. The SRMA provides mountain biking and horseback riding opportunities on developed trails.

3.4.3.3 Special Recreation Permits

BLM issues Special Recreation Permits (SRPs) in accordance with 43 CFR 2930. Commercial, competitive, and large group activities are among the uses that are likely to require a special recreation permit. Table 3-32 shows the number of special recreation permits issued and the revenue generated from them. Income from these events benefits, but does not consistently sustain, local economies due to the short-term influx of visitors to an area.

**TABLE 3-32
SPECIAL RECREATION PERMITS ISSUED BY THE LAS CRUCES DISTRICT OFFICE**

FISCAL YEAR	NUMBER OF PERMITS	REVENUE GENERATED
2000	17	\$7,059
2001	18	\$6,152
2002	14	\$5,700
2003	13	\$7,232
2004	15	\$6,181
2005	19	\$7,717
2006	16	\$8,439
2007	15	\$9,300
2008	18	\$10,451
2009	21	\$12,000
2010	26	\$12,856

SOURCE: Las Cruces District Office Recreation Files, 2011.

The BLM issues annual and multi-year SRPs for licensed guides and outfitters to conduct client-contracted big-game hunts for species including antelope, ibex, and white-tailed deer. Adjoining field offices also may issue SRPs for such activities within the *Decision Area*, so long as such permits are coordinated through the Las Cruces District Office.

Other types of SRPs which include commercial and competitive OHVs, all-terrain vehicles (ATVs), and motorcycle events at the Red Sands OHV Open Area are administered through the Las Cruces District Office. Annual events at this location include the Tarantula 100 Motorcycle Race and OHV training courses conducted by licensed contractors. Commercial or competitive SRPs also include the Horny Toad Bicycle Race, Equine Endurance Race, and the internationally known Chile Challenge Extreme Rock Crawling event in the south end of the Robledo Mountains. These activities may be permitted on an annual or multi-year basis.

SRPs for organized group and commercial tours of the petroglyph sites may also be authorized and would be administered through the Las Cruces District Office. At the prerogative of the authorized officer,

interpretative and educational tours also may be allowed by a Letter of Agreement. A Letter of Agreement is not an authorization or permit, but an acknowledgement by both applicant and the authorized officer of the activity, with stipulations attached.

3.4.3.4 Emerging Recreational Uses

Emerging recreational activities include letter boxing and geocaching. These activities involve using global positioning systems to seek out letter boxes or caches that are often hidden on public land. As yet, these games have not become a management issue in the *Planning Area*. BLM allows this activity in most locations on public land and if it is conducted with minimal impact to the environment. BLM will not authorize geocaches near cultural or historic sites or other areas with sensitive resources that might be impacted by repeated visits from public searching for the geocache itself.

Paintball, shooting opponents with soluble paint pellets, is a recreation use that occurs on *Decision Area* land; however, the BLM requires an SRP to ensure that the use does not conflict with management of the area's natural resources.

3.4.4 LANDS AND REALTY

The Las Cruces District's lands and realty program provides support to all other resources and resource uses within the *Planning Area*. The goals of the lands and realty program are to manage the public land to support the goals and objectives of other resource programs, provide for uses of public land in accordance with applicable laws and regulations while protecting sensitive resources, and improve management of the public land through land tenure adjustments. The program responds to requests for rights-of-way (ROWs), permits, leases, easements, withdrawals, and land tenure adjustments from other programs or outside entities. The frequency of such requests is anticipated to increase as neighboring communities grow and the demand for use of public land increases. As a result, future management of the lands and realty program will likely become more intense, complex and costly.

The primary responsibilities of the lands and realty program include (1) land tenure adjustments (e.g., sales, exchanges, donations, purchases); (2) withdrawals, classification and other segregations; and (3) ROWs, and other land use authorizations (e.g., leases and permits, airport leases). The following sections describe the current conditions and status of lands and realty within the *Planning Area*.

3.4.4.1 Land Tenure Adjustments

The land ownership pattern in the *Planning Area* is diverse. The BLM Las Cruces District land tenure adjustment criteria are outlined in Appendix M. The Land Tenure Adjustment criteria provide guidance and authorities used to implement actions. In managing the approximately 2.82 million acres of public land (surface estate) within the *Planning Area*, the BLM provides for land uses through purchase, exchange, lease, donation, sale, and withdrawal and determines the boundaries of Federal land. Land tenure adjustments are often associated with accommodating public and private needs, community expansion, consolidating public land, acquiring and protecting important resources, acquiring access to public land, or serving a National priority. The BLM uses several authorities to make land tenure adjustments through disposal and acquisition. The BLM's Land Tenure program is designed to:

- Improve management of natural resources through consolidation of Federal, Tribal, State trust and private lands;
- Increase recreational opportunities and secure public access to public land;
- Preserve open space and traditional landscapes;

- Secure key property necessary to protect endangered species, promote biological diversity and preserve wildlife habitat and migration corridors;
- Preserve archaeological, historical and paleontological resources;
- Implement specific acquisitions authorized by Acts of Congress; and
- Allow for expansion of communities and consolidation of non-Federal land ownership.

The 1993 *Mimbres RMP* and the 1986 *White Sands RMP* designated areas to be retained (“*retention areas*”) and to be disposed (“*disposal areas*”) to maintain land of value for particular resources or uses and for the orderly disposition of land suitable for disposal. Generally, retention areas are relatively concentrated blocks of public land that include scattered or isolated parcels of State trust land, private land or special designations such as WSAs and ACECs. Disposal areas meet the criteria defined in FLPMA which are “*tracts of public land that are difficult and uneconomic to manage, or parcels that could serve important public objectives including, but not limited to, expansion of communities, economic development, and as a result of Federal legislation*”. Disposal actions are usually in response to public request or application that results in a title transfer, wherein the lands leave the public domain. Legal descriptions of lands identified for disposal are listed in Appendix M.

Since the completion of the *Mimbres RMP* in 1993, two disposal actions have occurred in Doña Ana County that required the *Mimbres RMP* to be amended since the disposals were not in conformance with the land use plan:

- RMP Amendment for the Land Ownership and Boundary Adjustment, Organ/Franklin Mountains ACEC (1999) – direct sale of 320 acres within the Organ/Franklin Mountains ACEC to Our Lady’s Youth Center of El Paso, Texas.
- RMP Amendment for the Santa Teresa Land Exchange (2008) – disposing of 7,352 acres of Federal land in Doña Ana County to the New Mexico State Land Office in exchange for 12,786 acres of State trust land (3,426 acres in Doña Ana County and 9,360 acres in Chaves County).

3.4.4.1.1 Land Exchanges

Exchange is the process of trading lands or interest in lands. Public land may be exchanged for lands or interest in lands owned by corporations, individuals, or government entities. Exchanges are the primary means by which land acquisition and disposal are carried out. Except for those exchanges that are Congressionally-mandated or judicially required, exchanges are voluntary and discretionary transactions with willing landowners. Exchanges serve as a viable tool for the BLM to accomplish its goals and mission regarding land and resource management. The land to be exchanged must be approximately equal monetary value and located within the same state. Exchanges also must be in the public interest and conform to applicable BLM land use plans.

Land exchanges are used to (1) bring lands and interest in lands with high public resource values into public ownership; (2) consolidate land and mineral ownership patterns to achieve more efficient management of resources and BLM programs; and (3) dispose of public land parcels identified for disposal through the planning process which may be needed for community expansion or commercial development.

Six land exchanges have taken place since the 1993 *Mimbres RMP* and 1986 *White Sands RMP* were completed:

- BLM/State Land Exchange (Bernalillo County) – 642 acres acquired in the Petroglyph National Monument.
- Soledad Canyon Land Exchange, (Doña Ana County) – 110 acres acquired in the Soledad Canyon area of the Organ Mountains.
- Picacho Peak Land Exchange, (Doña Ana County) – 1,494 acres acquired in Picacho Peak area.
- BLM/State Exchange (Sierra County, Santa Fe County) – 561 acres acquired in the Kasha Katuwe-Tent Rocks National Monument and the Ball Ranch ACEC
- BLM/State Land Exchange (Santa Teresa) – 3,426 acres acquired in Doña Ana County and 9,340 acres in Chaves County.
- BLM/Tularosa Creek Land Exchange (Otero County) – 11.60 acres acquired in Tularosa Creek area.

3.4.4.1.2 Land Sales

Other land tenure actions which occur in the *Planning Area* include sales authorized under Section 203 of FLPMA and conveyance of mineral interest under Section 209(b) of FLPMA. Public land determined suitable for sale are offered on the initiative of the BLM unless their disposal was directed by Federal legislation. The land is sold at fair market value and meets the sale criteria of FLPMA. Specific land suitable for sale must be identified in the RMP. Public land classified, withdrawn, reserved, or otherwise identified as retention lands are not available or subject to a land sale.

Section 209 of FLPMA authorizes the conveyance of Federal minerals through sale and specifies the conditions under which the mineral rights will be conveyed. The mineral rights may be sold with the land surface, sold as a separate transaction, or retained by the United States. Conveyance of mineral rights has occurred only in conjunction with the sale of land. Other methods of sale in the *Planning Area* include sales through Color-of-Title (43 CFR 2540) (see Table 3-33). In addition, a Color-of-Title was issued and public land conveyed in October 2002 for approximately 5 acres in Otero County.

**TABLE 3-33
FLPMA SALES WITHIN PLANNING AREA**

PROPRIETOR	SALE TYPE	COUNTY	DATE	ACRES
Our Lady's Youth Center	FLPMA	Doña Ana	October 2000	320.000
Mesa Farms Coop Inc.	FLPMA - Section 203 & 209	Doña Ana	October 2006	396.340
Philippou, Philippos	FLPMA - Section 203 & 209	Doña Ana	January 2005	39.470
Synergy Gas Corp	FLPMA - Section 203 & 209	Otero	January 1996	1.060
Dugan, Charles J.	FLPMA - Section 203 & 209	Otero	May 1995	1.140
Tidwell, Fred	FLPMA - Section 203 & 209	Otero	May 1995	0.440
Atkins, S.W.	FLPMA - Section 203 & 209	Otero	June 1995	0.090
Alexander Moulding	FLPMA - Section 203 & 209	Otero	May 1995	0.060
Danley, William	FLPMA - Section 203 & 209	Otero	May 1995	0.580
TOTAL				759.18

SOURCE: BLM, Las Cruces District Office, Lands Records (LR2000, October 2010)

In July 2000, Congress passed legislation that authorized the Federal Land Transaction Facilitation Act (FLTFA) for 10 years. Through its "*land for land*" approach, FLTFA funded sales of scattered BLM tracts authorized for disposal under the FLPMA and the respective RMPs. The Department of the Interior and Department of Agriculture allocate FLTFA funds to acquire priority lands from willing sellers within the boundaries of designated BLM areas, National forests, National parks and National wildlife refuges.

The BLM Las Cruces District identified a total of 120,371 acres of public land for disposal through the *Mimbres RMP* and *White Sands RMP*. Approximately 47,866 acres in Doña Ana County, 34,704 acres in Otero County, and 37,801 acres in Sierra County were identified for disposal. Appendix M provides by county the legal description and acreage of public land identified for disposal that qualify for use of revenues under the FLTFA. FLTFA has expired; however, on July 27, 2010, Congress passed the emergency supplemental appropriations bill to extend FLTFA for one year. FLTFA expired again in July 2011 and has not yet been extended.

3.4.4.1.3 *Purchases*

The BLM has the authority, under Section 205 of FLPMA to purchase lands or interests in lands. Similar to other acquisitions, purchase is used to acquire key natural resources or to acquire legal ownership of lands that enhance the management of existing public land and resources. Acquiring lands and interests in lands including easements or access to public land through purchase helps consolidate management areas to strengthen resource protection and to facilitate public access. Purchases may be in order to enhance recreational opportunities, acquire crucial wildlife habitats or protect important cultural sites. Acquisition of land by purchase is used sparingly given the limited funds available through appropriations. These funds are allocated through the Land and Water Conservation Funds program. The BLM occasionally receives gifts or donations of lands or interest in land when an entity elects not to receive the market value for the interest being conveyed.

3.4.4.1.4 *Recreation and Public Purposes Act Leases and Conveyances*

The Recreation and Public Purposes (R&PP) Act authorizes BLM to lease or convey public surface to Federal, State and local governments and qualified non-profit organizations for recreational or public purposes. Lands are leased or conveyed for less than fair market value or at no cost for qualified uses. Examples of typical uses under the R&PP Act include parks, public work facilities, schools, and fire stations. Table 3-34 is a summary of R&PP conveyances within the three counties from 1993-2010.

The 1993 *Mimbres RMP* set aside several parcels of public land in Doña Ana County for potential lease and conveyance under the R&PP Act. This was a result of the Elena Gallegos Land Grant Exchange Amendment (1982) and the *Southern Rio Grande Management Framework Plan Amendment* (USDOI BLM 1986b) which had disposed of large areas of public land on the east side of Las Cruces. These set-asides were for parks and facilities by the City of Las Cruces, and school sites for future development by the Las Cruces School District. Several of the parcels have been conveyed to the City and School District for the purposes for which they were retained in Federal ownership.

3.4.4.1.5 *Airport Leases*

Other public land conveyed in the *Planning Area* is for airports under Section 516 of the Airport and Airway Improvement Act of September 3, 1982 (49 U.S.C. 2215). Within the *Planning Area*, three airport grants were conveyed to the Village of Hatch in March 2002 for a total of 311.910 acres and one to the City of Truth or Consequences for 35 acres in October 2005.

**TABLE 3-34
RECREATION AND PUBLIC PURPOSES ACT CONVEYANCE**

R&PP		ACRES CONVEYED BY COUNTY		
HOLDER	TYPE	DOÑA ANA	SIERRA	OTERO
Las Cruces District #2	School Site	50.0		
Las Cruces District #2	School Site	41.9		
Gadsden District #16	School Site	15.0		
Doña Ana County	Fire Station	2.6		
Las Cruces District #2	School Site	45.6		
City of Sunland Park	Recreational Purposes	138.9		
Catholic Diocese	Recreation Purposes	67.6		
Las Cruces District #2	School Site	30.2		
Las Cruces District #2	School Site	15.1		
Otero County	Park Site			20.0
City of Alamogordo	Park Site			80.0
Otero County	Fire Station			2.5
Otero County	Fire Station			10.0
Sierra County	Fire Station		4.0	
Sierra County	Fire Station		2.5	
Sierra County	Waste Transfer Station		2.5	
City of T or C	Historic-Park Site		0.3	
TOTAL ACRES CONVEYED		406.9	9.3	112.5

SOURCE: BLM, Las Cruces District Lands Records (LR2000, October 2010).

3.4.4.1.6 *Withdrawals and Classifications*

The lands withdrawal program is part of the BLM’s lands and realty program as delegated by the Secretary of the Interior. A major reason for this designation is that BLM has primary jurisdiction over the mineral estate on Federal land. Withdrawals may segregate the public and National Forest System lands from some or all of the public land, mineral leasing, or the United States mining laws or transfer administrative management of the land from the BLM or the U.S. Forest Service to other Federal agencies. The withdrawal program is the only BLM program that requires the Department of the Interior approval to make, modify, revoke, and extend withdrawals (Section 204, FLPMA, 43 USC 1714 and DM 603.1).

A withdrawal is a formal action that sets aside, withholds, or reserves lands for public purposes and must be in conformance with the governing land use plan. Withdrawals accomplish one or more of the following:

- Transfers total or partial jurisdiction of Federal land between Federal agencies;
- Dedicates Federal land for a specific purpose;
- Segregates (close) Federal land from operations of some or all of the public land laws and (or) mineral laws.

All the existing withdrawals segregate from operation of the public land laws, unless the surface estate is in non-Federal ownership. As used in terms of withdrawals, the public land laws refer to the body of laws governing land disposal, such as sales and exchanges. No existing or proposed withdrawal segregates from mineral material disposal, meaning no withdrawal closes the land to permits or contracts for disposal of sand and gravel or common varieties of building materials. A withdrawal creates a title encumbrance on the land restricting an agency’s ability to manage its lands under multiple-use management principles.

A total of 31 withdrawals exist within the *Planning Area* (see Table 3-35). Included in Table 3-35 are existing withdrawals established by the BLM to close specific sites and protect the existing resource values, as well as withdrawals transferring public land to other Federal agencies to accomplish their mission goals. The land use plan may make decisions recommending the continuation, revocation, or enlargement of existing BLM withdrawals and about establishing new BLM withdrawals. This land use plan may also consider transferring additional public land to other Federal agencies through withdrawal, where additional public land is needed to accomplish their mission goals. This Plan would not be used to make decisions or revocation of other Federal agency existing withdrawals, although this Plan does recognize that should a withdrawal be revoked by action of another Federal agency, those lands that are suitable for return to public land status for management by the BLM will be managed in the same fashion as adjoining public land.

**TABLE 3-35
EXISTING WITHDRAWALS WITHIN THE PLANNING AREA**

WITHDRAWAL TYPE	COUNTY	NUMBER	ACRES
BLM-Miscellaneous	Doña Ana	1	40.2
Bureau of Reclamation	Doña Ana	2	432.3
Dept. of Army	Doña Ana	1	1,381.8
Dept. of Air Force	Doña Ana	1	34.4
Mexican Boundary	Doña Ana	1	120.0
BLM-Special Designation	Otero	1	5,364.9
BLM-Miscellaneous	Otero	1	40.0
FS-National Forests	Otero	10	11,573.0
Dept. of Army	Otero	3	791.9
Bureau of Reclamation	Sierra	5	4,421.9
FS-National Forests	Sierra	4	4,476.7
Fed Aviation Admin	Sierra	1	100.0
TOTAL		31	28,777.1

As part of the land use planning process, Section 204(l) of FLPMA requires the review of existing withdrawals to determine if they are still serving the purposes for which they were made. If the withdrawals no longer service their intended purpose, they are to be revoked and the land opened or partially opened to the uses that were previously prohibited. If withdrawals are determined to still be meeting the purposes for which they were made, they are recommended for extension for a specific term. If it is determined by a withdrawal review that a withdrawal should be revoked or terminated, or a withdrawal expires, the land does not automatically open to operation of the public land law(s) to which

the land was closed. An opening order would be published to notify the public when and to what extent the land would be opened, consistent with planning decisions. An opening order may be incorporated in a public land order or termination order that revokes or terminates a withdrawal or may be published in the *Federal Register* as a separate document. The BLM can make recommendations to designate, revoke, or extend withdrawals, but only the Secretary has the authority to actually take these actions.

3.4.4.2 Land Use Authorizations

3.4.4.2.1 *Permits, Leases, and Easements*

Section 302(b) of FLPMA authorizes the BLM to issue leases, permits, and easements for the use, occupancy, and development of public land. Applicants can be state and local governments and private individuals. Leases are long-term authorizations that usually require a significant economic investment in the land. Permits are usually short-term authorizations not to exceed 3 years. Permits for commercial photography or filming are issued on a one-time basis for a specific time period and purpose.

Trespass: The BLM is responsible for realty trespass abatement, which includes prevention, detection, and resolution. Land authorizations, such as leases and permits, have typically been issued to resolve occupancy and use trespass. Trespass generally includes any unauthorized use of public land and in the case of the realty program can include unauthorized dumping which usually occurs along drainages, isolated parcels, and in areas where private land borders public land; occupancy trespass, putting a building or house on public land; and agriculture trespass, planting crops on public land.

3.4.4.3 Rights-of-Way and Corridors

3.4.4.3.1 *Rights-of-Way*

A ROW grant is an authorization to use a specific piece of public land for a certain project, such as developing roads, pipelines, transmission lines, and communication sites. The grant authorizes rights and privileges for a specific use of the land for a specific period of time. Generally, a BLM ROW is granted for a term appropriate for the life of the project. In the existing land use plans, ROW corridors were designated as the preferred location for existing and future ROWs in the *Planning Area*.

An important component of the ROW program is the intrastate and interstate transportation of commodities ultimately delivered as utility services (e.g., natural gas, electricity) to residential land and commercial customers. Equally important on the local level is the growing demand for legal access to private homes and ranches using ROW grants. It is the policy of the BLM to authorize all ROW applications at the discretion of the authorized officer in the most efficient and economical manner possible. Currently, there are total of 953 ROWs that exist within the *Planning Area* (see Table 3-36). These ROWs have been granted to various towns, cities, counties, individuals, companies, organizations, government agencies and other entities.

3.4.4.3.2 *Communication Sites*

Communication sites host communication equipment and facilities for various uses, such as television, radio, microwave, seismograph, cellular and internet. Within the *Planning Area*, there are a total of 71 existing ROW communication site leases authorized: 30 in Doña Ana County, 28 in Sierra County, and 13 in Otero County. The BLM authorizes communication site leases to a single or most often more than one facility or co-location within a facility or site. These sites are identified by name or local prominent landmark. There are seven established plans for communication sites in the *Planning Area* (Table 3-37). These communication site plans have not been designated as suitable for communication uses.

3.4.4.3.3 *Utility Corridors, Exclusion Areas, and Avoidance Areas*

In January 2009, the Department of Energy issued the Record of Decision for the *Final Programmatic Environmental Impact Statement, Designation of Energy Corridors on Federal Land in the 11 Western States* (DOE/EIS-0386) (USDOI 2008a). That Programmatic Environmental Impact Statement (PEIS) provided the methodology used to locate energy transport corridors in the 11 Western States and identified the corridor locations that were ultimately derived from the process. In addition, the PEIS presented the effects on the environment associated with potential future projects undertaken within the designated corridors. The PEIS identified corridors within the *Planning Area*; however, because of protests on the final PEIS, a north-south corridor for Doña Ana County was not identified. That decision was left to be determined in this *TriCounty* RMP Amendment for Mimbres Resource Area.

The BLM Las Cruces District Office manages ROWs through a system of designated corridors and designated ROW exclusion and avoidance areas. Appendix M provides further description of exclusion

**TABLE 3-36
EXISTING RIGHTS-OF-WAY WITH THE PLANNING AREA**

RIGHT-OF-WAY TYPE	COUNTY			TOTAL IN DECISION AREA
	DOÑA ANA	OTERO	SIERRA	
Temporary Use Permits	0	0	1	1
Roads	66	17	20	103
Roads Federal Facility	2	3	2	6
Roads Federal 44LD513	0	1	1	2
Tram & Log Road-Public Land	0	1	0	1
Fed Aid Highway (Sec 107)	2	1	1	4
Fed Aid Highway (Sec . 317)	32	11	29	72
Material Sites (Sec. 317)	13	5	1	19
Fed Aid Highway (Sec. 17)	18	13	11	42
Roads Under RS2477	0	0	1	1
Material Sites (Sec 17)	10	1	0	11
FS Federal Aid Hwy (Sec. 317)	0	1	0	1
Railroad, Station Ground	0	1	0	1
Railroad & Stations	3	1	0	4
Power Facilities	4	2	0	6
Power Transmission Lines	47	6	10	48
Power Transmission Lines-FLPMA	101	40	15	156
Power Transmission Acquisition	2	0	0	2
Power Transmission-Irrigation Project	2	1	3	5
Power Line Reconveyed	4	0	0	3
Communication Site, FLPMA	21	10	19	50
Communication Site, 1911	0	2	1	8
Communication Site, Federal Facilities	4	1	7	12
Telephone/Telegraph	14	0	2	25
Telephone/Telegraph, FLPMA	56	30	7	93
Telephone/Telegraph 44LD513	0	3	1	4
Radio & TV Sites	0	0	1	1
Telephone/Telegraph, Acquisition.	1	0	0	1
Water Facility	54	10	7	71
Water Facility Fed	2	1	0	4
Water Facility 44LD513	3	0	0	3
Irrigation Facility	0	2	2	12
Irrigation District	0	0	1	1
D/C Exercise of Right	0	0	0	1
Water Plants	7	7	3	17
Pipeline Other	14	0	0	14
O&G Pipeline	31	0	2	42
O&G Facility Sites	30	1	0	31
Other FLPMA	43	2	3	48
Misc. & Special	4	0	1	5
Other Federal Facility	5	7	2	14
Other Federal 44LD513	2	0	4	6
Forest Service Easement Grant	0	2	1	3
TOTAL	614	197	159	953

SOURCE: BLM Lands Records (LR2000, October 2010)

TABLE 3-37
COMMUNICATION SITE PLANS WITHIN PLANNING AREA

COMMUNICATION SITE NAME	TYPE OF USE	COUNTY	SITE PLAN APPROVED
Magdalena Peak	Joint low-power two-way radio for public health and safety uses site. ¹	Doña Ana	May 28, 2010
West Mesa	Low-power radio relay site.	Doña Ana	July 26, 2007
Tortugas "A" Mountain	Joint low-power two-way public health and safety uses and broadcast uses site ² .	Doña Ana	October 7, 2004
Twin Peaks	Joint low-power two-way radio and microwave for public health and safety uses and limited to the existing broadcast uses ³ .	Doña Ana	December 17, 2007
Organ/San Augustine Pass	Low power non-broadcast radio site. ⁴	Doña Ana	July 26, 2007
La Union	Low power two-way, trunked radio and localized microwave relay site. ⁴	Doña Ana	September 26, 2006
OroGrande	Low-power non-broadcast radio site.	Otero	July 25, 2008

NOTES:

¹ Limited to existing broadcast uses which are not specifically operating as public health and safety uses as long as they can demonstrate they are designed, operated and maintained to protect the senior uses which are public health and safety.

² Limited to the existing NWS 100 watts station and the NMSU 200 Kw Digital TV station. Grandfathered are commercial Mobile Radio Service (CMRS) and Wireless Internet Service Provider (WISP) uses which are not specifically operating as public health and safety uses as long as they are designed, operated and maintained so as to protect the senior uses which are public health and safety.

³ Limited to existing broadcast uses which are not specifically operating as public health and safety uses as long as they can demonstrate they are designed, operated and maintained to protect the senior uses which are public health and safety. Grandfathered are CMRS, Cellular, and WISP uses which are not specifically operating as public health and safety uses as long as they are designed, operated and maintained so as to protect the senior uses which are public health and safety.

⁴ All uses must be designed, operated and maintained so as to protect (not to materially or electronically interfere) senior uses.

and avoidance definition and Las Cruces District policy. The Las Cruces District Office has encouraged the placement of new facilities within established corridors. Exceptions have been permitted based on the type of and need for the proposed facility and the absence of conflict with other resource values and uses. Overlapping or adjacent ROWs are issued whenever possible. Within Doña Ana County, the *Mimbres RMP* designated seven utility corridors that do not have predetermined widths, unless specified in the management prescriptions for ACECs. Because the corridors in Doña Ana County have no specified width in most areas, they are shown as lines on Map 2-22. Utility corridors were not established for public land within Sierra and Otero Counties under the *White Sands RMP*. The BLM encourages the use of designated ROW corridors, but it is not required.

Through the land use planning process, the BLM establishes ROW exclusion and avoidance areas to guide decisions about where ROWs may be granted. In exclusion areas, no ROW is allowed unless mandated by law; in avoidance areas, ROWs may be granted only when no feasible alternative route (or designated ROW corridor) is available (USDOI BLM 1993). The exclusion area acreage on public land in Sierra and Otero Counties totals 58,000 acres; the avoidance area acreage totals 1,000 acres. In Doña Ana County, the exclusion area acreage is 11,000 acres and the avoidance area acreage 216,000 acres. These areas are shown on Map 2-22.

3.4.5 RENEWABLE ENERGY

Sites for renewable energy projects are granted as ROWs under the Lands and Realty program. Applications for commercial renewable energy facilities would be processed as ROW authorizations under Title V of the FLPMA and Title 43 CFR 2800. Since 2008, the BLM Las Cruces District has received six applications for renewable energy sites including for both solar and wind energy projects. However, as of 2012 no renewable energy production facilities have been established within the *Decision*

Area. A report prepared by the US Department of Energy (DOE) in 2003 assessed the solar and wind energy potential for the *Planning Area* and found that the area has potential for development of solar and wind (see Map 3-8 and 3-9). While geothermal energy is considered a renewable energy, it is also managed as a fluid mineral. The current status of geothermal energy leasing and use is addressed in the leasable minerals section at 3.4.6.1.2. Sun Zia, a transmission line intended to transport energy generated by wind facilities in central and eastern New Mexico, would traverse through Sierra County. Two bi-directional high-voltage lines are under analysis in the *Draft Environmental Impact Statement and Resource Management Plan Amendments for the Sun Zia Southwest Transmission Project* (USDOI BLM 2012d).

3.4.5.1 Solar Energy

In October 2012, DOE and the BLM signed a Record of Decision for a Programmatic Environmental Impact Statement (PEIS) for Solar Energy Development in the Six Southwestern States. The EIS is an instrument to develop and implement Agency-specific programs and guidance to establish environmental assessment policies and mitigation strategies for solar energy projects. The EIS amends relevant BLM land use plans.

There are two types of technology considered for renewable solar energy generation: concentrating solar power (CSP) and photovoltaic (PV). CSP plants are large systems that use mirrors to focus sunlight to create high temperatures to heat fluid that is in turn used to generate steam to propel turbines as in a conventional electrical generating system. PV is a solar energy collection system consisting of flat plates of collecting cells that convert sunlight directly into electrical energy.

3.4.5.2 Wind Energy

The DOE has identified the *Planning Area* as having a small total land area for high-potential wind power density (USDOE 2003). Wind energy is a renewable energy resource that has excellent potential for generating electricity. In December 2005, BLM in cooperation with the DOE issued a Record of Decision for a programmatic EIS to implement a Wind Energy Development Program and Associated Land Use Plan Amendments on BLM land in the 11 Western States (excluding Alaska). In 2009, the BLM issued a revised policy on wind energy development on public land (Instruction Memorandum 2009-043).

There are currently no wind energy facilities in the *Planning Area*; however, the DOE and the BLM survey of topographic and historical wind conditions has identified locations in the *Planning Area* where wind resources are suitable for development. One meteorological tower to test wind resources was erected in the Goodstight Mountains just west of Doña Ana County in Luna County, in 2009. In 2011, Element Power constructed a 50-megawatt first phase of a “*wind farm*” in northeast Luna County, outside the *Decision Area*. However, Phase II is planned for southwest Sierra County a few miles north of the present project.

3.4.5.3 Biomass Energy

Biomass is material derived from trees, shrubs, plants, agricultural crops, agricultural or forestry residues, and other plant waste that can be burned or processed into fuel to produce energy. Biomass is a relatively untapped energy resource because there are few facilities to process and burn it. A report prepared by the DOE and the BLM identified the *Planning Area* as having a fair biomass potential (USDOE 2003). These data indicate that the *Decision Area* has a low potential for biomass energy production.

3.4.6 MINERALS

The three classifications of mineral estate on public land include locatable, leasable (coal, geothermal, oil and gas, other solid leasable), and salable minerals. These classifications have been defined by Federal laws, regulations, and legal decisions (BLM 1997b). Federal mineral estate (ownership) is shown on Map 3-10. The fluid minerals (oil, gas, and geothermal) are the only leasable minerals with any potential of occurrence in the *Decision Area* and thus are the only ones addressed here.

BLM is responsible for managing all acres of Federal mineral estate within the *Planning Area*, a total of 3,984,256 acres, including minerals underlying land managed by private, State, and other Federal agencies. The BLM coordinates closely with other surface owners or managers to ensure that surface resource issues are considered before Federal mineral development occurs on split-estate land.

The remainder of this section addresses known prospects, mineral occurrences, and mineralized areas; mining claims, leases, and material sites; types of mineral deposits in the area of interest; and mineral economics. Additional information is available in the *TriCounty Analysis of the Management Situation* and the 2003 *Energy and Mineral Potential Report*, on file with the BLM Las Cruces District Office.

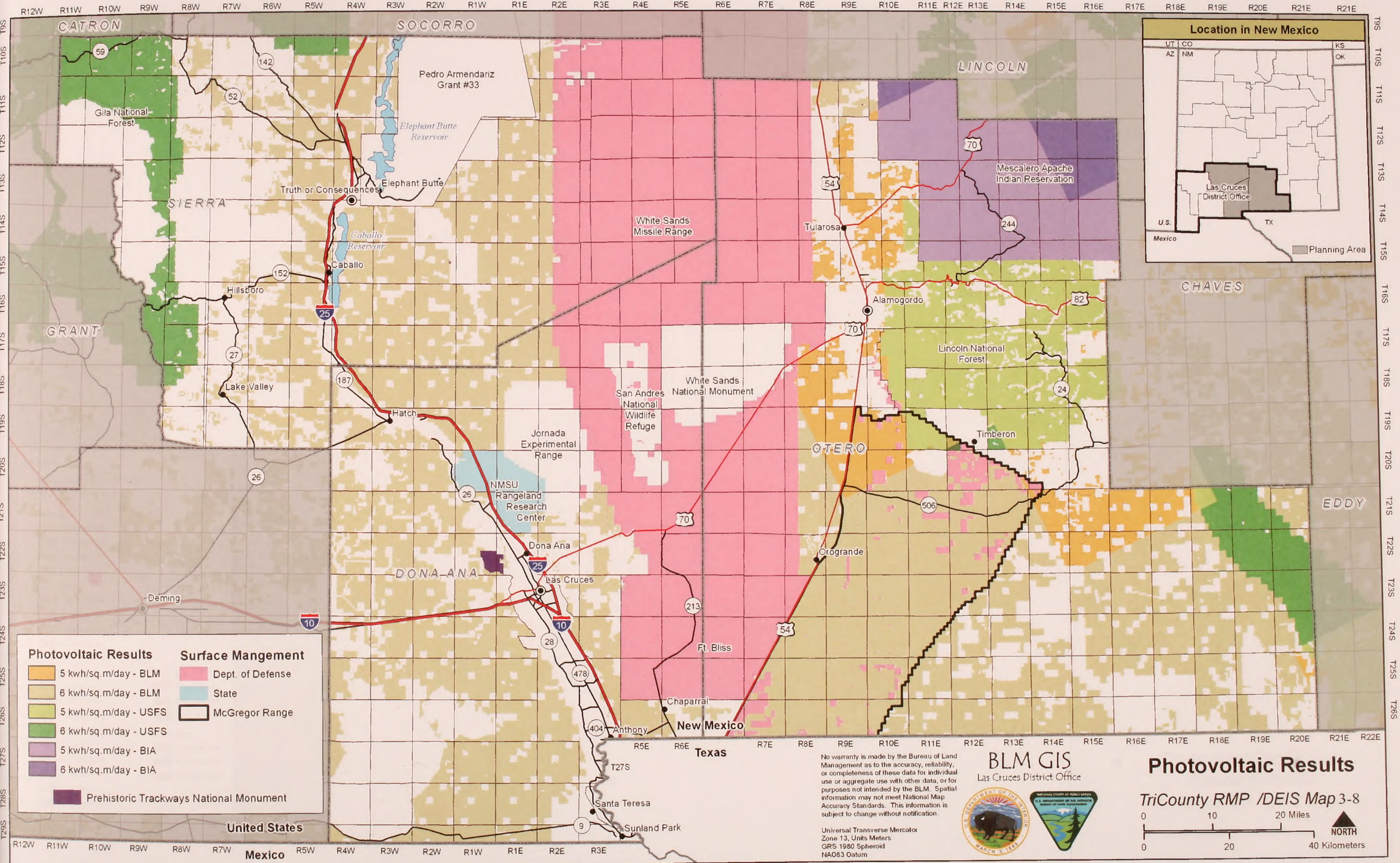
3.4.6.1 Leasable Minerals

Table 3-38 shows the areas open, closed or otherwise restricted for oil, gas, and geothermal leasing as described in the *White Sands RMP* (USDI BLM 1986a) and the *Mimbres RMP* (USDI BLM 1993). Although areas within the District are nominated for fluid minerals leasing from time-to-time, there has been no exploration or drilling activity in the *Planning Area*, except on Otero Mesa as described below, in the last 10 years. The potential for coal development is low in the *Decision Area* (Molina et al. 1991). One mine operated in the Engle field in the period 1905-1910. There have been two other old (pre-1950) prospects in that field, neither of which was developed into a mine. The thin seams (less than 2 feet) and steep dip (about 80 degrees) along the outcrop make mining unattractive. Several wells drilled in the Engle field have intersected coal seams ranging from 2 to 4 feet at depths of 350 to 1,200 feet, too thin and deep to be of interest for commercial mining. There has been no interest in exploring or developing the coal resources in recent decades.

3.4.6.1.1 *Oil and Gas*

New Mexico is an important producer of extractive energy resources such as oil and gas, but the *Planning Area* is not a contributor to the State-wide industry. Exploratory wells have been drilled in the *Planning Area*, but no oil and gas production has occurred. Surface concentrations of carbon dioxide and helium detected from exploratory wells suggest that economically viable concentrations potentially exist within the *Planning Area*, but no gas production has occurred (see Map 3-11).

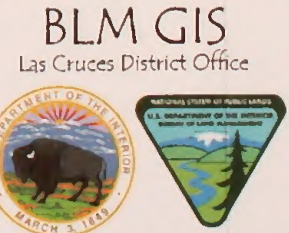
From the early 1920s to the present, there have been 35 exploratory wells drilled in Sierra County, 63 exploratory wells drilled in Otero County, and 17 exploratory wells drilled in Doña Ana County (New Mexico Bureau of Geology and Mineral Resources 2005; New Mexico Energy, Minerals and Natural Resources Department 2005). Exploratory wells have targeted porous sandstone and limestone formations ranging from Mississippian carbonate rocks to Cenozoic sandstones. Although there have been shows of oil and gas reported in several of those wells in each County, there have been no economic production to date.



Photovoltaic Results		Surface Mangement	
	5 kwh/sq.m/day - BLM		Dept. of Defense
	6 kwh/sq.m/day - BLM		State
	5 kwh/sq.m/day - USFS		McGregor Range
	6 kwh/sq.m/day - USFS		
	5 kwh/sq.m/day - BIA		
	6 kwh/sq.m/day - BIA		
	Prehistoric Trackways National Monument		

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

Universal Transverse Mercator
 Zone 13, Units Meters
 GRS 1980 Spheroid
 NAD83 Datum



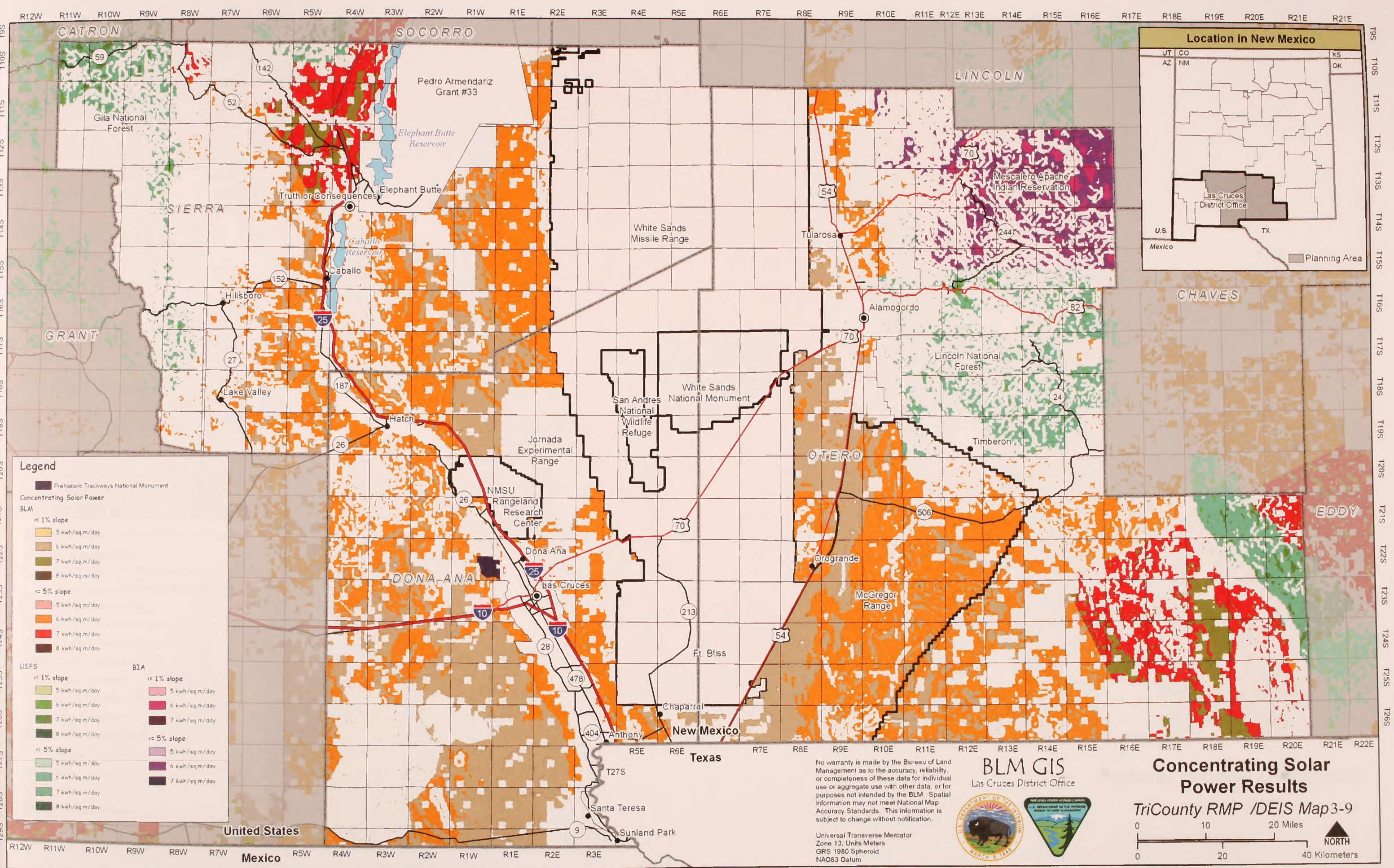
Photovoltaic Results

TriCounty RMP /DEIS Map 3-8

0 10 20 Miles

0 20 40 Kilometers

NORTH



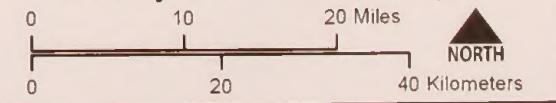
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BLM GIS
Las Cruces District Office

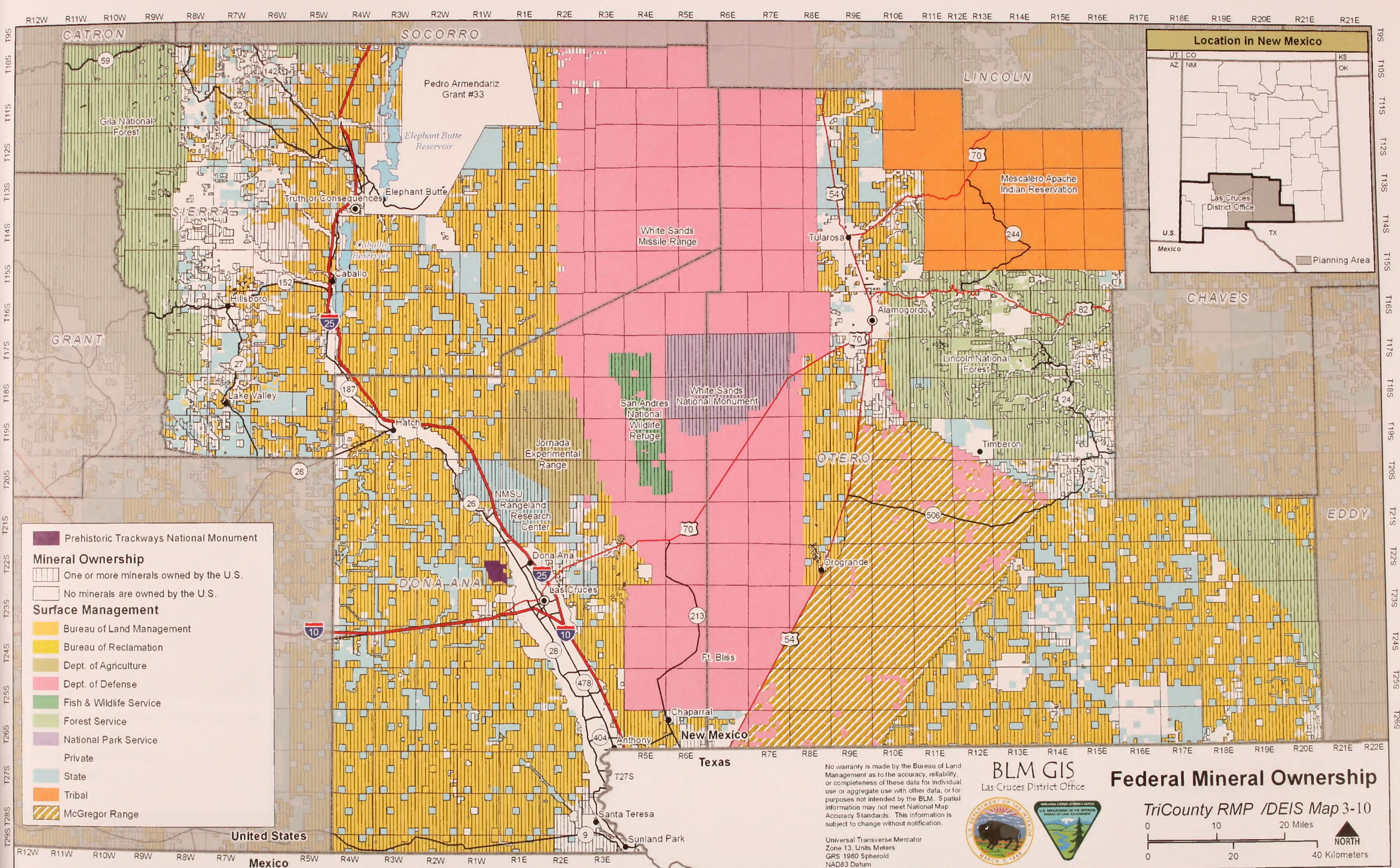


Concentrating Solar Power Results

TriCounty RMP /DEIS Map 3-9



Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NA063 Datum



Prehistoric Trackways National Monument

Mineral Ownership

- One or more minerals owned by the U.S.
- No minerals are owned by the U.S.

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Dept. of Agriculture
- Dept. of Defense
- Fish & Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Tribal
- McGregor Range

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Universal Transverse Mercator
Zone 13, Units Meters
GRS 1980 Spheroid
NAD83 Datum



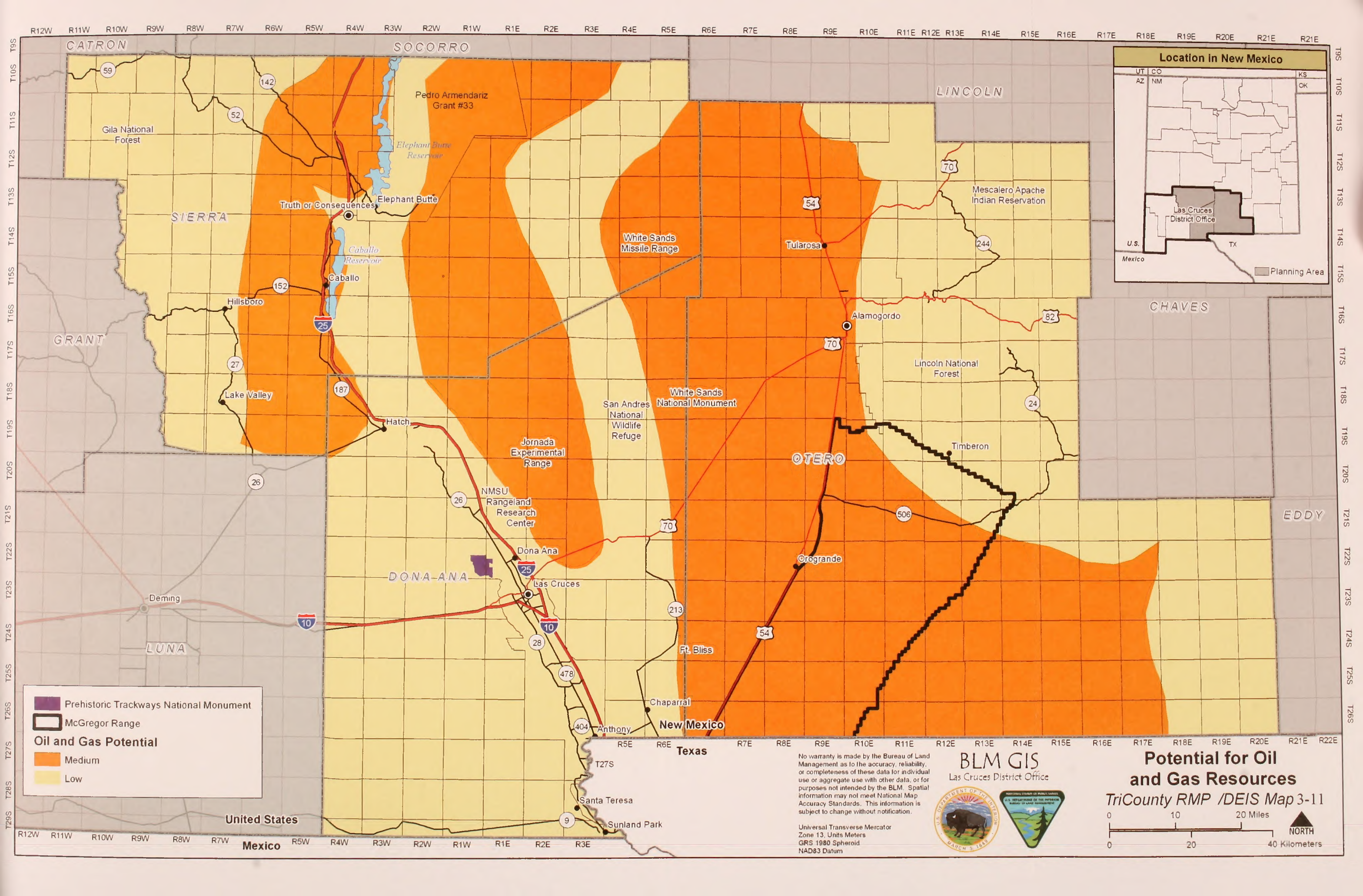
Federal Mineral Ownership

TriCounty RMP /DEIS Map 3-10

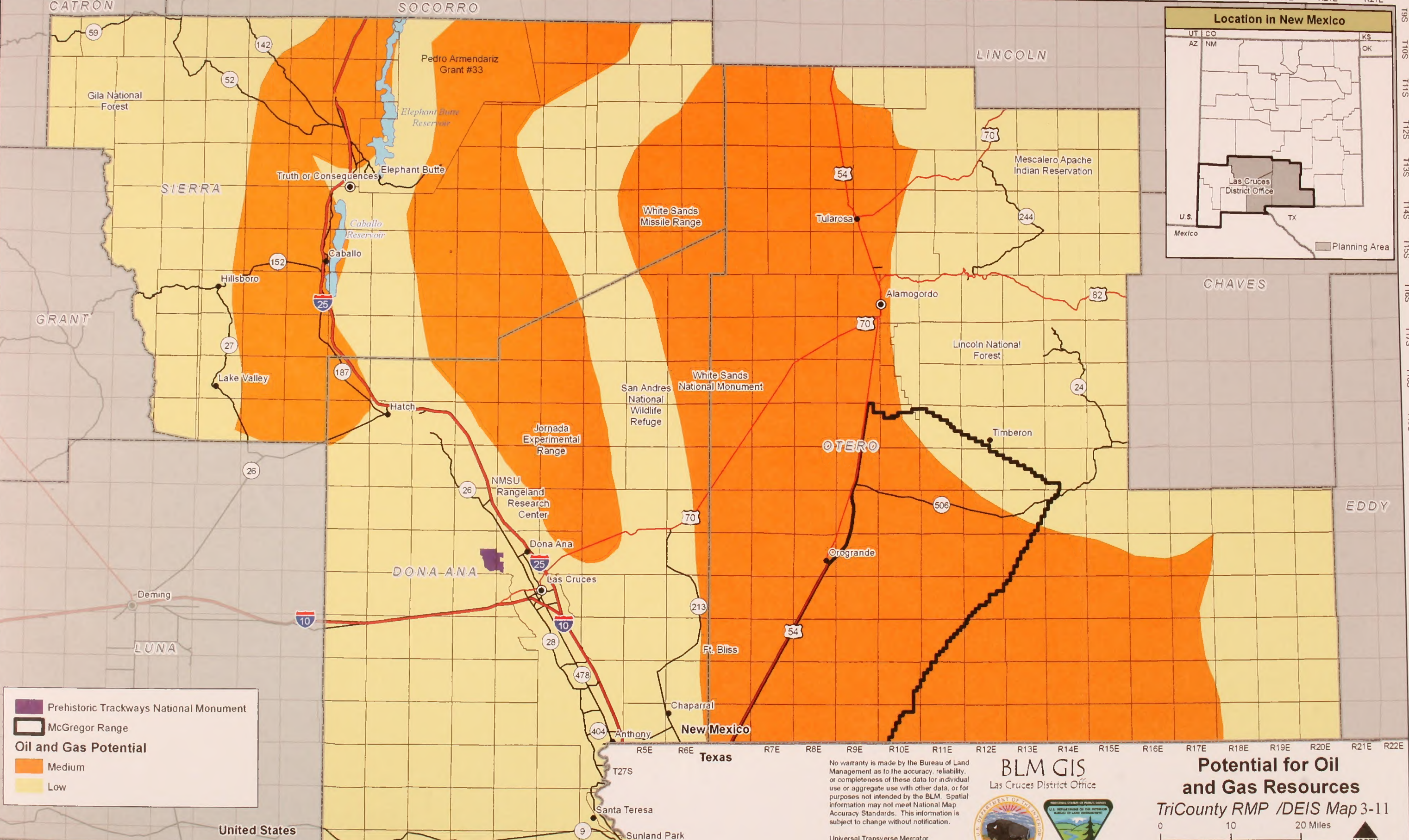
0 10 20 Miles

0 20 40 Kilometers

NORTH



R12W R11W R10W R9W R8W R7W R6W R5W R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E R8E R9E R10E R11E R12E R13E R14E R15E R16E R17E R18E R19E R20E R21E R22E



Prehistoric Trackways National Monument
 McGregor Range
Oil and Gas Potential
 Medium
 Low

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BLM GIS
Las Cruces District Office



Potential for Oil and Gas Resources
TriCounty RMP / DEIS Map 3-11



United States
 Mexico
 Texas
 Universal Transverse Mercator Zone 13, Units Meters, GRS 1980 Spheroid, NAD83 Datum

TABLE 3-38
AREAS OPEN, CLOSED OR RESTRICTED FOR FLUID MINERAL LEASING

AREAS	ACRES	RESTRICTIONS ¹	AUTHORITY
Wilderness Study Areas	261,793	Non-discretionary closure	BLM Policy
Former Military Use Areas	8,381	Non-discretionary closure	Public law
ACECS	75,020	Discretionary closure	Mimbres RMP (1993); White Sands RMP Amendment (1996)
Kilbourne Hole National Natural Landmark	5,500	Discretionary closure	Mimbres RMP (1993)
Special Use Areas ²	27,534	No Surface Occupancy (NSO)	White Sands RMP (1986); Mimbres RMP (1993)
Special Use Areas ³	169,710	Controlled Surface Use (CSU)	White Sands RMP (1986); Mimbres RMP (1993)
Remainder of Planning Area	3,655,138	Standard Lease Terms and Conditions.	White Sands RMP (1986); Mimbres RMP (1993)

NOTES:

¹Non-discretionary closures are those required by law or policy and cannot be changed in an RMP. Discretionary closures are administrative decisions and can be imposed or changed through an RMP.

²Includes communication sites, Recreation and Public Purposes sites, ecological study sites, recreation sites, ACECs, and historic trails.

³Includes Butterfield Trail, Jornada Experimental Range, NMSU Rangeland Research Center, WSMR Safety Evacuation Zone.

These results have led to the conclusion that the *Planning Area* has only low to moderate potential for the presence and production of oil and gas. None of the area has high potential. Approximately one-third of the *Planning Area* is considered to have moderate potential for oil and gas, although as of 2010 no production has occurred. The remainder of the *Planning Area* has low potential.

Current Leases: As of August 2011, there were 40 oil and gas leases totaling approximately 50,190 acres in the *Decision Area* and none of these leases were in production at that time. These numbers include 21 leases in Otero County totaling 14,110 acres and one pending lease of 1,600 acres; and 19 leases in Doña Ana County totaling 29,582 acres northwest of Las Cruces and near the International border west of Santa Teresa. There were no active oil and gas leases in Sierra County as of August 2011.

Known Occurrences and Prospective Areas:

Sierra County: The Palomas Basin was tested using six wells in the 1940s and 1950s and two wells in the late 1970s and early 1980s. One well had oil and gas shows but no production. The northern portion of the Jornada del Muerto Basin was tested using 20 wells from the 1920s to the 1980s. Three of those wells had oil or gas shows, but there was no production. Three wells drilled and tested geologic features not associated with a sedimentary basin, and no shows were reported.

Otero County: The Tularosa Basin was tested using 12 wells from the 1950s through the 1980s. One well had a gas show, and one well had an oil and gas show, but there was no production. A more recently drilled well in the eastern Tularosa Basin reported potential for natural gas production (October 1991). Between 1961 and 2000, six wells were drilled and tested the Salt Basin graben in the southeastern part of the county. There was an oil show reported in one well, but no production. Nine wells were drilled and tested the Pennsylvanian rocks in the Sacramento Basin from the 1950s to the 1980s, and no shows were reported in those wells. The Hueco Basin was tested using three wells between 1942 and 1950, and one well reported an oil show, but there was no production. The Mississippian and Pennsylvanian rocks on the Otero Platform were tested using 30 wells. Three of the wells reported gas shows, but no production.

In 1997, a gas find on Otero Mesa created interest in the area from the oil and gas industry. Large numbers of lease nominations prompted BLM to review the 1986 *White Sands RMP* to establish the adequacy of guidelines for fluid minerals leasing and development and it was determined that those guidelines were insufficient given potential for increased leasing in the area. The BLM Las Cruces District then prepared an amendment to the *White Sands RMP* to address fluid mineral leasing and development in Sierra and Otero County (2005). That RMP amendment was appealed by several groups and subsequently found to be in violation of NEPA by the 10th Circuit Court of Appeals. The plan amendment was thus invalidated by the District Court for the District of New Mexico (See Chapter 1).

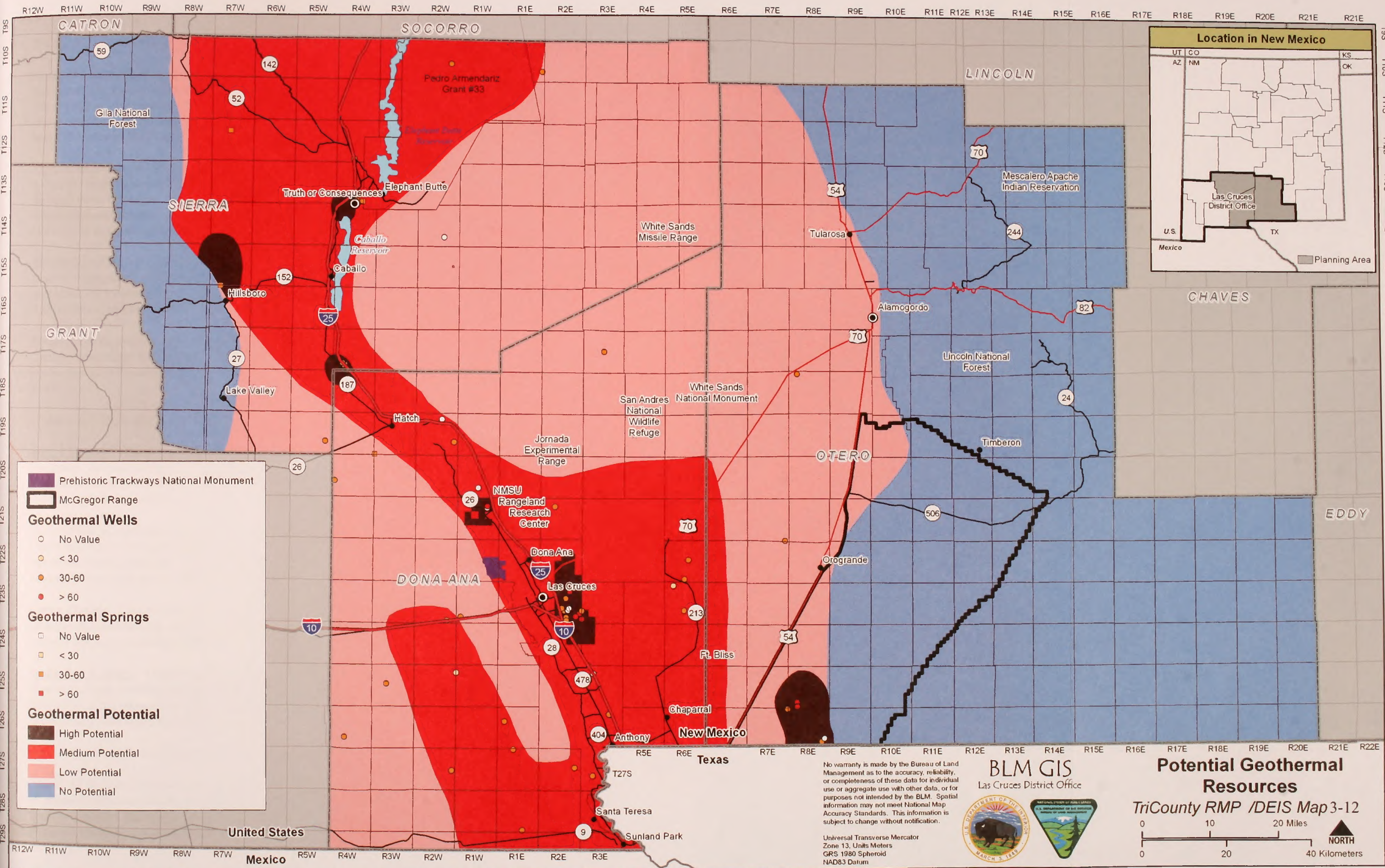
Doña Ana County: The Hueco Basin was tested through drilling five wells in the 1930s and 1940s. Three of those wells had oil shows, and one well had oil and gas shows, but there was no production. Nine wells tested the Mesilla Basin from the 1940s to 1993. Two of the wells had oil and gas shows, and one well had gas shows, but there was no production. Three wells drilled and tested geologic features not associated with a sedimentary basin, and no shows were reported.

3.4.6.1.2 Geothermal

A report prepared by the DOE in cooperation with BLM identified the *Planning Area* as having high potential for renewable power from geothermal resources (USDOE 2003). Geothermal resources are renewable, leasable fluid-mineral energy resources with a history of successful application in New Mexico. Current uses include aquaculture, crop and food processing, and heating of residential and commercial spaces, greenhouses, swimming pools, and spas. Sources of geothermal energy include artesian hot springs and wells that tap into groundwater or dry rock at elevated temperatures that result from high heat-flow gradients in the subsurface. New sources of geothermal energy have been discovered by drilling exploratory wells in areas of known or suspected high-temperature gradients or by coincidence when drilling for oil, gas, or water resources. Information on the known occurrences of geothermal energy resources in the *Planning Area* is shown on Map 3-12.

Known Occurrence and Prospective Areas: Areas of highest geothermal potential in the *Decision Area* are along the Rio Grande Rift through Doña Ana and Sierra Counties. (See Map 3-12.) Known geothermal energy resources are clustered at several locations with their sources in a convective geothermal system (Witcher 2004). Existing commercial uses of geothermal resources include hot springs and mineral baths that are open to the public in the Truth or Consequences area and heated greenhouses in the Radium Springs area.

Geothermal Leasing Activity: As of this report, there are two active geothermal leases in the *Planning Area* totaling 440 acres, both of which are located in Doña Ana County. The smaller lease (160 acres) is located near Tortugas Mountain (“A” Mountain) in Las Cruces. The other lease (280 acres) is located on split-estate near the town of Radium Springs. Both leases are direct-use applications for greenhouse heating, but neither lease is currently in production. There are two pending geothermal leases near Rincon (8,328 acres) and north of Radium Springs (1,640 acres) in Doña Ana County. There are no authorized geothermal leases in either Otero or Sierra Counties.



Prehistoric Trackways National Monument
 Prehistoric Trackways National Monument

McGregor Range
 McGregor Range

Geothermal Wells

- No Value
- < 30
- 30-60
- > 60

Geothermal Springs

- No Value
- < 30
- 30-60
- > 60

Geothermal Potential

- High Potential
- Medium Potential
- Low Potential
- No Potential

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Universal Transverse Mercator
 Zone 13, Units Meters
 GRS 1980 Spheroid
 NAD83 Datum



Potential Geothermal Resources
 TriCounty RMP /DEIS Map 3-12

0 10 20 Miles
 0 20 40 Kilometers

NORTH

3.4.6.1.3 Locatable Minerals

Locatable minerals are defined as those minerals that may be claimed under the 1872 Mining Law as amended. Locatable minerals include both metallic minerals (e.g., gold, silver, lead) and nonmetallic minerals (e.g., gemstones, perlite). Locatable minerals can be obtained by staking and filing a mining claim and can be extracted by mining or quarrying methods. Although there are many mining claims and inactive mines in the *Planning Area*, as of 2010 no large active mining operations exist.

Significant locatable mineral deposits are defined by McLemore (2005) as world-class or large deposits of economic importance today. Significant mineral deposits may attract mining companies to explore and develop these resources. Sierra, Otero, and Doña Ana Counties have several locatable mining districts with significant mineral deposits. There are four significant metallic mineral districts in Sierra County, one district in Otero County, and one district in Doña Ana County.

Known Occurrences and Prospective Areas: Metallic and nonmetallic mineralized areas in the *Planning Area* are designated as mining districts. Mining districts are areas where prospective areas for mineral resources are located or mining has been conducted. There are 25 metallic mineral mining districts in Sierra, Otero, and Doña Ana Counties.

Historical reviews of mineral exploration and development in each county by the New Mexico Bureau of Geology and Mineral Resources (NMBGMR) have documented locatable mineral commodity types and production data for all the districts. Most of these districts have been mined historically and are no longer active.

Mineralized Areas and Types:

Sierra County: There are four mining districts in Sierra County: Chloride, Hermosa, Hillsboro, and Kingston. All four districts contain metallic mineral resources, and one district also contains nonmetallic mineral resources. Geologic conditions that account for the development of the mineral resources include volcanic-epithermal veins and replacement and skarn deposits.

In the 1980s, an open pit mine was established for mining copper at a site called Copper Flats east of Hillsboro. This mine operated for less than a year. In the mid-1990s, another mining company was interested in reopening the mine but it never occurred. In 2011, a subsidiary of a Canadian mining company submitted a mine plan of operation to reopen the mine.

Otero County: Orogrande is the only significant mining district in Otero County. The district contains metallic and nonmetallic mineral resources. Geologic conditions that account for the development of the mineral resources include a Great Plains Margin skarn deposit.

Doña Ana County: Organ Mountains is the only significant mining district in Doña Ana County. The district contains metallic and nonmetallic mineral resources. Geologic conditions that account for the formation of the mineral resources include Rio Grande Rift deposits, volcanic-epithermal veins and replacement, and skarn deposits.

3.4.6.1.4 Mineral Materials (Salable Minerals)

The BLM defines common varieties of sand, gravel, stone, pumice, pumicite, cinders, and ordinary clay as mineral materials (BLM 1997b). Mineral materials include materials used for building and construction and landscaping and fill. Sand, gravel, aggregate, lime (limestone), cinders, and building stone are the more common mineral materials. Mineral materials are disposed from Federal land through

negotiated or competitive sales to commercial producers; or through free-use permits to government agencies and non-profit groups. Local BLM offices may also establish Community Pits and Common Use Areas for general disposals and small-volume sales of mineral materials. The New Mexico Bureau of Geology and Mineral Resources reports that many inactive or intermittently operated aggregate pits are located in the *Planning Area* (Barker 2002).

Most applications for mineral material sales and free-use must go through the NEPA review process. The exceptions are sales and free-use from community pits and common use areas. These sites have already been evaluated through NEPA review and have been designated as suitable for extraction of mineral materials. Permits for community pits and common-use areas are sold “*over the counter*” and do not require individual Environmental Assessments.

Known Occurrences and Prospective Areas: The known locations of salable minerals in the *Planning Area* are too numerous to discuss on an individual basis. This information is included in the *TriCounty Analysis of the Management Situation’s* Appendix E, Table E-4, which lists the information available for known pits; this document is available for review from BLM Las Cruces District Office.

Salable Minerals Current Activity:

Sierra and Otero Counties: Sand, gravel, and stone are the most common salable mineral materials in Sierra and Otero Counties. They are generally found along mountain pediments, alluvial valley floors, and in arroyos adjacent to mountain uplifts. Eolian sand is found in the Tularosa Valley. Cinders, fill material, building stone, and clay occur in minor amounts throughout the Counties. At the present, there are no active mineral materials sales or free-use permits in Otero County. In Sierra County, limestone aggregate is produced from two negotiated sale sites and the Sierra County Road Department has obtained fill material from the BLM land through free-use permits.

Doña Ana County: Sand, gravel, and stone are the most common salable mineral materials in Doña Ana County. Sand and gravel deposits are most abundant along the Rio Grande Valley, but also occur in intermountain basins throughout the County. The saleable mineral locations near the community of Las Cruces that have a wider range of aggregate size lie east of the Rio Grande and closer to the Organ Mountains (Austin et al. 1998). Volcanic cinders occur in the West Potrillo Mountains, and building stone has been mined in the Robledo Mountains. Clay deposits used in brick making also occur in southern Doña Ana County, and caliche is common throughout the *Planning Area* (USDOI BLM 1990). There are only a few quality sand and gravel locations remaining close enough to Las Cruces to be economically feasible for use in construction.

A summary of recent commercial (i.e. competitive and negotiated contracts) mineral materials production in the *TriCounty* area is presented below in Table 3-39.

COUNTY	MATERIAL TYPE	NUMBER OF OPERATIONS	PRODUCTION	ROYALTY RECEIVED
Doña Ana	Sand and gravel	5	39,558 cubic yds.	\$28,032.20
Doña Ana	Basalt cinder	1	2,055 cubic yds.	\$1,459.05
Doña Ana	Decorative stone	2	785 tons	\$1,544.91
Doña Ana	Fill	1	28,485 cubic yds.	\$19,939.50
Sierra	Aggregate	2	57,058 tons	\$28,521.84

3.4.7 ABANDONED MINE LANDS

In 2008, the Department of the Interior, Office of Inspector General published its findings (*Audit Report, Abandoned Mine Lands in the Department of the Interior, C-IN-MOA-0004-2007*, July 2008) regarding the abandoned mine land (AML) program on lands managed by Department of the Interior agencies. That report found that staffing and funding for the program were insufficient, that site inventories were generally poor or non-existent, and that among other deficiencies, occupancy trespass of abandoned mine lands was often ignored.

In 2009, the Las Cruces District received funding to begin an AML program that is expected to continue through 2015 or longer. As of 2010, 73 locatable mineral mining districts had been delineated in the Las Cruces District, of which some 25 are in the *TriCounty Planning Area*. Through a Memorandum of Understanding with the State of New Mexico, Mining and Minerals Division of the Energy Minerals and Natural Resources Department, BLM inventories features on BLM lands, adjacent State trust and private lands. Once features are inventoried, they are assessed as to their danger to people and animals; the best way to remediate or reclaim a feature as well as a priority for remediation is also determined.

Mine features associated with abandoned mine areas include shafts, adits, tunnels, pits, spoil piles, old machinery, and collapsed buildings. Many of these features can be hazardous to people, livestock and wildlife. Across the west in recent years several fatalities have occurred. Hazards associated with abandoned mines include:

- Loose rocks which can fall at any time and cause serious head injuries
- Collapsing roofs or walls
- Driving or falling into shafts and being killed, injured or unable to get out
- Dark adits frequently have shafts in them that cannot be seen
- Air containing poisonous gases or insufficient oxygen in adits, shafts or tunnels cannot be detected until too late

The overall goal of the AML program is to protect human health and safety, while the objectives to achieve this are to:

- identify sites
- develop and maintain an accurate inventory
- prioritize sites for remediation
- temporary safety measures, fencing and signing most dangerous features
- report accomplishments
- build partnerships
- follow-through on collaborative projects to completion
- monitor and maintain sites after inventory

Inventory is the first step in the process and includes identifying mining districts and sites using available information including maps. To date, over 400 mining features in the *TriCounty Planning Area*, primarily around Orogrande and the Jarilla Mountains in Otero County, have been inventoried. Information collected or determined from the inventories include a location using GIS technology, photos of features, adit or shaft depth, distance from road and a danger level assessment. Danger levels range from extreme to none based on depth of feature, proximity to roads or population centers, topographically, visibility and stability of the site. The inventory team also assesses the mine features for their potential for remediation or reclamation to eliminate danger to people and animals. Options for remediation or reclamation include backfilling, gating, or fencing the features.

Prior to any ground disturbance, mine features are surveyed to determine their value as wildlife habitat, especially for bats and for their historical resources. These surveys may be done by the BLM or New Mexico Mining and Minerals Division personnel or they may be contracted to a qualified consultant. As this part of the assessment is completed, the BLM will work with the New Mexico Mining and Minerals Division to plan and fund the reclamation work. The reclamation process also includes preparing the necessary site-specific NEPA documents.

3.5 SOCIOECONOMIC CONDITIONS

Socioeconomic conditions include the individual resources of social conditions, economic conditions, health and safety, environmental justice, and Tribal treaty rights. This section describes the existing socioeconomic conditions in the *Planning Area*, including demographics, employment and income, key industries related to BLM management, place-based values, and environmental justice populations.

3.5.1 DEMOGRAPHICS

Demographic data were compiled from the 1990, 2000, and 2009 U.S. Census to characterize the population size, density, age, race, and ethnicity for Sierra, Otero, and Doña Ana Counties and the Mescalero Apache Nation. Statistics from the *Planning Area* have been compared to those of New Mexico and the United States to provide a basis for comparison to a larger area. The Sonoran Institute’s Economic Profile System was used to compile data and was supplemented by additional U.S. Census Bureau or other data as necessary. A separate socioeconomic baseline report was prepared in March 2006 that included additional information.

While all three counties showed a robust population increase in the decade of the ‘90s, population growth slowed considerably from 2000 to 2009. Doña Ana County continued to show relatively strong growth but Otero County increased by only 1 percent and Sierra County’s population actually declined by 3 percent. (See Table 3-40.)

**TABLE 3-40
COMPARISON OF COUNTY POPULATIONS 1990, 2000, 2010**

LOCATIONS	1990 POPULATION	2000 POPULATION	2010 POPULATION	PERCENTAGE GROWTH	
				1990-2000	2000-2010
Sierra County	9,912	13,720	11,988	34	-3
Otero County	51,928	62,298	63,797	21	1
Doña Ana County	135,510	174,682	209,233	29	18
Planning Area	197,350	250,250	285,018	27	13
New Mexico	1,515,069	1,819,046	2,059,179	20	11
United States	248,709,873	281,421,906	307,006,550	13	9

SOURCE: U.S. Census Bureau 2010

3.5.1.1 Sierra County

Sierra County is the least populated County in the *Planning Area*, having a population of 11,988 in 2010 (see Table 3-40). It is generally rural with large proportions of land historically used for agriculture and ranching. The population density was three people per square mile in 2009. The largest community in Sierra County is Truth or Consequences, with a 2005 population of 7,071 people, who compose about 60 percent of the County’s overall population. Growth is occurring in and around Elephant Butte, which

abuts Elephant Butte Reservoir. The County features two reservoirs, Elephant Butte and Caballo, used frequently by both local and out-of-state visitors (U.S. Census Bureau 2000). Sierra County, more than either Otero or Doña Ana Counties, has the largest percentage of residents age 65 and over. In 2009, residents of retirement age composed 29 percent of the County population in Sierra County, a proportion that is significantly larger than the State of New Mexico's figure of 13 percent. While overall population increased in Sierra County between 1990 and 2000, the population decreased by 3 percent between 2000 and 2009.

The largest racial group in Sierra County is White (66 percent). About 30 percent of the County population is Hispanic or Latino, which is a lower proportion than the other counties in the *Planning Area* and the State as a whole. To evaluate the presence of minority populations, data identifying racial and Hispanic minorities were aggregated for the study area (Table 3-41). The largest ethnic group in Otero County is White, not Hispanic or Latino (about 51 percent). About 32 percent are Hispanic or Latino (U.S. Census Bureau 2000). Otero County includes the Mescalero Apache Reservation and has a larger percentage of residents who are American Indian than the other counties in the *Planning Area*. The Mescalero Apache are addressed specifically in Section 3.4.8.1.3.

3.5.1.2 Otero County

The population of Otero County in 2000 was 63,797; a 22 percent increase over 1990. The population density within Otero County continues to remain relatively sparse at nine people per square mile. Alamogordo and Tularosa are the two largest communities, with a combined population of nearly 40,000 people, or about roughly 62 percent of the County's total population. Several smaller communities such as Cloudcroft and Timberon provide services for the rural population. Holloman Air Force Base is a major feature within Otero County. The fastest growing age group in Otero County since 1990 is 45 to 49 year olds. The population of people within retirement age (65 and older) has grown nearly 55 percent since 1990, and currently stands at 15 percent of the county population.

The largest racial group in Otero County is White (84.4 percent). About 35 percent are Hispanic or Latino (U.S. Census Bureau 2010). Otero County includes the Mescalero Apache Reservation, and has a larger percentage of residents who are American Indian than the other counties in the *Planning Area*.

3.5.1.3 Doña Ana County

Doña Ana County is the most populated county in the *Planning Area*. The 2010 population of Doña Ana County was 209,233 people, an 18 percent population increase since 2000 (see Table 3-40). Doña Ana County's 2010 population density is the highest within the *Planning Area*, at about 46 people per square mile. Las Cruces is the largest metropolitan area in the *Planning Area*, with a 2009 population of 93,680 people, or roughly 42 percent of the population of Doña Ana County. People younger than 18 years old compose 36 percent of the Doña Ana County population, which is higher than the State of New Mexico's figure of 32 percent. The median age is 27.9 years old, the lowest within the *Planning Area*. About 12 percent of the population of Doña Ana County is of retirement age (over 65). About 65 percent of people in Doña Ana County identify their ethnicity as Hispanic or Latino (see Table 3-41). About 30 percent identify themselves as White and not Hispanic. As compared to Sierra and Otero Counties and the State as a whole, Doña Ana County has a substantially larger share of the population that is Hispanic or Latino.

3.5.1.3.1 *Mescalero Apache Nation*

Located in northeastern Otero County on 720 square miles of reservation land, the Mescalero Apache Nation has a population of 3,156 people, 91.5 percent of whom are American Indian and Alaska Native (U.S. Census Bureau 2000). The median age on the reservation of 22.6 years is younger than the averages for the rest of the *Planning Area*, New Mexico, and the Nation. The largest age category is 10- to-14-year-olds, who compose almost 13 percent of the total population. The reservation is generally rural with an average of four people per square mile.

3.5.1.4 Employment and Income

3.5.1.4.1 *Employment by Industry*

Table 3-42 provides data on the number and share of employment provided by each industry in the *Planning Area*, in New Mexico, and in the Nation. Government and government services currently provide the largest share of employment in the *Planning Area* (ranging from 18 percent in Sierra County to over 36 percent in Otero County) as well as the largest share of employment statewide (19 percent). Approximately 34 percent of government-related employment in Otero County is with the military. Nationwide, government employment is less dominant (14 percent). In both the *Planning Area* and State, health care and retail trade are also large employment providers. Otero County also has a relatively high share of employment in accommodation and food services, which may be a reflection of the importance of recreation to the local economy.

Between 1970 and 2000, the services and professional sector experienced the most dramatic increase in employment. Sierra County showed growth of 36.3 percent in the services category and 19.5 percent in retail trade (U.S. Department of Commerce, Bureau of Economic Analysis 2002). In Otero County, 87.1 percent of new job growth occurred in the services and professional sector, with services accounting for 34.5 percent of overall job growth, and retail trade for 28.5 percent. In Doña Ana County, 65 percent of new employment between 1970 and 2000 occurred in the services and professional sector, particularly in the services category (accounting for 37.4 percent of overall job growth) and retail trade (17.2 percent).

The growth of nonlabor income in the *Planning Area* also explains the condition of declining earnings per job while per capita income is increasing. Nonlabor income is personal income that is earned through investments (such as dividends, interest, and rent) or through transfer payments. Most transfer payments are from the government to individuals, including retirement-related payments, Medicare, disability insurance payments, and welfare. (Transfer payment figures do not include income from private pension plans or 401(k) plans.) Nonlabor income contributes a larger share of total personal income in all three counties within the *Planning Area* than it does on a Statewide or National level (Table 3-44). In particular, Otero County has an exceptionally high percentage of personal income (almost 61 percent) derived from nonlabor sources. Approximately a third of the transfer payments in Otero County have been identified as retirement-related transfer payments.

TABLE 3-41
ETHNICITY IN THE PLANNING AREA

ETHNIC GROUP	SIERRA COUNTY		OTERO COUNTY		DOÑA ANA COUNTY		NEW MEXICO		UNITED STATES	
	Number in Population	Percent of Total	Number in Population	Percent of Total	Number in Population	Percent of Total	Number in Population	Percent of Total	Number in Population	Percent of Total
White not Hispanic	8,505	66.3%	22,373	51.4%	62,751	30.4%	821,955	40.9%	199,861,264	65.1%
Hispanic or Latino Origin	3,865	30.6%	32,485	35.4%	134,585	65.2%	916,410	45.6%	48,507,035	15.8%
Black	77	0.6%	3223	5.1%	7,018	3.4%	62,300	3.1%	39,603,845	12.9%
American Indian and Alaska Native	258	2.0%	4,298	6.8%	3,303	1.6%	194,938	9.7%	3,070,066	1.0%
Asian	26	0.2%	885	1.4%	2,064	1.0%	30,145	1.5%	14,122,301	4.6%
Native Hawaiian and other Pacific Islander	13	0.1%	126	0.2%	206	0.1%	4,019	0.2%	614,013	0.2%
Two or more races reported	168	1.3%	1,454	2.3%	3,096	1.5%	38,184	1.9%	5,219,111	1.7%
TOTAL ¹	12,912	100%	64,844	102.1%	213,023	103.2%	2,067,951	102.9%	310,997,634	101.3%

SOURCE: US Census Bureau (2010); www.quickfacts.census.gov/qdf/states

NOTE: ¹Total percentage may be more than 100 because of double counting in some ethnic groups

TABLE 3-42
2008 EMPLOYMENT BY INDUSTRY

	SIERRA COUNTY		OTERO COUNTY		DOÑA ANA COUNTY		NEW MEXICO		UNITED STATES	
	Number of Jobs	Percent of Share	Number of Jobs	Percent of Share	Number of Jobs	Percent of Share	Number of Jobs	Percent of Share	Number of Jobs	Percent of Share
Farming	361	7.1	541	1.9	2,984	3.2	24,532	2.2	2,642,000	1.5
Private Employment	3,817	74.6	17,418	61.7	66,989	72.8	880,216	78.8	154,536,100	85.0
Forestry, fishing, and related activities	N/A	N/A	N/A	N/A	1,059	1.2	5,410	0.5	858,500	0.5
Mining	N/A	N/A	67	0.2	177	0.2	27,555	2.5	1,155,900	0.6
Utilities	N/A	N/A	N/A	N/A	332	0.4	4,532	0.4	590,700	0.3
Construction	517	10.1	1,969	7.0	6,378	6.9	79,641	7.1	11,151,000	6.1
Manufacturing	163	3.2	397	1.4	3,541	3.8	41,611	3.7	14,090,900	7.8
Wholesale trade	N/A	N/A	277	1.0	1,618	1.8	29,399	2.6	6,570,500	3.6
Retail trade	606	11.8	3,137	11.1	8,863	9.6	119,843	10.7	18,862,200	10.4
Transportation and warehousing	94	1.8	632	2.2	2,562	2.8	27,691	2.5	6,018,500	3.3
Information	24	0.5	304	1.1	1,147	1.2	18,936	1.7	3,529,800	1.9
Finance and insurance	113	2.2	610	2.2	2,383	2.6	34,575	3.1	9,023,400	5.0
Real estate and rental and leasing	216	4.2	1,147	4.1	2,863	3.1	45,629	4.1	8,369,700	4.6
Professional and technical services	273	5.3	1,139	4.0	4,886	5.3	83,672	7.5	12,347,100	6.8
Management of companies and enterprises	N/A	N/A	43	0.2	133	0.1	5,663	0.5	1,993,300	1.1
Administrative and waste services	95	1.9	1,149	4.1	4,085	4.4	60,954	5.5	10,999,200	6.1
Educational services	N/A	N/A	155	0.5	867	0.9	16,762	1.5	3,877,000	2.1
Health care and social assistance	N/A	N/A	2,650	9.4	13,029	14.2	115,883	10.4	18,593,400	10.2
Arts, entertainment, and recreation	N/A	N/A	296	1.0	1,908	2.1	23,887	2.1	3,860,200	2.1
Accommodation and food services	N/A	N/A	1,758	6.2	6,589	7.2	84,138	7.5	12,314,700	6.8
Other services, except public administration	298	5.8	1,372	4.9	4,569	5.0	54,435	4.9	10,329,100	5.7
Government and government enterprises	937	18.3	10,257	36.4	22,004	23.9	212,685	19.0	24,577,000	13.5
Federal, civilian	115	2.2	1,892	6.7	3,857	4.2	30,737	2.8	2,817,000	1.5
Military	34	0.7	3,521	12.5	588	0.6	14,277	1.3	2,079,000	1.1
State government	297	5.8	949	3.4	8,818	9.6	60,469	5.4	5,259,000	2.9
Local government	491	9.6	3,895	13.8	8,741	9.5	107,202	9.6	14,422,000	7.9

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, 2010.

NOTES: NA = Data not available. Data are suppressed to protect confidentiality. Numbers do not add to total employment figure because of data that have been suppressed for confidentiality.

**TABLE 3-43
TRENDS IN PER CAPITA INCOME AND AVERAGE EARNINGS PER JOB**

AREA	PER CAPITA INCOME			AVERAGE EARNINGS PER JOB		
	2000	2008	PERCENT CHANGE	2000	2008	PERCENT CHANGE
			2000-2008			2000-2008
Sierra County	\$18,280	\$26,594	+38	\$24,880	\$34,297	+23
Otero County	\$17,550	\$25,167	+29	\$33,145	\$46,484	+24
Doña Ana County	\$18,102	\$27,855	+35	\$29,352	\$41,982	+31
New Mexico	\$22,751	\$33,389	+34	\$34,350	\$47,886	+21
United States	\$30,906	\$33,389	+8	\$42,003	\$56,116	+38

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis 2010 (<http://www.bea.gov/regional/reis/action.cfm>)

3.5.1.4.2 Unemployment

In 2010, the average annual unemployment rates in all three counties – Doña Ana County (8.2 percent), Sierra County (6.8 percent), and Otero County (7.4 percent) – were lower than the rates in New Mexico (8.4 percent) and Nationwide (8.6 percent)(Bureau of Labor Statistics 2011).

3.5.1.4.3 Payment In Lieu Of Taxes

One source of local government revenue is payment in lieu of taxes (PILT) payments, or Federal payments to local governments that help to offset losses in property taxes due to nontaxable Federal land within their boundaries (see Table 3-45). Payments are made annually for tax-exempt Federal lands administered by the BLM, the National Park Service, the U.S. Fish and Wildlife Service (all agencies of the Interior Department), the U.S. Forest Service (part of the U.S. Department of Agriculture), and for Federal water projects. Federal land within county boundaries is not part of the county’s tax base; through PILT, the county is compensated for lost revenue opportunities in accordance with the Payment in Lieu of Taxes Act of 1976, as amended (31 U.S.C. 6901-6907). PILT payments are computed based on the number of acres of Federal entitlement land, within each county. Generally, entitlement lands do not include military lands under active use. The number of qualified acres is multiplied by a dollar amount per acre set by law. Payments are subject to limitations based on population. Congress sets annual PILT program funding limitations that also may affect the amount of the payments under the program. Payment eligibility is reserved for local governments that provide services such as those related to public safety, environment, housing, social services, and transportation.

Over the past 10 years, BLM has accounted for 95 percent of all entitlement acreage in Doña Ana County, 66 percent in Sierra County, and 62 percent in Otero County as compared to the 56 percent of the BLM share in the State of New Mexico as a whole.

TABLE 3-44
2008 PERSONAL INCOME AND EARNINGS

	Doña Ana County		Otero County		Sierra County		New Mexico		United States	
	Total	Percent of Share	Total	Percent of Share	Total	Percent of Share	Total	Percent of Share	Total	Percent of Share
Per capita income (\$)	27,855	60.9	25,167	37.6	26,594	37	33,389	17.6	40,166	31.9
Average Earnings per job (\$)	41,982	25.3	46,484	18.5	34,297	16.5	47,886	17.3	56,116	17.4
Nonlabor income (in millions \$)	850	35.9	245.4	368.4	61.4	134.2	8,096	16.2	1,550,330	14.5
Dividends, interest, and rent	1,262	34.5	368.4	19.1	134.2	20.5	7,933	16.2	1,292,000	13.7
Transfer payments	86.1	20.6	17.9	9.9	319.3	8.7	7,448.20	8.4	1,221,000	8
Government payments to individuals	51.5	38.9	743.4	62.3	93.8	63	29,945	65.1	6,057,677	68.1
Age-related transfer payments	2,483	NA	10.7	NA	9.8	NA	128.9	0.3	28,133	0.3
Labor income (in millions \$)	138	NA	NA	NA	NA	NA	1,084.10	2.4	56,109	0.6
Farming	2.6	NA	1.3	0.2	0.2	NA	1,084.10	2.4	56,109	0.6
Mining	0.8	NA	0.4	0.4	0.2	NA	293.2	0.6	69,891	0.8
Oil & gas extraction	27	NA	60.5	3	13.9	3.5	2,165.40	4.7	418,382	4.7
Utilities	193.9	NA	9.3	1	5.1	3.1	1,994.70	4.3	897,610	10.1
Construction	165.6	NA	70.3	8.9	NA	1.1	1,100.30	2.4	351,667	4
Manufacturing	70.3	NA	238.7	3.6	71.3	4.8	2,629.30	5.7	470,631	5.3
Wholesale trade	238.7	3.6	71.3	4.8	10.9	4.7	9,16.3	2	230,060	2.6
Retail trade	105	0.5	11.2	0.8	0.5	1.1	714.8	1.6	255,972	2.9
Transportation and warehousing	47.4	0.4	21.2	1.4	3.0	1.7	1,264.40	2.8	508,816	5.7
Information	31.8	0.6	7.0	0.6	1.8	0.6	674.5	1.5	170,804	1.9
Finance and insurance	281.1	1.2	41.2	2.5	10.4	4.1	3,032.10	6.6	638,942	7.2
Real estate and rental and leasing	6.2	0	1.1	0.1	0	0.1	280.3	0.6	141,988	1.6
Professional and technical services	119.4	1.1	22.8	3.2	1.5	1.4	1,261.10	2.7	244,527	2.7
Management of companies and enterprises	15.3	NA	2.3	0.2	NA	0.2	240.6	0.5	86,689	1
Administrative and waste services	477.2	NA	97.5	4.8	NA	7.7	3,040.80	6.6	627,922	7.1
Educational services	32.4	0.4	2.5	0.1	NA	0.6	247.3	0.5	72,832	0.8
Health care and social assistance	122.1	2.8	26.2	1.3	NA	1.8	1,101.30	2.4	185,145	2.1
Arts, entertainment, and recreation	144	1.6	39.8	1.6	8.0	2.1	982.8	2.1	208,558	2.3
Accommodation and food services	1,264.6	13.9	644.3	43	46.3	22.6	9,430.20	20.5	1,105,776	12.4
Other services, except public administration	411.5	3.9	145.6	9.4	9.4	4.3	21,577.0	47.6	212,945	2.3
Government and government enterprises	27.5	0.2	299.7	1.4	1.4	0.6	863.9	1.9	89,127	0.9
Federal, civilian	408.1	60.9	42.6	37.6	14.6	37	16,029	34.9	2,842,330	31.9
Military	417.5	25.3	156.5	18.5	21.0	16.5	8,096	17.6	1,550,330	17.4
State government	5,640.8	35.9	1,593.8	19.1	337.8	20.5	7,933	17.3	1,292,000	14.5
Local government										
TOTAL PERSONAL INCOME (IN MILLIONS)										

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis 2008 (www.bea.gov/regional/trts/action.cfm)
 NOTES: Per capita income is the total personal income divided by population. Earnings per job is the total wages earned divided by the total number of workers. Transfer payments (under nonlabor income) include government payments to individuals (included in this table) as well as payments to nonprofit organizations and business payments to individuals.
 DA = Data not available. Data are suppressed to protect confidentiality. Includes farms and agricultural services.

3.5.2 KEY INDUSTRIES

3.5.2.1 Energy and Mineral Development

Mining has not represented a substantial share of employment or income in the *Planning Area* for several years. More recent data on mining employment have been suppressed for confidentiality. As metal prices have risen, interest in developing hard rock mining claims has increased.

The BLM's minerals program manages a variety of resources: (1) leasable minerals (fluid minerals such as oil, gas, geothermal, coal bed methane, and CO₂, as well as certain solid minerals such as coal, potash, and sulfur); (2) locatable minerals (metallic and nonmetallic minerals that can be obtained by filing a mining claim (e.g., gold, silver, fluorspar); and (3) saleable minerals (e.g., sand and gravel).

3.5.2.1.1 Fluid Minerals

New Mexico is an important producer of oil and gas energy resources, but the *Planning Area* is not a contributor to the Statewide industry. Exploratory wells have been drilled in the *Planning Area*, and gas has been detected in some wells, but no gas production has occurred. While there are leaseholds for oil and gas production in the *Planning Area*, there has been only one new fluid-mineral lease parcel sold within the last 10 years. There was a gas discovery on Otero Mesa in Otero County in the late-1990s and interest in exploration in that area increased substantially but it is still not clear if extensive energy resource development will occur in Otero Mesa. A second well was drilled in 2001; it discovered gas in a separate horizon. Both wells are currently shut in.

In 1991, a wildcat gas well drilled in Ysletano Canyon in Otero County northeast of Tularosa reported a natural gas show. This well is currently shut-in and is not producing. Information on exploratory activity is available in the *TriCounty Analysis of Management Situation*.

Unless otherwise closed to leasing, public land may be leased for development of fluid minerals. Oil and gas leases have a 10-year primary term and are sold quarterly at an oral auction. There is a minimum \$2.00 per acre opening bid, but the winning bid can range to hundreds of dollars per acre for parcels having highly competitive interest. The successful lessee is required to pay an annual rent on the leased parcel. The rental costs range from \$1.50 per acre per year for the first 5 years to \$2.00 per acre per year for the last 5 years of the lease. A lease may be extended beyond its 10-year term if production has been established. The lessee also is required to pay royalties on the sales value of mineral resources produced from the leased parcel. Oil and gas royalties are 12.5 percent of sales value. Royalty payments are paid to the Office of Natural Resources Revenue (formerly the Minerals Management Service).

As of November 2011, the following oil and gas leases were authorized in the *Decision Area*: Doña Ana County had 21 leases over 39,853 acres and Otero County had 19 leases across 12,852 acres for a total of 40 leases over 52,705 acres.

**TABLE 3-45
PILT ACRES AND ANNUAL PAYMENTS 2000-2010**

YEAR	COUNTY	Total Federal Entitlement Acres	BLM Public Land Acres	BLM % of Federal Entitlement Acres	Total Annual PILT Payment	Payment Amount Attributed to BLM Land
2000	Doña Ana	1,194,078	1,132,753	95	\$936,036	\$889,234
	Otero	1,493,633	931,535	62	\$1,029,158	\$638,078
	Sierra	1,336,628	854,143	64	\$383,276	\$245,297
2001	Doña Ana	1,194,075	1,132,750	95	\$1,340,949	\$1,273,901
	Otero	1,493,633	931,535	62	\$1,483,335	\$919,668
	Sierra	1,336,541	854,143	64	\$608,801	\$389,633
2002	Doña Ana	1,193,885	1,132,560	95	\$1,410,223	\$1,339,712
	Otero	1,493,623	931,525	62	\$1,557,725	\$965,789
	Sierra	1,336,541	854,143	64	\$641,386	\$410,487
2003	Doña Ana	1,193,065	1,131,740	95	\$1,611,642	\$1,531,059
	Otero	1,494,043	931,945	62	\$1,790,542	\$1,110,136
	Sierra	1,336,939	854,140	64	\$723,243	\$462,875
2004	Doña Ana	1,193,065	1,131,740	95	\$1,655,605	\$1,572,824
	Otero	1,494,043	931,945	62	\$1,839,054	\$1,140,213
	Sierra	1,336,939	854,143	64	\$744,078	\$476,209
2005	Doña Ana	1,193,047	1,131,740	95	\$1,694,351	\$1,609,633
	Otero	1,494,043	931,945	62	\$1,855,662	\$1,150,510
	Sierra	1,336,939	854,140	64	\$762,903	\$488,257
2006	Doña Ana	1,185,755	1,131,701	95	\$1,712,726	\$1,627,089
	Otero	1,494,123	931,945	62	\$1,890,593	\$1,172,167
	Sierra	1,299,574	854,122	66	\$777,390	\$513,077
2007	Doña Ana	1,185,755	1,131,701	95	\$1,703,334	\$1,618,167
	Otero	1,494,123	931,945	62	\$1,883,272	\$1,167,628
	Sierra	1,299,512	854,087	66	\$773,198	\$510,310
2008	Doña Ana	1,185,359	1,131,305	95	\$2,702,838	\$2,567,696
	Otero	1,494,123	931,945	62	\$2,988,820	\$1,853,068
	Sierra	1,299,512	854,087	66	\$1,225,105	\$808,569
2009	Doña Ana	1,185,359	1,131,305	95	\$2,767,664	\$2,629,280
	Otero	1,494,123	931,945	62	\$3,070,399	\$1,903,647
	Sierra	1,299,512	854,087	66	\$1,210,735	\$1,210,669
2010	Doña Ana	1,185,359	1,131,305	95	\$2,831,596	\$2,690,016
	Otero	1,494,123	931,945	62	\$2,595,814	\$1,609,404
	Sierra	1,299,512	854,087	66	\$896,178	\$591,477

Source: U.S. Department of the Interior, Payments in Lieu of Taxes (website)(2010)

Areas of potential geothermal resources identified in Doña Ana County include Radium Springs, Rincon, Tortugas Mountain, and Tunoco Mountain. Other localities in the *Planning Area* with geothermal potential include Truth or Consequences and Hillsboro in Sierra County and Davis Dome in Otero County. Additional areas of high potential for geothermal resources have been identified in the *Planning Area*; more information is available in the *TriCounty Analysis of the Management Situation*, available from the BLM Las Cruces District Office. Existing commercial uses of geothermal resources in the *Planning Area* include hot springs and mineral baths that are open to the public in the Truth or Consequences area, and Federal geothermal resources that are leased at Radium Springs for heating a greenhouse facility. Previous research (Witcher 2004) indicates that geothermal resources at Rincon and Radium Springs could be hot enough, up to 150°C, for electricity production, although additional exploration and reservoir testing is necessary to ascertain the potential of these resources. Lower

temperature geothermal resources in the *Planning Area* could potentially be used for greenhouses, building heating and agricultural processing.

As of November 2011, 440 acres of BLM surface and subsurface were under active geothermal leases, all in Doña Ana County. As of August 2011, there were no mineral leases in Sierra County. Currently, there is no production occurring from existing mineral leases in Doña Ana and Otero counties. Historically, the royalty value generated from mineral leases in the *TriCounty Planning Area* is miniscule compared to the overall royalty value in the State of New Mexico which was over \$1.17 billion in 2009.

3.5.2.1.2 *Locatable Minerals*

There are many mining claims and inactive mines in the *Planning Area*. As metal prices continue to rise, reopening former mines, such as Copper Flat, may become profitable. However, BLM does not earn revenue from locatable mining activities.

3.5.2.1.3 *Mineral Material (Saleable Minerals)*

Mineral material or saleable minerals that are commonly produced on BLM-administered land in the *Planning Area* include sand, gravel, volcanic cinders (scoria), and stone. Table 3-46 provides the approximate number of registered operators that are mining mineral materials in the *Planning Area* and the number that are extracting resources from Federal land or mineral estate. Mineral materials mining of Federal minerals estate includes scoria, base course, sand, and gravel in Doña Ana County, and crushed rock and gravel in Sierra County.

BLM issues contracts to sell mineral materials to commercial producers and transfers production royalties to the U.S. Treasury. Total royalty payments in a given year depend on the demand for mineral materials in the *Planning Area*, which is generally determined by residential and road construction activity. During Fiscal Year 2010 (October 1, 2009 to September 30, 2010) over \$80,000 in royalty for mineral materials was collected from permitted operations in the *Planning Area* (Table 3-39). BLM also issues free-use permits to government and nonprofit organizations to use mineral material for public purposes.

3.5.2.2 Agriculture and Grazing

Employment data related to farming and ranching show that ranch labor payroll totals approximately \$2.8 million in Sierra County, \$1.2 million in Otero County, and \$37.5 million in Doña Ana County (National Agricultural Statistics Service 2002). Of the three counties in the *Planning Area*, Doña Ana County has the largest number of livestock. Based on the most recent figures available, Doña Ana County houses about 5 percent of the total number of cattle and calves in New Mexico. The market value for livestock and related products and for agricultural products generally, is largest in Doña Ana County. The *Planning Area*, however, does not constitute a substantial contributor to the overall statewide industry.

Table 3-47 indicates the total number of ranches with grazing permits and the source of those permits. Permits issued under the Taylor Grazing Act are administered by the BLM. The BLM provides the majority of grazing permits to ranches that are using them. The overall number of grazing permits issued increased between 1987 and 1997 (National Agriculture Statistics Service 1997).

**TABLE 3-46
REGISTERED MINES IN THE PLANNING AREA AND PERCENT OF OPERATORS EXTRACTING
FEDERAL MINERALS¹**

INDUSTRY AND COUNTY	REGISTERED OPERATORS	OPERATORS EXTRACTING FEDERAL MINERALS ²	
		NUMBER	PERCENT
AGGREGATE AND STONE MINING			
Sierra County	26	12	46
Otero County	3	0	0
Doña Ana County	7	1	14
INDUSTRIAL MINERALS MINING AND MILLING			
Sierra County	3	2	66
Otero County	1	0	0
Doña Ana County	1	1	100
METALS			
Sierra County	0	0	0
Doña Ana and Otero counties	1	1	100

SOURCE: New Mexico Energy, Minerals, and Natural Resources Department et al. 2001; McLemore et al., 2005
NOTES:
¹ There are some discrepancies among sources concerning the number of active mines in the *Planning Area* (see *TriCounty Analysis of the Management Situation*). However, these figures still provide a sense of how many BLM-administered minerals contribute to the viability of the industry in the *Planning Area*.
² The surface area may be managed by BLM or Forest Service.

**TABLE 3-47
RANCHES WITH GRAZING AUTHORIZATIONS BY FEDERAL AGENCY**

COUNTY	NUMBER OF RANCHES	GRAZING AUTHORIZATIONS			
		FOREST SERVICE	BLM	TRIBES	OTHER
Sierra County	64	10	45	1	18
Otero County	89	18	73	2	31
Doña Ana County	100	40	66	2	27
TOTAL FOR PLANNING AREA	253	68	184	5	76

SOURCE: U.S. Department of Agriculture, National Agricultural Statistics Service 1997

Grazing fees are received by the BLM according to the number of AUMs. Table 3-48 shows the total authorized AUMs by County within the *Planning Area* and the established grazing fee for each year from 1991 to 2010. The largest number of authorized AUMs is in Otero County. Otero County also has the most productive rangeland, as determined by rangeland production classes. (Refer to the *TriCounty Analysis of Management Situation* [BLM 2006] for further discussion.)

Grazing on public land generates revenue through the grazing fees, surcharges on pasturing agreements, and penalties for unauthorized grazing use. Grazing fees are determined through a formula established in the Public Rangelands Improvement Act of 1978. Table 3-48 shows the AUMs authorized or billed by the Las Cruces District Office for each county from 1991 to 2010, and the annual grazing fee per AUM.

Fifty percent of all fees collected, or \$10 million (whichever is greater) go to a range betterment fund in the Treasury. The fund is used for range rehabilitation, protection, and improvement including grass seeding and reseeding, fence construction, weed control, water development, and fish and wildlife habitat enhancement. Under law, one-half of the funds are to be used as the respective Secretary (Interior or Agriculture) directs, and the other half is authorized to be spent in the district, region, or forest that generated the fees, as the Secretary determines after consultation with user representatives.

Agency regulations contain additional detail. BLM regulations provide that half of the fund is to be allocated by the Secretary of the Interior on a priority basis, and the rest is to be spent in the state or district where derived. The states receive 12.5 percent of monies collected from lands defined in §3 of the Taylor Grazing Act of 1934 (Section 3 Allotments) and the remaining 37.5 percent of the collections is deposited in the Treasury. Section 3 lands are those within grazing districts for which the BLM issues grazing permits. By contrast, states receive 50 percent of fees collected from BLM land defined in §15 of the Taylor Grazing Act (Section 15 Allotments). Section 15 lands are those outside grazing districts for which the BLM leases grazing allotments. While the funds are allocated to the states, any state share is to be used to benefit the counties that generated the receipts (Cody 1996).

**TABLE 3-48
AUTHORIZED AUMS BY COUNTY AND GRAZING FEES, 1991 TO 2010**

YEAR	BILLED AUMs				Grazing Fee per AUM
	Doña Ana County	Sierra County	Otero County	Total	
1991	137,402	200,801	157,497	495,700	\$1.97
1992	146,575	203,412	159,367	509,354	\$1.92
1993	137,745	195,494	168,852	502,091	\$1.86
1994	128,545	201,110	176,836	506,491	\$1.98
1995	109,341	168,159	165,115	442,615	\$1.65
1996	115,585	176,023	169,371	460,979	\$1.35
1997	124,302	190,593	174,661	489,556	\$1.35
1998	139,036	191,972	174,681	505,689	\$1.35
1999	141,114	207,816	177,262	526,192	\$1.35
2000	122,093	186,666	162,195	470,954	\$1.35
2001	118,394	156,945	164,216	439,555	\$1.35
2002	107,462	114,160	153,783	375,405	\$1.43
2003	93,483	114,236	137,649	345,368	\$1.43
2004	79,288	98,764	110,347	288,399	\$1.43
2005	87,996	128,640	105,914	322,550	\$1.79
2006	87,675	133,626	122,469	343,770	\$1.56
2007	98,153	151,283	138,064	387,500	\$1.35
2008	101,633	153,614	146,972	402,219	\$1.35
2009	104,212	153,199	143,124	400,535	\$1.35
2010	101,807	142,133	133,449	377,389	\$1.35
20-year average	114,092	163,432	152,091	429,616	\$1.45

SOURCE: Bureau of Land Management, 2003c.

3.5.2.3 Recreation

BLM earns revenue from recreation fees generated at selected sites. Currently, three fee areas exist within the *Planning Area*: Three Rivers Petroglyph Site; Dripping Springs Natural Area; and Aguirre Spring Campground. Until May 2012, the fees for entry to these recreation areas had not been changed since they were established in 1989. Prior to May 2012, the fees were \$2 and \$3/vehicle for day use (depending on the site), and were some of the least costly fee areas in New Mexico. Following a public process and subsequent Resource Advisory Council recommendation, the fees are now established at \$5/vehicle for day use and \$7/vehicle for overnight camping (at Aguirre Spring Campground and Three Rivers Petroglyph Site). This fee is still lower than most recreation sites, but much more comparable with

fees charged elsewhere. The revenue generated from fees is used primarily for janitorial services, providing for on-site volunteer hosts, upkeep of the sites, and new developments within the sites.

Since 2000, annual visitation to the Three Rivers Petroglyph Site ranged from 18,000 to just over 22,000 and generated revenues averaging from \$11,000 to \$13,000 annually. Visitation to Three Rivers generally has decreased since 2000. Visitation has been highest at the Aguirre Spring Campground since 2000, averaging about 56,500 visitors annually and generating annual average revenue of about \$24,500. During the same year, Dripping Springs Natural Area averaged just over 22,000 visitors and generated average revenue of about \$18,700.

BLM issues SRPs in accordance with 43 CFR 2930. Commercial, competitive, and large group activities are among the uses that are likely to require a special recreation permit. Table 3-49 shows the number of special recreation permits issued and the revenue generated from them over a 5-year period. Income from these events benefits, but does not consistently sustain, local economies due to the short-term influx of visitors to an area.

TABLE 3-49

SPECIAL RECREATION PERMITS ISSUED BY THE LAS CRUCES DISTRICT OFFICE

FISCAL YEAR	NUMBER OF PERMITS	REVENUE GENERATED
2000	17	\$7,059
2001	18	\$6,152
2002	14	\$5,700
2003	13	\$7,232
2004	15	\$6,181
2005	19	\$7,717
2006	16	\$8,439
2007	15	\$9,300
2008	18	\$10,451
2009	21	\$12,000
2010	26	\$12,856

3.5.2.3.1 *Local Expenditures*

Visitors to recreational opportunities within the *Planning Area* support employment in local economies. Recreation opportunities provided on BLM-administered land provide an attraction for visitors to the *Planning Area*. Recreational expenditures typically include outfitting, retail and food, and lodging services. Recreation-related employment may be seasonal, and can be irregular. Sierra County, which includes popular recreational destinations such as Caballo and Elephant Butte reservoirs, has a relatively large share of employment provided by accommodation and food services. Trends in recreational expenditures are likely to be more influential in and around Elephant Butte and Truth or Consequences as a result.

The 2001 National Survey of Hunting, Fishing, and Wildlife-Associated Recreation, completed by the USFWS every 5 years, provides a sense of the local expenditures that are associated with those types of recreation. According to the most recent survey, 884,000 people enjoyed recreational opportunities in New Mexico, spending over \$464 million on hunting and fishing and \$558 million on wildlife watching for a total of more than \$1 billion (USFWS 2002b). These expenditures included outfitting, retail, food, and lodging services that served to support local service industries.

BLM also has estimated expenditures by hunters on BLM-administered land on a state-by-state basis. It is estimated that over 22,000 people hunted on BLM-managed land in New Mexico, spending an average

of \$1,164 per hunter. Total expenditures in New Mexico related to hunting on public land are estimated to total over \$26 million (USDI BLM 2004d). BLM also estimated that there are a total of 113,733 wildlife viewers on BLM-administered land in New Mexico, spending an average of \$832 per wildlife viewer. The total estimate for expenditures related to wildlife viewing on public land is more than \$102 million (USDI BLM 2004d). A recent visitor study also estimated local expenditures by visitors; results are listed in Table 3-50 and are conservative estimates because answers left blank on surveys were assumed to equal \$0, resulting in a lower average expenditure.

Outside of fee areas, data are not available for visitation to public land in the *Planning Area*, which generates the local expenditures. Recreational use on BLM-administered public land in New Mexico, however, is estimated to total almost 2.2 million visits and 1.77 million visitor-days. About 56 percent of visits occur in dispersed areas (USDI BLM 2004d).

Currently, active special-recreation permittees include organizers of equestrian-endurance rides, motorcycle races, and a mountain-bike race, among other events. These events may bring in visitors from outside the region for short durations, resulting in local expenditures related to food, lodging, equipment, or other services. In addition, three current permittees are outfitters. These businesses provide employment in the local area and generate commercial revenue from the use of public land that will be filtered through the local economies.

TABLE 3-50
AVERAGE EXPENDITURES PER VISITOR TO LOCAL BLM SITES

CATEGORY	AVERAGE EXPENDITURE
Lodging	\$284.60
Guide fees	\$168.08
Equipment rentals	\$127.74
Shopping	\$89.29
Restaurant dining	\$89.16
Groceries	\$74.33
Local transportation	\$66.88
Camping fees	\$24.90
Other expenses (not listed in this table)	\$98.25

SOURCE: Bureau of Land Management 2004d

3.5.2.4 Lands and Realty

The R&PP Act authorizes BLM to lease or sell public land for recreational or public purposes to State and local governments and to qualified nonprofit organizations. Examples of typical uses allowed under the R&PP Act are historical monument sites, campgrounds, schools, firehouses, law enforcement facilities, municipal facilities, hospitals, parks, and fairgrounds. The sale, exchange, or lease of public land may have positive effects in the local community due to the availability of public services, increased property values resulting from the community amenity, and tax revenue generation.

3.5.2.4.1 *Rights-of-Way*

BLM issues rights-of-way over, upon, under, or through public land. Currently, the vast majority of the rights-of-way granted in the area managed by the Las Cruces District Office are authorized under Title V of FLPMA (43 U.S.C. 1761 to 1771). Fees paid to BLM that are associated with a right-of-way grant and include fees for processing the application and monitoring compliance with the terms and conditions of

the grant and the annual rental costs, which are based on fair market value. Processing and monitoring fees for minor category projects are charged according to a schedule. Costs for major category projects vary depending on the scope of the project.

3.5.2.4.2 *Permits, Leases, and Easements*

Proposals for non-Federal use of public land (for other than casual purposes) are outlined in 43 CFR 2090. Any use not specifically authorized under other laws or regulations and not specifically forbidden by law may be authorized under these regulations, including residential, agricultural, industrial, and commercial uses, and uses that cannot be authorized under Title V of the FLPMA of 1976 or Section 28 of the Mineral Leasing Act. Land use authorizations are categorized as leases, permits, and easements. Regulations for land use authorizations allow for the collection of rental fees as determined by the authorized officer. The rent is to be based either on the fair market value of the rights authorized in the land use authorization or as determined by competitive bidding. Rental fees for leases and easements may be adjusted every 5 years or earlier, as determined by the authorized officer, to reflect current fair market value. A nonrefundable processing fee of \$25 accompanies each request for renewal, transfer, or assignment of a lease or easement. The conditions for the applicant to reimburse the United States for costs are similar to those described for rights-of-way (43 CFR 2800).

3.5.3 PLACE-BASED VALUES

Sierra County is associated with a retiree population and visiting recreationists. These locations are identified as recreation destinations, particularly for water-related recreation. This constitutes a shift from its previous identity as primarily a ranching community (James Kent Associates 2003). Recreation is viewed as a potentially strong foundation for the growth of local economies in the county (URS 2005b).

Otero County is most influenced by the military because of the strong economic and social links that have been established over time. Otero County contains several military facilities, including White Sands Missile Range, Holloman Air Force Base, Doña Ana Range, and McGregor Range. Alamogordo has strong economic and social links to Holloman Air Force Base. In addition, there is a tangible German influence in the area, as German Air Force personnel live and train in the area. Farming and ranching are perceived to be important social and cultural assets in the county (URS 2005a). Key interests related to BLM-administered land in the county are hunting and OHV use. The Red Sands OHV Area is important to the local community as a recreational opportunity and a location for events that attract participants from outside the area (James Kent Associates 2003).

Doña Ana County is the most urbanized and populous of the three counties. As the area continues to grow, maintaining adequate open space seems to be a very important value, as evidenced by the *ad hoc* committee that developed an open space plan for the region and a recent public opinion survey. BLM-administered land is perceived by local communities in the county in several ways: as an opportunity to provide open space amid the growing population, a way to control the timing and location of development, and a source of land that would be available to accommodate growth if public land is disposed (Citizens' Task Force for Open Space Preservation 2005; Public Opinion Strategies 2006).

Important revenue sources of the Mescalero Apache Nation include timber, hunting, and tourism, underscoring the importance to the tribe of a functioning and scenic regional landscape with recreational opportunities. The Mescalero Apache have raised concerns about opportunities to gather tribal foods on public land and the management of cultural resources (James Kent Associates 2003). The Ysleta del Sur Tribe, based in El Paso, Texas, also has historical interests in the *Planning Area*.

The preservation of natural landscapes is an important value to some residents in the *Planning Area* (BLM 2005b). Local communities appear to have placed a great deal of value in the actions BLM has taken to acquire land in the Organ Mountains and to develop the Dripping Springs Natural Area (James Kent Associates 2003). The interest groups for conservation and recreation issues in BLM's *Decision Area* are larger than the population of the *Planning Area*; recreation users come from around New Mexico and El Paso, Texas, as well as more distant places such as Ciudad Juarez in neighboring Mexico.

Interest groups have emerged to advocate OHV use, and interest in using public land for recreational OHV use seems to be increasing. Retaining access to public land for recreational use has been a theme in public input to the BLM Las Cruces District Office (James Kent Associates 2003; USDO IBLM 2005a). In addition, conflicts are common between advocates for OHV and motorized use and advocates for less intense uses of public land.

Several specific areas within the *Planning Area* were identified during scoping as areas of cultural, symbolic, and traditional significance: Tortugas Mountains (traditional uses and scenic values), Robledo Mountains (Paleozoic Trackways), Petrified Forest (near Truth or Consequences), Otero Mesa, and Three Rivers Petroglyph Site.

3.6 ENVIRONMENTAL JUSTICE

Federal agencies are required to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in accordance with NEPA, Executive Order 12898: *Environmental Justice*, and other applicable laws and regulations. In this section the presence of minority and low-income populations in the *Planning Area* is assessed for each county, the largest metropolitan area within each county, and the Mescalero Apache Nation and are defined as follows:

- Minority populations are persons of Hispanic or Latino origin of any race, African Americans, American Indian/Alaska Natives, and Asians or Pacific Islanders (without double-counting persons of Hispanic/Latino origin who are also identified as part of minority racial groups).
- Low-income populations are persons living below the poverty level. The U.S. Census Bureau uses a set of income thresholds that vary by family size and composition to determine who is poor. Based on this, the poverty level for a family of four in 2002 having two children under the age of 18 was \$18,244 (U.S. Census Bureau 2003). U.S. Census Bureau 2000 data, however, is based on 1999 data, when the poverty level for the same family was \$16,895.

To determine whether minority and low-income populations occur disproportionately within the larger population, the percentage of minority and low-income residents within each geographic unit is compared against (1) 50 percent of the population in the three-county area, or whether the majority of the population consists of minority or low-income people and (2) the state percentage (Table 3-51).

The majority of New Mexico's population (54 percent) is part of a minority group (Table 3-51). Doña Ana County exceeded the State of New Mexico's minority population proportion; the Mescalero Apache Nation also exceeded the State's percentage of minorities. All the counties in the *Planning Area* exceeded the State of New Mexico's low-income population rate of 18 percent (U.S. Census Bureau 2000). The only geographic area that did not exceed the statewide poverty rate was the City of Alamogordo.

TABLE 3-51
MINORITY AND LOW-INCOME POPULATIONS (2000)¹

Geographic Area	Percent of Minority Residents	Above 50 Percent	Above 54 Percent	Poverty Rate ² (Percent)	Poverty Rate Above 50 Percent	Poverty Rate Above 18 Percent
Sierra County	66	Yes	Yes	25	No	Yes
Otero County	28	No	No	21	No	Yes
Doña Ana County	42	Yes	Yes	19	No	Yes
Mescalero Apache Nation	97	Yes	Yes	36	No	Yes
Las Cruces	58	Yes	Yes	23	No	Yes
Truth or Consequences	3	No	No	23	No	Yes
Alamogordo	10	No	No	17	No	No

SOURCE: U.S. Census Bureau 2000

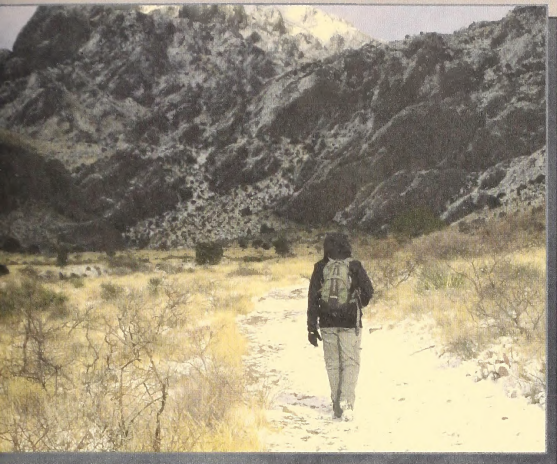
NOTES:

¹New Mexico comparison population: Minority Population = 54 percent, Low-Income Population = 18 percent

²Poverty rate among individuals, based on poverty status in 1999.

Based on minority status, there may be environmental justice populations of concern in Sierra County, Doña Ana County, Mescalero Apache Nation, and the City of Las Cruces. Based on poverty status, there may be environmental justice populations of concern in all geographic areas in the *Planning Area* other than the City of Alamogordo.

Chapter 4 Environmental Consequences



CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter is organized by resource topic and evaluates the potential environmental impacts that could occur from implementing the resource management plan (RMP) alternatives described in Chapter 2. Potential impacts considered in this chapter include, aesthetic, historic, cultural, economic, social, and health (Title 40 Code of Federal Regulations Section 1508.8 [40 CFR 1508.8]) impacts.

Impacts on resource programs are analyzed and discussed in detail commensurate with the significance of the resource issues and concerns identified throughout the process. The impact analysis for Alternative A (No Action or Continuation of Present Management) was prepared as the baseline for comparison of the alternatives. The introductory section of each resource program establishes the scope of the analysis, describes the general types of impacts involved, and presents the assumptions associated with the resource program under consideration. Impacts on each resource program from implementing the management decisions are grouped by impact type and where possible, the impacts are grouped and addressed collectively.

Throughout this chapter, the terms “*Planning Area*” and “*Decision Area*” refer to geographic boundaries. “*Planning Area*” includes all land, public, State trust and private, within Sierra, Otero, and Doña Ana counties. The term “*Decision Area*” describes public land and the subsurface Federal mineral estate administered by the Bureau of Land Management (BLM) within the three counties for which BLM has the authority to make decisions. Impacts are described for the *Decision Area* unless otherwise noted as being limited to a specific county(s) or other geographic area.

4.1.1 TYPES OF IMPACTS

Impacts are defined as the changes to the existing environment or management situation that would result from implementing the actions described under the alternatives in Chapter 2. The following analysis focuses on identifying types of impacts and estimating their potential effects on the resources, resource uses, special designations, and support programs. This chapter uses the terms “*impacts*” and “*effects*” interchangeably and the terms “*increase*” and “*decrease*” for comparison purposes (Table 4-1).

**TABLE 4-1
TYPES OF IMPACTS**

DIRECT IMPACTS	These are effects that are caused by the action and occur at the same time and place as the action. For example, original land use is eliminated when a structure is built. Direct impacts may cause indirect impacts, such as ground disturbance resulting in particulate matter emissions (dust).
INDIRECT IMPACTS	These are effects caused by the action, but occur later than or are somewhat distant from the action; however, they are still reasonably foreseeable and related to the action by a chain of cause and effect. Indirect impacts may reach beyond the natural and physical environment to include growth-inducing effects related to changes in the pattern of land use, population density or growth rate, and related effects on air and water and ecosystems.
CUMULATIVE IMPACTS	These are effects that result from the incremental impact of the action when it is added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts may result from actions that take place over time and that are individually minor, but are collectively significant.

4.1.2 ANALYTICAL ASSUMPTIONS

The analysis considers the context, intensity, and duration of an impact. “*Context*” relates to environmental circumstances at the location of the impact and in the immediate vicinity, affected interests, and the locality. “*Intensity*” refers to the severity or extent of the impact or magnitude of change from existing conditions. “*Duration*” refers to the permanence or longevity of the impact and is characterized as short-term or long-term. “*Short-term*” is defined as anticipated to begin and end within the first 5 years after the action is implemented. “*Long-term*” is defined as lasting beyond 5 years.

For ease of reading, impacts presented are direct, broad (occurring within the *Planning Area*), and long-term, unless otherwise noted as indirect, localized, or short-term/temporary. As impacts may be perceived as beneficial (positive) or adverse (negative) by different readers, these descriptors were not used in defining impacts.

The impact analysis and conclusions are based on the BLM’s knowledge of resources, reviews of existing literature, and information provided by BLM experts, other agencies, interest groups, and concerned citizens. Geographic information system (GIS) analyses and data from field investigations were used to quantify effects where possible. In the absence of quantitative data, qualitative information and best professional judgment were used. Acreage calculations and other numbers used are approximate and cumulative, representing the maximum foreseeable acreage impacts; actual impacts may be less. These values may differ from previous reports due to revisions in data or due to using different technical methods. They are provided for comparison and analytic purposes; they do not reflect exact measures of on-the-ground situations. At times, impacts are described using ranges of potential impacts or in qualitative terms.

The analysis assumes that necessary Best Management Practices (BMPs) would be employed and mitigation would be added that could reduce the potential effect on resources, resource uses and social and economic conditions. Appendix D contains examples of BMPs and standard operating procedures that are site-specific tools to minimize or mitigate impacts on resources, and would be applied and adjusted on a case-by-case basis.

The following assumptions were used in the analysis; additional assumptions are presented under each resource or use topic where appropriate:

- Management actions proposed in the alternatives apply to public lands only. The cumulative impacts analysis considers potential actions by individuals or entities other than the BLM.
- The alternatives would be implemented in accordance with laws, regulations, and standard management guidelines.
- BLM policies, including Standards of Rangeland Health and Guidelines for Livestock Grazing Management (BLM 2000a), would be applied as appropriate across all alternatives. Standards and Guidelines would assess rangeland health and provide strategies to achieve desired resource conditions and management objectives.
- Funding would be available to implement the alternatives, as described in Chapter 2.
- Mitigation requirements would prevent or limit direct impacts associated with land use activities, or would result in reclamation of the land after the activity has been completed. Restrictions or prohibitions on activities in specific areas would protect sensitive resources.
- The level of activity on BLM-administered land is expected to increase, based on historical trends, existing land use agreements such as leases or permits, and statements of interest in land use by individuals and industry organizations.

- Wherever possible, impacts are quantified to the extent that information is available. Figures are not exact and may vary depending on technologies used. Relative values are more reflective of effects than actual numbers.

4.1.3 INCOMPLETE OR UNAVAILABLE INFORMATION

Site-specific data are used to the extent possible. The best available information pertinent to management actions was used in developing this EIS. Considerable effort has been taken to acquire and convert resource data into digital format for use in the RMP/EIS. Data were acquired from the BLM and outside sources, such as the New Mexico Department of Game and Fish (NMDGF) and county road departments. However, certain information was unavailable for use in developing this RMP/EIS, usually because inventories have not been conducted or are incomplete, for example:

- Transportation inventories are not complete.
- Location and extent of future grassland restoration projects are largely unknown; however, areas have been identified as potential within priority watershed areas.
- Location and extent of potential wind energy projects are largely unknown.
- A comprehensive inventory of invasive species has not been completed.
- Comprehensive information for population trends of special status species is incomplete.
- Range condition data in the BLM GIS were obtained in the 1980s. Comprehensive information for ecological condition data is incomplete.
- Aquatic invertebrates, and the composition and structure of aquatic communities are not thoroughly understood. Their responses to resource use are also poorly understood.
- Water quality information is recorded at only a few locations in the *Planning Area*.

For resources with incomplete or unavailable information, estimates were made regarding the number, type, and significance based on previous surveys and existing knowledge. Additionally, some impacts cannot be quantified given the proposed management actions. Where this gap occurs, impacts are projected in qualitative terms. Ongoing inventory efforts by the BLM and other agencies within the *Planning Area* continue to update and refine information that will be used to implement this RMP.

4.2 IMPACTS OF ALTERNATIVES

Table 4-2 shows a summary of the land use allocation decisions by acres, number of units or miles for each alternative for each resource and resource use. That table is followed by a detailed analysis of the environmental consequences of the proposed decisions of each alternative on components of the human environment. The analysis is based on the issues associated with each of those components including natural and cultural resources, resource uses, and social and economic conditions.

**TABLE 4-2
SUMMARY COMPARISON OF LAND USE ALLOCATIONS BY ALTERNATIVE**

LAND USE	Acres ¹			
	Alternative A	Alternative B	Alternative C	Alternative D
Special Designations				
WSAs (number, acres)	10 261,793	10 261,793	10 261,793	10 261,793
ACECs (number, acres)				
Existing	13 89,723	13 91,477	12 87,731	12 85,977
Proposed	0 0	16 425,997	11 216,311	0 0
Total ACECs	13 89,723	29 517,774	23 304,042	12 85,977
Kilbourne Hole NL (number, acres)	1 5,500	1 5,500	1 5,500	1 5,500
Wild & Scenic River Suitability (miles)	0	3.5	0	1.4
Lands with Wilderness Characteristics				
LWCs (number, acres)	0 0	4 11,917	3 803	1 423
Vegetation				
Vegetation allocation changes as a result of grassland restoration treatments.	No allocation priorities.	Reserved for watershed function and wildlife.	Reserved to meet the needs of watershed function. Excess allocated to wildlife and livestock, with wildlife receiving priority.	Allocated to wildlife and livestock with neither having priority.
Fish and Wildlife Habitat				
Habitat Management Plans (number, acres)	9 1,188,349	4 1,416,965	4 1,416,729	4 1,416,729
Visual Resource Management				
Class I	38,521	343,253	271,406	265,526
Class II	578,348	893,669	638,331	689,513
Class III	840,655	806,869	809,938	810,179
Class IV	1,375,138	789,420	1,113,396	1,066,866

**TABLE 4-2
SUMMARY COMPARISON OF LAND USE ALLOCATIONS BY ALTERNATIVE**

LAND USE	Acres ¹			
	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Grazing				
Area Closed To Grazing	2,049 acres of sensitive resources (wildlife and cultural)	Discontinue the authorization of livestock grazing in allotments, in whole or in part, with unmanageable conflicts. 17,602 acres of allotments that have no grazing authorization or with conflicts would be closed conflicts.	Discontinue the authorization of livestock grazing in allotments, in whole or in part, with unmanageable conflicts only after (1) a land health assessment/ evaluation, (2) a determination , and (3) a decision to reallocate the lands to a public purpose that precludes livestock grazing. 17,602 acres of allotments that have no grazing authorization or with conflicts would be closed.	1,156 acres of sensitive resources (wildlife and cultural)
Livestock Grazing Adjustments	Changes made on an as needed basis, case-by-case, based on monitoring.	25% reduction of AUMs on areas with limited restoration potential (950,000).	Changes to grazing made in priority watersheds based on monitoring of vegetation, soils, hydrology, and other variables associated with healthy ecological systems	Changes made on an as needed basis, case-by-case, based on monitoring.
Comprehensive Trails and Travel Management				
Open to OHV use	1,635,694	38,966	41,908	41,908
Limited to Existing Routes	878,636	2,003,188	2,284,102	2,496,266
Limited to Designated Routes	272,021	531,994	492,616	277,336
Closed to OHV Use	42,953	259,891	19,218	17,485

**TABLE 4-2
SUMMARY COMPARISON OF LAND USE ALLOCATIONS BY ALTERNATIVE**

LAND USE	Acres ¹			
	Alternative A	Alternative B	Alternative C	Alternative D
Recreation and Visitor Services				
SRMA (numbers, acres)	2 69,151	3 83,003	3 83,003	4 83,233
ERMA (number, acres)	0 0	2 38,954	3 68,407	5 110,340
Closed to Discharge of Firearms	10,440	44,770	40,310	37,550
Lands and Realty				
Land Identified for Disposal	213,199	38,273	108,450	186,523
ROW Avoidance Areas	13,222	109,074	422,910	453,000
ROW Exclusion Areas	518,839	919,953	343,060	308,000
Utility Corridors	17,613	149,835	208,891	224,875
Renewable Energy				
Solar Energy Zones (number, acres)	0 0	1 29,964	1 29,964	1 29,964
Exclusion and avoidance ⁴	532,061	2,759,149	1,559,146	1,562,616
Solar	532,061	1,598,929	1,618,659	1,532,657
Wind				
Minerals				
Segregated from mineral entry	10,976	10,976	10,976	10,976
Oil and Gas				
Existing Leases	52,705	52,705	52,705	52,705
Open with Standard Lease Terms & Conditions	3,655,138	0	0	0
Open – No Surface Occupancy	27,534	856	856	856
Open – Controlled Surface Use	169,710	0	0	0
Open with Lease Notice	239,307	0	0	0
Discretionary Closure	75,020	75,020	75,020	75,020
Non-discretionary Closure ²	258,186	258,186	258,186	258,186
Deferred from New Leasing	-	3,593,047	3,593,047	3,593,047

**TABLE 4-2
SUMMARY COMPARISON OF LAND USE ALLOCATIONS BY ALTERNATIVE**

LAND USE	Acres ¹			
	Alternative A	Alternative B	Alternative C	Alternative D
Geothermal Leasing				
Existing Leases	440	440	440	440
Discretionary Closure ²	75,020	571,930	358,045	75,020
Non-Discretionary Closure ²	258,186	258,186	258,186	258,186
Open with Stipulations or Standard Terms and Conditions	3,194,610	3,154,014	3,222,397	3,630,721
Locatable Minerals				
Open to entry under General Mining Laws ³	4,331,744	3,649,337	3,993,937	4,277,979
Recommended withdrawal under the General Mining Laws	71,488	682,407	337,807	53,765
Mineral (Salable) Materials				
Open Mineral Material Sales ³	3,908,761	3,771,434	3,644,196	3,996,730
Closed Mineral Material	441,239	705,804	456,719	353,270
NOTES:				
¹ Because of overlap with other designations, exclusion of some areas from the particular use, or other reason, total acres for any alternative may not add to the <i>Decision Area</i> Total for either surface or mineral estate.				
² Where WSA acres (non-discretionary closure) and ACEC acres (discretionary closure) overlap, the more restrictive management (WSA-nondiscretionary closure) will prevail.				
³ Includes all subsurface estate regardless of surface ownership				
⁴ In many cases, acres of avoidance and exclusion overlap for both types of renewable energy projects.				

4.2.1 IMPACTS ON SPECIAL DESIGNATIONS

4.2.1.1 Impacts on Areas of Critical Environmental Concern

The impact analysis associated with Areas of Critical Environmental Concern (ACECs) is limited to actual or potential changes to the values meeting the relevance and importance criteria (R&I) for which the area was proposed or designated (Appendix G). Impacts on these values occur where an action affects their naturalness or existing condition to such an extent that they no longer meet the R&I criteria. Impact descriptions are limited to management prescriptions specific to land within an ACEC (Tables 2-4 and 2-5), which could affect important historic, cultural, or scenic values; biological resources; or other natural systems or processes or that would protect life and safety from natural hazards.

The analysis of impacts on ACECs assumes that activities or developments on State or private inholdings would not be affected by ACEC management prescriptions, nor would the activities or developments on inholdings affect the conditions on public land warranting the special designation.

4.2.1.1.1 *Impacts on ACECs Common to All Alternatives*

Both the existing and proposed ACECs are managed much the same under all alternatives (Table 4-2). The primary differences among the alternatives are the number and total acreage of the ACECs that would be designated or managed under any one alternative.

Fire management in ACECs may continue to cause short-term reduction in values or resources meeting the R&I criteria. Implementing existing fire management plans that use fire as a natural process could promote retention of R&I values over the long-term, to the extent that wildfire use is employed in the ACEC. Prioritizing key habitats and resources for suppression could limit the loss of vegetation, promote maintenance of biological resources, and would limit the visual contrast caused by charred areas.

Surface disturbances in ACECs would be limited by closing areas to vehicle access or limiting access to designated routes, closing them to certain activities such as mineral material disposal, or restricting where these disturbances could occur. Any areas withdrawn from mineral entry would be protected in the long-term from surface disturbance caused by mining. The BLM would be required to authorize operations on pre-existing claims in withdrawn areas if the mining claims are determined to possess valid existing rights. Any surface disturbance caused by exercising valid existing rights on a claim within a withdrawn area would be managed under BLM's surface management regulations.

Kilbourne Hole Natural National Landmark would continue to be managed to protect the natural and geological features through limiting vehicle use to designated routes, and excluding new rights-of-way (ROWS). Acquiring non-Federal land would eliminate the possibility of incompatible development in the floor of the land mark. Closing the area to shooting would promote safety for those visiting or hiking in the area.

There would be no impacts to special designations from geothermal leasing and subsequent activities since all special designations would be discretionarily (ACECs) or non-discretionarily (wilderness study areas [WSAs]) closed to geothermal leasing.

4.2.1.1.2 *Impacts of the Alternatives on ACECs*

4.2.1.1.2.1 Alternative A Impacts on ACECs

Special Designations: Approximately 29,500 acres under Alternative A have overlapping designations of WSA and ACEC (see Table 4-3). In all cases the more restrictive WSA management would take precedent. This would protect the R&I values within the WSAs for which the ACECs were designated.

WSA NAME	ACEC NAME	ALTERNATIVE			
		A	B	C	D
Aden Lava Flow	Aden Lava Flow RNA	3,746	3,746	0	0
Organ Mountains	Organ Franklin Mountains	7,221	7,221	7,221	7,221
Organ Needles	Organ Franklin Mountains	5,934			
Peña Blanca	Organ Franklin Mountains	4,647	4,647	4,647	4,647
Robledo Mountains	Robledo Mountain	7,866	7,866	7,866	7,866
Brokeoff Mountains	Brokeoff Mountains	0	3,110	0	0
TOTAL		29,414	32,524	25,668	25,668

Recreation and Visitor Services: The Organ Mountains Special Recreation Management Area designation would overlap with the Organ/Franklin Mountains ACEC. Management of R&I values in the ACEC would have precedence over the management of outdoor recreation uses. Any impacts to R&I values would be mitigated or the project or activity would not occur.

Lands and Realty: Retaining public land within existing ACECs and pursuing land acquisitions from willing sellers would help to maintain and could indirectly increase protection of R&I resources in ACECs.

Minerals: Withdrawing areas to locatable mineral entry within 7 ACECs would reduce the potential for surface disturbance in these areas. These areas were designated to protect scenic values, special status species and habitat, and/or cultural and natural species; all of which are susceptible to damage or destruction from surface disturbing activities. Withdrawals would help maintain the relevant and important resources on 71,488 acres in the long-term.

Maintaining the withdrawal from mineral entry under the general land laws and mining laws (PLO 7375 January 12, 1999) in the Sacramento Escarpment ACEC would preserve the scenic values of the ACEC in the long term and protect the Sacramento prickly poppy and other special status species in the ACEC which are highly susceptible to surface disturbances. Closing the ACECs to fluid mineral leasing and mineral materials (e.g., sand, gravel, fill material) disposal would help protect geologic and scenic values by limiting surface disturbance.

4.2.1.1.2.2 Alternative B Impacts on ACECs

Special Designations: Thirteen existing ACECs would continue to be managed to protect R&I values (91,000 acres) and an additional 16 proposed ACECs totaling 426,297 acres would also be designated. Impacts from permitted activities would be similar to those under Alternative A, but protective measures would encompass a larger area over a greater number of ACECs. Scenic, cultural, and biological values would be protected by closing the areas to mineral material sale, limiting vehicle use to designated routes, excluding new rights-of-way and renewable energy. Managing additional acreage and areas as ACECs

and managing areas to meet Visual Resource Management (VRM) Class I and II objectives would restrict surface-disturbing activities and maintain R&I values in ACECs to a greater extent than Alternative A.

Recreation and Visitor Services: Recreation management area designations would overlap with ACEC designations in the Organ/Franklin Mountains, the Doña Ana Mountains, Tortugas Mountain, Picacho Peak, and the Three Rivers Petroglyph Site. Management of ACEC R&I values would have precedence over the management of outdoor recreation uses; therefore, any impacts to R&I values would be mitigated or the project or activity would not occur. Consequently there would be no impacts to R&I values from outdoor recreation management or facilities installation.

Lands and Realty: Retaining public land and pursuing land acquisitions from willing sellers in ACECs and WSAs would have the same impact on R&I values and wilderness characteristics as described under Alternative A, but impacts could potentially occur over a greater area.

Minerals: Existing oil and gas leases could be developed but there would be few impacts since the leases are few in number, widely scattered and no production is likely to occur. In the remainder of the *Decision Area* there would be no impacts to special designations from oil and gas leasing and development in the short-term since new leasing would be deferred until a programmatic oil and gas leasing EIS is developed.

4.2.1.1.2.3 Alternative C (Preferred Alternative) Impacts on ACECs

Special Designations: Impacts on ACECs from management actions that restrict surface disturbance would be similar to those described under Alternative B, but on 28 percent fewer acres. The effect of managing ACECs that overlap with WSAs would be similar to Alternative A, but would occur to a greater extent under this alternative.

Recreation and Visitor Services: Impacts from recreation management areas designations that overlap with ACEC designations would be the same as Alternative B.

Lands and Realty: Impacts would be similar to those in Alternative B but would occur over a smaller area due to the smaller size of the proposed Otero Mesa Grassland ACEC in Alternative C.

Minerals: Impacts from existing oil and gas leases would be the same as Alternative B.

4.2.1.1.2.4 Alternative D Impacts on ACECs

Special Designations: No new ACECs would be designated under this alternative. Impacts would be the same as Alternative A.

Recreation and Visitor Services: Impacts from recreation management areas designations that overlap with ACEC designations would be the same as Alternative B. Special Recreation Management Area (SRMA) designations would have similar impacts on ACECs as those discussed under Alternative A, a decrease of 8,000 acres relative to Alternative B, and a decrease of 5,300 acres relative to Alternative C.

Lands and Realty: Impacts from Alternative D would be the same as those described in Alternative A.

Minerals: These areas would continue to be closed to fluid mineral leasing as determined in previous RMPs and RMP amendments. There would be no impacts from mineral material disposal since the existing ACECs would continue to be closed to such disposal. Impacts from existing oil and gas leases would be the same as Alternative B.

4.2.1.2 Impacts on Historic Trails and Backcountry Byway

The Mormon Battalion Historic Trail and the Butterfield Historic Trail have potential for nomination to be National Historic Trails. The Camino Real de Tierra Adentro National Historic Trail was established by Congress. The Lake Valley Backcountry Byway was established in 1993. The analysis looks at how management decisions in the four alternatives might alter the user experience on these trails or alter the physical nature of the trails.

4.2.1.2.1 *Impacts on Historic Trails and Byway Common to All Alternatives*

Those areas on BLM-administered lands along the El Camino National Historic Trail that are visible within approximately 5 miles of high-potential sites and segments, and also in relatively undisturbed areas, would be designated Visual Resource Management (VRM) Class II. Impacts from ROWs and development would not detract from the historic context of the Trail.

Historic trails would lose physical definition if shrub control practices extended across trails. Enhancing grasslands by eliminating mesquite and creosote along trail corridors has the potential to destroy lengths of trail that were demarcated by the presence of the shrubs.

Public lands with evidence of the historic trails would not be disposed so that the integrity of the trails would remain intact. The Butterfield and Mormon Battalion historic trails would remain eligible for consideration as National Historic Trails.

On existing oil, gas and geothermal leases, the Butterfield and Mormon Battalion trails are open to leasing with No Surface Occupancy stipulations. The development of leases would increase visual intrusions and reduce the historic character of the trails.

4.2.1.2.2 *Impacts of the Alternatives on Historic Trails and Byway*

4.2.1.2.2.1 Alternative A Impacts on Historic Trails and Byway

Comprehensive Trails and Travel Management: In Sierra and Otero Counties, segments of historic trails on public land would be degraded by open off-highway vehicle (OHV) use because OHV use would cause erosion, and damage to vegetation which delineates the trails. Access to historic trails would not be limited.

Lands and Realty: ROW avoidance areas within ¼-mile each side of the Butterfield Trail would reduce the likelihood that roads, pipelines, and other infrastructure could be seen from the Trail. The 5-mile transmission line avoidance area on either side of the El Camino Real National Historic Trail would mitigate impacts to the integrity of the Trail if a major transmission line were proposed.

4.2.1.2.2.2 Alternative B Impacts on Historic Trails and Byway

Comprehensive Trails and Travel Management: Reducing the area where OHV is open would minimize impacts from OHV, such as erosion and soil disturbance along trails compared to Alternative A. However, accessibility to those portions of trails that are not near roads would be limited compared to Alternative A. Limiting vehicles to designated routes would reduce impacts to soil and vegetation, while still allowing for access to Trails.

Recreation and Visitor Services: The Picacho Peak SRMA would enhance the portion of Butterfield Trail that travels through it. A no surface occupancy stipulation for fluid mineral leasing would reduce soil erosion and surface disturbance to the Trail. The VRM Class I designation would maintain the natural and historic scenery.

Lands and Realty: ROWs would be avoided ½-mile each side of the historic trails, preserving the visitor experience and historic character to a greater degree than under Alternative A. ROWs would be excluded ½-mile each side of the Lake Valley Backcountry Byway, which would reduce visual intrusions and enhance the visitor’s experience compared to Alternative A.

A 5-mile ROW exclusion area on either side of the El Camino National Historic Trail would protect the historic and cultural resources on the trail. This exclusion area would prevent the development of solar and wind projects within 5 miles of the Trail, as well as transmission lines and communication towers.

4.2.1.2.2.3 Alternative C Impacts on Historic Trails and Byway

Comprehensive Trails and Travel Management: The impacts would be the same as those in Alternative B.

Recreation and Visitor Services: The impacts would be the same as those in Alternative B.

Lands and Realty: Impacts of the avoidance area either side of the historic trails would be the same as under Alternative B. Impacts of the exclusion area either side of the Lake Valley Backcountry Byway would also be the same as under Alternative B.

Transmission lines would be avoided 5 miles either side of the El Camino National Historic Trail, making Alternative C less protective of historic and scenic resources than Alternative B. Other ROWs that meet VRM II objectives would be permitted within 5 miles; however, surface disturbance would not be permitted within ½-mile each side of the Trail, which would preserve its integrity.

4.2.1.2.2.4 Alternative D Impacts on Historic Trails and Byway

Comprehensive Trails and Travel Management: Impacts would be the same as those in Alternative B.

Recreation and Visitor Services: Impacts would be the same as those in Alternative B.

Lands and Realty: Impacts to the historic trails and the Lake Valley Backcountry Byway would be the same as those under Alternative A.

4.2.1.3 Impacts on Wilderness Study Areas

This section addresses impacts on wilderness characteristics within designated WSAs. These characteristics include size, naturalness, and outstanding opportunities for primitive recreation or solitude. Impacts could include actions that maintain, protect, or improve wilderness characteristics or actions that result in the complete or partial loss of these characteristics. Within each wilderness study area, the following variables determine the magnitude and intensity of impacts: the size and configuration of the area, topography, and vegetation land cover type. The analysis is based on the following assumptions:

- The entire area managed as a WSA contains naturalness and outstanding opportunities for solitude or for primitive, unconfined types of recreation.

- Uses and activities occurring outside a WSA could influence the wilderness values, though such influences would generally be indirect.
- WSAs in the *Planning Area* would continue to be managed in accordance with the WSA guidance in BLM's *Management of Wilderness Study Areas Manual (2012)* until Congress either designates or releases all or portions of the WSAs from further consideration.

4.2.1.3.1 *Impacts on WSAs Common to All Alternatives*

The existing WSAs would remain the same in size and number under all alternatives. All WSAs will be designated and managed as VRM Class I areas. Management of WSAs is governed by the *Management of Wilderness Study Areas Manual (2012)*, which determines what actions are acceptable or not. Consequently, impacts of the alternatives would be expected to be the same for all alternatives. The Manual states . . . “*The BLM’s management policy is to continue resource uses on lands designated as WSAs in a manner that maintains the area’s suitability for preservation as wilderness. The BLM’s policy will protect the wilderness characteristics of all WSAs in the same or better condition than they were on October 21, 1976*”.

Retaining public land within existing WSAs and pursuing land acquisitions from willing sellers would help to maintain and could directly increase protection of wilderness characteristic within WSAs by eliminating any need to provide access to non-Federal inholdings and eliminating the possibility or management on non-Federal lands that could impact wilderness values. Surface-disturbing activities could be reduced in areas where the WSA inholdings would be acquired by BLM and greater land management continuity across the WSA would be facilitated.

WSAs which are not designated as part of the National Wilderness Preservation System by Congress and are released from further study would be managed according to the management prescriptions for non-wilderness lands immediately adjacent to the former WSA as prescribed in this RMP. In those cases where an ACEC designation overlaps a WSA (Table 4-2), the ACEC portion would be managed according to the prescriptions to protect the relevant and important values for which the ACEC was designated (Table 2-4). These management prescriptions include (1) closing the ACEC to mineral exploration and development, (2) managing the ACEC as VRM Class I and II, (3) excluding the ACEC from new right-of-way actions except in existing utility corridors, and (4) limiting vehicle use in the ACEC to designated routes.

4.2.1.3.2 *Impacts of the Alternatives on WSAs*

4.2.1.3.2.1 Alternative A Impacts on WSAs

Under Alternative A, vehicle use would be allowed on routes within WSAs that existed at the time the area was designated a WSA. Allowing existing ways to continue to be used could result in damage to wilderness values and other resources. Where this is occurring, BLM would be obligated to close those routes and allow them to rehabilitate or to undertake active rehabilitation of the damaged areas. In the past, unauthorized ways and the extension of existing ways in the Robledo Mountains and other areas have been closed to prevent resource damage and to allow damage that had occurred to rehabilitate.

4.2.1.3.2.2 Alternative B Impacts on WSAs

Under Alternative B, all routes within all the WSAs would be closed to mechanized or motorized vehicles, approximately 164 miles. Cherry-stem roads would remain open since they are by definition outside the WSAs. Closing all routes to mechanical vehicles (including bicycles) would protect

wilderness values within the WSAs. Routes would naturally rehabilitate. In some cases, active obliteration of routes could occur in order to speed the rehabilitation and improve naturalness of the areas. The long-term impact would be improved naturalness and reduction of human imprints within the WSAs.

4.2.1.3.2.3 Alternative C Impacts on WSAs

Under Alternative C, vehicle use would be allowed on routes within WSAs that existed at the time the area was designated a WSA. Potential impacts to wilderness values would be greater than those under Alternative B. Where impacts occur, BLM would be obligated to close those routes and allow them to rehabilitate or to undertake active rehabilitation of damaged areas. Any impact to wilderness values could constrain Congressional action to designate these areas as wilderness.

4.2.1.3.2.4 Alternative D Impacts on WSAs

Under Alternative D, impacts would be the same as those described in Alternative C.

4.2.1.4 Impacts on Wild and Scenic Rivers

Five river segments totaling 3.6 miles were studied for eligibility. These segments were free-flowing and contained at least one river-related outstandingly remarkable value (ORV) (see Appendix P). A tentative classification was given to these river segments. If a segment were determined to be suitable, the Las Cruces District Office would manage for the protection of their tentative classification, outstandingly remarkable values, and free-flowing nature until such time that Congress or the Secretary of the Interior either designates the segment as part of the National Wild and Scenic Rivers System or removes it from consideration. If the segment is removed from consideration, it would be managed according to the underlying management provisions of the RMP.

4.2.1.4.1 Impacts on Wild and Scenic Rivers Common to All Alternative

The Wild and Scenic river designations change across the action alternatives, as such, there are no impacts considered common to all action alternatives.

4.2.1.4.2 Impacts of the Alternatives on Wild and Scenic Rivers

4.2.1.4.2.1 Alternative A Impacts on Wild and Scenic Rivers

Five segments of stream on Cuchillo Negro, Percha, Palomas, Three Rivers and Tularosa Creeks would continue to be managed for their riparian and aquatic values. Suitability for inclusion within the National Wild and Scenic River System (NWSRS) would be determined at a later date.

4.2.1.4.2.2 Alternative B Impacts on Wild and Scenic Rivers

Five segments of river on Cuchillo Negro, Percha, Palomas, Three Rivers and Tularosa Creek, for a total of 3.5 miles, would be determined suitable for inclusion in the National Wild and Scenic Rivers System and pursued for Congressional designation. Each segment would have a 0.5 mile corridor established (0.25 miles each side of the river) to apply management to maintain or enhance the ORVs. In accordance with BLM policy, this corridor would be managed so no action could harm the values for which the river segment is found eligible and suitable. In addition to the Wild and Scenic River corridor, four of these river segments would have protective management through ACEC or Critical Habitat designations.

Cuchillo Negro Creek occurs within Recovery Unit 8 of Chiricahua leopard frog Critical Habitat (USFWS 2012). Three Rivers is within an existing ACEC. Percha and Tularosa are within proposed ACECs in this EIS. Palomas Creek is within a right-of-way avoidance area.

The ACEC broad management objectives seek to preserve biological resources (including riparian systems) and protect geological resources. The ACEC also restricts recreational visits to the fall and winter seasons, making recreational use more manageable along this segment of river; all of which is in concert with Wild and Scenic River management. In both cases, the protection provided by a Wild and Scenic River designation would only add minimal protection beyond that achieved through attainment of a Federal water allocation.

4.2.1.4.2.3 Alternative C Impacts on Wild and Scenic Rivers

The rivers would not be considered suitable for inclusion in the National Wild and Scenic Rivers System. All eligible river segments would receive protection through ACECs and Critical Habitat. The outstandingly remarkable values, free-flowing nature and tentative classification of these very short stream segments would be protected under current and proposed special designations.

4.2.1.4.2.4 Alternative D Impacts on Wild and Scenic Rivers

Only Tularosa Creek stream segment (1.4 miles) would be suitable and recommended for Congressional designation in the NWSRS. Impacts for Tularosa Creek would be the same as described in Alternative B.

4.2.2 IMPACTS ON LANDS WITH WILDERNESS CHARACTERISTICS (LWCs)

4.2.2.1 Impacts on LWCs Common to All Alternatives

Four areas, Bar Canyon, Peña Blanca South and Peña Blanca North in the Organ Mountains and Nutt Grasslands in southern Sierra County, were found outside existing WSAs to have wilderness characteristics. Closing the areas to commercial or industrial development, limiting vehicle use to designated routes, closing to new ROWs, and closing to locatable minerals and mineral material sales would prevent surface disturbance and maintain naturalness, and preserve the solitude of the areas.

4.2.2.2 Impacts of the Alternatives on LWCs

4.2.2.2.1 *Alternative A Impacts on LWCs*

Under Alternative A, no areas would be managed for lands with wilderness characteristics within the *Planning Area* since there have been no previously identified or managed lands with wilderness characteristics. However, since the Mimbres RMP (1993) and the White Sands RMP (1986), several areas have been identified as having wilderness characteristics and there are other areas within the *Planning Area* with potential wilderness characteristics not yet identified.

This means that the Nutt Grasslands, Bar Canyon, Peña Blanca South and Peña Blanca North would not be managed to protect those characteristics. The Nutt Grasslands have moderate to high potential for both solar energy and wind energy (US DOE 2003). Solar and wind development in the Nutt Grasslands would impact the physical aspects of wilderness values such as size and naturalness, and opportunities for

solitude or primitive recreation. All wilderness values identified (and areas that have not yet been identified) in the *Planning Area* could be potentially adversely affected by incompatible uses.

4.2.2.2.2 *Alternative B Impacts on LWCs*

Under Alternative B, all areas would be identified as LWC and would be managed to protect those characteristics. This would provide long-term protection for area size, naturalness, and solitude or primitive recreation in the four areas. Bar Canyon is only 423 acres in size but is contiguous to the Peña Blanca WSA and would complement the wilderness values of that WSA. Peña Blanca South is only 260 acres in size but is contiguous to the Peña Blanca WSA and would complement the wilderness values of the WSA. Peña Blanca North is only 120 acres in size but is contiguous to the Peña Blanca WSA and would complement the wilderness values of the WSA. By protecting the wilderness characteristics, Bar Canyon, Peña Blanca South and Peña Blanca North would likely be included in any Congressional designation or other protective management for the Organ Mountains and associated WSAs.

While identifying and managing the Nutt Grasslands as LWC would provide protection to those wilderness characteristics, it is questionable that this management could be maintained in the long-term. The land ownership configuration is intricate, with state trust and private parcels disrupting the continuity of the BLM land. The parcel is very nearly cut in half from east-to-west by some 4 miles of state trust land. Managing wilderness characteristics under this situation would be time consuming, and expensive.

Nutt Grasslands, Bar Canyon, Peña Blanca South and Peña Blanca North would be closed to mineral material sales, and fluid mineral leasing would be deferred in the short-term; therefore, there would be no impact from these activities. All four areas would continue to be open to locatable mineral entry. Location and development of mining claims is not likely in the Nutt Grasslands because it has no known potential for hard rock minerals.

Managing 423 acres of Bar Canyon, 260 acres of Peña Blanca South and 160 acres of Peña Blanca North as exclusion areas for land use authorizations and withdrawn from locatable mineral entry would reduce surface disturbance and help maintain naturalness, solitude, and opportunities for primitive or unconfined recreation in the long-term, making it suitable for inclusion in any special designation in the Organ Mountains. As a designated right-of-way exclusion area, wind and solar energy projects would be precluded; therefore, there would be no impacts from these activities.

4.2.2.2.3 *Alternative C Impacts on LWCs*

Under Alternative C, approximately 756 acres including Nutt Mountain itself would be designated an ACEC to protect scenic and ecological resources. While the surrounding grasslands would have the wilderness characteristics described in Alternative B, they would not be managed to retain that character. However, the area would be a right-of-way exclusion area under this alternative, precluding major rights-of-way projects. Other projects such as range improvements could have a detrimental effect on wilderness characteristics of the Nutt Grasslands, and these characteristics would not likely be maintained over time. In addition, the configuration of the land status would make the existing wilderness characteristics difficult to manage as described in Alternative B above.

Bar Canyon, Peña Blanca South and Peña Blanca North would be managed to preserve their wilderness characteristics pending any future protective designation for the Organ Mountains. Impacts would be the same as those described in Alternative B.

4.2.2.2.4 *Alternative D Impacts on LWCs*

Under this alternative, the Nutt Grasslands would not be managed to maintain its wilderness characteristics. However the area would be an avoidance area for major rights-of-way including wind energy projects. The impacts of this management would be the same as those described under Alternative C and impacts would include Nutt Mountain since it would not be designated an ACEC.

Bar Canyon would be managed to preserve its wilderness characteristics. Peña Blanca South and Peña Blanca North would not be managed to maintain their wilderness characteristics. Both areas would be open to locatable mineral entry. It is likely that some mineral prospecting would occur in Peña Blanca South and Peña Blanca North since it is part of the Organ Mining District which was active up until the mid-20th century. Prospecting activity could reduce the area's naturalness and preclude it being designated wilderness in the future. In the long-term, wilderness characteristics could be lost.

4.3 IMPACTS ON RESOURCES

4.3.1 IMPACTS ON AIR RESOURCES

4.3.1.1 Impacts on Air Quality

Impacts on air quality management are generally the result of activities that affect vegetation cover, alter the level of soil exposure across the *Planning Area*, and use fuel combustion sources. In the *Planning Area*, there are only ambient air quality monitoring stations in Doña Ana County, no stations are located in Otero or Sierra Counties. Furthermore, data regarding the extent and nature of surface-disturbing activities, number of motorized vehicles used daily, number of miles driven by these vehicles is not available. Consequently, air quality impacts for specific, planned actions are evaluated qualitatively (e.g., "greater than" or "less than") relative to current or historical conditions.

The method used in this air quality analysis is to review proposed resource management planning elements, describe the relative changes in emissions, and indicate the extent of potential impacts, where possible. These impacts are assessed for the different alternatives to ensure that the overall goal of managing surface-disturbing activities to maintain air quality consistent with National Ambient Air Quality Standards (NAAQS) and New Mexico Ambient Air Quality Standards is attained.

4.3.1.2 Impacts on Air Quality Common to All Alternatives

Management actions that restrict surface disturbance, restore habitats, or enhance public land health could indirectly help maintain or improve air quality because the generation of pollutant emissions, including particulates, would be restricted or limited. The degree to which air quality would be protected or improved would depend on the extent of the restrictions and limitations.

Impacts from fire management practices depend on the geographic extent and duration of direct air quality impacts resulting from both prescribed fire management burns and wildfires and the meteorological conditions during the burn. Typically, it is preferable to perform prescribed burns during periods of good ventilation to promote smoke dispersion. Areas receiving vegetation treatment would add short-term increases in particulate matter until vegetation recovers sufficiently to stabilize soil. After a fire, indirect air quality impacts can occur from windborne entrainment of dust from unvegetated areas. Use of prescribed fires for restoration would create smoke (particulate matter), CO, and greenhouse gases and would produce reactive hydrocarbons and minor amounts of SO₂ and NO_x.

The recreational use of OHVs, including all-terrain vehicles and off-highway motorcycles, would cause fugitive dust emissions of particulate matter from traffic on unpaved trails and vehicular exhausts of carbon monoxide (CO), nitrogen oxides (NO_x), and hydrocarbons. Motorized recreation and other use of motorized vehicles would generate tailpipe emissions and dust by travel on unpaved and paved roads. Construction activities, mineral material extraction, mining, and road maintenance would result in localized impacts on air quality. The potential air quality impacts associated with a particular proposed action would have to be assessed and disclosed during subsequent analyses.

4.3.1.3 Impacts of the Alternatives on Air Resources

4.3.1.3.1 *Alternative A Impacts on Air Quality*

Vegetation and Woodlands: The use of prescribed burning, prescribed wildfire, and grazing management to manage vegetation would prevent significant degradation of air quality.

Comprehensive Trails and Travel Management: Managing 1.64 million acres as open to cross-country OHV use could result in temporary, localized impacts on air quality from fugitive dust and emission of carbon monoxide (CO) and volatile organic compounds (VOCs). OHVs emit higher levels of air pollution than do automobiles. An all-terrain vehicle with a four-stroke engine emits approximately 7.5 times more air pollution than automobiles, and exhaust from an off-road motorcycle contains an estimated 12 times more compared to a typical automobile (BLM 2009). However, the largest OHV impacts are likely to be from dust generation. Limiting OHV use during fire season or during high wind events when dust creation would be greatest could be implemented as mitigation to reduce impacts on air quality.

Renewable Energy: Use of wind and solar facilities to generate electricity would incrementally reduce carbon and particulate emissions that would otherwise be released from fossil fuel power plants. Potential impacts on ambient air quality from solar energy projects would mostly likely occur during the construction phase. Vegetation would be cleared from large areas (up to several thousand acres) and impacts from fugitive dust emissions resulting from soil disturbances would be likely, but of short duration. During the operations phase, only a few sources with generally low levels of emissions would exist for any of the four types of solar technologies that might be implemented. Impacts on air quality from wind energy project construction would be less than those associated with solar energy projects since vegetation and soil removal would only occur for access road construction and tower location only.

Minerals: Withdrawing 71,000 acres from locatable mineral entry would further restrict surface disturbance and have a small positive impact on air quality in localized areas. Managing 3,852,382 acres as open to fluid mineral leasing with No Surface Occupancy (NSO), CSU stipulations or Standard Lease Terms and Conditions would likely have a relatively small impact on air quality because the area has relatively few wells being drilled. No more than 40 wildcat exploration wells would be expected to be developed over the 20-year lifetime of the RMP. No transmission pipelines, compressor facilities, bulk storage facilities or associated equipment would be needed. Consequently, minimal impacts from carbon monoxide (CO) nitrogen oxides (NO_x), sulfur dioxide (SO₂), volatile organic compounds (VOCs) or hazardous air pollutants (HAPs) would occur and greenhouse gas emissions would be negligible.

4.3.1.3.2 *Alternative B Impacts on Air Quality*

Vegetation and Woodlands: Restricting restoration to passive methods could increase the long-term risk of wildfires in woodland areas and indirectly cause short-term impacts on air quality compared to Alternative A.

Comprehensive Trails and Travel Management: Reducing the area managed as open to OHV use to 39,000 acres would be a major reduction of potential impacts on air quality from fugitive dust relative to Alternative A.

Renewable Energy: Impacts from solar energy project development would be the same as those described under Alternative A; however, impacts would be confined to the vicinity of the Afton Solar Energy Zone (SEZ), since this would be the only area open to solar energy project location under Alternative B. Impacts from wind energy would be the same as those described under Alternative A and could occur in localized areas throughout the *Decision Area*. However, ROW avoidance and exclusion areas combined would be increased to almost 800,000 acres which would further limit locations.

Minerals: Mineral material extraction and processing would have an impact on air quality in local areas because of fugitive dust emissions. This would be most noticeable and disagreeable near urban areas such as the Las Cruces wildland-urban interface. Impacts from dust could be mitigated by keeping the material being processed moist to prevent dust being generated. Closing 705,000 acres to mineral material disposal within WSAs, ACECs and other designations would have a local impact in preventing new dust emissions by preventing surface disturbance from extraction and processing.

Managing 333,200 acres as closed to fluid mineral leasing, and deferring new oil and gas leasing on the remainder of the *Planning Area* would preclude any impacts to air quality from these activities in the short-term. This would restrict surface-disturbing activities which could indirectly help retain existing air quality and visibility. However, existing leases could be developed, which would likely result in only minor impacts to air quality because of a low to moderate potential for oil and gas in the *Decision Area*. Impacts from exploration, drilling, development and utilization of geothermal leases would be related to fugitive dust emissions, vehicle and engine exhaust, and release of geothermal fluid vapor.

4.3.1.3.3 *Alternative C (Preferred Alternative) Impacts on Air Quality*

Vegetation and Woodlands: Utilizing both active and passive methods for vegetation management would enhance the BLM's ability to manage risk of wildfires, which cause short-term degradation of air quality compared to Alternative B. Active and passive methods provide flexibility in determining which technique to utilize to avoid degradation of air quality, given prevailing climate conditions.

Comprehensive Trails and Travel Management: Reducing the area managed as open to OHV use to 42,000 acres would be a major reduction of potential impacts on air quality from fugitive dust relative to Alternative A.

Renewable Energy: Potential impacts on ambient air quality associated with construction and operation phases of solar energy projects would be similar to those described under Alternative A but on a reduced geographic scale. The priority for solar projects would be the Afton SEZ and the majority of impacts would occur in its vicinity. Impacts on air quality from wind energy project construction would be the same as Alternative B. Use of wind and solar facilities to generate electricity would incrementally displace carbon and particulate emissions that would otherwise be released from fossil fuel power plants.

Minerals: Impacts from fluid mineral leasing management would essentially be the same as Alternative B. Closing 642,000 acres to mineral material sales would have a local minimal beneficial impact in preventing new dust emissions.

4.3.1.3.4 Alternative D Impacts on Air Quality

Vegetation and Woodlands: Impacts from prescribed fire would be the same as those described under Alternative C, except that using only active methods could indirectly increase localized impacts on air quality from fugitive dust and tailpipe emissions relative to Alternatives A, B, and C. This could result in localized short- and long-term impacts on air quality, depending on how long areas would take to reestablish.

Comprehensive Trails and Travel Management: Actions and impacts relating to OHV management would be the same as those described under Alternative C.

Renewable Energy: Impacts on air quality from renewable energy projects would be essentially the same as under Alternative C. The Afton SEZ would be the priority for solar energy project siting and avoidance and exclusion areas would be about 12,000 acres greater than under Alternative C because of the larger number of SRMAs and ERMAs where locations would be restricted under Alternative D.

Minerals: Impacts from fluid mineral leasing management for oil and gas would be the same as Alternative B. Geothermal leasing impacts would be the same as Alternative A.

4.3.1.4 Impacts on Greenhouse Gas Emissions

Sources of greenhouse gases on public land may include activities associated with minerals development; OHV use; management access; and other related vehicular activity to and from BLM-administered land. Where potential impacts on greenhouse gas emissions from management actions can be distinguished among the alternatives, a qualitative discussion has been included. Based on literature, quantitative estimates are given for potential carbon sequestration as a result of grassland restoration.

4.3.1.5 Impacts on Greenhouse Gas Emissions Common to all Alternatives

Use of vehicles on public land, resulting in emissions of CO₂, methane (CH₄), and nitrous oxide (N₂O), contribute incrementally to greenhouse gases. Alternatively, projects to restore grasslands and shrublands increase the land's ability to sequester CO₂. Restoring degraded land or land with low productivity increases carbon inputs and carbon sequestration. Sustainable grazing management can increase carbon inputs and stocks without necessarily reducing forage production (Conant, 2010).

4.3.1.6 Impacts of the Alternatives on Greenhouse Gas Emissions

4.3.1.6.1 Alternative A Impacts on Greenhouse Gas Emissions

Vegetation and Woodlands: Since the Restore New Mexico Program began in 2005, the Las Cruces District has completed an average of 72,400 acres of vegetation restoration projects each year. Studies indicate that restored rangelands can increase carbon sequestration. R. Lal (2004) noted that “*Observed rates of SOC (soil organic carbon) sequestration in agricultural and restored ecosystems depend on soil texture, profile characteristics, and climate, and range from 0 to 150 kg C/ha (hectare or 2.4 acres) per year in dry and warm regions.*” Continuing the vegetation restoration program would contribute incrementally and in local areas to increasing carbon sequestration in the long-term.

4.3.1.6.2 *Alternative B Impacts on Greenhouse Gas Emission*

Vegetation and Woodlands: Improved grazing management that increases production leads to an increase of soil carbon stocks by an average of 0.35 Mg C ha⁻¹ yr⁻¹ (Conant, Paustian and Elliott, 2001). However, using only passive management techniques for grassland restoration would likely require a much longer time to achieve the results that could be more quickly achieved using both mechanical and passive methods. Carbon sequestration would be reduced under this alternative as compared to Alternative A.

4.3.1.6.3 *Alternative C Impacts on Greenhouse Gas Emissions*

Vegetation and Woodlands: Impacts of vegetation restoration projects on greenhouse gas emissions would be similar to those under Alternative A, depending on the amount of active restoration projects.

4.3.1.6.4 *Alternative D Impacts on Greenhouse Gas Emissions*

Vegetation and Woodlands: Impacts of vegetation restoration projects on greenhouse gas emissions would be the same or similar to those under Alternative C, depending on the amount of active vegetation restoration projects. Using primarily active methods of vegetation restoration would increase the rate of vegetation conversion and could increase the rate of carbon sequestration accordingly.

4.3.2 IMPACTS ON SOIL AND WATER

The analysis of impacts on Soil and Water was based on the following assumptions:

- Soil resources would be managed to meet *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (New Mexico Standards and Guidelines)*.
- Soils would be managed to minimize erosion and maintain soil productivity. BMPs listed in Appendix D would apply to all surface-disturbing activities.
- Surface disturbance of soil, including compaction of soil or loss of vegetation cover, might increase water runoff and downstream sediment loads and lower soil productivity, thereby degrading water quality, altering channel structure, affecting fisheries, and affecting overall watershed health.
- The degree of impact attributed to any one disturbance or series of disturbances would be influenced by several factors, including location within the watershed, time and degree of disturbance, existing vegetation, and precipitation.
- An increase of pollutants in surface water or groundwater would affect other uses (e.g., livestock watering, irrigation, or drinking water, aquatic and riparian obligate flora and fauna).

Impacts on soil and surface water resources would occur from surface disturbance associated with trails and travel management, vegetation, fire, minerals, livestock, wildlife, rangeland improvements, and recreation management actions. Although management actions would be designed to minimize impacts, BMPs and other site-specific protection measures would be implemented. In the long-term, mitigation measures could increase soil productivity and improve water resources. Management actions that restrict or prohibit surface disturbance would help maintain soil and water conditions.

Impacts to groundwater resources would be exploration for and development of fluid minerals, or groundwater pumping for community use. The Salt Basin Aquifer underlies the Otero Mesa which is also an area of interest for oil and gas leasing and development, as well as extraction of rare earth elements. Any fluid mineral leasing on Otero Mesa would require a determination of impacts on the Salt Basin

aquifer. The Salt Basin covers about 2,400 square miles of south-central New Mexico and extends into Texas. As much as 57 million acre-feet of groundwater may be stored within the New Mexico part of the Salt Basin and as much as 15 million acre-feet may be both recoverable and potable. However, much more information is needed to assess the full impacts of a drilling program in the area (Huff, G.F., and Chace, D.A., 2006). This type of information would be analyzed in the future programmatic EIS for oil and gas leasing in the District as well as in any NEPA document for an Application for Permit to Drill for an existing lease. New oil and gas leasing of Otero Mesa and the rest of the *Decision Area* would be deferred until that time, but development of existing oil and gas leases could occur.

4.3.2.1 Impacts on Soil and Water Common to All Alternatives

Long-term use of specific areas for recreation activities such as SRMAs and other designated routes may lead to an increase in localized surface disturbance and erosion, but may reduce the overall extent of impacts on soil and water resources within the *Decision Area*. Cultural and paleontological resource management actions would have localized effects on soil and water resources from surface disturbance if excavation is required. Localized removal of plant cover compaction of some soil types and resultant lower infiltration rates of those soils could occur in areas of livestock concentration and trailing.

Management actions associated with fish and wildlife habitat, special status species habitat, ACECs, and WSAs would restrict surface-disturbing activities and maintain vegetation resource conditions. Recommending areas for withdrawal from mineral entry as in ACEC management would also reduce surface disturbance and help maintain existing soil and water resource conditions over the long-term. Short-term vegetation restoration and fire management activities initially could cause soil disturbance, but in the long-term improve soil and water resources. Vegetation restoration projects have been shown to increase production, ground cover, and litter. These all serve to protect soil by reducing raindrop impacts and sheet erosion. Prescribed burning and wildland fire use could cause short-term soil erosion and sedimentation due to the loss of vegetation cover, but could increase the native plant community and organic soil matter and productivity in the long-term. These activities indirectly help maintain or improve soil and water resource conditions by reducing erosion and sedimentation.

Short-term vegetation loss and soil disturbance would occur with noxious weed and invasive species eradication but controlling these species would allow native species to grow and indirectly improve soil and water resources.

Development of rights-of-way for utilities and mineral exploration and development, removes vegetation, displaces soil, and increases soil compaction. These impacts could create new water-flow paths and channels, as well as reduce water infiltration. Decreases in vegetation through crushing and soil compaction and through the loss of soil crusts reduce the stabilizing characteristics of soil. Under these conditions, wind can move soil particles, which increases wind erosion, increases sedimentation, and degrades water quality.

Development of solar energy projects in the Afton SEZ would result in ground-disturbing activities (e.g., grading, excavating, and drilling), during the construction phase of a solar project. Resulting impacts would include soil compaction, soil horizon mixing, soil erosion and deposition by wind, soil erosion in water courses as well as surface runoff, sedimentation, and soil contamination. Altered groundwater recharge and discharge processes would also be expected. The Afton SEZ contains ephemeral wash features, intermittent pond/lake features, and areas within the 100-year floodplain. These areas are susceptible to increased erosion and sedimentation. Impacts to water would be minimal because the Solar EIS (USDI BLM 2011) restricts solar development to photovoltaic panels.

Managing livestock grazing according to *New Mexico Standards and Guides* would help to meet soil resource objectives and reduce soil erosion. Adhering to the grazing guidelines and managing to maintain or make progress toward the standards would help maintain or improve existing soil and water conditions by maintaining an herbaceous groundcover. Closing areas that are not within a livestock grazing allotment could help maintain existing vegetation states and soil and water resource conditions.

Mineral exploration and development would result in soil exposure, loss of vegetation from disturbance, compaction from vehicle traffic, increased erosion, higher rates of sedimentation, and permanent loss of resources. These activities would result in site-specific impacts on soil resources through removal of vegetation and topsoil during development activities (e.g., well pad construction) and through surface disturbance while constructing roads or pipelines or during exploration. Applying controlled surface use and other stipulations to oil and gas exploration and development activities would minimize soil erosion resulting from surface-disturbing activities.

Geothermal leasing and subsequent exploration, drilling, development, and utilization would continue to occur under all alternatives. Spent geothermal fluids are usually injected back into the geothermal source. In some cases fluid may be evaporated from lagoons or discharged to surface water, depending on the relative water quality and temperature. Geothermal water can contain a variety of dissolved compounds, including silica, sulfates, carbonates, metals, and halides. Any mixing of geothermal fluids with surface or groundwater where the chemical and thermal qualities of the geothermal fluids would degrade the other water in the area would potentially damage aquatic ecosystems and contaminate drinking water supplies. Impacts are not likely to occur due to the small number of perennial streams in the *Planning Area*. Impacts to soils would result from building access roads, clearing drill pads, and other surface disturbing activity. As a result of such clearing, soil would be susceptible to wind and water erosion.

4.3.2.2 Impacts of the Alternatives on Soil and Water

4.3.2.2.1 *Alternative A Impacts on Soil and Water*

Special Designations: Limiting surface disturbances in WSAs and ACECs would help to maintain soils and reduce erosion within these areas. A total of 90,000 would continue to be managed as ACECs under Alternative A. The management prescriptions would protect existing soil and water resources by prohibiting certain surface-disturbing activities. Management actions such as closing the area to fluid minerals leasing, limiting vehicle use to designated routes, and closing to mineral material sales would increase soil stability and productivity over time. Limiting surface disturbance near El Camino Real de Adentro National Historic Trail, Lake Valley Back Country Byway, Butterfield Overland trail, and the Mormon Battalion trail could maintain existing soil and water resources.

Vegetation and Woodlands: Implementing vegetation treatment methods such as wildland fire use, prescribed burning, and mechanical treatments could cause short-term surface disturbance, but long-term would improve vegetation conditions, increase litter, reduce soil exposure and erosion and improve or restore watersheds. Critical soils on 0 to 10 percent slopes would receive land treatments and stabilize.

Comprehensive Trails and Travel Management: Managing 1.64 million acres as open to cross-country OHV use would result in surface disturbance, damage to vegetation, and reduced soil stability and productivity, all leading to erosion and degradation of soil resources. Limiting OHV use to designated and existing routes on approximately 1.15 million acres in Doña Ana County would reduce the extent of impacts on soil and water. Closing 43,000 acres in Doña Ana County and 84 miles of routes to OHV use could maintain existing soil resources and indirectly reduce surface disturbance in these areas.

Fish and Wildlife Habitat: Protecting riparian habitat along Percha Creek and Tularosa Creek could limit surface disturbance and damage to vegetation in this area, providing the potential to improve soil productivity and watershed conditions over time.

Recreation and Visitor Services: Managing 69,000 acres as SRMAs in the *Decision Area* could allow BLM to manage and monitor recreation activities more effectively. Impacts on soil and water could vary depending on the recreation activities that would be allowed in a SRMA. Long-term recreation activities could lead to an increase in localized surface disturbance and erosion but may reduce the overall extent of impacts on soil and water resources. OHV use could be allowed in areas that would avoid sensitive and important plant, riparian, and wildlife habitat, which would indirectly maintain existing soil and water conditions and improve soil productivity in these areas over the long-term.

Livestock Grazing: Altering livestock forage use on a case by case basis would slowly improve vegetation condition and reduce soil erosion in the long-term. However, improved conditions are not anticipated in areas with no restoration potential (see Table 3-15). Grazing management on soils on 0 to 10 percent slope would stabilize those soils.

Lands and Realty: Impacts of development (e.g., removal of vegetation, soil extraction, installation of facilities) would be localized but could be long-term, depending on use of the resource. The need for access roads and transmission pipelines would also depend on the use to which the resource is being put, and could result in more surface disturbance and exposure of bare soil.

Renewable Energy: All areas not designated avoidance or exclusion areas would be potentially available for utility-scale renewable energy projects, depending on location, terrain, and factors associated with solar incidence and wind reliability. Impacts on soil resources from either solar or wind energy project developments would occur mainly as a result of ground-disturbing activities (e.g. grading, excavation, and drilling). Areas would be cleared of vegetation for roads, tower footings, and installation of solar collectors resulting in exposing the underlying soil to wind and water erosion. The largest cleared areas would be for solar collector installation, hence a greater potential for erosion. These areas would not be re-vegetated during the life of the project; therefore, impacts would be long-term. Lack of vegetation would result in wind erosion and increase of particulate matter in the air in the vicinity of the project and off-site to a lesser extent. Wind erosion could be reduced by keeping bare areas moist to control dust. However, this would increase the use of ground water for the project.

Minerals: Almost 4 million acres of surface and subsurface mineral estate would be open to mineral material (sand, gravel, and building stone) disposal under this alternative. The extraction or exploration of locatable minerals would result in surface disturbance and the removal of vegetation in localized areas. This could lead to soil exposure and erosion and soil compaction could occur from vehicles or construction but impacts would be localized and scattered.

Managing 3,655,000 acres in the *Decision Area* as open to fluid-mineral leasing with standard lease terms and conditions would cause surface disturbance, soil compaction, and erosion. Impacts on soil and water would be less in Doña Ana County because fewer acres would be open to fluid minerals with standards lease terms and conditions. Fluid minerals exploration and development on areas open to leasing with standard terms and conditions would result in removal of vegetation and exposure of soil to wind and water erosion. This impact would be minimal, localized and short-term as no more than 40 wildcat wells would be expected to be drilled during the lifetime of this RMP, and none of these would be likely to become producing wells as the oil and gas potential is low to moderate throughout the *Planning Area*.

Geothermal leasing would be Open with stipulations on 3.19 million acres. The effects of leasing would be as described in Impacts Common to All Alternatives.

4.3.2.2.2 *Alternative B Impacts on Soil and Water*

Special Designations: Increasing acres designated as ACECs from 90,000 acres to 518,000 acres could result in less surface disturbance and greater protection of soil and water resources. Closing the Organ/Franklin Mountains and the Cornudas Mountains to OHV use would protect soil resources and improve soil stability and productivity over time.

Vegetation and Woodlands: The alternative to use only passive methods to enhance vegetation would decrease localized soil disturbance when compared to Alternative A, however, improvements to an ecological site would occur more slowly than with the use of both passive and active techniques. Restoring grasslands using passive methods could improve soil and water resources compared to Alternative A, but it could maintain existing conditions including localized areas of erosion. Improvement would take longer and may not be achieved during the life of the RMP. Restored grasslands would help improve watershed conditions however these affects could be less than Alternative A under which both active and passive techniques would be used.

Not authorizing vegetation sale area permits and prohibiting plant sales and plant collection in forest and woodland areas could decrease vegetation removal and reduce soil erosion in localized areas, and indirectly maintain soil and water resources to a greater extent than Alternative A.

Comprehensive Trails and Travel Management: Reducing the area managed as open to cross-country OHV use by 98 percent would reduce surface disturbance relative to Alternative A. Designating 259,110 acres and 346 miles of routes as closed to OHV would reduce surface disturbance compared to Alternative A, which designates only 43,000 acres and 84 miles as closed. In addition, closing or rerouting all vehicle routes in riparian areas and arroyo habitats would reduce vegetation damage and soil compaction and erosion and improve soil productivity over the long-term compared with Alternative A.

Designating all routes as closed in all WSAs (Appendix J) would reduce surface disturbance and, thus, maintain existing soil and water resources and improve soil conditions over time relative to Alternative A. Managing areas as limited to designated routes and limited to existing routes would have the same impacts as Alternative A. Existing trails would continue to be managed as limited to equestrian use and hiking only, which would have the same impacts as Alternative A.

Recreation and Visitor Services: Managing ERMA that emphasize non-motorized uses and that occupy an area of 39,000 acres (an increase of 16 percent) would have the same types of impacts as Alternative A, but would incidentally preserve more soil and water resources. The larger area could better accommodate recreational demand and reduce the potential for wider surface disturbances to soil and water resources.

Fish and Wildlife Habitat: Vegetation increases as a result of restoration treatments would reduce soil erosion and soil evaporative losses and improve water infiltration across the *Planning Area*. Riparian enhancement would reduce potential water contaminants from reaching surface water flow.

Livestock Grazing: Reducing AUMs by 25 percent on lands with limited restoration would increase vegetation condition, and reduce soil erosion and improve water infiltration, within the capability of the site, in the long-term on 950,000 acres compared to Alternative A.

Lands and Realty: Not authorizing surface-disturbing activities within 303(d) listed watersheds and streams where sedimentation is an impairment could reduce damage to vegetation and maintain the existing soil structure. This helps maintain a greater extent of soil and water resource conditions compared to Alternative A. Alternative B would exclude the greatest extent from rights-of-ways, nearly

twice the acreage of Alternatives C and D. This would reduce the amount of surface disturbance from activities such as the development of roads or transmission lines.

Renewable Energy: The impacts of Alternative B decisions regarding wind and solar energy would concentrate surface disturbing activities into the least amount of area compared to the other alternatives. Only the Afton SEZ would be developed for solar, and 1,600,000 acres (57 percent) of the *Planning Area* would be wind energy avoidance or exclusion areas. Those areas open to solar and wind development would require the implementation of Best Management Practices (BMPs see Appendix D) to reduce disturbances to soil and water.

Minerals: All areas currently closed to fluid mineral leasing, 333,000 acres, would continue to be closed. In the remainder of the *Planning Area* oil and gas leasing would be deferred pending the preparation of a future programmatic RMP amendment and EIS for oil and gas leasing in the Las Cruces District. As a result, there would be no impacts to soil or water from oil and gas leasing. Existing leases could be developed which would result in minor impacts to soil because of the relatively small number of leases and a lack of production due to the low to moderate potential for oil and gas. Potential impacts to groundwater would be assessed during the NEPA analysis for the application for permit to drill (APD).

Managing locatable mineral resources would have the same impacts as Alternative A, except that protection of soil and water resources would occur over a larger area. Where allowed, mineral materials sales would have similar impacts as Alternative A.

Geothermal leasing would continue to occur on 3.15 million acres. Impacts to soil and water would be the same as those described under Impacts Common to All Alternatives, but more acreage would be closed to leasing than in Alternative A.

4.3.2.2.3 *Alternative C (Preferred Alternative) Impacts on Soil and Water*

Special Designations: Managing and designating 304,000 acres as ACECs would limit surface-disturbing activities but is 28 percent less acreage than Alternative B.

Vegetation and Woodlands: Impacts on soil and water resources from restoration are the same as Alternative B, except the use of passive and active restoration treatments could cause short-term, localized soil disturbance. Meeting site potential and achieving proper functioning condition (PFC) would help maintain or improve riparian systems and wetlands by improving resource conditions in adjacent uplands. Mitigating surface-disturbing activities that would result in soil movement and loss within watersheds with 303(d) listed streams, would help maintain soil structure and watershed conditions more rapidly than in Alternative B.

Fish and Wildlife Habitat: Impacts would be the same to soil and water resources as described in Alternative B.

Livestock Grazing: A watershed-based strategy would improve the BLM's ability to effectively adjust livestock forage use where ecosystem function warrants it, leading to an increase in improved soil and water conditions compared to Alternative A. Compared to Alternative B, this alternative enhances soil and water conditions in a variety of watersheds, whereas Alternative B only enhances conditions in sites with limited restoration potential.

Comprehensive Trails and Travel Management: Surface disturbance would be reduced compared to Alternative A but slightly increased compared to Alternative B. Limiting vehicles to existing or

designated routes to 2.71 million acres is a 60 percent increase over Alternative A but just slightly less than Alternative B.

Recreation and Visitor Services: Increasing the area managed as SRMAs and ERMAs to 151,309 acres could reduce surface disturbance in more areas, but could increase the area where localized surface disturbance occurs compared to Alternative A and B.

Lands and Realty: Reducing the area managed as exclusion (343,000 acres) for rights-of-way activities could allow surface-disturbing activities to occur over a larger area relative to Alternatives A and B. Increasing the width of the Anthony Gap designated utility corridor to 1.0 miles would extend the area available for new transmission lines, both pipelines and overhead electrical lines, and would have the same impacts as Alternative A but increase surface disturbance over a larger area than Alternative B.

Renewable Energy: Impacts of solar and wind energy on soil and water would be the same as those under Alternative B, however, under Alternative C, these solar projects would be considered over a much greater area. Solar and wind projects would be considered on 43 percent of the *Planning Area*.

Minerals: Impacts from oil and gas leasing and geothermal leasing would be the essentially the same as those described for Alternative B but 3.29 million acres would be Open for leasing with stipulations, which is greater than Alternative B but less than Alternative A.

4.3.2.2.4 *Alternative D Impacts on Soil and Water*

Special Designations: Impacts would be the same as Alternative A.

Vegetation and Woodlands: Managing soil, water, and vegetation resources using only active restoration methods could increase localized short-term surface disturbance compared with Alternatives A, B, and C. Active restoration in the long-term could increase soil productivity and stability, reduce erosion, and improve wildlife habitat, but it could result in fewer long-term improvements when compared to Alternatives A, B, and C. In the long-term, reaching PFCs would increase soil stability and hydrologic function resulting in the same impacts as Alternative D. Allowing surface-disturbing activities could result in increased soil erosion and sedimentation and reduce water quality relative to Alternatives B and C and could improve resource conditions relative to Alternative A.

Fish and Wildlife Habitat: Wildlife decisions under Alternative D would maintain or improve riparian habitat conditions which would enhance soil and water resource conditions in those watersheds.

Livestock Grazing: Impacts to soil and water would be the same as Alternative A.

Comprehensive Trails and Travel Management: Increasing the area managed as limited to existing or designated routes to 2.73 million acres could reduce surface disturbance relative to Alternative A. Surface disturbance compared with Alternatives B and C would be essentially the same.

Recreation and Visitor Services: The impacts of Alternative D recreation decisions are essentially the same as those described in Alternative C.

Lands and Realty: Increasing the width of the Anthony Gap utility corridor to 2 miles-wide increases the area where surface-disturbing activities could occur relative to Alternatives A, B and C.

Renewable Energy: Impacts of solar energy development on soil and water in the Afton SEZ and in areas outside the SEZ would be the same as those described under Alternatives B and C.

Minerals: Impacts from oil and gas leasing, and geothermal leasing, would be essentially the same as those described for Alternative B. Geothermal leasing would be Open with stipulations on 3.63 million acres, which is the greatest area of the alternatives.

4.3.3 IMPACTS ON VEGETATION AND WOODLANDS

This section analyzes management actions that could result in physical disturbance to vegetation communities or could restore vegetation to desired conditions. The following assumptions were used in the analysis of impacts on vegetation:

- Vegetation cover, composition, diversity, and density often progress through multiple states following a disturbance, with those characteristics becoming increasingly similar to reference plant communities (site potential) over time unless the disturbance pushed degradation passed a threshold that now resists ecologic recovery (site capability).
- Development of cover, diversity, and structure of plant communities similar to reference conditions following a disturbance would be from 10 to 100 years or more, depending on past, present, and future conditions.
- The degree of impact on a plant community attributed to any one disturbance or disturbances would be influenced by the characteristics both of the disturbance and the site. Relevant disturbance characteristics include size, shape, and connectedness to undisturbed areas; frequency, duration, and seasonality of disturbance; and severity and intensity of disturbance. Site characteristics include location in the watershed, existing vegetation, and land cover type.
- Adequate forage would be available to meet wildlife population objectives.
- All plant communities would be managed toward achieving a mix of native species composition, cover, diversity, and age classes.
- Noxious and invasive weeds would continue to be introduced and spread as a result of ongoing vehicle traffic, recreational activities, wildlife and livestock grazing and movement, and surface-disturbing activities.
- Weed and pest control would be carried out according to BLM's *Partners Against Weeds – An Action Plan for the Bureau of Land Management*, as well as in coordination with appropriate county weed and pest control districts and owners of adjacent properties.
- Climatic fluctuation would continue to influence plant community characteristics, including composition, diversity, structure and productivity.
- Impacts include direct and indirect impacts on species composition and structure, as well as changes to riparian and wetland functioning conditions.

Areas with limited restoration potential are unlikely to transition toward the desired state and conditions without additional inputs. However, disturbances in these areas could result in further degradation that leads to expansion of the degraded vegetation into adjacent communities. Increased disturbance in all the land cover types with limited restoration potential could result in increased rates of erosion or invasion from nonnative, invasive species.

Restoration activities or reduced surface disturbance may initiate succession that may lead to a transition toward a more desired plant community that is closer to the potential natural community of the ecological site. For example, shrub-scrub communities could transition to grassland-herbaceous vegetation through increased cover of herbaceous species resulting from restoration treatments or reduced disturbance.

4.3.3.1 Impacts on Vegetation and Woodlands Common to All Alternatives

Management of special designations helps retain existing vegetation and riparian resource conditions by restricting surface-disturbing activities. Where the plant community is in the desired state, special designations indirectly help to maintain these resource conditions. Provisions of special designations could alter the location, extent or method of restoration activities, which would reduce the areas ability to achieve the desired state in places with disturbed vegetation, invasive species, or noxious weeds.

The Fire Regime Condition Class on most treated landscapes would approach desired conditions and could reduce the occurrence of catastrophic fires, thereby helping to maintain desired vegetation states. Fire use would help increase vegetation diversity and resistance to disease and insect pest infestations. Mechanical treatments and prescribed fire would be used in woodlands and forest to reduce plant density, reduce ladder fuels and improve overall forest and woodland health. Fire, chemical and mechanical treatments would also be used to restore native species and to control invasive species and noxious weeds. Desired future vegetation conditions would be achieved over several decades.

Under all alternatives, vegetation treatments would be implemented which could transition vegetation communities towards a site's ecological capability or the potential natural community. This would result in long-term increases in vegetative cover, production, species enrichment, and soil water holding capability. Watershed rehabilitation projects would improve soil and site stabilization, watershed hydrologic function and vegetation ground cover.

Chemical treatments of vegetation would be applied so that edges of the treated vegetation unobtrusively blended in with the surrounding vegetation, so as not to draw the attention of the viewer. This would maintain a more natural appearance of the landscape without abrupt changes in vegetation dominance.

Habitat improvements for special status species and fish and wildlife through the development of HMPs, ACECs, and other habitat protections would maintain or improve vegetation. This could move vegetation communities in these areas toward ecological site potential or capability. Vegetation treatments would improve aplomado falcon habitat by stabilizing or increasing trend in desired plant community within the capability of the ecological sites. Wildlife management BMPs (Appendix D) would enhance key habitats as identified in the NMDGF *Comprehensive Wildlife Conservation Strategy for New Mexico*.

Removal of woodland and plant species such as fuel wood, Christmas trees, fence posts, piñon nuts, seeds, yuccas, and cactus species would have little effect on vegetation as a whole over the *Decision Area*. Removals would generally be limited in quantity, be in site-specific and localized areas, and associated with other projects such as vegetation restoration, fuels reduction, right-of-way project construction, Native American ceremonial use, and other similar actions.

Forage utilization by livestock would be governed by the *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (New Mexico Standards and Guidelines)* and the latest scientific research. Grazing by livestock or wildlife can alter upland vegetation communities by removing portions of plants. The degree of alteration would depend on the extent of the removal, length of grazing period, and climatic conditions. Grazing animals' hooves could trample plants and compact soils in localized areas with concentrated use. Concentrated grazing can alter vegetation structure and species composition (Kimball and Schiffman 2003); however, managing livestock grazing according to *New Mexico Standards and Guidelines* would be aimed at eliminating the long-term impacts from livestock use, resulting in vegetation communities that are meeting or moving toward ecological site capability or potential. Restoring soil and water resources and prioritizing watersheds for assessment of *New Mexico Standards and Guidelines* could indirectly help maintain or restore vegetation communities.

Travel management planning would reduce impacts to vegetation that could otherwise result from cross-country travel. Unregulated off-road use would cease and any new roads would be developed only where existing roads or trails cannot be used or where off-road travel is not possible because of topography or terrain. Limiting vehicle use to existing or designated routes would reduce the amount of vegetation crushed or removed.

Impacts on vegetation resources from either solar or wind energy project developments would occur mainly as a result of ground-disturbing activities (e.g. grading, clearing, excavating, and drilling), during the construction phase. Lack of vegetation would result in wind erosion and increase of particulate matter in the air in the vicinity of the project and off-site to a small extent. Water erosion would also result during heavy rainstorms during the summer rainy season. Once construction is complete, cleared areas in most cases would not be allowed to re-vegetate as this could interfere with operation of the facilities.

Implementing watershed management and activity plans would reduce soil erosion and improve infiltration of precipitation, thus increasing cover, density, and productivity of vegetation in parts of the *Decision Area*. Fencing 280 acres along Percha Creek would help to protect valuable and important riparian vegetation in that area and help maintain the existing functioning condition.

Minor new facilities in recreation management areas (RMAs), such as toilets, kiosks, directional signs, and fire pits would cause a small but permanent loss of vegetation. Hardened surface facilities in the RMAs would also result in permanent loss of vegetation on a limited basis. However, the facilities infrastructure and concomitant educational programs such as *Tread Lightly* would result in a reduction in damage to vegetation that would be caused by dispersed camping, biking, road use, and horseback riding.

On some lands identified for disposal, the BLM would retain a restrictive easement preventing development in arroyos where vegetation would be retained for watershed function purposes. On other land identified for disposal, without easements, land use could be altered and vegetation removed for development or other purposes.

Rights-of-way (ROW) can permanently remove vegetation, e.g. roads. Buried utilities are re-vegetated so there is little net alteration of overall vegetative cover or diversity. ROW holders are subject to weed stipulations to reduce the likelihood invasive or noxious weeds.

Vegetation would be affected by geothermal leasing and development from direct destruction and removal, fugitive dust, exposure to contaminants, and the introduction of invasive species.

Closing 333,000 acres to fluid-mineral leasing and closing at least 353,000 acres to mineral material disposal would limit surface-disturbing activities. This indirectly helps to maintain the existing vegetation, reduces opportunities for the establishment of noxious weeds and invasive species, and sustains the current functioning conditions of riparian areas and wetlands.

4.3.3.2 Impacts of the Alternatives on Vegetation and Woodlands

4.3.3.2.1 *Alternative A Impacts on Vegetation and Woodlands*

Special Designations: The current special management designations such as WSAs, ACECs, and restricting surface disturbances along historic trails and other management practices would help to maintain existing vegetation or riparian habitats. Approximately 617,000 acres designated as VRM Class I and II would preserve existing states of vegetation as a result of reduced surface disturbance. However,

VRM Class I objectives could limit the types and location of allowable vegetation restoration methods. In these areas, special care to reduce sharp contrast could minimize impacts to the visual resource.

Soil and Water: Existing decisions from soil and water management would allow BLM to progress toward restoring ecosystems using herbicides, natural and prescribed fire, and grazing treatments on grass bottomlands, mixed desert shrub, snakeweed, and mountain brush. This would cause temporary disturbance of treated vegetation. Long-term impacts would include increased diversity, cover, and productivity of vegetation. Indirectly, this would decrease the cover or density of noxious weed and invasive plant species in treated areas.

Vegetation and Woodlands: The decisions for vegetation in Alternative A enhance management through the use of prescribed burning, grazing management, prescribed wildfire, and herbicides lead to increases in vegetation cover, productivity, and diversity. The prescription for at least two years of rest during the growing season increases vegetation vigor and productivity.

Livestock Grazing: Altering livestock forage use on a case by case basis would slowly improve vegetation condition in the long-term. However, improved conditions are not anticipated in areas with no restoration potential (see Table 3-15 for a list of these areas).

Comprehensive Trails and Travel Management: Managing 1.64 million acres as open to cross-country OHV use, including 76,000 acres identified as having restoration opportunities in Sierra and Otero counties, could result in widespread surface disturbance and removal of existing vegetation. Managing 272,000 acres as limited to designated routes and 880,000 acres managed as limited to existing routes could result in the removal of existing vegetation in areas adjacent to these routes. Managing the Red Sands and Aden Hills areas as open to OHV use would continue localized disturbance of vegetation on 42,000 acres. Closing 43,000 acres to OHV use in WSA and ACECs to vehicle use would help maintain existing vegetation.

Lands and Realty: Managing approximately 532,000 acres as right-of-way avoidance or exclusion areas, including 23,000 acres with restoration opportunities, would relocate surface-disturbing activities associated with rights-of-way to less sensitive areas. The designation of 17,613 acres as utility corridors would help to limit the placement of new facilities and utilities. The use of these corridors would reduce surface disturbance and facilitate the retention of riparian areas and existing plant communities outside the designated corridor. However, within the corridor there would be long-term localized disturbance as the result of siting electrical transmission line, fiber optic lines, hydrocarbon pipelines, or other utility lines.

By disposing of isolated and difficult-to-manage tracts, land exchanges and disposals would reduce fragmentation of BLM-administered land and improve BLM's ability to manage vegetation and other resources. Potential disposals would remove 213,199 acres from BLM's management. Potential acquisitions would bring 172,000 acres into BLM management, providing consistent management of high value resources on larger blocks of contiguous land.

Minerals: Managing approximately 3.65 million acres as open to fluid-mineral leasing with standard lease terms and conditions could result in localized surface disturbance from exploration and development activities. If applications for permits to drill (APD) are granted for leased areas, this could result in localized areas where vegetation would be removed in the short-term. In the long-term, reclamation and restoration would be required and could restore the desired vegetation communities; however, reclamation of oil and gas pads, roads, and rights-of-way have shown to be only marginally successful. Incomplete or unsuccessful reclamation could result with invasive species or barren areas, leaving a fragmented vegetation landscape and wildlife habitat.

Impacts from geothermal leasing and development would be potentially greatest under Alternative A since the largest amount of area would be open to leasing.

4.3.3.2.2 *Alternative B Impacts on Vegetation and Woodlands*

Special Designations: Restricting surface disturbance on 1.24 million acres in VRM Class I and Class II areas (primarily in WSAs, ACECs, and historic trails) could increase the potential to preserve vegetation on about 100 percent more land in comparison to Alternative A. By designating the Tularosa Creek and Percha Creek as ACECs, riparian/wetland vegetation would be maintained in two important areas. Increasing the distance where surface-disturbing activities are not allowed to ½-mile around the Butterfield Overland Trail, El Camino Real de Tierra Adentro, and the Mormon Battalion Trail could indirectly retain existing vegetation in these larger areas as compared to Alternative A.

Vegetation and Woodlands: Vegetation restoration would be limited to passive methods only. Use of prescribed fire, mechanical and chemical treatments would not be allowed. This would transition plant community characteristics toward desired conditions at a slower rate and with fewer short-term improvements. Passive restoration methods could result in vegetation communities in a degraded state not meeting desired condition, ecological site capability, or the potential natural state relative to Alternative A.

Allocating increases in forage production resulting from restoration treatments for watershed function and wildlife would result in increased cover and density of grass and herbaceous species. This would help maintain existing vegetation states or move vegetation toward the potential natural community or the site's ecological capability when compared with Alternative A. However, by using only passive methods for vegetation restoration, results would be achieved more slowly and as compared to Alternative A.

Livestock Grazing: Reducing AUMs by 25 percent in areas with limited restoration potential would improve vegetation condition within the capability of the site across 34 percent of the *Decision Area*.

Comprehensive Trails and Travel Management: Five travel management areas would be established, and areas open to cross-country OHV use would be reduced to 39,000 acres (a 98 percent reduction). In special designation areas, the area closed to OHV use would increase by about six times to 259,000 acres. The area managed as limited to existing routes would more than double to slightly less than 2.25 million acres. These changes to trails and travel management would greatly reduce the extent of widespread surface disturbance from motorized vehicle use relative to Alternative A. This could help degraded plant communities to recover and develop toward the ecological site capability in comparison to Alternative A.

Reducing the Aden Hills Open Area to 5,100 acres would limit opportunities to manage for intensive OHV use, but would counteract dispersed disturbance to vegetation elsewhere.

Lands and Realty: Designating 150,000 acres as a utility corridor is over eight times more land than Alternative A. This would provide greater control over utility development, which would reduce surface disturbance and indirectly help retain more of the diversity of existing vegetation and current functioning conditions of riparian/wetland areas outside the corridors. However, direct impacts to vegetation within corridors would be much greater than in Alternative A.

Managing 920,000 acres as avoidance or exclusion areas would maintain the potential for preservation of sensitive resources, including vegetation, from right-of-way development on about 1.8 times more land relative to Alternative A.

The amount of land identified for disposal would be less in comparison to Alternative A. More land would be retained in Federal ownership allowing for better management and retention of the vegetation on those parcels of land. However, identifying less land for land exchanges would mean that there would be less opportunity to acquire land with higher vegetation resource values such as intact grassland.

Renewable Energy: The construction of solar energy facilities within the Afton SEZ would result in direct impacts on plant communities due to the removal of vegetation within the facility. Up to 80 percent of the Afton SEZ, 24,000 acres would be expected to be cleared with full development. The plant communities affected would depend on facility locations, and could include any of the communities occurring on the SEZ. Confining development of solar energy projects to the Afton SEZ would protect the vegetation in the remainder of the *Decision Area* from impacts of solar development. Indirect effects offsite (caused, for example, by surface runoff or dust from the SEZ) have the potential to degrade affected plant communities and may reduce biodiversity by promoting the decline or elimination of species sensitive to disturbance. Indirect effects can also cause an increase in disturbance-tolerant species or invasive species.

Minerals: Compared to Alternative A, impact to vegetation from oil and gas leasing would be very low. Existing leases could be developed but impact would be minimal and local due to the small number and acreages of those leases. Existing WSAs and ACECs in the *Planning Area* would be closed to oil and gas leasing and leasing would be deferred in the remainder of *Planning Area* except on 57,705 acres with existing leases; therefore, there would be no impact in the short-term on 99.5 percent of the *Planning Area*.

4.3.3.2.3 *Alternative C Impacts on Vegetation and Woodlands*

Special Designations: Designations of VRM Class I and Class II of approximately 910,000 acres (primarily in WSAs, ACECs and along historic trails) would decrease the area where surface-disturbing activities could be restricted by 5 percent less than Alternative B. Overall, these decisions could help retain more vegetation in its existing condition compared with Alternative A. Management actions are expected to have the same impacts on riparian/wetland functioning conditions as Alternative B.

Vegetation and Woodlands: Impacts from restoration efforts for watersheds and vegetation would be similar to those under Alternative B, except restoration would use both active (mechanical, fire, and chemical treatments) and passive (altering resource use) methods. This would provide a more comprehensive restoration approach than Alternatives A or B. Greater short-term disturbance of vegetation could occur relative to Alternative B, but long-term restoration results could be attained sooner and over a larger area relative to Alternatives A or B. Woodland harvest to improve ecological conditions would help to restore herbaceous and grassland vegetation in areas being invaded by woody vegetation. This could increase the area where vegetation is meeting ecological site capability compared to Alternatives A and B.

Livestock Grazing: A watershed-based strategy would improve the BLM's ability to effectively adjust livestock forage use where ecosystem function warrants it, leading to an increase in improved vegetation conditions compared to Alternative A. Compared to Alternative B, this alternative enhances vegetation conditions in priority watersheds, whereas Alternative B only enhances conditions in sites with limited restoration potential.

Comprehensive Trails and Travel Management: The only areas open to cross-country OHV would be Aden Hills (8,052 acres) and Red Sands (33,854). These areas are dominated by sparsely vegetated scrub-shrublands. This would reduce by about 97 percent the area where cross-country motorized use is allowed relative to Alternative A, but is about 8 percent larger than Alternative B. In addition, the area

managed as limited to designated routes on 569,713 acres and the 2.2 million acres managed as limited to existing routes would reduce surface disturbance and benefit vegetation in an area about twice as large as Alternative A and about 10 percent less than Alternative B. Areas closed to OHV use would be reduced to 19,000 acres and 151 miles of routes would be closed. This could reduce surface disturbance compared to Alternative A and slightly increase surface disturbance compared to Alternative B.

Lands and Realty: In Alternative C, land managed as avoidance or exclusion would total 766,000 acres. This would allow for surface disturbance from right-of-way activities on about 17 percent more land in sensitive areas compared to Alternative B, but still preserves substantially more land from utilities development than Alternative A. Nearly three times as much land is available for disposal compared to Alternative B, and vegetation on these lands could be removed.

Renewable Energy: The impacts of solar energy facilities would be the same as Alternative B.

Minerals: Impacts from oil and gas leasing and development of existing leases would be similar to those described for Alternative B. Impacts from geothermal leasing would be the same as those described in Alternative B.

4.3.3.2.4 *Alternative D Impacts on Vegetation and Woodlands*

Special Designations: Impacts would be the same as those described in Alternative A.

Vegetation and Woodlands: Limiting restoration to active methods (manual, fire, biological, chemical, and mechanical treatments) could require repeated treatments and could cause greater short-term disturbance to achieve resource goals and objectives. Using only active methods for restoration could limit the long-term success of restoration that would be achieved under Alternative C without implementing appropriate changes in resource use such as grazing. Also, this could result in a greater extent of vegetation in localized areas transitioning to a long-term degraded state compared to Alternative C, but would result in similar long-term effects compared to Alternative B. The speed with which an area would reach natural potential would be greatest under Alternative D and least under Alternative B.

Livestock Grazing: Livestock grazing impacts would be the same as those described under Alternative A.

Comprehensive Trails and Travel Management: Under Alternative D, the area managed as limited to designated routes would be reduced to 277,336 acres and the area managed as limited to existing routes would include 2.5 million acres. Also, the coverage of closed routes would be reduced to 17,000 acres and 94 miles of routes. Overall, these decisions would slightly increase the extent for potential surface disturbance from OHV use relative to Alternative C. However, the overall impact of degrading vegetation from travel and trails and OHV use would be greatly reduced under this alternative in comparison to Alternative A. This reduction would be accomplished primarily by reducing the area of open acres of cross-country OHV use to only a small percentage of the *Decision Area*, a limitation that also is present in Alternatives B and C.

Red Sands and Aden Hills would be open to cross-country OHV use and would be managed the same as Alternative C. The impacts on vegetation would be the same as Alternative C.

Lands and Realty: Designation of 257,000 acres as a utility corridor would be about 10 percent larger than Alternative C and would increase the localized disturbance from utility development compared to all other alternatives. This also would require the most intensive management of vegetation in corridors with developed utilities.

Less land managed as exclusion (308,000 acres) and more land managed as avoidance areas (453,000) for rights-of-way, increases the area of surface disturbance compared to Alternatives B and C. This could help retain more existing vegetation in its current state compared with Alternative A, but it could result in degradation of vegetation compared with Alternatives B and C.

In comparison to Alternatives B and C, more land would be available for disposal. This could reduce fragmentation of BLM-administered land and improve BLM's ability to manage vegetation and other resources compared to Alternative A. Utility Corridor decisions in Alternative C would impact more vegetation because the north-south corridor along I-25 would be two miles wide, compared to one mile wide in Alternative B.

Renewable Energy: Impacts of solar development would be the same as those for Alternative B.

Minerals: Impacts from oil and gas leasing and development of existing leases would be similar to those described for Alternative B. Impacts from geothermal leasing would be the same as those described for Alternative A.

4.3.4 IMPACTS ON FISH AND WILDLIFE HABITAT

This analysis addresses the potential impacts on the wildlife habitat types identified within the *Decision Area*. The analysis focuses on management alternatives that could result in physical disturbance to habitats or that could restore habitats to desired conditions. The following assumptions were used in the analysis of impacts on wildlife and fish habitat:

- Climatic fluctuation would continue to have a greater influence on habitats than any other factor or combination of influences.
- Grassland restoration treatments would have the greatest impact on wildlife and fish habitats of any resource management actions.
- Livestock grazing is a component of the existing and future conditions of wildlife and fish habitats throughout the planning and *Decision Areas*. The existing conditions of habitats are the result of decades of livestock grazing, and in some cases may be causing nonattainment of land health standards. Management toward attainment of land health standards is anticipated to improve wildlife habitat conditions over time. The rate of improvement would vary depending on the methods used, by alternative, to maintain and move toward attainment of health standards.
- The degree of impact on wildlife and fish habitats would depend on the intensity, area, and duration of management actions. Multiple actions or uses would be anticipated to have greater impacts to wildlife and fish habitats than single actions or uses.
- Some habitats that may be desired for a site may be unattainable, if plant communities have moved beyond a threshold where reference condition is no longer attainable without significant resource inputs.

All of the alternatives would be anticipated to have both beneficial and detrimental effects to fish and wildlife habitat. The discussion of impacts centers primarily on wildlife habitat, because of the small amounts of fish habitat (less than .01 percent of the acreage) in the *Decision Area* and protective designations for the limited fish habitat that are Common To All Alternatives. Alternatives B and C would protect fish habitats through ACEC designations. The beneficial impacts to wildlife habitat are anticipated to occur primarily as a result of protective designations that would limit degradation of wildlife habitat, and vegetation management including restoration of desert grassland wildlife habitats.

Wildlife populations fluctuate throughout the *Planning Area* as a result of climatic conditions, interactions with other species of flora and fauna, and human uses. Management decisions resulting from the selection of one of the plan alternatives, or a combination of one or more alternatives, would influence trends in wildlife habitat and populations over the life of the plan. Land use decisions and their implementation may impact wildlife and fish habitats by these mechanisms:

- Alteration of soil structure
- Altered vegetation structure
- Altered fire regime
- Alteration of water regimes
- Change in water quality
- Habitat fragmentation/continuity
- Habitat diversity
- Population genetic structure changes

Many of the effects of land use decisions on soils and vegetation would cause subsequent impacts to wildlife habitats and populations. Most impacts could occur primarily from surface disturbances that impact vegetation and spatial disruption by human activities.

The analysis of land use decisions is cumulative; analysis of a single resource allocation on an area without consideration of all other resource allocations on that area would not provide for adequate analysis of impacts to habitats. For example, consideration of allowing rights-of way in an area without including impacts from open vehicle use in the same area would not provide for sufficient analysis of the impacts of the alternative. Because of this, land use decisions that generally protect or enhance wildlife habitat are lumped together for analysis, as are diverse resource allocations that cause degradation of the wildlife habitat components listed above.

Land uses that protect and enhance wildlife habitat are generally and collectively beneficial, particularly to native wildlife that rely on large areas of relatively high-quality, undisturbed natural habitats. Land uses that disturb, reduce, or fragment large areas of natural habitat are generally detrimental to those species that benefit from protective and enhancing designations and uses. There are hundreds of wildlife species in the *Planning Area*, each with different habitat needs. Many of these species are able to thrive in a wide diversity of habitats, while some are dependent on undisturbed native ecosystems, and others exist mostly in ecosystems that are vastly altered from natural conditions. Discussions are based on changes to habitat that would influence but not entirely control wildlife populations by creating relatively more undisturbed and/or recovered habitat or creating more disturbed and fragmented habitat.

4.3.4.1 Impacts on Fish and Wildlife Habitat Common to All Alternatives

The various resource allocations contained in the four alternatives would not have immediate impacts on fish and wildlife habitat, or on any individual species. Rather, over time, the impacts of the alternative selected would become apparent and there would be significant differences in habitat conditions.

Grassland restoration would be expected to stabilize soils, increase grass cover, and improve forage conditions for desert grassland wildlife species. Those actions that benefit these species would have a commensurate detrimental impact on wildlife species that depend on desert shrub ecosystems. Those species would disperse into surrounding shrublands as grasslands are restored.

Under all alternatives, approximately 320,900 acres of existing WSAs and ACECs would continue to be closed to fluid mineral leasing and development including oil and gas and geothermal. This would

provide protection from habitat fragmentation, ground water contamination, loss of naturalness, and other detrimental aspects of this resource exploitation.

The preparation of travel management plans in the future would limit vehicle use to routes that are necessary, appropriate, and are not causing resource damage. For example, route analysis could determine that a road in arroyo habitat is necessary for access but is not well-situated for wildlife. The road could be rerouted to a less detrimental location. These actions would have significant beneficial impacts on habitat quantity and quality, leading to larger and more stable wildlife populations.

Wildlife can benefit from and be harmed by developed water sources provided by ranchers on public land. Most species of wildlife would use these water sources. The storage tanks and troughs provide water but can also be hazardous. Birds, mammals, and herptiles, as well as invertebrates, can fall into straight-sided water tanks and drown. As the BLM renews livestock grazing permits, stipulations are added that the water sources on public land be left on yearlong for wildlife, and that wildlife escape ramps be installed and maintained (see Appendix D). These reduce the threat of entrapment and drowning.

Wildlife would be affected by geothermal leasing caused by the alteration, removal, reduction, or fragmentation of habitat. Habitat at drilling pads, facilities, roadways, and transmission corridors would be affected. The extent of the disturbance would be a function of the level of preexisting disturbance, the size, scale, and phase of geothermal development, and the type and quality of habitat. Due to the localized nature of the geothermal resource in the *Planning Area*, impacts would not be extensive, but since the Rio Grande Valley has the highest geothermal potential, impacts could be substantial along the river corridor. Geothermal development would have the greatest impact on wildlife if it were to occur in riparian areas, wetlands, or wintering and breeding areas (USDOJ BLM 2008c).

4.3.4.2 Impacts of the Alternatives on Fish and Wildlife Habitat

Resource allocations or designations and uses, summarized in Table 2-12, would serve to protect and improve existing habitats by reducing or eliminating surface disturbance and human activity or confining those activities to particular areas. Damage and destruction of existing habitats would be reduced, habitat fragmentation would be reduced, and degraded habitats such as riparian areas would be able to recover.

Areas with restrictive management prescriptions such WSAs, ACECs, VRM Class I and II areas and right-of-way exclusion areas, would maintain large areas of core wildlife habitat, including some of the most productive and diverse habitats in the *Planning Area*. Restrictions on surface disturbance, OHV use, and installation of management facilities in these areas would help to preserve habitat quality and integrity. Table 4-4 compares protected habitat acres by alternative and habitat type.

HABITAT TYPE	A	B	C	D
Evergreen Forest	23,094	25,738	24,469	23,831
Grassland/Herbaceous	280,376	455,362	269,152	284,915
Shrub/Scrub	387,435	524,935	321,821	373,613
Barren Land	25,102	33,420	20,278	20,067
Developed/Agricultural	1,025	1,025	1,025	1,025
TOTAL	717,032	1,040,480	636,745	703,451

The anticipated detrimental impacts to wildlife and habitat would be caused primarily by increasing development on public land, development on land that leaves Federal ownership, and increased recreational use. OHV use would be the most widespread recreational use detrimental to wildlife habitat.

All of these actions usually result in degradation or loss of habitat. Land where wildlife habitat quality would be expected to be most degraded includes land leaving Federal ownership, utility corridors, solar energy projects, open pit mines, and OHV open areas. Land leaving Federal ownership through direct sale would be totally lost as public wildlife habitat, while land leaving Federal ownership through exchange could provide mitigation or even a net gain in wildlife habitat. Table 4-5 shows by alternative land where habitat loss would most likely occur or could be most degraded. Land identified for potential disposal represents the maximum potential disposal acreage; however, these identified acreages may not be disposed of during the life of this plan.

HABITAT TYPE	A	B	C	D
Evergreen Forest	58,081	5,994	17,537	19,846
Grassland/Herbaceous	725,032	36,433	73,645	78,134
Shrub/Scrub	891,316	196,951	278,785	319,049
Baren Lands	57,691	6,156	10,067	13,332
Developed/Agricultural	1,620	1,254	1,869	1,952
TOTAL	1,733,740	246,788	381,903	432,313

Even though disposal land could be lost as wildlife and fish habitat, it offers also an opportunity to indirectly enhance wildlife and fish habitat management and protection when the land is disposed of through exchange and BLM (or other Federal agencies) then acquires additional land in significant habitat areas such as riparian zones or special status species habitat. Disposal of land that does not provide fish habitat may still impact fish habitat downstream or downslope. Because of this, careful consideration should be made of potential disposal impacts of upland habitats on downslope areas within watersheds.

Impacts to wildlife habitat would be reduced through mitigation developed during subsequent NEPA analyses for any proposed Federal action. Habitats not in Special Designations or identified as subject to degradation that would be open to other activities are shown in Table 4-6.

HABITAT TYPE	A	B	C	D
Evergreen Forest	5,825	55,268	44,994	43,323
Grassland/Herbaceous	2,408	511,205	64,205	639,951
Shrub/Scrub	368,249	925,114	99,183	954,338
Baren Lands	9,207	52,424	61,655	58,601
Developed/Agricultural	555	921	306	223
TOTAL	386,244	1,544,932	1,740,801	1,696,436

4.3.4.2.1 *Alternative A Impacts on Fish and Wildlife Habitat*

Special Designations: Alternative A would protect over 719,000 acres of public land as habitat for wildlife by special designations (WSAs, ACECs, ROW Exclusion, OHV Closed, VRM Class I and II, and management for wilderness characteristics).

Approximately 320,900 acres of existing WSAs and ACECs would be closed to new rights-of-way including renewable energy projects. This represents about 11 percent of the *Decision Area*. Protecting these areas of diverse topography, landforms, and vegetation would also protect a diversity of habitat.

There would be no impact to wildlife habitat from the Alternative A decision for Wild and Scenic Rivers, which would delay the suitability determination for eligible segments until a later date.

Vegetation and Woodlands: The use of prescribed burning and wildfire, prescribed grazing management, herbicide treatments, and two years of growing season rest after treatment in grazing allotments benefits wildlife habitats that have been impacted by shrub encroachment.

Fish and Wildlife Habitat: The decision in Alternative A to attain biotic health through implementing HMPs would emphasize the management of mule deer, and pronghorn habitat.

Livestock Grazing: Opportunities for wildlife habitat enhancements or restoration would be done on a case by case basis associated with livestock forage allocation decisions, permit renewals, rangeland health assessments, and adopting lower utilization levels.

Comprehensive Trails and Travel Management: Alternative A would leave the most land designated as open to vehicle use, almost 59 percent of the public land in the *Decision Area*. Since open areas allow cross-country travel, habitat would steadily degrade, particularly for big game animals and species dependent on unfragmented desert grasslands. Ten percent of land would be closed to vehicle use, protecting those areas from habitat degradation. The remainder of the *Decision Area* would be limited to roads and trails, protecting the quality of wildlife habitat from degradation due to OHV use.

Lands and Realty: Retaining 89 percent of the public land would provide wildlife habitat, although retention alone does not preclude uses that could allow adverse effects to wildlife habitat. Disposal of up to 11 percent of the public land would not directly lead to wildlife habitat degradation, but the habitat on disposed lands would change depending on the end use. Housing subdivisions with natural landscaping can produce good quality habitat for many species of native wildlife with the exception of large mammals. High-density subdivisions and commercial development, generally eliminates land as habitat for most native wildlife species.

Renewable Energy: Solar energy projects use large areas (up to several thousand acres) where vegetation is bladed and removed, and the area reduced to a single use. Any wildlife dependent upon these habitats would move to adjacent areas or die off. Mitigation strategies for wildlife would be developed during site-specific NEPA analyses.

Wind energy development would result in clearing vegetation and habitat for road construction, turbine tower installation, transmission, and other facilities. This would result in habitat fragmentation; however some habitat connectivity would remain within the wind farm area or be regained once project installation is completed. The installation of turbine towers would introduce dangers of collisions between turbine blades and birds and bats where such dangers do not currently exist. Under Alternative A, more of the landscape would be open to wind turbines because fewer areas would be designated as avoidance or exclusion for new rights-of-ways. Impacts of wind energy development would be reduced by following the Las Cruces District Office Wildlife Protocol Standards for Wind Energy Projects (Appendix M).

Minerals: Closing of approximately 330,000 acres to fluid leasing (including geothermal) and subjecting an additional 27,000 acres to a no surface occupancy stipulation would prevent surface disturbing activities associated with mineral development in wildlife habitat. Geothermal leasing avoidance areas would preclude unmitigated development in wildlife habitat.

4.3.4.2.2 *Alternative B Impacts on Fish and Wildlife Habitat*

Special Designations: Designations protecting wildlife habitat conditions (WSAs, ACECs, vehicle closed areas, ROW exclusion areas) would be greatest under this alternative at 1,040,480 acres.

Determining that all five eligible segments of stream are suitable for inclusion into the National Wild and Scenic River System would not affect fish or wildlife habitat. It is unlikely that these extremely short, isolated, stream segments would be selected by the Secretary of the Interior or Congress for the WSRS. The Outstandingly Remarkable Values (ORVs) would continue to be maintained or enhanced by other decisions in this RMP. The ORVs associated with Cuchillo Negro Creek would be maintained or enhanced by the Critical Habitat designation under the Endangered Species Act.

Vegetation and Woodlands: Grassland restoration, with increases in vegetation going to watershed values and wildlife, would improve wildlife habitat, including increased forage production for wildlife, and increased ground cover and seed production for birds and small mammals. However, since passive methods of restoration would be emphasized under Alternative B, recovery of grassland communities would occur over a longer period of time and in fewer areas than would occur under Alternative A which uses active restoration methods. Habitat under Alternative B would be expected to improve over time, but at a slower rate and in fewer areas as compared to Alternative A. In some areas, passive restoration alone may not succeed.

Fish and Wildlife Habitat: Riparian habitat would be managed to meet ecological site capacity by modifying uses as needed. Desert bighorn sheep habitat management would be consistent with the NMDGF Recovery Plan, and would identify other suitable habitat for desert bighorn habitat management.

Livestock Grazing: Reducing AUMs by 25 percent in vegetation with limited restoration potential would increase grass cover in the short-term, which would increase forage production for wildlife, and increase ground cover and seed production for birds and small mammals on 34 percent of the *Decision Area*. This would improve vegetation conditions in the short term over a larger area compared to Alternative A.

Comprehensive Trails and Travel Management: Alternative B would leave the most land designated as closed to vehicle use; 10 percent of the public in the *Decision Area*. This would maintain wildlife habitat quality over time, particularly for big game animals and species dependent on desert grassland ecosystems. Habitats within areas currently designated as open to vehicle use, including most of the public land in Otero and Sierra Counties, would be better protected from further degradation than under Alternative A.

For route designations, the majority of the land in the *Decision Area* (85 percent) would be designated as limited to existing or designated routes, protecting the quality of wildlife habitat in those areas from degradation due to OHV use. The remaining 39,100 acres of the land that is currently designated as open to vehicle use would degrade wildlife habitat in the Red Sands and Aden Hills OHV areas. This area is mostly Mesquite Rolling Upland, Creosote Rolling Upland, and Mixed Shrub Rolling Upland habitat

Lands and Realty: Approximately 774,000 acres in existing WSAs and existing and proposed ACECs would be closed to new rights-of-way which would protect a variety of diverse and important wildlife habitats (28 percent of the *Decision Area*). Protecting these areas of diverse topography, landforms, and vegetation would also protect most habitat types found in the *Planning Area*.

Retaining 98 percent of the public land would provide wildlife habitat on the retained public land, although retention alone does not preclude activities that could allow adverse effects to habitat. Disposal

of up to 2 percent of the public land would not directly lead to habitat degradation, but the habitat on disposed lands would change depending on the end use.

Under Alternative B, 1,416,965 acres, or 41.8 percent of the public land identified for retention, would be managed under Habitat Management Plans. These Habitat Management Plans would benefit mule deer, antelope, and other big game, small game, and non-game species.

Renewable Energy: Under Alternative B, only the Afton SEZ would be available for solar energy projects. Most of this area is mesquite dune and creosote habitat. At full build-out, approximately 24,000 acres could be converted to solar energy production. This would mean the complete loss of the area as wildlife habitat. The quality of habitat is poor due to its current degraded ecological condition, and since this would be the only area available for solar energy development under this alternative, the loss of wildlife habitat in the *Decision Area* to solar energy would be up to 1.2 percent.

Impacts of wind energy development on habitat would be the same as under Alternative A but on a smaller scale since fewer acres would be available for development.

Minerals: Deferring oil and gas decisions until such time as a programmatic RMP amendment can be prepared would have the short term impact of averting impacts to wildlife habitat.

4.3.4.2.3 *Alternative C (Preferred Alternative) Impacts on Wildlife and Fish Habitat*

Special Designations: Under Alternative C, special designations including existing WSAs and proposed ACECs, plus ROW exclusion areas, would protect 637,000 acres (Table 4-5) of diverse and important wildlife habitats. This represents about 23 percent of the *Decision Area*.

Determining that all five eligible segments of stream are not suitable for inclusion into the National Wild and Scenic River System would not affect wildlife or fish habitat. It is unlikely that these extremely short, isolated, stream segments would be selected by the Secretary of the Interior or Congress for the WSRS. The ORVs would continue to be maintained or enhanced by other decisions in this RMP, and through Critical Habitat designation.

Vegetation and Woodlands: Grassland restoration, with increased forage production going to watershed values, wildlife, and lastly to livestock, would improve wildlife habitat, including increased forage production for wildlife, and increased ground cover and seed production for birds and small mammals. Wildlife habitat overall would be expected to improve significantly as compared to Alternative A, and at a faster rate, and a larger scale over the life of the plan, than under Alternative B.

Fish and Wildlife Habitat: Impacts of Alternative C would be essentially similar to impacts described in Alternative B.

Livestock Grazing: A watershed approach to rangeland health and assessment would improve the BLM's ability to effectively adjust livestock forage use where ecosystem function warrants it, leading to an increase in improved vegetation and habitat conditions compared to Alternative A. Compared to Alternative B, this alternative enhances habitat conditions in priority watersheds, whereas Alternative B only enhances conditions in sites with limited restoration potential.

Comprehensive Trails and Travel Management: In Alternative C significantly more land would be designated limited to vehicle use than Alternative A, and significantly less land designated as open to all vehicle use, both of which would result in greater protection of wildlife habitat quantity and quality, particularly for big game animals and species dependent on desert grassland ecosystems. Closed vehicle

routes would re-vegetate and stabilize. Over 98 percent of the public land in the *Decision Area* would be designated as closed or limited to existing roads and trails.

The land that is currently designated as open to vehicle use (42,000 acres) would remain open, preventing wildlife habitat recovery in the Red Sands and Aden Hills OHV areas. Increased OHV use in those areas is anticipated over time, leading to continued wildlife habitat degradation. The removal of the closed designation south of State Road 9 in Doña Ana County would have more than a minimal impact on wildlife habitat in that area.

Lands and Realty: Land disposal and retention would have impacts similar to Alternative B; 95 percent of the public land would be retained and up to 5 percent would be disposed.

Renewable Energy: Under Alternative C, the Afton SEZ would be available for solar energy development as well as sites outside avoidance and exclusion areas. Impacts from solar energy under Alternative C would be greater than those under Alternative B. For wind energy development, impacts would be the same as described under Alternative A, but fewer acres would be available for development.

Minerals: Impacts from Alternative C would be the same as described in Alternative B.

4.3.4.2.4 *Alternative D Impacts on Wildlife and Fish Habitat*

Special Designations: Impacts of special designations on habitat would be the same as described under Alternative A. The suitability of Tularosa Creek for the Wild and Scenic Rivers System would not affect fish and wildlife habitat because it is highly unlikely that the Secretary of the Interior or Congress would include this extremely short river segment, 1.4 miles, into the WSRS. Decisions in this RMP for Tularosa Creek in Recreation, and ACECs, would maintain or enhance its ORVs.

Vegetation and Woodlands: Grassland restoration, with increased forage production going primarily to livestock, would reduce benefits to wildlife habitat. Restoration would be accomplished with only active measures. Without the use of passive management to improve or maintain vegetation conditions, improvements would be short-lived and long-term benefits to wildlife habitat would not be realized.

Fish and Wildlife Habitat: Riparian habitat would be managed to achieve minimum standards, possibly foregoing opportunities to enhance and restore these habitats to meet the site's ecological capability, which is emphasized in Alternatives B and C. Desert bighorn sheep would be managed consistent with the NMDGF recovery plan, limiting opportunities for management in other suitable habitat when compared to Alternatives B and C.

Livestock Grazing: Impacts to wildlife habitat would be the same as those described in Alternative A.

Comprehensive Trails and Travel Management: The impacts of Alternative D would be similar to those described under Alternative C. The primary difference between these alternatives is the acreage designated as existing roads versus designated roads. Because most of the land in the *Decision Area* would be designated as limited to either existing or designated roads and trails, wildlife habitat in those areas would not degrade due to OHV use. Vehicle closures would be 17,000 acres under alternative D, compared to 19,000 acres in Alternative C.

Lands and Realty: Land disposal and retention would have impacts similar to Alternative B; 93 percent of the public land would be retained and up to 7 percent would be disposed.

Renewable Energy: Impacts from renewal energy would be the same as Alternative C.

Minerals: Impacts from Alternative D would be the same as described in Alternative B.

4.3.5 IMPACTS ON SPECIAL STATUS SPECIES HABITATS

4.3.5.1 Impacts on Special Status Species Common to All Alternatives

Grassland restoration would enhance habitat for grassland special status species including the Northern aplomado falcon.

Areas with less restrictive management prescriptions, but with some form of management limitations that would help maintain habitat quality, would include areas with OHV use limited to existing or designated routes, ROW avoidance areas, and areas with surface occupancy restrictions. These lands would comprise the majority of the public land in the *Decision Area*.

The anticipated detrimental impacts to special status species would be caused primarily by increasing permitted activities on public land, development of land that leaves Federal ownership, and increased recreational use. Land where wildlife habitat quality would be expected to be most degraded or lost as wildlife habitat include land leaving Federal ownership, utility corridors, and OHV open areas.

The species most at risk of habitat loss would be the sand prickly pear which could potentially be extirpated from public land identified for disposal. This land comprises the majority of this species habitat, and disposal of this land could potentially necessitate listing the sand prickly pear as a threatened or endangered species. Other developments that would adversely impact special status habitat include roads, utility corridors, off-highway vehicle use, and mineral development including locatable, leasable, and saleable minerals. Many special status species occur in the most rugged and remote areas, and are secure because their habitat is not conducive to human development. Also, many of these most rugged habitats are in special designation areas, where existing management prescriptions preclude activities that could degrade these habitats.

Impacts to special status species habitat from utility scale renewable energy projects would be minimal since all such habitat would either be closed because it is in a WSA or ACEC or it would be within a ROW avoidance or exclusion area. Any proposed renewable energy projects in these areas would be denied or moved to another location.

Under Alternatives B, C and D, all oil and gas leasing would be closed in WSAs and ACECs and deferred in the rest of the *Planning Area*. Therefore, there would be no impacts to wildlife habitat from new oil and gas leasing, exploration, development, or production within WSAs and ACECs and unleased areas under these alternatives. Existing leases could be developed, but impacts would be minimal and localized due to the small number and scattered nature of the leases and their low likelihood of production.

4.3.5.2 Impacts of the Alternatives on Special Status Species Habitats

4.3.5.2.1 *Alternative A Impacts on Special Status Species Habitats*

Special Designations: The No Action Alternative would maintain protection for special status species and their habitats, primarily in existing Special Management Areas including WSAs, existing ACECs, ROW exclusion areas, but also in the other protected lands. Special status species habitats that are not in protective designations could be degraded. The following ACECs have been established in part or in whole to protect habitat for special status species:

Aden Lava Flow	Organ/Franklin Mountains
Alamo Mountain	Robledo Mountains
Alkali Lakes	Sacramento Escarpment
Cornudas Mountain	Wind Mountain
Doña Ana Mountains	

4.3.5.2.2 *Alternative B Impacts on Special Status Species Habitats*

Special Designations: Designations that protect existing special status species habitat conditions (WSAs, ACECs, vehicle closed areas, ROW exclusion areas) would be greatest under this alternative. Ten percent of the *Decision Area* would be closed to vehicle use. This would be expected to maintain special status species quality over time. Habitats within areas currently designated as open to vehicle use, including most of the public land in Otero and Sierra counties, would be better protected from further degradation under Alternative B than under Alternative A. Additional ACEC designations under Alternative B that would enhance protection of Special Status Species habitat are:

Broad Canyon	Otero Mesa Grasslands
Brokeoff Mountains	Percha Creek
Caballo Mountain	Pup Canyon
Cornucopia	Sacramento Mountains
Doña Ana Mountains expansion	Six Shooter Canyon
East Potrillo Mountains	Southern Caballo Mountains
Jarilla Mountains	Tularosa Creek
Mud Mountain	Nutt Mountain

Vegetation and Woodlands: Under this alternative, grassland restoration would be through passive means only. This would most likely result in fewer acres being restored and requiring a longer period of time to do so. Increase in the amount or quality of aplomado falcon habitat would be minimal.

Comprehensive Trails and Travel Management: The majority of the land (85 percent) in the *Decision Area* would be designated as limited to roads and trails, protecting the quality of special status species habitat in those areas from degradation due to OHV use. Vehicle use in the Red Sands and Aden Hills areas would not have significant impacts on special status species or their habitats.

Lands and Realty: Under Alternative B, retention of sand prickly pear habitat near Anthony should preclude the necessity of listing that species as threatened or endangered.

4.3.5.2.3 *Alternative C Impacts on Special Status Species Habitats*

Special Designations: Alternative C would maintain protection for special status species and their habitats in over 637,000 acres of WSAs, ACECs and lands with wilderness characteristics. Additional ACEC designations under Alternative C that would enhance protection of Special Status Species habitat would include:

Broad Canyon	Otero Mesa Grasslands
Brokeoff Mountains	Percha Creek
Caballo Mountain	Pup Canyon
Cornucopia	Sacramento Mountains
Doña Ana Mountains expansion	Six Shooter Canyon
East Potrillo Mountains	Southern Caballo Mountains
Jarilla Mountains	Tularosa Creek
Mud Mountain	VanWinkle Lake
Nutt Mountain	

Vegetation and Woodlands: Grassland restoration projects would be accomplished using both passive and active means. Consequently, more acres in more areas could be converted to grassland or grassland-shrub habitats. This would potentially increase the amount of quality habitat for aplomado falcons.

Comprehensive Trails and Travel Management: The majority of the land in the *Decision Area* would be designated as limited to (either designated or existing) roads and trails, protecting the quality of special status species habitat in those areas from degradation due to OHV use. Red Sands and Aden Hills OHV open areas would remain open, but these areas are not special status species habitat. The removal of the closed designation south of State Road 9 in Doña Ana County, which has never been enforced, would not have a significant impact on special status species habitat. Additional vehicle closures under this alternative would bring the total closed acreage to 62,000 acres, or 2.2 percent of the public land in the *Decision Area*, which would be protected from habitat degradation by OHV use.

Lands and Realty: Disposal of up to 5 percent of the public land may lead to wildlife habitat degradation, depending on the end use of the land. Retention of sand prickly pear habitat near Anthony should preclude the necessity of listing that species as threatened or endangered.

4.3.5.2.4 *Alternative D Impacts on Special Status Species Habitats*

Special Designations: No additional ACEC designations would be implemented and impacts would be similar to Alternative A.

Vegetation and Woodlands: Grassland restoration projects would be done exclusively by active means. However, without passive measures as well such as proper grazing management, the full benefit of the restoration projects may not be realized. This could result in fewer acres of aplomado falcon habitat.

Comprehensive Trails and Travel Management: For route designations and closures, Alternative D impacts to Special Status Species Habitats would be the same as Alternative C.

4.3.6 IMPACTS ON CULTURAL RESOURCES

Management of cultural and heritage resources is usually a non-surface-disturbing activity that involves inventory, site monitoring, and occasionally placement of site protection. Some cultural and heritage resource management activities, such as installation of protective fencing to exclude livestock or motorized vehicles, excavation, and interpretive projects, could affect cultural and heritage resources. Such projects usually involve disturbance of less than 1 acre in any given year.

The extent of impacts on cultural and heritage resources among the alternatives varies in regard to three primary factors: (1) the type and intensity of uses of public land, especially the extent of surface-disturbing activities; (2) the extent of area specially designated to protect cultural and heritage resources (as a primary, secondary, or coincidental purpose); and (3) the location of resource uses.

Cultural and heritage resources continue to be discovered on land administered by BLM, but the quantity and nature of those resources are not known until they are found and evaluated. Models developed in conjunction with Class I cultural resources inventory provide an estimate of the potential for cultural and heritage resources. The impact assessment focuses on the potential of the various elements of each alternative to achieve the desired future conditions for the protection, conservation, management, and appropriate use of cultural and heritage resources over the life of the RMP.

The four major elements of the cultural program include: (1) inventory and evaluation, (2) protection and preservation, (3) resource use in accordance with resource allocations, and (4) planning. The impact analysis assumed that, regardless of which alternative is selected, the cultural resource program would continue to be implemented in accordance with BLM policies, which implement numerous Federal laws and regulations such as Section 106 of the National Historic Preservation Act. Section 106 reviews assess impacts on cultural resources in consultation with the State Historic Preservation Officer and other interested agencies and parties. The consulting parties work to modify proposed activities to avoid any identified adverse effects on cultural resources that are eligible for the National Register of Historic Places or to implement measures to reduce or mitigate adverse effects that cannot be reasonably avoided. Those decisions are made administratively and do not require RMP decisions.

The analysis of alternatives assumed that actions identified to preserve, protect, study, and interpret cultural resources, would be pursued administratively regardless of which alternative is selected.

4.3.6.1 Impacts on Cultural Resources Common to All Alternatives

Under all alternatives, cultural resources would continue to be affected by natural weathering and erosion. The loss or damage of cultural and heritage resources would result from unmitigated ground disturbance (e.g., cross-country OHV travel or wildfires). These impacts would continue to occur regardless of which alternative is selected and would be addressed on a case-by-case basis as they are recognized.

Management of all resources have potential to affect cultural and heritage resources to some degree, but decisions regarding air quality, special status species, paleontological resources, and wilderness characteristics, are likely to have no more than minimal impacts, regardless of which alternative is selected. Activities and projects associated with the management of soils, water resources, vegetation, fish and wildlife, and minerals, as well as livestock grazing, wildland fire management, utility corridors, and solar, wind, and geothermal projects could involve soil disturbance, which in turn has the potential to affect cultural resources. Those activities would be evaluated on a case-by-case basis so that potential effects on cultural resources could be avoided, reduced, or mitigated. Some management activities associated with those resources could help protect cultural resources by reducing erosion, reducing heavy

fuel loads, improving livestock distribution, or otherwise curtailing ground disturbance. Resource decisions that could have a potential major impact on cultural and heritage resources would include: travel routes, recreation and visitor services, lands and realty, and special designation areas.

Disposal of Federal land would eliminate the Federal regulatory protection, the effects of disposal on cultural and heritage resources would be considered and addressed prior to any disposals. Land not designated as avoidance or exclusion areas for rights-of-way would potentially be open to siting renewable energy projects.

Impacts to cultural resources could potentially occur during all phases of ground disturbing development of a geothermal lease, exploration, drilling, and utilization. The magnitude and extent of the impact would depend on the current state of the cultural resources and their eligibility for the National Register of Historic Places. The drilling operations phase includes drill site development, which on average would require ground disturbance within a two-acre area plus a buffer to accommodate additional production wells, injection wells, and fluid sump pits. Any cultural resources or historic landscapes of cultural resources would be directly impacted by the ground disturbance. Impacts would be mitigated by avoiding the cultural site, data recovery or other means determined during NEPA analysis for well development.

4.3.6.2 Impacts of the Alternatives on Cultural Resources

4.3.6.2.1 *Alternative A Impacts on Cultural Resources*

Special Designations: Under Alternative A, designating ACECs to protect cultural and heritage resources from the threat of irreparable harm would help retain existing cultural and heritage resource conditions. Nine ACECs have been designated, in whole or in part, to protect cultural resources.

There would be no impact to cultural resources from the Alternative A decision for Wild and Scenic Rivers, which would delay the suitability determination for eligible segments until a later date.

Under Alternative A, El Camino Real de Tierra Adentro National Historic Trail and associated VRM Class II area would continue to be managed pursuant to the RMP (USDOI BLM 2004a), which prohibits surface disturbance within a ¼-mile wide corridor centered on well-defined segments of the trail.

Under Alternative A, land use within a 1-mile wide corridor centered on the Lake Valley Back Country Byway and a ¼-mile wide corridor for the Butterfield Overland Trail would continue to be managed to prevent surface disturbance, helping to retain cultural and heritage resources in areas near these trails.

Comprehensive Trails and Travel Management: Dispersed recreation and OHV use in unrestricted areas have the potential to disturb cultural and heritage resources. Under Alternative A, approximately 1,644,000 acres would remain open to OHV cross-country which creates the potential for cross-country travel to impact cultural resources. Aden Hills open OHV area (8,000 acres) would remain open; however this is in a designated OHV area which has been cleared for such use and no impacts to cultural resources would be expected. Vehicle use in other areas would be limited to existing or designated routes, indirectly limiting impacts to cultural resources.

Recreation and Visitor Services: Under Alternative A, the 61,000-acre Organ/Franklin Mountains SRMA and the 8,300-acre Doña Ana Mountains SRMA would continue to be managed for public recreation. Recreational activities could increase potential disturbance of cultural and heritage resources, but SRMAs also provide potential for interpretation of cultural resources as part of recreation management.

Lands and Realty: Installation of new utilities within utility corridors could threaten cultural and heritage resources, measures to avoid, reduce, or mitigate any identified adverse effects would be implemented pursuant to established procedures of the cultural resource program.

4.3.6.2.2 *Alternative B Impacts on Cultural Resources*

Special Designations: Managing 520,000 acres as ACEC could help retain cultural resources by restricting surface-disturbing activities on 83 percent more land than under Alternative A.

Alternative B would increase the no surface disturbance to a corridor ½-mile wide, centered on well-preserved segments of the El Camino Real de Tierra Adentro, Butterfield Overland Trail and the Mormon Battalion Trail. This would retain cultural resource conditions to a greater extent than Alternative A.

Determining that all five eligible segments of stream are suitable for inclusion into the National Wild and Scenic River System would not affect cultural resources. It is unlikely that these extremely short, isolated, stream segments would be selected by the Secretary of Interior or Congress for the WSRs. The cultural ORVs would be maintained or enhanced by the Three Rivers ACEC and the Tularosa ACEC, if selected.

Comprehensive Trails and Travel Management: Reducing the area managed as open to cross-country OHV use by 98 percent would reduce disturbance cultural resources relative to Alternative A. Designating 259,110 acres and 346 miles of routes as closed to OHV would reduce surface disturbance compared to Alternative A, which designates only 43,000 acres and 84 miles as closed. Prohibiting cross-country OHV use and closing selected areas to vehicle use could reduce the damage to and loss of cultural and heritage resources.

Recreation and Visitor Services: Under Alternative B, five areas would be allocated as SRMAs and ERMAs. These areas would be more intensively managed for recreation use, meaning more facilities and more visitors, which could impact cultural resources that are onsite. In three of these areas, OHV use would be limited to designated routes which would limit or eliminate impacts to resources from such uses. Two areas, Aden Hills and Red Sands SRMAs, are open to OHV use; however, most of the trails have been surveyed and cleared. The use of SRMAs and ERMAs could disturb of cultural and heritage resources on a localized basis but also would provide more interpretation of cultural and heritage resources than Alternative A.

Lands and Realty: Cultural resources could retain more Federal regulatory protection under Alternative B through the retention of more public land than under Alternative A. Under Alternative B, 38,273 acres would be designated for disposal compared with 213,199 acres under Alternative A.

Renewable Energy: The proposed Afton SEZ has potential for containing important cultural resources, especially in the dune areas in the northern and eastern portion of the SEZ. Solar energy development could impact cultural resources within the SEZ. A cultural resources survey of the entire area of potential effect of a proposed project, including consultation with affected American Indian Tribes would be conducted to identify archaeological sites, historic structures and features, and traditional cultural properties, and an evaluation would follow to determine whether any are eligible for listing in the NRHP as historic properties. Potential impacts would be minimized through the implementation of required programmatic design features for site avoidance, project relocation, or data recovery.

4.3.6.2.3 *Alternative C (Preferred Alternative) Impacts on Cultural Resources*

Special Designations: Under Alternative C, one new ACEC would be designated to protect cultural resources—the Brokeoff Mountain ACEC. One new ACEC would be designated to protect scenic and cultural resources (Picacho Peak ACEC). Under Alternative C, the extent of ACECs designated to protect cultural resources would be more than Alternative A, but 28 percent less than Alternative B.

Under Alternative C, management of El Camino Real de Tierra Adentro National Historic Trail, Butterfield Overland Trail, and Mormon Battalion Trail would be the same as under Alternative B.

Determining that all five eligible segments of stream are not suitable for inclusion into the National Wild and Scenic River System would not affect cultural resource. It is unlikely that these extremely short, isolated, stream segments would be selected by the Secretary of the Interior or Congress for the WSRS. The cultural ORVs would continue to be maintained or enhanced by the Three Rivers ACEC and the Tularosa ACEC, if selected.

Comprehensive Trails and Travel Management: Managing 42,000 acres as open to cross-country OHV could help retain cultural resources over a greater area compared to Alternative A, but slightly less (2,900 acres) than Alternative B. The total closure of 20,000 acres to OHV use is about 42 percent less than the area closed under Alternative A and 7 percent of that closed under Alternative B.

Recreation and Visitor Services: Alternative C would designate two ERMA, the Aden Hills ERMA, which would be increase to 8,000 acres compared to 5,100 acres for Alternative B, and the Red Sands ERMA, 34,000 acres. In addition, the Elephant Butte ERMA, 36,500 acres, would be designated. Overall, Alternative C would provide more opportunities for public recreational activity that could increase potential localized disturbance of cultural resources, but would provide more potential for public interpretation of cultural resources than Alternatives A and B.

Lands and Realty: Alternative C allocates more public land for disposal than Alternative B, but less than Alternative A. Under Alternative C, 108,450 acres are designated for disposal, compared with 38,273 acres under Alternative B.

Alternative C would maintain existing utility corridors and establish a 1-mile-wide north-south energy corridor along Interstate 25. Under Alternative C, 209,000 acres of utility corridors would be allocated, approximately 30 percent more than Alternative B. Designation of utility corridors could disturb cultural resources, but the surveys completed prior to utility installations would provide additional information about cultural and heritage resources and any impacts on significant resources would be addressed before new utilities are constructed.

Renewable Energy: Impacts on cultural resources of solar energy development in the Afton SEZ would be the same as those described under Alternative B

4.3.6.2.4 *Alternative D Impacts on Cultural Resources*

Special Designations: Under Alternative D, the impacts of special designations would be the same as those described under Alternative A. The suitability of Tularosa Creek for the Wild and Scenic Rivers System would not affect cultural resources because it is highly unlikely that the Secretary of the Interior or Congress would include this extremely short river segment, 1.4 miles, into the WSRS. Decisions in this RMP for Tularosa Creek in the Recreation and Visitor Services section, would maintain or enhance its ORVs.

Comprehensive Trails and Travel Management: Under Alternative D, 42,000 acres would be designated as open to cross-country OHV use, which is the same as Alternatives B and C. A 17,000-acre closure to OHV use would slightly increase potential disturbance of cultural and heritage resources compared to Alternative C.

Recreation and Visitor Services: One additional ERMA - Caballo Mountain (41,000 acres) and one additional SRMA - Tularosa Creek (230 acres) would be established under Alternative D. Alternative D would provide more opportunities for interpretation of cultural resources than all other alternatives, but more recreational activity could increase potential disturbance of cultural and heritage resources in localized areas.

Lands and Realty: Alternative D allocates more public land for disposal than Alternatives B and C. This could increase the area where Federal management of cultural resource would be eliminated. Alternative D would maintain existing utility corridors and establish a 2-mile wide north-south energy corridor along Interstate 25, which is an increase in width and may result in more disturbance than the other alternatives.

Renewable Energy: Impacts on cultural resources of solar energy development in the Afton SEZ would be the same as those described under Alternative B.

4.3.7 IMPACTS ON PALEONTOLOGICAL RESOURCES

This section discusses impacts on paleontological resources that could occur from management of other resources and resource uses. Destruction of paleontological resources occurs from natural weathering and erosion, surface-disturbing activities, excavation, and theft or vandalism. Important contextual data also can be irretrievably lost in the case of theft and vandalism.

Unlike cultural resources, which may exist largely at or near the land surface, paleontological resources are found both at the surface and throughout the subsurface environment. Surface-disturbing activities involving excavation can “*discover*,” while at the same time inadvertently damage or destroy sub-surface paleontological resources. When discovery occurs, resources can be curated for scientific, educational, and/or recreational values. Management actions that result in erosion do not necessarily damage paleontological resources; however, excessive erosion resulting from surface disturbance could damage fossils present at the surface.

Increased access to areas could allow for the discovery of paleontological resources, which could lead to proper collection and curation of the resource. Conversely, with increased access the fossil resource could be damaged, destroyed, or lost due to vandalism or theft. Restriction of public access could both reduce the potential for discovery and diminish the chance of vandalism or theft.

The impact analysis and conclusions are based on BLM’s knowledge of resources and the project area, review of existing literature, spatial analysis, and information provided by other agencies. Impacts are quantified where possible. In the absence of quantitative data, qualitative impacts and the direction of impact are identified. The analysis is based on the following assumptions:

- Paleontological resources would continue to be discovered throughout the *Decision Area*.
- Paleontological resources identified during assessments and inventories would be protected through data collection and mitigation.
- The number of localities that could be impacted by various actions would be directly correlated with the degree, nature, and quantity of surface-disturbing activities within the *Decision Area*.

- Surface-disturbing activities could expose, dislodge, or damage paleontological resources and features that were not visible prior to surface disturbance.

Under all alternatives, impacts on paleontological resources are not anticipated as a result of implementing management actions for the following resources or resource uses: air quality, cultural resources, and livestock grazing.

4.3.7.1 Impacts on Paleontological Resources Common to All Alternatives

Implementing the potential fossil yield classification (PFYC) system and evaluating all proposed surface-disturbing actions would reduce impacts. Mitigation measures include project relocation or redesign or various scientific data recovery methods such as recording, surface collection, or excavation. These mitigation actions would prevent significant impacts and increase the knowledge and understanding of the area's paleontological resources and of the history of life on earth.

Through this evaluation process, proposed land uses would not destroy important vertebrate fossils or other scientifically significant fossil resources. Proposed land uses would include actions such as mineral exploration and development (including fluid-mineral development), development or construction within rights-of-way, or range improvements. However, inadvertent damage to paleontological resources that are undetected during the evaluation process could occur. Inadvertent damage to vertebrate fossils or other scientifically significant paleontological resources generally would be a significant impact.

Paleontological resource assessments would be performed on a case-by-case basis prior to proposed land uses. Based on the findings of the assessment, mitigation would be implemented at all phases of development. Although assessments would minimize the potential for impacts on known paleontological resources, they would not require an onsite inventory prior to all disturbances. This could result in the inadvertent damage of unidentified paleontological resources and a loss of their scientific values, although mitigation would reduce the magnitude of damage through data recovery.

Monitoring scientifically important paleontological localities would document the rate of deterioration and provide baseline data for possible site protection, restoration, or data retrieval. Paleontological inventory data could lead to better resource protection from increased understanding of the spatial and temporal distribution of paleontological resources. Hobby/personal collection of paleontological resources reduces the number of fossils.

Education programs would indirectly protect fossils. Providing interpretive opportunities could provide more paleontological resource sites for public use and education because inventories would be required to recover scientifically important data prior to allowing public use of the sites. This would also instill stewardship values that would lead to increased protection of, decreased inadvertent damage to, and decreased vandalism and looting of paleontological sites.

Wildland fire suppression activities (e.g., construction of fire lines, bulldozing of access roads, and general movement of heavy equipment) that disturb the surface could dislodge or damage fossils. In addition, some methods of vegetation treatment or restoration activities could disturb the surface. Restoration activities would be foregone where fossils are known to be present.

Prior to any transfer of land from public ownership, paleontological resources would be inventoried and evaluated and adverse effects would be mitigated to ensure that land with scientifically significant paleontological resources are retained or that the maximum benefit from known resources is obtained.

Removal of vegetation and soil from the surface may expose fossils. The largest potential impacts on paleontological resources would occur where surface disturbances take place in formations with high potential for paleontological resources.

Unlike permitted activities that are subject to site-specific evaluations and monitoring, dispersed recreation activities are not under the same degree of scrutiny. The widespread occurrence and generally unsupervised nature of dispersed recreational use, such as unauthorized collecting, could result in unmitigated impacts on paleontological resources exposed at the surface.

Impacts to paleontological resources could potentially occur during all phases of development of a geothermal lease: exploration, drilling, and utilization. Any permanent construction or ground disturbances within a resource's boundaries would cause long-term impacts.

4.3.7.2 Impacts of the Alternatives on Paleontological Resources

4.3.7.2.1 *Alternative A Impacts on Paleontological Resources*

Comprehensive Trails and Travel Management: Allowing cross-country OHV use on 1.64 million acres and designating 19,000 miles of routes as open to motorized vehicle may increase erosion, and could break, spread, and otherwise disturb paleontological resources at the surface. In addition, managing 1.05 million acres as limited to existing routes and 72,000 acres as limited to designated routes could result in minimal impacts paleontological resources located adjacent to routes in these areas.

Closing 43,000 acres to OHV use would eliminate indirect impacts from vehicle use and could reduce the accessibility of remote paleontological localities. Because the designated routes currently exist and receive use, additional impacts on or adjacent to them would be minimal.

Vegetation and Woodlands: Implementing different vegetation treatments, which strive to improve wildlife habitat and livestock forage, could increase short-term erosion rates, exposing more paleontological resources for potential identification and increasing the potential to erode, remove, or destroy fossils from the bedrock. The potential for impacts on paleontological resources from vegetation treatments would be low, as mitigation would prevent excessive erosion in treated areas.

Lands and Realty: Under Alternative A, projects in lands not designated as avoidance or exclusion areas for rights-of-way could impact paleontological resources depending on the size, location, and technology used for the project. Using the Potential Fossil Yield Classification (PFYC) map to aid in locating projects could help to minimize impacts. In addition, mitigation measures such as avoidance of sites, data recovery, or other practice could be implemented. It is possible that some paleontological localities could be damaged or destroyed due to the magnitude of the project and the site preparation required. Areas with important known paleontological resources would be avoided during the initial screening process.

Minerals: Managing approximately 3.65 million acres as open to fluid-mineral leasing with standard terms and stipulations and 170,000 acres managed as open to fluid-mineral leasing with CSU could lead to damage of paleontological resources if fluid mineral exploration and development activities occurred in these areas. Surface disturbance could increase short-term erosion and could disturb localized areas.

4.3.7.2.2 *Alternative B Impacts on Paleontological Resources*

Impacts on paleontological resources would be similar to Alternative A, except for areas where the management of other resources could restrict or allow surface-disturbing activities. Requiring on-the-ground paleontological inventories prior to permitting surface-disturbing activities in Class 1 and 4 paleo-sensitive areas would result in the identification, evaluation, and protection of scientifically significant fossil resources. As the number of paleontological inventories increases compared to Alternative A, knowledge of the area's paleontological resources would increase. More paleontological localities would be identified, and there would be an associated reduction in the number of localities damaged prior to surface-disturbing activity, thus reducing impacts on paleontological resources relative to Alternative A.

Special Designations: Managing ACECs and WSAs by prohibiting access for exploration, excavation, and removal of paleontological resources or other areas with sensitive resources could reduce the discovery of paleontological resources when compared with Alternative A. However, paleontological resources will be more vulnerable to erosion and weathering because they will not be collected and preserved.

Comprehensive Trails and Travel Management: Managing 260,000 acres as closed to OHV use would reduce the area where damage to paleontological resources could occur. Impacts to these resources would be less than Alternative A.

Vegetation and Woodlands: Short-term restoration of areas using passive methods could increase erosion rates, exposing more paleontological resources for potential identification. Long-term, passive restoration would help protect paleontological resources in place by reducing potential erosion.

Lands and Realty: Managing 1,030,000 acres as rights-of-way exclusion or avoidance areas would help retain paleontological resources by reducing surface disturbance. Over the long-term, these management actions would help protect existing paleontological resources to a greater extent than Alternative A.

Renewable Energy: The potential for impacts on paleontological resources in the Afton SEZ are relatively high, especially along the eastern edge of the mesa or breaks above the Rio Grande Valley. These areas are PFY Class 4 or 5 which means a high potential for occurrence of important fossils.

Minerals: Existing oil and gas leases could be developed, however, impacts to paleontological resources would not be likely because of the small number and scattered nature of the leases, and their locations in areas of low potential fossil yield. In the remainder of the *Planning Area* there would be no impacts from oil and gas leasing, exploration or development in the short term because that area would be deferred from leasing until a programmatic EIS addressing leasing, exploration and development of oil and gas resources is prepared in the future.

4.3.7.2.3 *Alternative C (Preferred Alternative) Impacts on Paleontological Resources*

Special Designations: Impacts of Alternative C are similar to those described in Alternative B but 41 percent fewer acres would be affected.

Comprehensive Trails and Travel Management: Managing 20,000 acres as closed to OHV use would provide less protection than Alternative B which proposes to close 260,000 acres to OHV use. OHV open areas would be slightly greater under Alternative C (1 percent) as compared to Alternative B. However, paleontological resource surveys in the open areas have revealed no resources that have been or could be damaged.

Vegetation and Woodlands: Restoring areas using passive and active methods could result in a short-term increase in erosion. However, using both passive and active methods would reduce short-term erosion compared with Alternatives A and B. In the long-term, using both passive and active treatments could improve resource conditions to a greater extent than under Alternative B. This could reduce the indirect loss of paleontological resources over a greater area compared to Alternatives A and B.

Lands and Realty: Managing 766,000 acres as rights-of-way avoidance and exclusion areas would result in the same impacts as described under Alternative B but on a slightly smaller area.

Renewable Energy: The impacts to paleontological resources from solar energy development within the Afton SEZ are the same as those described under Alternative B.

Minerals: The impacts to paleontological resources from oil and gas leasing are the same as those described under Alternative B.

4.3.7.2.4 *Alternative D Impacts to Paleontological Resources*

Impacts on paleontological resources would be the same as under Alternative C, except for the areas where the management of other resources could allow surface-disturbing activities. Requiring on-the-ground paleontological inventories prior to permitting surface-disturbing activities in Class 3 and 4 paleo-sensitive areas would result in the identification, evaluation, and protection of scientifically significant fossil resources.

Special Designations: Impacts from Alternative D would be the same as described in Alternative A.

Comprehensive Trails and Travel Management: Impacts from OHV management would be the same as under Alternative C. Managing 78,000 acres as limited to designated routes could increase impacts on paleontological resources as compared to Alternatives A, B, and C.

Vegetation and Woodlands: Restoring areas using only active methods could increase erosion rates, as areas may not recover without accompanying passive restoration methods. This could expose more paleontological resources and increase the potential for them to erode and remove fossils from the bedrock (along with the associated diagnostic matrix) when compared with Alternatives A, B, and C.

Lands and Realty: Managing 761,000 acres as rights-of-way avoidance and exclusion areas would result in the same impacts as described under Alternative C but on a slightly smaller area.

Renewable Energy: The types and likelihood of impacts to fossils from solar energy development within both the Afton SEZ are the same as those described for the Afton SEZ under Alternative B.

4.3.8 IMPACTS ON VISUAL RESOURCES

This section discusses potential impacts on visual resources that could occur from management of other resources and resource uses. VRM Inventory Classes and VRM Classes have been used to guide the impact analysis. This analysis focuses on impacts from the alternative management decisions that would impact the natural visual landscapes. Assumptions used in this analysis are as follows:

- VRM class objectives would apply to all resources on BLM-administered land. VRM class objectives would be adhered to through project design, avoidance, or mitigation.
- VRM class objectives are prescriptive for all resources and uses. Activities proposed would meet VRM objectives for the area, or would be mitigated to the extent needed to meet the objectives. Activities proposed that could not be mitigated would not be authorized.
- New surface-disturbing activities proposed would be subject to NEPA analysis, including a VRM contrast rating.
- The Visual Resource Inventory (2010) accurately captured the visual values of the *Planning Area*.

4.3.8.1 Impacts on Visual Resources Common to All Alternatives

Designations of VRM Classes are based upon management decisions that would either have an adverse or beneficial impact to visual resources within the *Planning Area* depending on the variation between the Visual Resource Inventory (VRI) class and VRM management class for a particular area.

When VRM Classes are designated in contrast to the visual inventory analysis, there are potential impacts to the scenic quality, sensitivity rating and distance zone of that area. Initially, those potential visual impacts are measure by the allowable level of impacts of an area (VRM) compared to the visual analysis.

4.3.8.1.1 *Potential Decreases in Visual Quality*

Comprehensive Trail and Travel Management: Increases in the number of routes and open areas would increase the level of dust and vegetation loss. Dust could be visible during regular short term intervals, reducing visibility of landscape features and the quality of light and the atmosphere. Lines of vegetation loss would be visible long-term due to creation of new routes resulting in changes to color and texture of the characteristic landscape.

Recreation and Visitor Services: New recreation developments would be constructed to meet VRM class objectives. There could also be an increase in litter in concentrated use areas, further impacting visual resources.

Lands and Realty: Impacts may include vegetation loss, fragmentation from roads, intrusions from water tanks, power poles, tower lattices, and lines, and the development of other structures impacting visual resources by creating a contrast in the basic visual elements of form, line, color, and texture.

Renewable Energy: Impacts include new roads, structures such as solar panel and wind turbine installations spread across open space that may skyline against the horizon. Turbines would have moving parts and solar panels may reflect light over distances, negatively impacting visual resources.

Minerals: Impacts from mineral exploration and development activities include removal of vegetation and soil resulting in changes to landscape forms and production of fugitive dust from associated traffic. Development of fluid minerals would result in the development of roads, well heads, or pump jacks, pipeline related valves, meter houses, and other structures which could cause visual contrast.

4.3.8.1.2 *Potential Increases to Visual Quality*

Special Designations: More restrictive VRM classes prescribed for special designations would allow less change to the form, line, color, and texture of the characteristic landscapes.

Visual Resources: Allocating the visual resources with higher management objectives than the relative value they were rated for in the inventory can protect scenic quality according to the value placed on it by the public. While VRM objectives generally do not allow or preclude activities, areas to be managed according to VRM classes that have more restrictive objectives have greater potential to maintain views that appear undeveloped at the broad landscape level.

Comprehensive Trails and Travel Management: Any decrease in motorized routes would reduce the level of dust and vegetation loss. A greater value of resources through increased management could also limit inappropriate OHV use.

Recreation and Visitor Services: Increased value and awareness of resources through increased management could reduce vandalism, litter, and vegetation loss from recreational users.

Lands and Realty: Consolidation of utilities in rights-of-way corridors would concentrate visible structures in a limited number of areas rather than spreading them across the landscape.

4.3.8.2 Impacts of the Alternatives on Visual Resources

4.3.8.2.1 *Alternative A Impacts on Visual Resources*

Under Alternative A, there is no variation between the VRI I acres and the VRM class I acres, so potentially all of the 38,521 acres would continue to retain and preserve the existing character of the landscape (visual values). About 82 percent of the VRI II acres would be in the VRM Class II acres, meaning 18 percent of the VRI II acres would only partially or not at all retain the existing character of those acres (Table 4-7). Approximately 82 percent of the VRI III acres would be in the VRM Class III lands, resulting in only partially retaining the character of those lands. VRI IV acres would have over 100 percent in the VRM Class IV lands, resulting in a potentially high level of change to those lands.

4.3.8.2.2 *Alternative B Impacts on Visual Resources*

There is no variation between the VRI I acres and the VRM Class I, so all of the 343,253 acres in the VRM I would retain and preserve its existing character of the landscape (visual values). With VRI II, 100 percent of the VRI II acres would be in the VRM Class II, allowing for a low level of change to the existing character of the landscape (Table 4-7). About 78 percent of the VRI III acres would be in the VRM Class III, resulting in only partially retaining the character of those lands. And 72 percent of the VRI IV acres would be in VRM Class IV, potentially resulting in a high level of change to those lands.

4.3.8.2.3 *Alternative C (Preferred Alternative) Impacts on Visual Resources*

Under Alternative C, there is no variation between the VRI I acres and the VRM class I, so all of the 271,406 acres in the VRM I would retain and preserve its existing character of the landscape (visual values). Approximately 100 percent of the VRI II acres would be in the VRM Class II, allowing for a low level of change to the existing character of the landscape (see Table 4-7). Approximately 79 percent of the VRI III acres would be in the VRM Class III, resulting in only partially retaining the character of those lands. Approximately 77 percent of the VRI IV acres would be in the VRM Class IV, potentially resulting in a high level of change to those lands.

4.3.8.2.4 *Alternative D Impacts on Visual Resources*

Under Alternative D, there is no variation between the VRI I acres and the VRM class I, so all of the 265,526 acres in the VRM I would retain and preserve its existing character of the landscape (visual values). Only 98 percent of the VRI II acres would be in the VRM Class II, potentially allowing for 2 percent of those acres to partially or not at all retain the existing character of those lands (Table 4-7). About 79 percent of the VRI III acres would be in the VRM Class III, resulting in only partially retaining the character of those lands. Approximately 98 percent of the VRI IV acres would be in the VRM Class IV acres, potentially resulting in a high level of change to those lands.

**TABLE 4-7
VISUAL RESOURCE INVENTORY VALUES FOR THE TRICOUNTY DECISION AREA**

VRI INVENTORY RESULTS (ACRES)	ALTERNATIVES/PERCENT								
	A	%	B	%	C	%	D	%	
VRI I*	0	38,521	0%	343,253	0%	271,406	0%	265,526	0%
VRI II	706,111	578,348	82%	893,669	100%	915,407	100%	689,513	98%
VRI III	1,028,709	840,655	82%	806,869	78%	809,935	79%	810,179	79%
VRI IV	1,085,332	1,375,138	100%	789,420	73%	836,314	77%	1,066,866	98%
TOTAL	2,820,152	2,794,141		2,489,958		2,561,656		2,566,558	

NOTE: * There is no variation between the VRI I acres and the VRM I class acres, so potentially all of the acres in each of the alternatives (VRM class I) would continue to retain and preserve the existing character of the landscape (visual values). Alternative B would propose the most acres for VRM Class I, while Alternative A and D would propose the least.

4.3.9 IMPACTS ON FIRE AND FUELS MANAGEMENT

Management actions can affect the frequency and intensity of fire, the cost and complexity of fire suppression or hazardous fuels operations, and the safety of both the public and the firefighters. Impacts are described when management actions have the potential to reduce or increase the risk of fire ignitions, fire spread, or fire intensity. While actions like prescribed fire have obvious direct effects on these attributes, other actions affect them only indirectly. Campfires, for example, pose an indirect risk of accidental ignition because the fire does not always spread and only does so when left unattended; and while technologies like spark arrestors have reduced the tendency of OHVs to ignite fire, the operation of internal combustion engines over dry vegetation is also a potential indirect source of accidental ignitions.

This analysis of impacts on the fire and fuels management required certain assumptions:

- Fire is an important, natural disturbance in many of the ecological systems found in the desert Southwest.
- Fire will not typically carry in southwestern grasslands having less than 600 pounds per acre of herbaceous fuel (Wright 1980).
- A direct relationship exists between the density of use of public land and the frequency of human-caused fires.
- An objective of Habitat Management Plans and Coordinated RMPs would be to restore native plant communities by reducing encroachment of woody species. Restoration of native plant communities also would restore historic fire regimes.
- Vegetation communities would respond to disturbances according to their corresponding state-and-transition model.

Under all alternatives, impacts on wildfire and fuels management are not anticipated as a result of implementing management actions for the following resources and resource uses: paleontology, visual resources, fluid-minerals, locatable minerals, and saleable minerals.

4.3.9.1 Impacts on Fire and Fuels Management Common to All Alternatives

Camping and campfire restrictions in the Cornudas Mountains ACEC and the Alkali Lakes ACEC would continue to reduce the risk for human-caused ignitions on a total of 7,200 acres.

Continuing management to comply with the *New Mexico Standards and Guidelines* for grazing administration would continue to promote retention of existing vegetation communities on a landscape scale, resulting in a corresponding retention of Fire Regime Condition Class ratings throughout the *Planning Area*. Under the *New Mexico Standards and Guidelines*, the potential for extreme alterations in the frequency, size, and severity of wildfire due to changes in vegetation communities would not occur over the life of the plan.

In areas of sensitive resources (special status species habitats, cultural sites, paleontological sites, fragile soils, riparian areas), wildfire suppression and hazardous fuels operations managers may alter their suppression strategies or fuel reduction techniques. When BLM determines that wildfire suppression techniques involving heavy surface disturbance—such as fire-line construction—would cause greater harm to a sensitive resource than the fire itself, the BLM may employ Minimum Impact Suppression Techniques (MIST). MIST techniques have the potential to affect fire size. For example, where sensitive resources limit fire-line construction, MIST techniques might favor letting a fire burn to a natural fuel or topographical break, resulting in a larger fire. MIST techniques would not increase risk to firefighters or public safety.

Smoke will be managed from prescribed fire and wildfires based on the New Mexico Smoke Management Program. Livestock grazing would continue to reduce fine fuels in allotments. Vegetation treatments that improve rangeland condition could restore the potential for fires to spread into or through treatment areas. Reducing fuels in wildland urban interface areas would continue to reduce the risk to public safety from wildfire in the *Planning Area*. These measures would be implemented in localized areas over the life of the plan as part of an adaptive management strategy.

Construction and operation of solar energy facilities in the Afton SEZ would have no impact on fire and fuels management because of the sparseness of vegetation, and what little vegetation may be on site, would be removed during construction. Wind energy facilities are usually in upland environments where there is likely to be more and larger types of vegetation. In these cases protective measures from wildland fire such as fuel breaks around certain structures may be necessary.

4.3.9.2 Impacts of the Alternatives on Fire and Fuels Management

4.3.9.2.1 *Alternative A Impacts on Fire and Fuels Management*

Vegetation: There would be a moderate potential to restore or maintain the historic fire regime of infrequent, low-intensity fires over the long-term in localized areas from the vegetation treatments that reduce shrub encroachment into grasslands of the *Decision Area*.

The extent of vegetation treatment proposed for the *Decision Area* is unknown at this time; however, in the last 4 years, an average of approximately 63,000 acres of treatments using all methods have been completed annually. It is expected that similar amounts would be treated in the future. In treated areas,

the initial dieback of shrubs would temporarily reduce the amount of surface fuels available for wildfire in localized areas. In following growing seasons, treatment areas could respond with an increase in herbaceous vegetation that has a greater potential to carry wildfire than the previous shrub community. The increase in fine fuels could result in a potential increase in fire size and frequency because fine fuels tend to carry wildfire better than shrub communities. There could be a minor increase in fire intensity where shrub skeletons remain on the landscape. Treatments would increase the amount of surface fuel relative to pretreatment conditions because an increase in herbaceous vegetation would combine with the skeletons of dead shrubs. Woody remains of creosote, for example, take about 60 years to decay beyond the point of recognition (McAuliffe 1988). The long-term reduction of shrubs and increase in herbaceous vegetation in treated areas would increase the potential for larger, more frequent wildfires of increased intensity in localized areas of the *Decision Area*. Wild or prescribed fire in treatment areas would not threaten key ecosystem components, nor would these fires be likely to threaten the safety of firefighters and the public.

Livestock Grazing: Allotments with activity plans that incorporate fire and fuels treatments would reduce shrub cover and improve forage quality, thereby allowing for the use of fire as a restoration tool.

Comprehensive Travel and Trails Management: Managing 1.64 million acres as open to cross-country OHV use would continue to elevate the risk for human-caused ignitions. In addition, there would continue to be a minor risk of accidental ignitions from OHV use in the 72,000 acres managed as limited to designated routes and the 1,019,000 acres in Doña Ana County as limited to existing routes. Conversely, closing 43,000 acres will continue to limit the sources of human-caused ignitions to a localized area.

Recreation and Visitor Services: Areas managed as SRMAs could indirectly reduce human-caused ignitions because SRMAs could structure recreational use. Structuring recreational use could increase the potential for BLM to communicate wildfire awareness to the public at interface areas such as trailheads and parking lots.

Lands and Realty: Utility corridors and rights-of-way could indirectly decrease fire size if linear swaths of vegetation are cleared for maintenance or access roads within the corridors. Linear areas of cleared vegetation would create fuel breaks across which wildfire could be stopped or slowed.

4.3.9.2.2 *Alternative B Impacts on Fire and Fuels Management*

Vegetation and Woodlands: In contrast to Alternative A, the effects of all habitat restoration under this alternative would occur only over the long-term because passive restoration treatments would take more than 5 years to sufficiently alter vegetation communities. BLM anticipates that the overall effect on fire and fuels management on the vegetation treatments would be minor. The exclusion of fire as a tool for restoration would reduce the average number of acres burned each year relative to Alternative A. Also, the exclusion of other active techniques to restore vegetation would reduce the potential to restore the native plant community and the corresponding fire regime.

In localized areas, commercial and noncommercial harvest in woodlands would indirectly help maintain, or in some cases restore, the historic fire regime by reducing woody species and promoting the herbaceous species necessary to carry fire through these vegetation types. As a result, the potential for wildfire ignition and spread in localized areas could increase slightly relative to Alternative A. In the event of an ignition, fire severity would likely be lower relative to Alternative A due to a reduction in woody fuel types.

The indirect, long-term impacts on fire and fuels management from passive restoration under this alternative would reduce the short-term potential for wildfire ignition and spread relative to Alternative A because areas of high shrub cover would not produce the fine fuels necessary to carry wildfire. While fire would occur less frequently under this alternative relative to Alternative A, fire severity could be greater in localized areas of dense shrub or tree cover because these areas may be capable of carrying wildfire through the plant community canopy. Wildland and prescribed fire would not be used as a restoration tool, and due to the reduced potential for herbaceous vegetation growth, there would be slightly less potential to restore the historic fire regime associated with Chihuahuan semi desert grassland communities under this alternative as compared to Alternative A.

Livestock Grazing: Reducing AUMs by 25 percent on 950,000 acres that have limited restoration potential would increase fine fuels which may lead to an increase in fire frequency in those areas compared to Alternative A. Increased fire frequency may push these areas into an unstable state with elevated rates of erosion, invasive species establishment, and surface-water runoff.

Comprehensive Trails and Travel Management: OHV use would have similar impacts on the potential for accidental ignitions to those described under Alternative A, but there would be less potential for accidental ignition because fewer areas would be open to cross-country travel and more areas would be entirely closed. There would continue to be a risk of accidental ignitions from OHV use in 38,966 acres designated as open to cross-country motorized vehicle travel. Meanwhile, closing 259,891 acres to motorized vehicle use would reduce the potential sources of accidental ignitions there.

Recreation and Visitor Services: The establishment of SRMAs would have similar impacts on those discussed under Alternative A, but the potential for the BLM to communicate wildfire awareness at public interface areas would increase because more SRMAs are proposed. The overall reduction in the number of human-caused ignitions would be minor as a result of fire awareness communications at SRMAs.

Lands and Realty: Utility corridors would have the same impacts on fire and fuels management as those discussed under Alternative A. There would be a greater potential for utility corridors to act as firebreaks if vegetation is cleared to accommodate utility lines on 150,000 acres (8 times greater than Alternative A).

4.3.9.2.3 Alternative C (Preferred Alternative) Impacts to Fire and Fuels Management

Vegetation and Woodlands: Treatments to restore vegetation communities could include the full range of passive and active treatments which would accelerate the restoration of native plant communities in localized areas relative to Alternative B. Active treatments such as the use of herbicides to control shrub encroachment would have the same impacts as those described under Alternative A. The extent that fire would be used would be evaluated on a case-by-case basis. Mechanical treatments could reduce fuels in localized areas over the short-term, depending on the treatment type. Cutting and pile burning, for example, would reduce fuels over the short-term and help to restore the historic fire regime in localized areas. As with chemical treatments, mechanical treatments may cause a minor increase in fire size over the long-term because treated areas would respond with an increase in herbaceous vegetation.

The potential for using fire as a restoration tool, and the accelerated restoration of grasslands from mechanical treatments could result in a minor, short-term increase in the frequency of fire in localized areas relative to Alternative B. This increase would not threaten resource values or public safety.

Livestock Grazing: A watershed-based strategy would improve the BLM's ability to effectively adjust livestock forage use where ecosystem function warrants it. Alternative C improves fire and fuels management in priority watersheds, whereas Alternative B only enhances conditions in sites with limited restoration potential.

Comprehensive Trails and Travel Management: OHV use would have similar impacts on the potential for accidental ignitions as those described under Alternative B, since vehicle use designations would be virtually the same.

Recreation and Visitor Services: The designation of SRMAs and ERMAs would have the same impact on the potential for human-caused ignitions in Doña Ana County as Alternative B. In addition, recreation management area designations in 151,410 acres could further reduce the potential for human-caused ignitions. The BLM anticipates that the relative reduction in human-caused ignitions as a result of fire awareness communications of public interface areas would be minor.

Lands and Realty: Utility corridors potentially could act as firebreaks, as discussed under Alternative A. However, there would be greater potential for fire to be stopped or slowed under this alternative because there would be 209,000 acres of utility corridors.

4.3.9.2.4 *Alternative D Impacts on Fire and Fuels Management*

Vegetation and Woodlands: In contrast to Alternative C, increases in forage would be allocated to livestock grazing. This would promote retention of existing fuel types and distributions in livestock grazing allotments. It would be more difficult to restore the historic fire regime compared to Alternative C because the livestock allocation would reduce the potential for fine fuels to carry wildfire, even in restored areas. The relative reduction in fire frequency and size relative would be minor compared to Alternative B and would be negligible compared to Alternative A.

Livestock: The impacts would be the same as those described under Alternative A.

Comprehensive Trails and Travel Management: OHV use would have similar impacts on the potential for accidental ignitions to those described under Alternative B, but there would be more potential for accidental ignition because fewer areas would be closed to cross-country travel.

Recreation and Visitor Services: Under Alternative D, there would be a greater potential for public interface areas in all three counties. SRMA and ERMA designations would increase to 193,573 acres. However, the relative increase in human caused ignitions as a result of potentially greater numbers of recreationists in these areas compared to the other alternatives would be minor.

Lands and Realty: Impacts from utility corridors would be similar to those described under Alternative C.

4.4 IMPACTS ON RESOURCE USES

4.4.1 IMPACTS ON LIVESTOCK GRAZING

This section describes the potential impacts on livestock grazing from the implementation of management actions for other resource programs. Impacts on livestock grazing activities are generally the result of activities that affect forage levels, the ability to construct range improvements, or human disturbance of livestock within grazing allotments that occur with other resource uses.

The analysis is based on the following assumptions:

- All existing leases and permits would be subject to terms and conditions, as appropriate.
- Livestock operators would work toward achieving the *New Mexico Standards and Guidelines* on grazing allotments.
- Construction of range improvements (e.g., fences, pipeline, water wells, troughs, and reservoirs) result in a localized loss of vegetation cover but would be designed to minimize surface disturbance and mitigate potential adverse impacts to other resource values.
- Range improvements would improve livestock management and distribution.
- Although some areas are more suitable for different classes of livestock, the impacts from different classes of livestock would be similar and would not be discussed separately.
- Current trends in livestock market conditions would continue. Livestock values would therefore remain the same as at present.
- Assessments of vegetation-related impacts are based on expectations of normal precipitation during the life of the plan.
- Long-term grazing levels are based on monitoring information, including utilization studies and actual use data.

Activities that lead to surface disturbance would affect forage conditions through changes to the cover, density, and productivity of vegetation. This could increase opportunities for the establishment of noxious weeds and invasive species. Many noxious weeds and nonnative, invasive species are unpalatable to livestock and are not fed upon. This would reduce the amount of forage available to livestock. Conserving vegetation cover, density, and structure through limiting surface disturbance would result in reduced rates of both windborne and waterborne erosion and would result in conserving forage.

4.4.1.1 Impacts on Livestock Grazing Common to All Alternatives

The allocations by alternative of areas closed to grazing as well potential reductions in livestock numbers are shown in Table 4-2 at the beginning of this chapter. Management decisions related to restoration of vegetation on uplands and wetland-riparian areas are expected to meet *New Mexico Standards and Guidelines* and could increase the cover of vegetation and improve species diversity and plant community structure. This also could reduce opportunities for the establishment of noxious weeds and nonnative invasive species. Meeting *New Mexico Standards and Guidelines* could require livestock operators to modify turnout dates, grazing periods, grazing systems, forage utilization levels, exclusions, and livestock conversions. Although these adjustments would help to enhance rangeland conditions and increase long-term forage production, the number of animal unit months available could decrease for some livestock operators.

Limiting surface-disturbing activities would reduce the establishment of noxious weeds and nonnative invasive species. Preventing the occurrences and controlling the spread of noxious weeds and nonnative, invasive species would affect livestock grazing by reducing competition for water and nutrients with native or otherwise desirable plant species, consequently maintaining or improving forage conditions and amount of forage available for livestock consumption. Management decisions that are common to all alternatives and would result in decreased surface disturbance include decisions concerning soil and water, vegetation, fish and wildlife habitat, special status species, visual resources, special management areas, recreational use, energy and minerals, and wilderness characteristics.

Management decisions relating to soil and water, vegetation, fire management, special status species, and wildlife resources generally would serve to enhance vegetation community conditions and indirectly affect livestock grazing by improving forage conditions. Managing soil and water resources to meet site

capability for soil and site stability and hydrologic function, and managing areas needing restoration by allowing them to rest for a minimum of two growing seasons following vegetation or soil treatment, or as indicated by monitoring of treatment objectives, could increase the forage levels and forage quality available for livestock. However, livestock numbers would not be increased as a result of vegetation treatments and increased forage production.

Activities that increase the likelihood of surface disturbance and removal of existing vegetation could impact grazing resources through decreased levels of available forage for livestock. Surface disturbance could also increase the opportunities for the establishment of noxious weeds and nonnative invasive species. This could further impact livestock grazing indirectly by reducing the quality of forage available for livestock. Management decisions allowing recreation, OHV use, fluid-mineral leasing, and mineral material sales (e.g., sand and gravel) generally would result in surface disturbance.

Recreational opportunities resulting in an increased presence of humans could impact livestock grazing through disturbance that could cause animal displacement or injury. Recreation use could also result in damage to range improvements such as fences, pipelines, water tanks, windmills, etc. Under all alternatives, impacts on livestock grazing are not anticipated as a result of implementing management actions for air quality or paleontology.

4.4.1.2 Impacts of the Alternatives on Livestock Grazing

4.4.1.2.1 *Alternative A Impacts on Livestock Grazing*

Special Designations: Managing 39,000 acres to meet VRM Class I objectives and designating 90,000 acres as ACECs could reduce the area where surface-disturbing activities occur, which would indirectly help to maintain the quantity of forage. However, this could restrict the location or extent of rangeland improvements indirectly reducing the potential increases in the quantity of forage.

Soil and Water: Prioritizing critical soils on slopes of 0 to 10 percent and greater than 10 percent for grazing management and land treatments could affect livestock grazing by requiring operators to make adjustments to grazing practices. Managing critical soils on slopes of 0 to 10 percent for land treatments could improve forage levels and forage quality.

Comprehensive Trails and Travel Management: Surface disturbance associated with managing 1.64 million acres as open to cross-country OHV use could reduce forage quality and quantity and result in changes to livestock distribution.

Recreation and Visitor Services: Managing 69,000 acres as SRMAs could result in localized surface-disturbance from recreation activities, and cause the destruction or trampling of vegetation that could reduce forage quantity and quality. In addition, managing 2.21 million acres to meet VRM Class III and IV objectives could allow surface-disturbing activities that result in short-term reductions in forage levels available for livestock and forage quality in site-specific areas.

Lands and Realty: Restricting uses on the public land such as rights-of-way avoidance and exclusion areas and closing areas to mineral material sales would reduce or eliminate surface disturbance on those areas, and thereby maintain existing forage for livestock consumption. This impact would be relatively substantial since these restrictions cover approximately 28 percent of the *Decision Area*.

Minerals: Managing 3.6 million acres as open to fluid-minerals leasing with standard lease terms and conditions would result in localized surface disturbance. Localized impacts during construction activities

would be short-term; however, long-term fluid-mineral development could reduce the quantity of forage available for livestock in localized areas. Disturbed areas would not likely be completely reclaimed either naturally or by reseeded resulting in barren patches or noxious weed growth and the loss of forage in localized areas.

4.4.1.2.2 *Alternative B Impacts on Livestock Grazing*

Special Designations: Excluding new land uses and mineral leasing in WSAs, and ACECs would reduce both surface-disturbing activities and the opportunities for establishment of noxious weeds and invasive species in these areas. Indirectly this could improve forage quality and reduce conflicts between human activities and livestock operations. In the long-term, this could result in increased forage quantity and quality compared to Alternative A.

Vegetation and Woodlands: Impacts would be similar to Alternative A except only passive methods for restoration could reduce the extent of areas available for livestock grazing, if areas where restoration is needed are designated as closed to grazing. Also, closing developed recreation sites, unallotted areas, and non-permitted areas to livestock grazing would result in localized reductions in the areas available for livestock grazing. This would minimally reduce the total area available for livestock grazing and could reduce livestock operator flexibility compared to Alternative A.

Under Alternative B, increases in forage production that result from soil and vegetation restoration activities would be allocated for wildlife and watershed functioning. Indirectly this could increase forage production and could improve forage quantity and quality for livestock in the long-term which could improve animal health, calf/lamb crop percentages, and weaning weights. Lower use levels resulting from increased plant productivity would occur without reducing livestock numbers; therefore, more residual forage would be available during times of drought relative to Alternative A.

Comprehensive Trails and Travel Management: Closing 260,000 acres to OHV use would help maintain existing vegetation conditions and could improve the rangeland health and watershed function by limiting surface disturbance. Reducing the amount of acres open to OHV use and increasing the amount limited to existing and designated routes would decrease the areas where surface-disturbing activities could occur compared to Alternative A and would reduce the amount of direct disturbance and harassment to livestock. Closing vehicle routes affecting riparian and arroyo habitats could improve grazing resources by improving vegetation cover, density, and production. This could indirectly increase forage quality and reduce the opportunities for establishment of noxious weeds compared to Alternative A.

Recreation and Visitor Services: SRMAs would be designated on 83,000 acres, an increase of 13,000 acres compared to Alternative A. This could increase localized surface disturbance from recreation activities, resulting in a decrease in forage available for livestock grazing. However, this could reduce localized surface disturbance from recreation use in other areas if recreation relocated to SRMAs. This could help maintain forage quantity and reduce areas where there were conflicts between uses relative to Alternative A.

Lands and Realty: Excluding 920,000 acres from new land uses and mineral leasing would reduce both surface-disturbing activities and the opportunities for establishment of noxious weeds and invasive species in these areas. Indirectly this could improve forage quality and reduce conflicts between human activities and livestock operations. In the long-term, this could result in increased forage quantity and quality available for livestock compared to Alternative A.

Renewable Energy: Grazing would be excluded from the Afton SEZ as provided for in the BLM grazing regulations (43 CFR Part 4100). This would include reimbursement of the permittee for the portion of the value for any range improvements in the area removed from the grazing allotment. The impact of this change in the grazing permits would depend on several factors, including: (1) how much of an allotment the permittee might lose to development, (2) how important the specific land lost is to the permittee's overall operation, and (3) the amount of actual forage production that would be lost.

Solar energy development within the Afton SEZ would affect portions of six grazing allotments. If the SEZ were fully developed, two allotments would be reduced by 14 percent and 61 percent of their respective AUMs. In addition, the SEZ would split the allotments and livestock would most likely have to be transported from one side of an allotment to the other. Development within the SEZ would impact less than 2 percent of the AUMs allocated to the four remaining allotments. According to current grazing regulations, following the issuance of two year Waiver Notices for each allotment the grazing permits would be reviewed and revised as necessary.

There would be minimal impact to livestock grazing within the *Decision Area* from solar energy development within the Afton SEZ. According to records from BLM's billing system, Rangeland Administration System (RAS), there were 377,389 billed AUMs in 2010 (Table 3-28). Full development of the SEZ would remove 1,302 AUMs from livestock forage production representing less than 1 percent of the total billed AUMs within the *Decision Area*.

There would be little impact on livestock grazing from the development of wind energy projects. Livestock could be temporarily displaced during construction of the project and installation of towers and turbines, but in the long-term these areas would most likely still be open to grazing. Small areas including tower sites and new roads would be permanently lost to grazing.

Minerals: Under Alternative B, areas managed as closed to mineral development activities, locatable minerals (e.g., precious metals and building, decorative, or precious stones), and mineral materials would increase compared to Alternative A.

In the short-term there would be few impacts from oil and gas leasing, exploration, and development since most of the *Planning Area* would be deferred from leasing until a programmatic EIS addressing these activities is prepared in the future. Exploration and development could occur on 52,705 acres; however, these impacts would be isolated and localized due to the nature of and limited amount of leasing. Geothermal leasing, exploration, development, and production could continue on approximately 3.2 million acres open to leasing with stipulations or standard lease terms and conditions. However, such activity would likely be confined to high potential areas along the Rio Grande Valley which would have little impact on livestock grazing in the *Decision Area* overall.

4.4.1.2.3 *Alternative C (Preferred Alternative) Impacts on Livestock Grazing*

Special Designations: Managing 304,000 acres as ACEC could decrease the areas where surface-disturbing activities could occur. This could decrease the area where rangeland improvement projects could be implemented compared to Alternative A and decrease the area where restrictions occur compared to Alternative B.

Vegetation and Woodlands: Impacts would be similar to Alternative B, except that using both active and passive methods to restore soils, watersheds, and vegetation could improve resource conditions over a greater area and in less time than under Alternative B. Initially allocating forage increases that result from grassland restoration treatments to meet watershed function would impact grazing by improving the quality of the forage available for livestock grazing. Forage produced in excess of the needs for adequate

watershed functioning and for wildlife based on monitoring could increase the amount of forage available for livestock grazing. This could result in a greater increase in the quality and quantity of forage available for livestock compared to Alternatives A and B.

Comprehensive Trails and Travel Management: Closing 20,000 acres and limiting OHV use to designated and existing routes on 99 percent of the *Decision Area* would decrease surface disturbance compared to Alternative A. Impacts would be similar as those described in Alternative B.

Recreation and Visitor Services: Impacts from SRMAs would be the same as those under Alternative B.

Lands and Realty: The effects of excluding 343,000 acres from new land uses and mineral leasing would be similar to Alternative B but on a one third of the acreage.

Renewable Energy: Impacts of solar energy development in the Afton SEZ and the impacts of wind energy projects would be the same as those described under Alternative B.

Minerals: Impacts would be the same as those described for Alternative B since areas closed, open, and deferred from leasing would be essentially the same.

4.4.1.2.4 *Alternative D Impacts to Livestock Grazing*

Special Designations: Impacts of excluding new land uses and mineral leasing in WSAs, ACECs would be similar to Alternative A. Managing 265,526 acres to meet VRM Class I objectives, including ACECs and WSAs, could decrease the areas where surface-disturbing activities could occur. This could decrease the area where rangeland improvement projects could be implemented compared to Alternative A and decrease the area where restrictions occur compared to Alternatives B and C.

Vegetation and Woodlands: Impacts of vegetation restoration would be similar to Alternative C, except that using only active methods to restore soils, watersheds, and vegetation could indirectly decrease the quantity of forage available for livestock. In addition, restrictions on livestock grazing in developed recreation sites and areas within 9 miles of historic or currently occupied desert bighorn sheep habitat could reduce the flexibility of livestock grazing and could result in an overall reduction in the quantity of available forage. This could decrease the area and amount of forage available for livestock grazing compared to Alternatives A and C and could result in the same impacts as Alternative B.

Increases in plant productivity due to soil and vegetation treatments would be allocated for livestock use. This could increase the amount of forage available for livestock compared to Alternatives A and B; however, there would be no increase in livestock numbers as a result of the increased forage. In treated areas, limiting restoration activities to active methods only could result in localized reduction in forage quantity compared to Alternative C.

Comprehensive Trails and Travel Management: Closing 17,000 acres and managing 99 percent of the rest of the *Decision Area* as limited to designated routes for vehicle use would decrease surface disturbance compared to Alternative A, and have impacts similar to Alternatives B and C.

Recreation and Visitor Services: Impacts would be the same as those described in Alternative C but there would be 42,000 more acres in SRMAs and ERMAs.

Lands and Realty: Alternative D excludes 308,000 acres from new land uses so impacts would be similar to Alternative C.

Renewable Energy: Impacts in the Afton SEZ and impacts of wind energy projects throughout the *Decision Area* would be the same as those described under Alternative B.

Minerals: Increasing the area managed as open to mineral material disposal and locatable mineral entry could increase localized surface disturbance. Impacts would be the same as those described for Alternative B since areas closed, open, and deferred from leasing would be essentially the same.

4.4.2 IMPACTS ON COMPREHENSIVE TRAILS AND TRAVEL MANAGEMENT

The analysis of effects on trails and travel management, including access within the *Decision Area* is focused on the loss or gain of access for motorized and non-motorized (hiking, biking, horseback riding, etc.) surface travel. Impacts are determined by whether or not current access would be changed and the degree to which management would meet the goals and objectives for trails and travel management.

Planning Area ingress and egress are affected by surface travel route closures, limitations, and other management actions limiting access. These include actions that would limit the degree of travel opportunities and the ability to access certain portions of the *Decision Area*. Impacts on opportunities for OHV use are addressed in the Recreation impact analysis (4.4.3).

This analysis describes the degree of access and the extent of usable transportation systems within the *Decision Area*. Increased access by way of new route designations, route maintenance, and the opening of closed areas affects surface travel. Changes in access to inholdings and land or right-of-way acquisition also affect surface travel. Analyses are based on the short- or long-term effects from changes on the places where OHV travel can occur and on the routes that are available for motorized travel.

The following assumptions were used when assessing the impacts on trails and travel management:

- During planning for future projects, the BLM would assess all proposed actions for site-specific effects to avoid impacts to routes that could preclude their future use within the *Planning Area*.
- Changes to travel management, as outlined in each alternative, would be consistent with the other allocations, allowable uses, and management actions under that particular alternative.

Impacts on transportation and access would not be anticipated from implementing management actions for the following resources: air quality, vegetation, wildland fire management, cultural resources, visual resources, forest, woodland and plant products, minerals and energy, and special designations.

4.4.2.1 Impacts to Comprehensive Trails and Travel Management Common to All Alternatives

The designations of travel management areas are shown for each alternative in Table 4-2 at the beginning of this chapter. Management actions that limit or prohibit surface disturbance to maintain *New Mexico Standards and Guidelines* or to protect cultural or paleontological resources could limit or eliminate access to some areas. Special status species and fish and wildlife actions that limit or prohibit disruptive activities within habitats also could limit or eliminate access to some areas. However, roads developed to facilitate mineral exploration and development would increase access to portions of the *Decision Area*, if these are available for public use.

4.4.2.2 Impacts of the Alternatives on Comprehensive Trails and Travel Management

4.4.2.2.1 *Alternative A Impacts on Comprehensive Trails and Travel Management*

Comprehensive Trails and Travel Management: Managing 1.64 million acres as Open to OHV use would allow year-long motorized use anywhere on or within these open areas (43 CFR 8340.0-5). This would (1) improve the opportunities for motorized vehicle users who prefer unrestricted, cross-country riding and access, (2) reduce the opportunity for individuals seeking a quieter and primitive recreation experience, and (3) increase the opportunity for conflicts between motorized and non-motorized users.

Managing approximately 272,000 acres as limited to designated routes and 879,000 acres as limited to existing or established routes would prohibit cross country travel and (1) reduce the opportunity for OHV users who prefer unrestricted, cross country riding, (2) continue to provide OHV riding opportunity and access to the thousands of miles of designated and/or existing routes, (3) increase the opportunity for individuals seeking a more quiet and primitive recreation experience, and (4) reduce the opportunity for conflicts between motorized and non-motorized users or travelers.

Lands and Realty: Land tenure would improve accessibility to public land where it is needed and could not be obtained otherwise. In addition, acquiring legal access could facilitate travel by creating more contiguous public land. Disposing of up to 213,199 acres of land (7.5 percent of the *Decision Area*) could reduce motorized access for the public in the long term. Many of these areas are near urban and low density residential development making them easy access for OHV use. These readily available areas could be lost through land disposal and subsequent commercial or residential development. Managing 43,000 acres in special management areas as closed to OHV use also would reduce access for motorized means but this would be a negligible impact in comparison to the rest of the routes open to OHV use.

4.4.2.2.2 *Alternative B Impacts on Trails and Travel Management*

Comprehensive Trails and Travel Management: Travel management plans would be prepared for the entire *Planning Area*. Preparing travel management plans would result in a network of designated routes to facilitate management of all travel, (motorized, mechanized, foot, horseback, etc.) in the *Decision Area*. The public would readily know which routes would be available for which types of use and this in turn would reduce cross-country use and use of non-designated routes.

Managing 125,716 acres as closed to OHV use in special management areas (WSAs and ACECs) would reduce the area where motorized access could occur without the presence of a route.

Designating some 39,000 acres as open to vehicle use would eliminate cross-country travel in the rest of the *Decision Area*. Designating and managing most of the *Decision Area*, 98.5 percent, as limiting OHV use to designated or existing routes would impact OHV users who seek unlimited motorized access.

Lands and Realty: Not placing a priority on acquiring access to public land could result in areas of public land that are not accessible by motorized vehicles or non-motorized means. In the long-term, this could decrease access compared to Alternative A. Less area, 38,000 acres would be identified for disposal under Alternative B as compared to Alternative A. More public land would continue to be available for vehicle use near urban and semi-urban areas. These could become de-facto "play areas" for OHV users.

4.4.2.2.3 *Alternative C (Preferred Alternative) Impacts on Trails and Travel*

Comprehensive Trails and Travel Management: The impacts of preparing travel management plans would be the same as those under Alternative B. Managing nearly 19,218 acres as closed to OHV use would reduce slightly the area where motorized access could occur. Managing 570,000 acres as limited to designated routes, and 2 million acres as limited to existing routes, would limit cross-country use and use of some routes as compared with Alternative A and could increase motorized access relative to Alternative B. Road closures would be greater than those under Alternative A, and less than those under Alternative B. Designating nearly 42,000 acres as open to OHV use would mean that cross-country travel in the rest of the *Decision Area* would be eliminated. The impacts would be similar to those described under Alternative B.

Lands and Realty: Developing access through new road construction around non-Federal land, land ownership adjustments, or easement acquisition could increase motorized access to public land. This could increase the areas where access could be obtained from willing sellers compared to Alternatives A and B.

Approximately 108,450 of the *Decision Area* would be identified for potential disposal. This could reduce the area where unauthorized OHV use occurs in the wildland urban interface; but otherwise would have no impact on trails and travel management overall.

4.4.2.2.4 *Alternative D Impacts on Trails and Travel Management*

Comprehensive Trails and Travel Management: The impacts of preparing travel management plans would be the same as those under Alternative B. The potential for impacts from vehicle use would be greater than under Alternative C.

Lands and Realty: Approximately 186,523 acres of the *Decision Area* would be identified for potential disposal. This could reduce the area available for motorized access to a greater extent than under Alternative C and less than Alternative A.

4.4.3 IMPACTS ON RECREATION AND VISITOR SERVICES

This section presents potential impacts on recreation resources, opportunities, settings, and experiences. Impacts on OHV or other motorized travel as recreational uses are addressed in this section; however, impacts related to OHV and travel management are also discussed in Section 4.4.2.

Impacts on recreation are identified if the management actions would result in a (1) changes to public access, (2) changes in the availability of recreation opportunities and pursuits, (3) compromised public health and safety, or (4) changes to the recreational setting or experience. An effect on the recreational setting might occur if changes to motorized access, use levels, natural vegetation and landform, or noise would influence the character or availability of recreational opportunities in an area. The following assumptions were used when assessing the impacts on recreation and visitor services:

- Demand for recreational opportunities would increase, as would visitor use.
- There would be sufficient opportunities to meet the demand of non-motorized recreation (e.g., hiking, mountain biking, and equestrian).
- The incidence of resource damage and conflicts between recreationists involved in motorized and non-motorized activities would increase with increasing use of public land.
- Demand for special recreation permits would increase during the life of the plan.

- Motorized vehicle use and mechanized vehicle use would be limited to authorized routes where roads or trails are designated.
- Adequate staffing would be available for law enforcement, visitor services, and recreation use supervision.

4.4.3.1 Impacts on Recreation and Visitor Services Common to All Alternatives

Under all alternatives, special and extensive recreation management areas would be designated and managed (see Table 4-2). The number and size of areas varies by alternative yet each would provide a more structured recreation experience with various levels of facilities resulting in a particular type of experience outcome. The remainder of the *Decision Area* would be open for any and all types of dispersed recreation for which BLM land is well known. This would provide a more satisfactory recreation experience and outcome for those who prefer to enjoy the outdoors in a more natural, less structured environment rather than within the managed recreation areas.

The presence and condition of natural and cultural resources and their vulnerability to degradation can influence management decisions on how much recreational activity can occur while sustaining the resources for non-recreational uses or for use by future generations. Resources (such as gems and minerals, and fossils, as well as dead or downed wood) may provide recreational opportunities such as rockhounding, and making campfires; but also could pose visitor safety concerns such as unstable mine conditions or fuel for wildfire. Some types of extractive land uses allowed on public land (such as grazing or mining) may compete with recreational uses or may affect the setting in which recreation occurs. The availability of motorized access via established roads and trails directly influences the availability of recreational opportunities for OHV users or others motorized recreation activities.

The construction of linear rights-of-way could create new vehicle access for recreational users. Development of utilities would affect the quality of the recreation setting for existing dispersed recreation activities if there are increases in motorized travel, changes to scenic quality, or more visitors. However, potential impacts on the recreational setting and potential conflicts with recreational use would be mitigated on a site-specific basis through right-of-way terms and conditions that would be identified during the land use authorization process.

Short-term closures of recreation areas and facilities could occur during fire management or fire suppression activities, which would temporarily limit recreation opportunities. However, managing fire suppression in areas with high resource values and recreation systems or facilities would help maintain and protect recreation systems or facilities and opportunities in the long-term. Wildland fire could improve wildlife habitat and hunting and viewing opportunities over the long-term as areas are restored and vegetation recovers to a desired state.

The influence of ranching and grazing on the recreational setting would continue, particularly from range improvements, utilization of forage, and presence of livestock. Potential conflicts between those uses and recreation could occur. Conversely, livestock grazing activities and rangeland improvements provide opportunities for sight-seeing recreation opportunities.

Recreational opportunities in localized areas could be reduced if recreational use is found to threaten special status species populations or restrictions on access are necessary to achieve habitat management goals. There also could be restrictions on recreational opportunities in localized areas where there are threats to the public safety, such as mining sites. Noticeable changes in the recreation settings visual

character near mining activities would occur on mining claims. Site-specific mitigation measures identified in subsequent NEPA analysis would reduce these affects.

There would be no impacts to outdoor recreation and visitor services from developing existing oil and gas leases or from issuing and developing new geothermal leases because of the few existing leases and the localized nature and small footprint of development of either existing leases or new geothermal leases.

4.4.3.2 Impacts of the Alternatives on Recreation and Visitor Services

4.4.3.2.1 *Alternative A Impacts on Recreation and Visitor Services*

Special Designations: Nearly 90,000 acres of ACECs would help maintain the current recreational opportunities available in these areas. Although ACECs are not designated specifically for recreational purposes, there are many types of recreational opportunities available such as, historical and cultural sightseeing, spectacular scenic viewing opportunities, and wildlife viewing. Managing these areas to protect relevant and important values from irreparable harm helps to also maintain the primitive and natural settings for the recreational enthusiast who is seeking solitude, naturalness and primitive recreational opportunities.

Managing 617,000 acres, including areas designated as scenic ACECs, to meet VRM Class I and II objectives would protect the scenic quality by restricting landscape change, which would maintain and enhance the recreational experience.

Comprehensive Trails and Travel Management: Managing approximately 1.64 million acres as open to cross-country OHV use could reduce the quality of the setting for dispersed or primitive recreation from the degradation of the natural conditions (e.g., erosion or vegetation damage). Conversely keeping that acreage open for OHV use would maintain existing opportunities for those who enjoy unrestricted motor vehicle access. Managing 1.12 million acres as limited to existing or designated routes would preserve opportunities for motorized recreation on established routes and could reduce conflicts with non-motorized recreation uses.

Closing nearly 43,000 acres to OHV use would eliminate opportunities for OHV use in these areas, but these areas would remain available for non-motorized recreation. This could reduce opportunities for OHV travel and camping in remote areas but could reduce conflicts between motorized and non-motorized users and enhance the experience associated with non-motorized recreation activities.

Recreation and Visitor Services: The two SRMAs in Doña Ana County (Doña Ana Mountains and Organ Mountains) totaling 59,844 acres would maintain the existing outdoor recreation opportunities and experiences in and near the Las Cruces area by addressing recreational user conflicts and potential resource damage, by providing a wide range of developed and dispersed recreational opportunities that continue to contribute to meeting recreational demands in Doña Ana County. These two SRMAs offer outstanding recreational opportunities for hiking, rock climbing, camping, backpacking, hunting, sightseeing, photography, and observing wildlife. When compared to Alternatives B, C and D, Alternative A does not address the growing recreational demands and user conflicts throughout the rest of the *Planning Area* (Otero and Sierra Counties).

Lands and Realty: Acquiring legal access to public land that currently does not have public access could expand the public land base available for dispersed recreation opportunities. Access would only be pursued through willing landowners. If willing landowners are not present, then either the access would remain unavailable to the public or alternate locations for access (from other willing landowners) could be

pursued. In Doña Ana County, access would be developed in four areas through new roads, landownership adjustments, or easement acquisitions and an emphasis would be placed on vehicular and pedestrian access. This could increase available public land for recreation and would improve and enhance recreation opportunities.

Minerals: Renewable energy development and mineral resources exploration and development could have localized impacts on recreation by displacing users to other areas or by creating noise that could diminish the settings for dispersed recreation in areas of relative naturalness and primitive character.

4.4.3.2.2 *Alternative B Impacts on Recreation and Visitor Services*

Special Designations: Managing WSAs as interim VRM Class I and managing Scenic ACECs as VRM Class I would help protect scenic quality over some 343,000 acres. Any development in these areas would have to be unnoticeable which would preclude most surface disturbing projects.

Vegetation and Woodlands: Using passive restoration methods for vegetation and watershed treatment could help maintain natural settings, but it could displace recreationists. For example, to improve vegetation and watershed conditions, trails and camping areas may have to be closed temporarily or permanently. Indirectly and in the long-term, this could decrease the overall area available for recreation use compared to Alternative A.

Fish and Wildlife Habitat: Management of fish and wildlife habitat would include priorities for managing terrestrial, aquatic, and riparian habitats. Protecting key habitats would improve the opportunity and experience for both consumptive and non-consumptive recreational enjoyment of wildlife. However, habitat enhancement could exclude recreationists through use limitations in site-specific areas; this also could be a long-term impact depending upon the sensitivity of the area.

Special Status Species: Special status species habitat management could improve certain recreational pursuits, such as birding and wildlife viewing in general. This would increase recreation opportunities and experiences compared to Alternative A.

Visual Resources: Managing over 894,000 to meet VRM Class II objectives would increase the area where mitigation for affect to visual resources would apply. This could help maintain outdoor recreation settings and, in the long-term, could improve the experience for recreation users seeking a natural landscape compared to Alternative A.

Comprehensive Trails and Travel Management: Closing 260,000 acres to OHV use and increasing the areas managed as limited to designated routes to 532,000 acres could increase the area where primitive recreation opportunities are available. Indirectly, this could reduce surface disturbance and improve the quality of the recreation setting for people seeking dispersed and undeveloped recreation. Conflicts between recreation uses could be reduced in these areas compared to Alternative A. However, reducing the area managed as open to cross-country OHV use to 39,000 acres would reduce motorized recreation opportunities compared to Alternative A. This would impact OHV users who seek unlimited motorized access to public land; however, existing and designated routes would continue to be open to OHV use.

Recreation and Visitor Services: Increasing the SRMA acreage to 83,000 acres (Las Cruces Tortugas, Las Cruces Picacho, Lake Valley and Three Rivers) would improve recreational experiences and settings, when compared to Alternatives A, B and D (refer to SRMAs in Table 2-9). This would provide for additional areas where recreational use is specifically managed with increased guidance for the users (signage, trail development, etc.). This could help reduce localized surface disturbance associated with

concentrated recreation use. Designating two ERMA's totaling 38,954 acres (Aden Hills and Red Sands OHV areas), would have similar impacts as SRMA designation.

Lands and Realty: Acquisition of access to public land would not be a priority, which in the long-term could reduce the types of recreational experiences available to users on public land relative to Alternative A. Acquiring non-Federal land located within ACECs and WSAs from willing sellers would slightly increase the area for recreation opportunities. In the long-term, this could improve the setting and experience, particularly for primitive/unconfined recreation and natural-setting-based uses such as hiking and nature study.

Managing 920,000 acres as exclusion and 109,000 acres as avoidance for right-of-way activities precludes development in these areas and would benefit recreation opportunities, primitive and unconfined recreation activities, and enhance the experience of users seeking this type of opportunity.

Minerals: Increasing the area managed as closed to mineral development and recommending areas for withdrawal from mineral entry could reduce surface disturbance. This could improve the recreation setting but could reduce opportunities for rock and mineral collecting compared to Alternative A.

4.4.3.2.3 *Alternative C (Preferred Alternative) Impacts on Recreation and Visitor Services*

Special Designations: The impacts of designating 304,000 acres for ACECs would improve the quality of the recreation setting compared to Alternative A and reduce this effect relative to Alternative B.

Vegetation and Woodlands: The use of passive and active techniques for restoration and management of vegetation and watershed would provide greater management flexibility than Alternative B. Impacts to recreation facilities would potentially be shorter in duration.

Fish and Wildlife Habitat: Alternative C wildlife decisions would have similar impacts as those in Alternative B.

Special Status Species: The impacts of Alternative C would be the same as under Alternative B but on fewer acres.

Visual Resources: Increasing the area managed to meet VRM Class I objectives to 271,405 acres, including WSAs, would help protect scenic quality over a larger area compared to Alternative A and reduce this area slightly compared to Alternative B. This would help maintain recreation experiences and settings.

Comprehensive Trails and Travel Management: Closing 19,000 acres to OHV use could decrease the area where primitive recreation opportunities are available and potentially increase conflicts between users in these areas compared to Alternatives A and B. Increasing the area managed as open to cross-country OHV use to 42,000 acres would slightly increase motorized recreation opportunities compared to Alternative B. This could reduce opportunities for non-motorized recreation experiences compared to Alternative A.

Recreation and Visitor Services: Designating and managing three ERMA's in the *Planning Area* totaling 68,407 acres (Aden Hills OHV, Elephant Butte, and Red Sands OHV) would have similar impacts as SRMA designation and management. Compared to Alternative B, Alternative C proposes more acreage for ERMA management meaning there would be less concentration of visitors and would offer more recreational opportunities and experiences for unconfined types of recreation such as primitive, non-motorized, or motorized.

Lands and Realty: Using all available methods to obtain legal public or administrative access from willing landowners would improve the recreational experience by improving access to public land. This would increase the area of recreation opportunities on public land compared to Alternatives A and B.

Managing 343,000 acres as exclusion and 423,000 acres as avoidance for right-of-way activities would affect recreation opportunities, settings, and experiences. Reducing development in these areas could increase opportunities for primitive/unconfined recreation activities and could enhance the experience of users seeking this type of recreation opportunity compared to Alternative A, but reduce these experiences compared to Alternative B.

4.4.3.2.4 *Alternative D Impacts on Recreation and Visitor Services*

Special Designations: Impacts of special designations would be similar to Alternative A. This could reduce the quality of the recreational setting compared to Alternatives B and C.

Vegetation and Woodlands: Allocating forage increases for livestock could affect recreational pursuits such as hunting and wildlife viewing in site-specific areas. If the allocation of forage altered the distribution of game or other wildlife species, this would change recreation settings compared to Alternatives A, B, and C.

Fish and Wildlife Habitat: The decreased emphasis on key wildlife habitats in Alternative D as compared to Alternatives B and C would reduce opportunities for recreational enjoyment of wildlife.

Special Status Species: Impacts would be the same as those described under Alternative A.

Visual Resources: Visual resource impacts on Recreation would be similar to Alternative C.

Comprehensive Trails and Travel Management: Closing 17,485 acres to OHV use could decrease the area where primitive recreation opportunities are available and increase conflicts between users compared to Alternatives A, B, and C.

Recreation and Visitor Services: Increasing the SRMA acreage in the *Planning Area* to 83,233 acres (Las Cruces Tortugas, Las Cruces Picacho, Lake Valley, Three Rivers, Talavera and Tularosa Creek) would improve the recreation experience and settings compared to Alternatives A, B and C. Increasing the ERMA acreage in the *Planning Area* to 109,745 acres (Aden Hills OHV, Caballo Mountain, Elephant Butte, and Red Sands OHV) would have similar impacts as the SRMA designation and management. Compared to Alternatives B and C, Alternative D proposes more acreage for ERMA management meaning there would be less concentration of visitors in the *Planning Area* and there would be more recreational opportunities and experiences for unconfined types of recreation such as primitive, non-motorized, or motorized recreation.

Lands and Realty: Increasing the areas available for disposal to over 186,000 acres could reduce the amount of public land available for recreational use. This could result in an increase in recreational opportunities on public land compared to Alternative A, but this effect could decrease compared to Alternatives B and C.

Allowing surface-disturbing activities could degrade the recreational experience and setting in localized areas. Site-specific mitigation and management could result in a short-term reduction in the areas available for recreation use relative to Alternatives A, B and C.

Managing 453,000 acres as avoidance and 308,000 acres as exclusion for rights-of-way would affect recreation opportunities, settings, and experiences. Reducing development in these areas could increase opportunities for primitive/unconfined recreation activities and could enhance the experience of users seeking this type of recreation opportunity compared to Alternative A but reduce these effects compared to Alternatives B and C.

4.4.4 IMPACTS ON LANDS AND REALTY

The discussion of the effects on lands and realty is limited to the effects on permitted or authorized uses and land tenure adjustments. Impacts on lands and realty actions generally occur when management actions result in loss of land or displacement of a land use or preclude a change that may be warranted to meet National, State, or local needs. The following assumptions were adopted when assessing the impacts on lands and realty actions:

- The demand for rights-of-way authorizations would increase through the life of this plan for systems or facilities: roads, electric transmission lines, pipelines, and communication sites.
- Major utilities would include electric transmission lines that are 115 kilovolts or greater, and gas pipelines that are 10 inches in diameter or larger.
- The BLM would continue to process land tenure adjustments and would continue to evaluate applications for leases, permits, or easements for land uses on a case-by-case basis.
- Existing rights-of-way and communication sites would be managed to protect valid existing rights and may be modified when due for renewal to meet the objectives of the RMP.
- Land users holding rights-of-way may maintain their access at their discretion as it is consistent with the terms of their right-of-way grant.

4.4.4.1 Impacts on Lands and Realty Common to All Alternatives

Management-level decisions to protect fish and wildlife resources and special status species could restrict land use authorizations in localized areas, or could require new systems or facilities to be installed in less than desirable locations to avoid important habitat. In Sierra County, new or renewed land use authorizations along Percha Creek would have to meet BLM's habitat goals to be approved. This could affect facility design and project placement and might require projects to be relocated to other areas.

Land tenure adjustments include acquisition of nonpublic land as well as disposal of public land parcels identified by BLM. Land tenure adjustments resulting in consolidation of public land parcels could facilitate management of the land uses and resources. Allowing criteria-based land tenure adjustments (for land disposals and acquisitions) on a case-by-case basis would accommodate community expansion and development needs. It would also foster the creation of contiguous parcels for improved management, and enable the BLM to obtain parcels that could benefit resource management goals.

Land recommended to be withdrawn from public use would decrease the amount of area available for land use authorizations. Utility corridors would provide opportunities for rights-of-way on lands outside of designated corridors, applications for rights-of-way would be considered on a case-by-case basis through site-specific NEPA analysis.

Impacts on lands and realty from management actions associated with air quality, soil, and watershed management would impose design and siting requirements on new land use authorizations and on amended or renewed land use authorizations at existing sites. However, the development of mitigation measures, BMPs and standard operating procedures would reduce restrictions on the placement of rights-of-ways, energy supply, utility corridors, or communications sites.

Management decisions to restrict land use authorizations to benefit special status species include requiring site-specific evaluations and clearances to protect Federal and State listed species; minimizing impacts on aplomado falcon habitat from surface-disturbing activities; requiring site-specific mitigation within ¼-mile of known raptor nests and prairie dog towns; and applying seasonal closures or use restrictions to protect special status species habitat. Impacts on lands and realty resulting from these decisions could impose design and sighting requirements on new land use authorizations or on amended or renewed land use authorizations at existing sites within habitat areas.

Excluding right-of-way authorizations would restrict facility placement. Management of WSAs consisting of 32,000 acres in Sierra and Otero counties and 226,000 acres in Doña Ana County would be managed under the terms of the BLM's *Management of Wilderness Study Areas Manual 6330*, which would preclude construction of systems or facilities in the WSAs.

Activities by the military recognized as casual use would, by definition, have no impact on public land. However, if impacts were to occur from such use, the military would be responsible for reclamation and future request for military use would be denied or would have to be authorized as otherwise provided by Section 302 of FLPMA. This would require a longer lead time for BLM to prepare a NEPA document to analyze impacts and approve or disapprove the proposed action.

There would be no impacts to lands and realty from developing existing oil and gas leases or from issuing and developing new geothermal leases because of the few existing leases and the localized nature and small footprint of development. However, parcels of land with active leases or mining claims would not be disposed unless those leases or mining claims were relinquished.

4.4.4.2 Impacts of the Alternatives on Lands and Realty

4.4.4.2.1 *Alternative A Impacts on Lands and Realty*

Cultural Resources: Management prescriptions for cultural areas under Alternative A could affect facility construction or maintenance and relocate planned facilities. Closure of cultural areas to OHV and other off-road vehicle use (Three River Petroglyph Site and Picnic Area, Rattlesnake Hill, Alamo Mountain, Lone Butte, and Jarilla Mountains) could limit the ability to construct systems or facilities within the areas. As a result, new systems or facilities could be relocated. In addition, lands and realty activities also would be affected by the cultural resource decision that prohibits surface-disturbing activities within ¼-mile of the well-preserved segments of the Butterfield Overland Trail, requiring new and renewed land use authorizations to avoid these segments.

Visual Resources: VRM Class I and Class II areas could restrict land use authorizations by prohibiting the location of new rights-of-way or imposing greater design and sighting requirements on amended or renewed rights-of-way at existing sites on approximately 617,000 acres in the three counties.

Recreation and Visitor Services: In Doña Ana County, SRMAs could affect the disposal of land and right-of-way authorizations. The BLM could allow land disposal compatible uses within the designated SRMAs. The impact would be minimal, since little land allocated for disposal is located within the designated SRMAs (approximately 58,000 acres in Doña Ana County). SRMAs managed for remote and undeveloped recreation could restrict land use authorizations and rights-of-way that alter the desired recreation setting.

Lands and Realty: Under Alternative A, approximately 213,000 acres would be allocated for disposal from BLM administration, which is 7.5 percent of the public land in the *Decision Area*. Acquisitions of

approximately 172,000 could increase the acreage managed by the BLM. The priority for acquisition would be in WSAs, ACECs or other areas with high value resources. Land tenure could be affected by retention of land in all special designation areas, and if adjacent land is acquired from willing sellers for specific ACECs (Organ/Franklin Mountain, Los Tules, Robledo Mountains, Rincon, San Diego Mountain, Three Rivers Petroglyph, Sacramento Escarpment, and Alkali Lakes).

Co-locating rights-of-way within designated corridors could ease the process of their construction and maintenance and management. Under Alternative A, there are four designated corridors providing east-west and north-south opportunities for major utilities. Widths of these corridors are undefined, but are generally restricted by management prescriptions for ACECs. In Doña Ana County, approximately 4,000 acres of land within designated utility corridors are allocated for disposal. If land were to be disposed, BLM would reserve easement across the non-Federal land; however, the BLM would no longer have the authority to authorize rights-of-way or other land use authorizations on the disposed parcels.

Opportunities for rights-of-way would be restricted or prohibited on approximately 532,061 acres of land identified as areas of avoidance or exclusion from lands and realty activities. Allocating 4,000 acres in Sierra and Otero counties and 9,000 acres in Doña Ana County as avoidance areas for rights-of-way could impose design and siting requirements and associated costs on new rights-of-way or on amended or renewed rights-of-way at existing sites. Such requirements could restrict placement or require systems or facilities to be rerouted to avoid these areas. Managing areas as avoidance could indirectly limit future access; delay availability of energy projects by restricting the location of pipelines, transmission lines, and wind and solar projects; create dead zones for communication; or delay availability of communications service. Such requirements also could require communication sites to be installed in locations with more restrictions on accessibility or construction. The designation of approximately 90,000 acres as ACECs in the three counties would restrict land use authorizations in these areas less than 3 percent of the *Decision Area*. As a result of these management prescriptions, new systems or facilities could be rerouted and consequently installed in other locations to avoid special designation areas.

4.4.4.2.2 *Alternative B Impacts on Lands and Realty*

Soil and Water: Prohibiting surface-disturbing activities to prevent soil movement and loss within watersheds containing 303(d) listed streams could impose design and location requirements on new, renewed, or amended rights-of-way at existing sites. The decision could require rights-of-way to be identified and communications sites to be installed in locations or areas with greater restrictions on accessibility or construction. Restricting new rights-of-way authorizations, and modifying existing rights-of-way authorizations in riparian habitats to restore plant communities and to provide for biologic needs, also would require new systems or facilities to be installed in alternate locations to avoid habitat.

Cultural Resources: Rights-of-way authorizations could be restricted in localized areas as a result of cultural site allocations that preserve cultural resources. Also, under Alternative B, surface-disturbing activities within ½-mile of the well-preserved segments of the Butterfield Overland Trail (increased from ¼-mile under Alternative A) would not be permitted.

Paleontological Resources: Field surveys and mitigation would be required for land-disturbing activities in Class 3, 4, and 5 areas of paleontological sensitivity to ensure protection of paleontological resources. As a result, the land use authorization process could be more extensive and require the applicant to develop and comply with specific restoration, construction, or mitigation measures for approval.

Visual Resources: Rights-of-way authorizations in VRM Class I and II areas, approximately 1,237,000 acres including WSAs, ACECs, and historic trail buffers, would restrict major utilities and other rights-of-way authorizations and would likely influence project design or require project relocation. Solar energy

projects would be excluded in VRM Class I and II areas. Wind energy projects would be excluded in VRM Class I areas and avoided in Class II areas. This would be a major impact to these types of projects since nearly half the *Decision Area* would be unavailable for placement of renewable energy projects. The total avoidance and exclusion area is considerably larger than under Alternative A.

Recreation and Visitor Services: Recreation decisions relating to SRMAs would not have an impact on land tenure since no areas within SRMAs are allocated for disposal. However, the desired primitive back country recreation setting for the Organ/Franklin Mountains RMZ (part of the Las Cruces SRMA) would not be compatible with construction and maintenance required for new rights-of-way authorizations. This could result in avoiding these areas or increasing the mitigation efforts.

Lands and Realty: Under Alternative B, approximately 38,273 acres, or an 80 percent decrease from Alternative A, would be allocated for disposal. Under this alternative, specific land is not identified for acquisition, but the BLM could acquire parcels according to criteria outlined under Alternative B above. Allowing areas recommended for withdrawal that are returned to BLM administration to be managed consistent with land use plan decisions for the surrounding area, as appropriate, could increase opportunities for future land use authorizations and rights-of-way compared to Alternative A.

Land tenure could be affected by retention of land within all special designation areas and any adjacent land acquired from willing sellers. All land in WSAs and existing or newly designated ACECs would be retained. No land has been identified for disposal in any of these areas therefore; their continued designation and management as such would have no effect on land tenure.

Managing 150,000 acres of designated utility corridors in would increase the area available for transmission line rights-of-way authorizations compared to Alternative A. Land allocated for disposal within utility corridors, approximately 6,100 acres, could restrict land use authorization opportunities.

Rights-of-way authorizations would be prohibited in exclusion areas on approximately 920,000 acres. Almost all of these areas are within WSAs, ACECs, VRM Class I management areas, SRMAs and special status species habitat and represent about 33 percent of the *Decision Area*. Loss of this area for rights-of-way authorizations would have impact on their placement, causing linear projects to be rerouted and site facilities such as communication sites and renewable energy sites to be relocated or abandoned. Rights-of-way authorizations would be restricted on 109,000 acres designated as avoidance areas. These include VRM Class II areas, historic trails and one SRMA.

4.4.4.2.3 *Alternative C (Preferred Alternative) Impacts on Lands and Realty*

Soil and Water: Allowing surface-disturbing activities with mitigation to prevent soil movement and loss within watersheds containing 303(d) listed streams would provide more flexibility when siting new, renewed, or amended rights-of-way at existing sites compared to Alternative B.

Cultural Resources: Impacts of cultural resources decisions in Alternative C would be the same as under Alternative B.

Paleontological Resources: Impacts would be similar to those described under Alternative B.

Recreation and Visitor Services: Rights-of-way would be avoided in the Elephant Butte ERMA. Rights-of-way would only be authorized with special stipulations to mitigate any impacts to the recreational values of the ERMA.

Lands and Realty: Under Alternative C, 108,450 acres would be identified for disposal or could be transferred from BLM administration. Similar to Alternative B, specific land is not identified for acquisition, but BLM's priority for any acquisition would be inholdings or edge holdings in WSAs and ACECs. The impacts to land tenure would be the same as those under Alternative B.

Decisions concerning lands and realty would maintain existing utility corridors, establish a 1-mile-wide north-south energy corridor along Interstate 25 in Sierra and Doña Ana counties, and expand the Anthony Gap corridor up to 2 miles, increasing north-south right-of-way opportunities for major utilities as compared to Alternatives A and B. Under Alternative C, 209,000 acres of utility corridors would be designated (30 percent greater than Alternative B). However, under this alternative, approximately 20,300 would be allocated for disposal within designated utility corridors. Designating utility corridors would facilitate the placement of transmission lines (electrical lines and pipelines) and would provide upfront information to transmission line applicants on restrictions on the placement of lines. This would speed the application process and the NEPA process as well.

Reducing exclusion areas compared to Alternative B from 920,000 acres to 343,000 acres would increase the areas where rights-of-way authorizations would be considered. This would allow greater flexibility in the placement of transmission lines, communication sites, renewable energy facilities and other rights-of-way authorizations. Increasing the area managed as avoidance from 109,000 acres in Alternative B to 423,000 acres would increase the area where rights-of-way authorizations could be placed if no suitable location is available. This action would increase to a small extent the flexibility for placement of certain types of facilities. However, renewable energy facilities would generally not be authorized in avoidance areas due to the large footprint of such projects and the surface disturbance during construction.

4.4.4.2.4 *Alternative D Impacts on Lands and Realty*

Soil and Water: New, renewed, or amended rights-of-way at existing sites would not be restricted but surface-disturbing activities could not contribute to stream degradation. Alternative D provides more flexibility for granting ROWs than Alternative B and C.

Cultural Resources: Impacts to lands and realty are the same as under Alternative A.

Paleontological Resources: Alternative D does not require a mitigation plan for paleontological resources in the Class 3 designations. This would reduce the overall site preparation required for surface disturbing activities associated with ROWs when compared to Alternatives B and C.

Recreation and Visitor Services: Impacts would be similar to those described in Alternatives B and C. Rights-of-way in the Caballo Mountain SRMA would be authorized with special stipulations to mitigate any impacts to its recreational values.

Visual Resources: Under Alternative D, 955,000 acres, or approximately 34 percent of the *Decision Area* would be managed to meet VRM Class I and II objectives. This is more than under Alternative A, but less than Alternatives B and C. This would restrict major utilities and other rights-of-way authorizations in terms of placement and design on a major portion of the *Decision Area*; however, the extent of this restriction would be somewhat less than under Alternatives B and C.

Lands and Realty: Impacts on lands and realty from special designations would primarily result from the exclusion in these areas from land tenure adjustments. Retention land in special designations would be least under this alternative because no new ACECs would be designated and one would be deleted. This would be a minimal impact on the lands and realty program in the *Decision Area*.

Under Alternative D, approximately 186,500 acres of public land (41,557 acres in Sierra County; 39,860 acres in Otero County; and 105,106 acres Doña Ana County) would be allocated for disposal or could be transferred from BLM administration. Land that could potentially be transferred from Federal ownership would be greatest under this alternative. Impacts would be similar to those identified in Alternatives A, B, and C, but of a potentially greater magnitude because of the number of acres identified for disposal. Allowing criteria-based land tenure adjustments for land disposals on a case-by-case basis would have the same impacts as discussed in Alternative C; however, under this alternative land would not be acquired.

Decisions for lands and realty would maintain existing utility corridors and designate a 2-mile-wide corridor along Interstate 25 and the Anthony Gap. If land were disposed, BLM would no longer have the authority to sanction rights-of-way or other land use authorizations. Rights-of-way authorizations would be prohibited in land designated as an exclusion area on a total of 308,000 acres. Rights-of-way authorizations would be restricted in land designated as an avoidance area, approximately 453,000 acres. Impacts of the avoidance and exclusion areas would be similar to those described under Alternative C since the total avoidance and exclusion areas are approximately the same acreage and locations.

4.4.5 IMPACTS ON RENEWABLE ENERGY

In 2006, the BLM released a programmatic EIS for the development of wind energy on BLM land. The analysis of wind energy in the *TriCounty Decision Area* tiers to that EIS. Likewise, the BLM and the Department of Energy prepared a programmatic EIS for solar energy development on BLM land and the analysis of solar energy development in the *TriCounty Decision Area* tiers to that EIS, published in 2012. The following assumptions were used when assessing the impacts on renewable energy development:

- The primary consideration in locating solar or wind energy projects would be the availability of the solar or wind resource to produce commercial quantities of electrical power.
- Solar enterprise zones as identified in the *Solar Energy Development in Six Southwestern States Final Programmatic EIS, Volume 6, New Mexico Proposed Solar Energy Zones* (2012) would be the priority areas for siting utility scale solar energy projects.
- Applications for proposed wind energy projects would be processed as rights-of-way under Title V of FLPMA and Title 43, Part 2800 of the Code of Federal Regulations (CFR).

4.4.5.1 Impacts on Renewable Energy Common to All Alternatives

The placement of renewable energy projects would be restricted by the existence of avoidance and exclusion areas, WSAs, ACECs, VRM management classes and other management designations and prescriptions (see Table 4-2). The amount of area closed or restricted varies across the alternatives.

The development of existing oil and gas leases or new geothermal leases would not be expected to have any impact on renewable energy projects, due to the small number of existing leases, the localized nature of leases and the lack of overlap between areas of moderate potential for oil and gas and high potential for geothermal resources and similar appellations for wind and solar energy.

4.4.5.2 Impacts of the Alternatives on Renewable Energy

4.4.5.2.1 *Alternative A Impacts on Renewable Energy*

Special Designations: Under Alternative A, 370,000 acres in WSAs, ACECs and a ¼-mile buffer around El Camino Real National Historic Trail would be excluded from the placement of either solar or wind energy projects.

Lands and Realty: Impacts to renewable energy would be the same as the rights-of-way analysis above in Section 4.4.4.2.1

4.4.5.2.2 *Alternative B Impacts on Renewable Energy*

Special Designations: Fewer lands would be available for wind energy than under Alternative A as a result of the greater number of proposed ACECs and an increase in the width of the exclusion area associated with Historic Trails.

Lands with Wilderness Characteristics: Managing the Nutt Grasslands to protect wilderness characteristics would likely preclude any future development of wind energy projects in this area. A commercial wind energy project on 1,900 acres of private land in Luna County is less than 10 miles west of the Nutt Grasslands area. The management of the area to prevent impact to wilderness characteristics would prevent any future projects being sited on about 11,000 acres in the Nutt Grasslands.

Lands and Realty: Wind energy projects would be excluded from a number of designated exclusion and avoidance areas as shown in Table 2-12 and Map 2-19. Mitigation measures developed as part of the NEPA process would be necessary for development in avoidance areas. The impact of these restrictions would be to reduce the area where wind energy projects could be placed and could remove areas with highest wind resource from consideration for siting a wind energy project.

Renewable Energy: Under this alternative, a systematic and managed renewable energy development program would be established in the *Decision Area*, whereas it would likely not occur under Alternative A. Utility scale solar energy projects would be allowed only in the Afton SEZ. There would be no impacts to solar energy development from other resources within the SEZ.

4.4.5.2.3 *Alternative C Impacts on Renewable Energy*

Special Designations: Both wind and solar energy projects would be excluded from lands with special designations. The land available for renewable energy would be greater than under Alternative B.

Lands with Wilderness Characteristics: Under this alternative, the Nutt Grasslands would be managed as an exclusion area for wind energy projects. The impacts on wind energy would be the same as those described under Alternative B.

Lands and Realty: Impacts would be the same as those described for Alternative B but more land would be considered avoidance areas than exclusion areas.

Renewable Energy: Afton SEZ would remain the priority for siting solar projects but sites outside the SEZ would be considered as well, thereby increasing the potential for solar development.

4.4.5.2.4 *Alternative D Impacts to Renewable Energy*

Special Designations: Only special designations, WSAs, ACECs, El Camino Real Historic Trail and VRM Class I areas, would be excluded from wind energy development. This would be more area than under Alternatives B and C but less than that available under Alternative A. An additional 100,000 acres over Alternative C would be available for wind development.

Lands with Wilderness Characteristics: Under this alternative, the Nutt Grasslands would be managed as an avoidance area for wind energy projects. Projects would only be permitted that were stipulated to avoid impacts to the wilderness characteristics.

Lands and Realty: Alternative D impacts would be similar to the impacts described under Alternative C.

Renewable Energy: Impacts would be the same as those described under Alternative C.

4.4.6 IMPACTS ON MINERALS: FLUID, MINERAL MATERIALS, AND LOCATABLE MINERALS

The analysis of effects on minerals is limited to effects on opportunities for mineral production and development. Impacts on fluid-minerals, locatable minerals, and mineral materials generally would occur as a result of (1) use of mineral resources in a manner that does not offer the highest value for the use of public land to the people of the United States, such as permitting the sale of crushed rock from an unusual type of granite outcrop that may bring higher value as quarried building stone, and (2) recommending areas for withdrawal or closing areas to mineral exploration and development. The following assumptions were used when assessing the impacts on mineral resources:

- As population growth increases, so would the demand for leasable and renewable energy resources, as well as locatable and saleable mineral resources.
- All existing mineral authorizations would be managed under the stipulations in effect when authorized, and new stipulations proposed under this RMP would apply if the actions were amended, subject to valid existing rights.
- Mineral development would occur throughout the entire *Decision Area*, except where restricted by management actions.
- Increased mitigation would generally increase short-term financial cost and risk. Increased restrictions and withdrawals would decrease resource availability.
- Decisions that restrict rights-of-way authorizations on land open to, or bordering areas open to, mineral leasing or development could restrict the construction of required systems or facilities, such as access roads, power lines, or pipelines through those areas, and therefore restrict the ability to extract or use the mineral resources.
- Unless a withdrawal exists, mining claimants have an inherent right to mine, which cannot be revoked by the BLM.
- Areas recommended for withdrawal from mineral entry would require approval by either Congress or the Secretary of the Interior depending on the size of the proposed withdrawal.
- All military withdrawals (White Sands Missile Range, Ft. Bliss, McGregor Range, and Holloman Air Force Base), White Sands National Monument, and San Andres National Wildlife Refuge are withdrawn from mineral entry and are not further analyzed here.
- No new oil and gas leasing would occur under the action alternatives pending the completion of the programmatic EIS addressing oil and gas leasing as described in Chapter 2.
- Impacts of deferral of leasing would be short-term pending completion of the programmatic EIS.
- Impacts from the development of valid existing rights associated with existing leases would be recognized, based on best available information.

Under all alternatives, impacts on minerals would not be anticipated as a result of management actions for the following resources and resource uses: vegetation, forest woodland and plant products, wildland fire management, livestock grazing, and comprehensive trails and travel management.

Restriction, prohibition, or recommendation of areas for withdrawal of mineral resources would be induced primarily by decisions under mineral resources, lands and realty, special designations, and visual resources. In addition, decisions regarding cultural resources and outdoor recreation also would affect the BLM's ability to authorize leases or mineral material sales, but to a lesser extent (i.e., effects would be localized or mitigated).

4.4.6.1 Impacts on Minerals Common to All Alternatives

The greatest impact on the potential for fluid-mineral development would result from nondiscretionary and discretionary closures to fluid-mineral leasing, which would occur under all alternatives (see Table 4-2). In the *Planning Area* for purposes of the analysis of impacts, nondiscretionary closures would include all WSAs and former military bombing ranges on Otero Mesa, and National Oceanic Atmospheric Agency weather sites in Sierra County (a total of 333,206 acres).

Discretionary closures would include all existing ACECs that are currently closed to leasing and would be carried through all alternatives. Consequently, approximately 75,020 acres would be closed to leasing and would be foregone to fluid mineral leasing, exploration and development. This constitutes 2.6 percent of the mineral estate in the *Decision Area* and is primarily in areas of low fluid mineral potential.

Geothermal leasing and development would be foregone in areas of high potential in the Organ/Franklin Mountains ACEC and at the north end of the Robledos WSA. Existing leases in these areas could be developed and utilized.

There are no high potential areas for oil and gas in the *Decision Area*. However, 80,000 acres that would be closed to leasing, mostly in WSAs and ACECs, is within moderate potential areas for either oil and gas or geothermal resources. Very few leases exist in these areas and exploration may occur, but development is not likely.

Overall, the surface management constraints as well as required mitigation procedures and BMPs (Appendix D) imposed by the alternatives are not anticipated to drastically impact the ability to explore or develop mineral resources. Surface management requirements may potentially burden the project economics so that the project activities may be delayed (e.g., compliance with VRM). Some surface management requirements are more costly, such as avoidance and exclusion criteria that may necessitate the use of directional drilling. The additional cost of the management requirements versus the anticipated revenue of the project may make the project economically unfeasible.

Withdrawals for locatable mineral entry (i.e., areas where locatable minerals cannot be extracted) in ACECs, SRMAs, and WSAs could possibly preclude locatable mineral development (grandfathered mining claims may still be developed), subject to valid existing rights, and may contribute to local mineral shortages and price increases of metals, industrial minerals, and uncommon varieties of building stone. Withdrawal would not take place as a result of the Record of Decision, but only as a result of a subsequent withdrawal process involving the Secretary of the Interior's office or the US Congress, depending on the size of the proposed withdrawal. Mineral materials development either as sales or free-use would not occur in WSAs (*Management of Wilderness Study Areas Manual 6330*).

Impacts on minerals associated with visual resource decisions for WSAs would be the same under all alternatives. In areas managed as VRM Class I or II, mineral development would be more restricted in order to comply with management guidelines associated with these classes. Exploration would be allowed if it did not cause undue or unnecessary degradation. No claims can be staked or extraction can occur on areas withdrawn from mineral entry; however, areas (claims) with valid existing rights could still be developed.

4.4.6.2 Impacts of the Alternatives on Minerals

4.4.6.2.1 *Alternative A Impacts on Minerals*

Fluid Minerals: Approximately 60,000 acres (4 percent of the mineral estate) in Sierra and Otero counties and 334,000 acres (24 percent of the mineral estate) in Doña Ana County would be closed to fluid-mineral (e.g. oil, gas, and geothermal) leasing, which would preclude exploration and development and render energy resources unreachable in those areas. Just 19,000 acres, or 0.44 percent of the *Decision Area*, are discretionarily closed to leasing within areas with a moderate potential for fluid minerals.

Continuing to apply the No Surface Occupancy (NSO) fluid-mineral leasing stipulation to oil and gas leasing that prohibits occupancy or disturbance on all or part of the lease surface in order to protect special values or uses in 18,000 acres (approximately 1 percent of the mineral estate) in Sierra and Otero counties and 2,200 acres (less than 1 percent of the mineral estate) in Doña Ana County could necessitate directional drilling or other extraction methods to develop resources. A stipulation of NSO could result in the relocation of systems or facilities, increased extraction costs, and the possible loss of energy resources that cannot be extracted by current or future drilling technology. Some of the areas with the leasing stipulation of NSO would occur in areas with moderate potential for fluid-minerals; however, many of these areas are small, and the resource availability is not anticipated to be greatly affected.

Applying Controlled Surface Use (CSU) stipulations (i.e., allowing use and occupancy but requiring special operational constraints that may modify the lease rights to protect identified resource values) for oil and gas leasing on 793,000 acres (40 percent of the mineral estate) in Sierra and Otero counties and 106,000 acres (10 percent of the mineral estate) in Doña Ana County could influence the placement of systems or facilities and, as a result, increase the cost of developing the resources. When operating costs increase, some price increases could be passed to the user. A majority of the areas with CSU are located in areas of moderate potential for fluid-minerals.

Locatable Minerals:

Special Designations: Currently 11,000 acres are segregated or withdrawn from mineral entry in the *Decision Area*. (This does not include military withdrawals.) The Mimbres RMP decision would withdraw an additional 65,635 acres in special designations from mineral entry. Except for valid existing rights, the location, exploration and development of mining claims would be foregone in these areas. All withdrawals must be approved by the Secretary of the Interior if less than 5,000 acres, or Congress, if 5,000 acres or more.

Any activity over and above casual use within an ACEC would require that the claimant submit a mine plan of operation (MPO) per 43 CFR 3809 regulations. While BLM cannot deny the MPO, mitigation and stipulations can be applied to the authorization to prevent unnecessary and undue degradation to the resources.

Mineral exploration and development in a WSA would be determined by the “grandfathered use” clause of the BLM Manual 6330 *Management of Wilderness Study Areas* (USDOI BLM 2012b) and the undue and unnecessary degradation prohibition of FLPMA. However, there has been little interest in mining activity in WSAs in the recent past and none is expected in the foreseeable future.

Mineral Materials:

Special Designations: Closing 355,623 acres to mineral material disposal, primarily in WSA and ACECs, would preclude possible development of sand, gravel, and building stone sources, and contribute to local mineral shortages and price increases particularly in Doña Ana County where the construction industry is most active. Closures could result in longer hauling distance for materials purchased by contractors. Municipal and County agencies would also be prohibited from obtaining free-use permits for public projects within or near the closed areas, which could increase the costs of local infrastructure projects. Areas proposed for closure represent less than 10 percent of the Federal mineral estate in the *Decision Area*. However, most of these areas consist of bedrock outcrops, which would restrict the availability of specific mineral materials such as crushed stone, railroad ballast, and decorative stone.

Visual Resources: Impacts on minerals from management actions associated with visual resources decisions that designate approximately 10,000 acres in Sierra and Otero counties and 33,000 acres in Doña Ana County as VRM Class I areas would preclude energy and mineral development and would increase the cost of mineral resource extraction and development. However, all of the land designated as VRM Class I coincides with nondiscretionary and discretionary closures, which would preclude mineral development regardless of the VRM designation.

Lands and Realty: Under lands and realty decisions, right-of-way exclusion areas (51,500 acres in Sierra and Otero counties and 385,000 acres in Doña Ana County) and avoidance areas (4,200 acres in Otero counties and 9,000 acres in Doña Ana County) could limit future access to mineral exploration and development sites and could restrict the placement of systems or facilities associated with mineral exploration and development. Associated systems or facilities would include pipelines, transmission lines, communication systems or facilities, and roads. In addition, approximately 207,000 acres of land designated for disposal under Alternative A are located in areas with moderate potential for oil and gas resources and in areas with a high or known potential for geothermal resources. The value of mineral resources, in lands designated for disposal, would need to be identified prior to disposal would ensure people of the United States receive the highest value for the transfer of public land.

4.4.6.2.2 Alternatives B, C, D Impacts on Minerals

Fluid Minerals:

During the last several years, the area of greatest interest for oil and gas leasing and exploration has been Otero Mesa in southern Otero County. However, other areas in Doña Ana County have been leased during that time. Under Alternatives B, C, and D, oil and gas leasing would be deferred throughout the *Planning Area* until a programmatic EIS addressing oil and gas leasing and management is prepared following completion of the *TriCounty* RMP.

As a result of the deferral, there would be no future oil and gas leasing; consequently there would be no exploratory drilling or production of oil and gas except on existing leases. Any existing leases as of the time of issuance of the Records of Decisions of the *TriCounty* RMP would continue until those leases expire and would not be renewed.

The deferral of leasing would result in foregoing future exploration and development of oil and gas resources in areas that are not currently leased, but would likely be a temporary impact until the programmatic EIS for oil and gas leasing and development is completed. Any drilling or production of state or privately-owned oil and gas estate could result in the draining of Federally-owned oil and gas on adjacent Federal mineral estate that is deferred from leasing. This could result in the loss of revenue and resources from Federally-owned minerals.

Geothermal leasing exploration, drilling, development and utilization would continue except on discretionarily and non-discretionarily closed mineral estate. This would amount to 258,180 acres closed non-discretionarily under Alternatives B, C and D. Discretionary closures in A and D would be 75,020 acres. Discretionary closure in Alternative B would be 570,000 acres; 431,000 acres in Alternative C. An estimated 4,500 acres of high potential geothermal resource in existing ACECs would continue to be closed. Geothermal leasing and development would be foregone in these areas.

The loss of opportunity for development would be a substantial impact locally, but the remainder of the *Decision Area* including areas with high potential for geothermal resource development would remain open to leasing subject to stipulations listed in Appendix K. In the past, geothermal development has primarily been for direct use applications such as greenhouse heating. This type of development and use of leases would likely continue in the future. It is estimated that over 90 percent of the area with high or moderate potential for geothermal resource development would remain open for leasing subject to the stipulations in Appendix K.

4.4.6.2.3 *Alternative B Impacts on Minerals*

Special Designations: Management of locatable mineral development would be the same as under Alternative A, except an increase in ACECs increases the area recommended for withdrawal from locatable entry. This would be an impact to the availability of mineral resources. No new claims can be staked on areas withdrawn from mineral entry which could contribute to local mineral shortages and price increases. Prior to a withdrawal, a mine plan of operation would be required in the larger number and area of ACECs under this alternative for any mineral activity beyond casual use.

Approximately 705,000 acres would be closed to mineral material disposal which would preclude mineral development. In addition, decisions concerning cultural resources, recreation, paleontology, and fish and wildlife also could restrict development of mineral resources, but to a lesser extent (i.e., if effects from mining could be localized or mitigated). This would decrease the area where mineral exploration and development could occur compared to Alternative A.

Fish and Wildlife Habitat: Decisions applicable to fish and wildlife that restrict new rights-of-way authorizations in riparian areas (and their associated watersheds) would further limit access to mineral exploration and development of sites. However, this would be a negligible impact because the amount of riparian zones within the *Decision Area* is no more than a few hundred acres.

Cultural Resources and Paleontological Resources: Decisions under cultural resources to increase the distance where surface-disturbing activities are prohibited to greater than ½-mile from the Butterfield Overland and Mormon Battalion trails would minimally hinder or limit access for some mineral exploration and extraction of mineral resources in those areas. However, this restriction would not apply to locatable minerals which would be governed by the regulations at 43 CFR 3809.

Both cultural and paleontological resource surveys would be done prior to any ground disturbance associated with locatable or mineral material exploration, development or extraction. These requirements would apply to both a notice and a mine plan of operation. Results of the surveys could require

mitigation such as relocating the drill site or excavation, rerouting access, or avoiding areas where these resources are located. These actions could delay mineral exploration and development activities, including geophysical exploration, thereby increasing costs to the operator. BLM cannot deny a proposed action unless it would be determined to cause undue or unnecessary degradation.

Visual Resources: Impacts on minerals from management actions associated with managing 27,000 acres as VRM Class I areas in Sierra and Otero counties and 47,000 acres in Doña Ana County would preclude energy and mineral development, and there would be no mineral resource extraction and development cost in comparison with Alternative A. Management prescriptions in VRM Class II areas would include stipulations and mitigation measures for most mineral actions. In addition, for all three counties, areas of high sensitivity would be a priority for reducing visual contrast, which could reduce opportunities for mineral material sites and mines or require additional mitigation measures for proposed projects.

Recreation and Visitor Services: Outdoor recreation decisions for Alternative B would cause a decrease of 53,000 acres in opportunities for development of mineral materials (e.g. sand, gravel, fill material, or clay), or locatable minerals when compared with Alternative A.

Lands and Realty: Under lands and realty, right-of-way exclusion areas (920,000 acres) and avoidance areas (109,000 acres) could limit future access to mineral exploration and development sites to a lesser extent than under Alternative A. In addition, under Alternative B, the amount of land designated for disposal in areas with moderate potential for oil and gas resources and high or known potential for geothermal resources would decrease as compared to Alternative A.

Minerals: Under Alternative B, the Federal fluid mineral estate underlying the NMSU Rangeland Research Center would be closed to geothermal leasing. The United States retains the entire mineral estate under the NMSU Rangeland Research Center, subject to the covenant that BLM will not lease or sell mineral resources without the consent of NMSU. However, this closure would preclude the necessity of obtaining such consent and would serve as a “*first screen*” for potential location of geothermal exploration wells by industry on approximately 60,000 acres. A portion the southwest part of the Rangeland Research Center is adjacent to the Radium Springs where geothermal resources are being used for greenhouse heating. Geothermal resources are also known to exist at Tonuco Mountain along the northwest boundary of the NMSU Rangeland Research Center; therefore, it is likely that similar resources exist on the adjacent portions of the rangeland research center. Development of this resource would be foregone. The extent of this impact cannot readily be quantified due to the lack exploratory activity in the area; however, Witcher (1995) estimated that deep water temperatures at nearby Radium Springs could range as high as 100 - 150°C which is potentially suitable for either direct (heating space or water) and indirect (electrical energy production) uses (USDOI BLM 2008c).

4.4.6.2.4 *Alternative C (Preferred Alternative) Impacts on Minerals*

Special Designations: Impacts would be essentially the same as Alternative B. Recommending areas for withdrawal from locatable mineral entry would have the same impacts as under Alternative B, except that Alternative C would have fewer acres of ACECs; therefore fewer acres would be recommended for withdrawal from mineral entry.

Fish and Wildlife Habitat: Impacts under Alternative C would be the same as under Alternative B.

Cultural Resources and Paleontological Resources: Decisions under cultural resources would minimally hinder or limit access for some mineral exploration and extraction of mineral resources in the

vicinity of historic trails. However, this would not apply to locatable minerals which would be governed by the regulations at 43 CFR 3809.

Both cultural and paleontological resource impacts to minerals in Alternative C would be similar to those described in Alternative B.

Visual Resources: Impacts on mineral material sales from management actions associated with visual resources decisions that designate approximately 10,000 acres as VRM Class I areas in Sierra and Otero counties would preclude energy and mineral development over less area than under Alternative B and the same amount of area as under Alternative A. Impacts on minerals from management actions associated with visual resources decisions designating 36,000 acres as VRM Class I areas in Doña Ana County could preclude discretionary mineral actions, and could increase mitigation needs for the development of mining claims. Management prescriptions for VRM Class II areas also increase stipulations and mitigation measures for the development of minerals. Increasing areas managed to meet VRM Class I and II objectives could increase the cost of mineral development compared to Alternative A.

Recreation and Visitor Services: Outdoor recreation decisions for Alternative C would cause a decrease in opportunities for development of mineral materials (e.g. sand, gravel, fill material, or clay), or locatable minerals when compared with Alternative B.

A greater number of SRMAs would be designated under Alternative C compared to Alternative A and B. These areas would be closed to mineral material disposal and geothermal leasing. This decision could restrict mineral development to a greater extent than Alternative A or B.

Lands and Realty: In lands and realty, right-of-way exclusion areas (343,000 acres) and right-of-way avoidance areas (423,000 acres) could limit future access to mineral exploration and development sites and would restrict the placement of systems or facilities associated with mineral exploration and development in a smaller area than Alternative B.

Under Alternative C, the amount of land identified for disposal in areas with moderate potential for oil and gas resources and high or known potential for geothermal resources would be slightly increased as compared to Alternative B, although much of the additional land designated for disposal would be located in low-potential areas for oil and gas. On any disposed parcels, subsurface mineral rights would be retained by the Federal Government. Consequently, operators proposing development of the retained Federal mineral estate would either have to negotiate an access agreement with the surface owner, or submit an operating plan and surface reclamation bond for BLM approval. This could increase start-up time and operating costs for the mineral producer. When public land is sold or exchanged under 43 U.S.C. 682(b) (Small Tracts Act), 43 U.S.C. 869 (Recreation and Public Purposes Act), 43 U.S.C. 1713 (sales) or 43 U.S.C. 1716 (exchanges), minerals reserved to the United States continue to be removed from the operation of the mining laws unless a subsequent land-use planning decision expressly restores the land to mineral entry, and the BLM publishes a notice to inform the public (43 CFR 3809.2).

Minerals: Impacts from fluid minerals management and leasing deferment would be the same as those described under Alternative B, including the impacts of closing the geothermal estate underlying the NMSU Rangeland Research Center.

Approximately 457,000 acres would be closed to mineral material sales. This would preclude possible saleable mineral development in a larger area than under Alternative A but much smaller area than under Alternative B. Although there is a sizable difference between the two alternatives, the impacts would be similar since most of the open area under Alternative C as compared to Alternative B, are a considerable distance from where the material would be used.

4.4.6.2.5 *Alternative D Impacts on Minerals*

Special Designations: Alternative D impacts would be the same as described under Alternative A.

Fish and Wildlife Habitat: Minerals would not be impacted under Alternative D.

Cultural Resources and Paleontological Resources: Under Alternative D the distance where surface-disturbing activities are prohibited from the Butterfield Overland and Mormon Battalion trails would be ¼ mile, less than Alternative B. Other impacts to minerals in Alternative C would be similar to those described in Alternative B.

Visual Resources: Impacts on minerals from managing 4,300 acres to meet VRM Class I objectives in Sierra and Otero counties would preclude energy and mineral development over less area than Alternatives A, B, and C. Impacts on minerals from management actions associated with visual resources decisions designating 35,000 acres as VRM Class I areas in Doña Ana County would preclude energy and mineral development over more area than Alternatives A and C, but less area than Alternative B. Management prescriptions for VRM Class II areas could add stipulations and mitigation measures increasing the cost of mineral exploration and development.

Recreation and Visitor Services: Impacts would be the same as Alternative C, except that the areas recommended for withdrawal would be less than for Alternative B or C. Recreation decisions for Alternative D would increase opportunities for leasing and development of fluid-minerals, mineral materials, or locatable minerals as compared to all other Alternatives. The Three Rivers SRMA would be the only SRMA that would be discretionarily closed to fluid-mineral leasing.

Lands and Realty: Under lands and realty, right-of-way exclusion areas (308,000) and right-of-way avoidance areas (453,000 acres) could limit future access to mineral exploration and development sites and could restrict the placement of systems or facilities associated with mineral exploration and development. In addition, under Alternative D, the amount of land designated for disposal is approximately 1.7 times greater than under Alternative C. Therefore, the amount of land designated for disposal that is located in areas with moderate potential for oil and gas resources and high or known potential for geothermal resources would increase as compared to Alternative C.

Fish and wildlife management decisions that restrict new rights-of-way authorizations in riparian areas and their associated watersheds would not limit access to mineral exploration and development of sites.

Minerals: Impacts from fluid minerals management and leasing deferment would be the same as those described under Alternative B.

Under the existing title covenant for the Rangeland Center, the BLM will not lease or sell mineral resources without the consent of NMSU. However, assuming that leasing would occur activities would impact surface use. Leaving the fluid mineral estate underlying the NMSU Rangeland Research Center open to geothermal leasing would allow the area to be leased for exploration and possible development. This would likely result in new roads being developed to allow access for drilling equipment, clearing areas for drill pads, increasing traffic in the area, and adding to the human presence and disturbance. All of these activities would be incompatible with the mission and management of the research center and would have an overall negative effect on the surface use of the center.

Approximately 353,000 acres would be closed to mineral material disposal which would preclude commercial development of mineral resources and issuance of free use permits to other agencies. This would leave approximately the same area available for mineral development as Alternative A and

increases the area where mineral development could occur compared to Alternatives B and C. The impact would be negligible since this would only slightly increase the availability of construction material in the *Decision Area*.

4.4.7 IMPACTS ON SOCIOECONOMIC CONDITIONS

Economic impacts are defined as expected gains or losses from market transactions on local jobs and income and market and nonmarket value of resources to users. Direct economic impacts include jobs, wages, and expenditures related to an activity (e.g., mineral resource development). Indirect economic impacts are realized through the interrelated purchase of goods or services for the economic activity (e.g., equipment and service providers) and result from the circulation of dollars through the local economy in a “ripple” or multiplier effect.

Social impacts are defined as the consequences to human populations that alter the way in which people live, work, recreate, relate to one another, and generally cope as members of society. Social impacts can be either direct, meaning that they would potentially result from the action taken, or secondary, meaning that the result is separated from the direct impact by time or geographic distance.

Key economic impact variables that were considered as part of the analysis include employment, income, economic dependency, and market and nonmarket economic value of resources to users within the social and economic study area and at the regional and National levels. Key social impact variables include population change, community and institutional structures, political and social resources, community and family changes, and community resources.

The programs with the strongest correlation between BLM management and social and economic conditions are energy and minerals; livestock grazing; recreation; and lands and realty. This analysis of the potential social and economic impacts of the alternatives considers the current contribution of the BLM’s resource management on the social and economic environment of the region. It is assumed that the current trends for economic and social needs, demand, and values are indicative of those that will continue for the next 20 years.

4.4.7.1 Impacts on Socioeconomic Conditions Common to All Alternatives

Economic impacts are defined as expected gains or losses from market transactions on local jobs and income and market and nonmarket value of resources to users. Direct economic impacts include jobs, wages, and expenditures related to an activity (e.g., mineral resource development). Indirect economic impacts are realized through the interrelated purchase of goods or services for the economic activity (e.g., equipment and service providers) and result from the circulation of dollars through the local economy in a “ripple” or multiplier effect. Induced economic impacts are the effects of individuals spending their earnings in the local economy (e.g., a clerk at a local hotel purchasing groceries or getting a haircut).

Under all alternatives, economic opportunities are largely dependent on management decisions for energy and mineral resources; livestock grazing; recreation; lands and realty; and renewable energy. Because the alternatives are developed to address issues and concerns regarding resource management, they inherently recognize the social values of the protection of air quality, soil resources, water and watershed resources, vegetation, fish and wildlife, special status species, cultural resources, trails, paleontology, visual resources, wildland fire management, wilderness characteristics, and special designations.

Public land would continue to be available for development of geothermal resources, locatable minerals, and mineral materials. Exploration for and extraction of mineral resources has direct socioeconomic

impacts associated with resource development (e.g., jobs, wages, expenditures, and tax and royalty payments to the State of New Mexico and U.S. General Fund) as well as indirect socioeconomic impact in interrelated industries (e.g., indirect jobs, wages, and personal and government expenditures) and to consumers. However, under the action alternatives, oil and gas leasing would be deferred until a programmatic EIS is developed to address leasing and development. The magnitude of the potential impacts is unknown due to the lack of information about the oil and gas resource. Existing commercial use of geothermal energy and mineral material would continue to provide economic benefits, particularly in Doña Ana County where most of the use of both of these resources occurs.

The value of energy and mineral resources in land identified for disposal would be evaluated during the disposal analysis process to ensure the highest value for the use of public land to the people of the United States. In most cases, the mineral estate is retained by the Federal government when the surface is disposed to another entity.

Livestock grazing would continue on public land in the *Decision Area*. There would continue to be a direct economic value in the form of income to ranching activities. Grazing fees would continue to supplement range improvement expenditures. Indirect socioeconomic impacts would continue in the form of employment in expenditures in the agricultural services and other related sectors. Grazing would continue to be managed to meet the *New Mexico Standards and Guidelines*, thus allowing for adjustments in use levels, season of use, kind of livestock, and stocking rates, which would result in fluctuations in economic gains associated with grazing commensurate with rangeland conditions.

Recreation uses of public land would continue to provide for collection of recreation fees at selected sites such as Three Rivers Petroglyph Site and Aguirre Spring Campground, and in association with special recreation permits. Recreation opportunities provided on public land support retail, food and accommodation, and other service industries in local economies by attracting visitation from outside the local area. This, in turn, results in economic impacts via jobs and income in these industries, indirect income as wages circulate through the local economy, and tax revenue for local jurisdictions. Statewide outdoor recreation generates 47,000 jobs and accrues \$3.8 billion annually to New Mexico's economy and \$184 million in annual New Mexico state tax revenue (NM SCORP 2010-2014). Expenditures from those recreating on public land in the *Decision Area* provide an unknown but incremental input to the statewide totals. In the *Planning Area*, public land provides most of the outdoor recreation experience for locals and visitors alike.

Lands and realty management decisions would continue to allow for land tenure adjustments to accomplish resource management goals and to meet various needs, including public interest and community needs. Any major project would involve evaluation by local governments and possible Federal government review, both of which would provide opportunity for public input, and potentially environmental review. Land tenure adjustments could result in minor changes to payments in lieu of taxes. Also, commercial use of public land (with proper authorizations, permits, and adherence to natural and cultural resource protection requirements) would continue to result in economic gains in the income and employment for commercial businesses and indirect impacts in related economic sectors.

Under the action alternatives, solar energy projects would primarily be confined to the Afton SEZ; most of the social and economic impacts within the *Decision Area* would accrue to Doña Ana County.

In 2011, a 50 MW wind farm consisting of 28 turbines was constructed on private land in Luna County about 2 miles from the Sierra County boundary. Project construction involved approximately 150 workers and operation is expected to provide over \$8 million in revenue to Luna County through the County's taxing authority over the 20-year life of the project (North American Wind Power, *Element Power Begins Construction on Macho Springs Wind Farm*, February 2011). Other wind energy projects

would likely be developed within the *TriCounty Decision Area* during the life of the RMP. Economic impacts of those projects would be commensurate with the Macho Springs project, depending on the size and location of the projects.

4.4.7.2 Impacts of the Alternatives on Socioeconomic Conditions

4.4.7.2.1 *Alternative A Impacts on Socioeconomic Conditions*

Under Alternative A, the BLM management of public land in the *Planning Area* would continue under current management direction.

Special Designations: Managing and maintaining the open spaces associated with WSAs, lands with wilderness characteristics, ACECs, and historic trails (approximately one-tenth of the *Decision Area*) would strengthen the sense of place for many local people and visitors.

Vegetation and Woodlands: Free use permits for collection of plants used in ceremonial/religious events and vegetation sale areas would continue. The value of free use permits would continue to be a primary social value for those who collect and use forest, woodland, and plant for personal or ceremonial/religious purposes or sustenance.

Livestock Grazing: Livestock grazing would continue to be affected by existing resource management decisions, and the *New Mexico Standards and Guidelines for Public Land Health*. Conflicts with recreationists, off-road vehicle use, land disposal, and renewable energy development could result in a reduction of forage quantity, and could have a slight to moderate economic impact on the livestock economy.

Recreation and Visitor Services: The continuation of existing recreation management programs would result in relatively minor local economic impacts due to visitor expenditures and highly varied social impacts associated with the availability and quality of recreation activities. Many of the issues and concerns raised during public scoping and ongoing public involvement for the *TriCounty* Draft RMP/EIS were centered on recreation uses. Associated social effects, such as conflicts among uses and users, would continue and could potentially escalate under Alternative A.

Lands and Realty: The implementation of right-of-way exclusion and avoidance areas would limit the options for the places where right-of-way projects would be considered. A proponent of a right-of-way or other land use action could be prohibited from completing a proposed project due to incompatibilities with land management decisions or could have to select a less desirable or more expensive location, routing, or design/build process. Right-of-way avoidance and exclusion areas would protect areas with high resource value such as scenery, rare species, recreation areas, historic and prehistoric sites, and wildlife habitat with social and economic benefits as described in the Impacts Common to All Alternatives Section.

Continuing existing realty management decisions would impact potential realty transactions and land development. Approximately 213,000 acres would be allocated for disposal or transfer from BLM administration. This allocation provides potential opportunities for development actions by major utilities and other rights-of-way authorizations. Land identified for disposal could become available for state or local governments or others for a variety of uses. Existing utility corridors located in Doña Ana County would remain and would allow for additional use and new right-of-way development. Development within existing or new rights-of-way would have potential social impacts related to the location of the

development and economic impacts on the service population affected by infrastructure improvements. These impacts would be evaluated on a site-specific basis in accordance with NEPA.

During public scoping for the RMP, many people expressed their interest in maintaining open spaces as much as possible, particularly in the Las Cruces urban interface, as a lifestyle amenity. Land tenure adjustments could also have a negative effect on lifestyle, if open space would be lost in the disposed areas. Some areas, such as those disposed under the Recreation and Public Purposes Act would likely be developed as parks or public use areas which would change the use on the original parcel, but would reduce or eliminate impacts that would occur if the areas were intensely developed.

Renewable Energy: Under Alternative A, renewable energy projects could be located throughout the *Decision Area* wherever conditions are suitable and outside of right-of-way avoidance and exclusion areas. As described above for the Macho Springs Project in Luna County, these projects would be a major economic benefit to the counties in which they are located. Employment and wages would increase during construction and tax revenues would accrue to the counties during the life of project operation.

Minerals: Potential economic gains and social change from development of energy or mineral resources would continue to be limited by restrictions on valid existing rights. Areas closed to fluid-mineral leasing, although in medium-potential areas, would preclude fluid minerals development and thus any economic gain for the life of the RMP. Development could still occur in other areas but due to the low to moderate potential for oil and gas there would likely be little economic gain. Although geothermal leasing and development would continue and the potential for economic production is high along the Rio Grande Valley, past projects have been relatively small scale. These projects have been primarily for direct use applications such as greenhouse heating.

Energy and mineral resource development within the *Decision Area* would be expected to continue to be a minor component of the local economy. Closing WSAs and ACECs to fluid mineral leasing would preclude exploration and development on a total of 352,000 acres and would protect the naturalness and special values, both cultural and natural, of these areas. Although this is only about 12.5 percent of the *Decision Area*, protected areas have a major, positive impact on economic growth in rural counties. Per capita income in isolated rural counties with protected land grew up to 60 percent faster than similar counties without protected lands (Rasker, R. et al. 2004).

4.4.7.2.2 *Alternative B Impacts on Socioeconomic Conditions*

Under Alternative B, resource and resource use decisions would be more restrictive for energy and mineral resource development, livestock grazing, recreation, lands and realty, and forest, woodland, and plant products, thus impacting existing socioeconomic conditions in the *Planning Area*.

Special Designations: Under Alternative B, development would be restricted in portions of the *Decision Area*, which would be a positive impact for outdoor recreation and those who have an appreciation for the natural wonders of the public land. Facilities development would be minimized with more of the area maintained in the current natural condition.

Vegetation and Woodlands: The management decisions for forest, woodland, and plant products would be more restrictive under Alternative B than the other alternatives. No plant sale areas would be identified and area permits for vegetation sale would not be authorized. Unlike Alternative A, harvest of vegetation products would be specifically tied to improvement of the ecological health of forest and woodlands. Such management decisions could translate into minor, localized losses to those with commercial interests in the vegetation resources on public land.

Livestock Grazing: Under Alternative B, livestock grazing could be discontinued after voluntary relinquishment of all or part of a grazing preference. This could result in some foregone opportunities, compared to Alternative A, for other ranchers and a small decrease in jobs and income due to discontinuation of grazing on the specific relinquished preference. However, land could continue to be suitable for grazing. A 25 percent reduction on vegetation with limited restoration potential would only slightly impact ranchers since AUMs on these types of rangeland may be in suspension and not in current use.

Recreation and Visitor Services: Given restrictive management and greater acreages for ACECs and increased restrictions on surface-disturbing activities, OHV driving and hunting opportunities would be reduced. Given the prominence of OHV and hunting recreation in the *Planning Area*, there may be overall losses in local recreation-related expenditures for items such as food, lodging, and equipment. Such impacts would be offset by the continued expenditures associated with ongoing dispersed recreational opportunities and potentially increased visitation/expenditures resulting from SRMA allocation focused on specific recreation niches. SRMA allocation would decrease conflicts between users, improve the recreation setting and experience, and convey to the public that these areas are available as recreation destinations. All these effects could contribute to increases in visitation to developed sites and on public land generally. This would result in gains in fees received by BLM, and more substantially, gains from increased local expenditures in the local communities that would provide services and equipment to visiting recreationists. In addition, the identification of specific recreation areas could contribute to local economic development efforts that are built on tourism.

Lands and Realty: The expansion of right-of-way exclusion areas and designation of a utility corridor could result in denial of some linear developments based on location alone, but would likely streamline the approval/review process. Utility corridor acreage would increase dramatically compared to Alternative A. Cost of development for utility companies could increase if the corridor is not ideally compatible, but commonality of location would increase efficiencies (e.g., established access points). Socioeconomic impacts would be minor, as these utility corridors would be located in sparsely populated areas just east of cities and towns within the *Planning Area*. The utility corridors would pass over existing allotments and could potentially cross over portions of existing ranches; however, it is unlikely that these would pass over attached ranches. This could result in localized impacts on ranching operations.

Land acquisition for ACECs and SRMAs may preclude development on acquired parcels that otherwise would provide site-specific economic development opportunities. Land potentially available for development through land disposal would be reduced by 77 percent when compared to Alternative A. The magnitude of economic loss associated with precluded development opportunity is difficult to predict, given the uncertainties with regard to development and market potential. However, the nonmarket value of undeveloped land, particularly land with values warranting ACEC or SRMA designation, would be expected to offset these losses somewhat.

Renewable Energy: All areas outside of avoidance and exclusion areas designated under this alternative would be potentially available for wind and solar energy development. Impacts of wind energy projects in the *Decision Area* to economics would be the same as those described under Alternative A. The socioeconomic impacts of solar development would be extremely varied and would include both benefits and detriments. Reductions in carbon emissions, reduced electricity prices, and employment are benefits. Increases in visual intrusions such as transmission lines and solar fields, and the loss of vegetation and habitats would be considered among the detriments of renewable energy on public lands.

Minerals: A total of 258,186 acres would be non-discretionarily closed under Alternative B. Oil and gas leasing in the remainder of the *Decision Area* would be deferred pending the preparation of a programmatic EIS and RMP amendment fully addressing oil and gas leasing, development and production.

Deferring leasing would have a small and temporary impact on the economy of the three counties since oil or gas potential is low to moderate and no oil or gas has been produced from the existing wells in the *Planning Area*. The economic benefit associated with exploration and well drilling would be foregone. Loss of actual production during the deferral would be highly unlikely. The RFD for the *Planning Area* assumes that no more than 40 wells would be drilled during the life of the RMP and that none of these would be producing wells. Exploration and drilling on existing leases could occur, but there would likely be no production from those leases. Consequently, there would be no economic impact to the counties.

Geothermal leasing would continue, most probably within the high potential area of the Rio Grande corridor. Exploration, drilling, development, and utilization could occur on these leases for the production of geothermal for direct (space or water heating) or indirect (production of electricity) uses. In the past all uses for geothermal resource in this corridor have been for direct application. Consequently, development would be on a relatively small scale and socio-economic benefit would be low.

4.4.7.2.3 *Alternative C (Preferred Alternative) Impacts on Socioeconomic Conditions*

Special Designations: Impacts would be similar as those described in Alternative B.

Vegetation and Woodlands: Permits for vegetation sale would be authorized in areas designated for disposal or in utility corridors rather than in the existing vegetation sale areas. As with Alternative B, commercial and noncommercial harvest would be specifically tied to improvement of the ecological health of forest and woodlands. If authorized use becomes more restricted due to these policies, there could be minor, localized losses for those who harvest forest, woodland, and plant products.

Livestock Grazing: Alternative C would support the continued viability of ranching and, thereby, the social value of ranching, but there may be slightly less potential for economic gains from livestock ranching under Alternative C as compared to Alternative B. A number of the Alternative C management decisions would improve forage resources available for livestock grazing compared to Alternative B.

Recreation and Visitor Services: As compared to Alternative B, there would be fewer restrictions on motorized travel and hunting and a substantially greater area allocated as SRMAs with specific niche markets. Therefore, the overall impact of this alternative would be similar in magnitude and context to Alternative B, but in comparison would be expected to have increased potential for economic gain from increased recreation use and tourism.

Lands and Realty: The types of socioeconomic impacts associated with right-of-way exclusion and avoidance areas would be similar to those described under Alternative B, except that right-of-way exclusion areas would be reduced to 343,000 acres. Under Alternative C, this could increase the costs for utility companies compared to Alternative A and could decrease this affect compared to Alternative B.

Under Alternative C, socioeconomic impacts associated with utility corridors would be similar to Alternative B; however, there would be 30 percent more acreage designated for this use. Socio-economic impacts associated with land acquisition and disposal would be similar to Alternative B; however, more land would be allocated for disposal.

Renewable Energy: Impacts from solar energy development would be the same as those described under Alternative B. Impacts of wind energy development would be the same as those described under Alternative A.

Minerals: Impacts from fluid mineral leasing and development would essentially be the same as those prescribed under Alternative B.

4.4.7.2.4 *Alternative D Impacts on Socioeconomic Conditions*

Special Designations: The availability of land not designated as ACEC for commercial use could provide further economic opportunities that may not be associated with outdoor recreation.

Vegetation and Woodlands: Impacts of Alternative D would be the same as those described in Alternative C.

Livestock Grazing: Alternative D impacts would be the same as those described under Alternative A.

Recreation and Visitor Services: There would be more land allocated as SRMAs under Alternative D than under any other alternative. The magnitude and context of the recreation impact would be similar to that of the other alternatives; however, Alternative D would have the greatest potential for recreation-related economic gain as it would provide greater opportunity and the capability to accommodate more people at developed recreation sites.

Lands and Realty: The types of socioeconomic impacts associated with right-of-way exclusion and avoidance areas would be similar to those described under Alternative C, except that restrictions on land use authorization would be slightly greater, potentially resulting in increased costs for utilities. Impacts on utility corridors would be the same as Alternative C. Under this alternative, more land would be allocated for disposal or transferred from BLM administration.

Renewable Energy: Impacts from solar energy would be the same as those described under Alternative B. Impacts of wind energy would be the same as those described under Alternative A.

Minerals: The socioeconomic impacts of deferring oil and gas leasing would essentially be the same as those described under Alternative B. Impacts from fluid mineral leasing and development would be the same as those prescribed under Alternative B.

4.4.8 IMPACTS ON ENVIRONMENTAL JUSTICE

This section addresses the potential for the alternatives to have disproportionate adverse impacts on minority and low-income populations, including direct, indirect, short-term, and long-term impacts. Because the analysis of disproportionate adverse impacts depends on what impacts are identified related to other resources, definitions of adverse impacts as these apply to environmental justice issues are closely related to the definitions of adverse impacts in other resource areas (e.g., social resources). An example of a disproportionate indirect impact could be a reduction in social services to low-income individuals that may result from decreased tax revenues because of decreased mineral production.

In accordance with BLM and Council on Environmental Quality guidance for assessing environmental justice in the planning process, an area would be considered to contain a minority population if either the minority population of the affected area exceeds 50 percent, or the percentage of minority population in the affected area is meaningfully greater than the percentage in the general population.

4.4.8.1 Impacts on Environmental Justice Common to All Alternatives

As noted in Section 3.6, all the counties and communities within the *Planning Area* except for Alamogordo are considered low-income populations. Therefore, essentially any adverse impact to the local area would disproportionately impact low-income populations; however, these adverse impacts would not necessarily disproportionately impact these low-income populations.

A BLM action may impact all of the residents of a particular area, not just low-income or minority communities, so it is difficult to say that there would be disproportionate impacts on communities without a closer understanding of the specific BLM decision. If users of a particular resource are predominately a community of Environmental Justice concern, then there is a higher likelihood of disproportionate adverse impacts on that community, but if the users are diverse then the impacts would be shared by all communities.

The alternatives would be identical with respect to potential impacts on minority and low-income populations. There is no indication that any of the BLM actions proposed in any of the alternatives would cause disproportionate adverse impacts on minority or low-income populations. BLM has considered all input from persons regardless of their race, ethnicity, income status, or other social and economic characteristics.

4.4.8.2 Summary of Impacts on Environmental Justice

Under all alternatives, there is no indication that any of the BLM actions proposed in any of the alternatives would cause disproportionate effects on minority and low-income populations in the *Planning Area*.

4.4.9 IMPACTS ON PUBLIC HEALTH AND SAFETY

Included in the BLM's mission for the management of public land is the reduction of threats to public health, safety, and property. The BLM is required by FLPMA to comply with state standards for public health and safety. Of most concern are the safety impacts related to abandoned mines, debris flows, and hazardous materials. This section describes the potential impacts of hazardous materials on public safety resulting from management actions related to other resources and resource uses. It includes a discussion of the risks associated with hazardous wastes and solid wastes potentially found within the *Planning Area* and possible threats to public safety by natural and manmade hazards.

The presence of hazardous materials and wastes often result from vehicular travel through the *Planning Area*, either as a result of a vehicular accident or from the release of hazardous materials or wastes that the vehicle might be transporting. Recreation activities can result in spills of hazardous materials and waste as well as trash left in areas where recreational activities occur. Hazardous materials that are used to suppress wildfires could pose a risk if the material is spilled. Prescribed burns that are not properly controlled could threaten public health and safety.

The following assumptions were used when assessing the impacts related to hazardous materials and public safety:

- Facilities on public land within the *Planning Area* that might use some forms of hazardous materials, such as utilities or recreational systems or facilities, would be managed under the specific authorization process for such systems or facilities.

- When the use of hazardous materials becomes necessary, such as for the suppression of wildfires or the elimination of noxious weeds, chemicals would be handled and applied in accordance with the manufacturers' directions. However, spills or releases of hazardous materials or deposition of wastes could occur under other circumstances, such as during transportation of chemicals, from vehicular accidents, or illegal dumping.
- Public safety assessments are evaluations of risk associated with any circumstance. There are no absolute measures of safety.
- Precautions mitigate risk, but accidents and injuries are bound to occur to some extent when human activity takes place.
- In areas where construction or maintenance of motorized routes, fences, campsites, nonmotorized trails, and trailheads, or where any other activity is undertaken, or where the use of hazardous chemicals would be required, appropriate protocol would be followed, thereby decreasing the risk of accident or injury.
- The safety of workers, firefighters, or emergency management teams would be the primary consideration at a rescue site.
- Emergency access may occur throughout the *Planning Area* to protect public safety, though such access would be minimal.

Impact analyses with regard to hazards and public safety are based on the distribution of risk sites or areas, the potential consequences of an accident or incident, and the factors mitigating the risk of an accident or incident. Under all alternatives, the management of air quality, soil and water resources, vegetation, fish and wildlife, special status species, paleontological resources, visual resources, wilderness characteristics, wildfire management, and special designations is not expected to have any impact on public safety or contribute to the presence of hazardous materials or waste on public land.

4.4.9.1 Impacts on Public Health and Safety Common to All Alternatives

Safety risks and hazards would exist to some extent under all alternatives. No management- or implementation-level decisions can eliminate risk, but some varying amount of risk can be realized. Regardless of the risk involved under any alternatives, emergency and rescue operations would be available on an as-needed basis.

Hazardous materials and wastes would be handled and disposed of according to state and Federal requirements under all alternatives. Spills or releases of hazardous materials or wastes could occur under any of the alternatives. If spills or releases occur, the cleanup process would begin and all applicable procedures and reporting requirements would apply.

Impacts to health and safety from oil and gas development would be limited to development of existing leases where the public would be exposed to a hazardous industrial environment, including the dangers associated with hydrogen sulfide gas.

Activities involving mining in areas open to mineral development and exploration could result in accidents or injuries. Installing fencing or other methods to prevent entry to mining sites would limit the potential for injuries and accidents affecting the public. The BLM would work with the State Abandoned Mine Lands program to identify and close and/or render sites safe and would help ensure that program funds are made available. On sites where the BLM shares ownership with other entities, cooperative efforts with the State of New Mexico to address remediation needs would be required. Evaluating all Abandoned Mine Lands sites to determine effective methods for remediation would require substantial effort and funding over the 20-year planning period. Conducting actual remediation efforts would greatly increase costs associated with managing the public health and safety program.

Activities associated with construction and maintenance of utility lines, pipelines, and communication sites could result in accident, injury, or hazardous material spills. The development of roads to construct and maintain these systems or facilities also may provide more access and attract OHV users to the area. These risks would be confined to localized areas.

Threats to public safety can occur from OHV accidents and collisions that cause injuries. Short-term hazardous material spills from damaged OHVs could contaminate soil and water resources in localized areas. Increased use of OHVs could result in a rise in impacts on health and human safety.

4.4.9.2 Impacts of the Alternatives on Public Health and Safety

4.4.9.2.1 *Alternative A Impacts on Public Health and Safety*

The current BLM programs and policies for management of hazardous waste and public safety would remain in place under Alternative A. Risk to public safety and the potential for deposition of hazardous materials would most likely result from management decisions regarding trails and travel management and the use of OHVs, followed by the development of utility corridors. To a lesser extent, mineral development could also impact risks.

Comprehensive Trails and Travel Management: Managing 1.64 million acres as open to cross-county OHV use could cause an increase in the volume of OHV users, thereby potentially increasing the rate at which accidents occur either from collisions with other vehicles or visitors on foot, or from driving into an unknown abandoned mine feature. Designating 19,000 miles of routes as open to OHV use could have the same impacts.

Recreation and Visitor Services: Designating SRMAs could manage risks to public health and safety due to increased monitoring and management. Closure of 10,444 acres (0.37 percent of *Decision Area*) within ½-mile of developed recreation sites to the discharge of firearms promotes safety in areas with higher visitation rates and a concentration of visitors.

Lands and Realty: Utility and transportation corridors pose a potential risk to public safety from the risk of injury from electric power lines and structures. Developed utility corridors could attract OHV users and increase access to the area, thereby increasing the risk of injury or accident. As garbage often collects near utility structures, there is the possibility that hazardous wastes could be found among the discarded items. Accidents and injuries also may occur during construction of utility lines and pipelines.

Minerals: Activities associated with fluid-mineral and geothermal development could result in a risk to public safety. Development of leases could pose the risk of injury, accident, or hazardous materials spills, especially during drilling activities and machinery operation, however, a very small number of wells would be developed. Injuries may also occur from drill-pad construction, fires, or explosions. Allowing fluid-mineral development in areas with leasing stipulations of CSU and NSO would reduce risks because of increased management.

4.4.9.2.2 *Alternative B Impacts to Public Health and Safety*

Comprehensive Trails and Travel Management: Under Alternative B, 39,000 acres would remain open to OHV use. These management decisions and the closing of 260 miles of routes would decrease OHV use and route access compared to Alternative A. As a result, the potential number of injuries and

accidents from OHV use would be reduced. Limiting vehicle use on 99 percent of the *Decision Area* to existing or designated routes would help to prevent collisions with other users, or driving into a mine shaft or pit.

Likewise, the possible release of hazardous materials during OHV accidents would be reduced. The acres designated as would increase due to the closure of vehicle routes within ½-mile of riparian and arroyo habitats and vehicle routes within WSAs. Additional closed acres associated with WSAs and riparian/arroyo habitats would reduce the potential for accident and injury when compared with Alternative A.

Recreation and Visitor Services: Closure of 44,770 acres (1.5 percent of the *Decision Area*) within ½-mile of developed recreation sites to the discharge of firearms promotes safety in areas with higher visitation rates and a concentration of visitors. Analysis and background information for closures of these recreational sites to discharge of firearms is further described in Appendix N. Alternative B closures to discharge of firearms and target shooting would be more restrictive than Alternative A.

Lands and Realty: Establishing 150,000 acres of utility corridors in Alternative B would create greater impact on public safety by increasing access for OHV users, which would lead to an increased risk of injury from utility lines or hazardous waste associated with vehicles and garbage.

Minerals: Under Alternative B, special designations such as WSAs and ACECs would be closed to oil and gas leasing. Oil and gas leasing would be deferred in the remainder of the *Decision Area* until a programmatic EIS addressing oil and gas leasing is prepared after the *TriCounty* RMP is completed. Areas with known geothermal potential would continue to be open for geothermal resource development. This could potentially cause injury during development activities.

4.4.9.2.3 *Alternative C (Preferred Alternative) Impacts on Public Health and Safety*

Comprehensive Trails and Travel Management: Impacts on public health and safety under Alternative C from OHV use would be greater than those under Alternative B due to the decrease in acres designated as closed. This would increase the potential for accidents and injury compared to Alternative A. Designating areas as open to OHV use would have the same impacts as Alternative B. Under Alternative C, 15 miles of routes would be designated as closed compared to 260 miles under Alternative B, which would increase the risk of accident or injury.

Recreation and Visitor Services: Closure of 44,770 acres (1.4 percent of the *Decision Area*) within ½-mile of developed recreation sites to the discharge of firearms promotes safety in areas with higher visitation rates and a concentration of visitors (Appendix N). Alternative C closures to discharge of firearms and target shooting are similar to Alternative B and more restrictive than Alternative A.

Alternative C closures to discharge of firearms and dispersed recreational target shooting would be more restrictive than Alternative A and slightly less restrictive than B. This would have the same effects as discussed under Alternative B, except for the impacts on the Doña Ana Mountains SRMA. Closing only the southern portion of the Doña Ana Mountains SRMA to discharge of firearms and dispersed recreational target shooting would promote safety in the most heavily visited portion of the SRMA while allowing the discharge of firearms to continue in the northern portion. The northern portion of the SRMA receives fewer visitors.

Lands and Realty: Impacts to public health and safety would be the same as those described under Alternative B but would occur over 209,000 acres (30 percent greater than Alternative B).

Minerals: Impacts from mineral development would be the same as those under Alternative B.

4.4.9.2.4 *Alternative D Impacts to Public Health and Safety*

Comprehensive Trails and Travel Management: Impacts under Alternative D would be similar to those experienced under Alternative C, except increasing areas managed as limited to existing routes would lead to an increase in accident and injuries and release of hazardous materials. Closing 14 miles of routes would have the same impacts as Alternative C and could increase the risk of accident or injury compared to Alternative B and decrease this risk compared to Alternative A.

Recreation and Visitor Services: Closure of 37,500 acres (1.3 percent of the *Decision Area*) within ½-mile of developed recreation sites to the discharge of firearms promotes safety in areas with higher visitation rates and a concentration of visitors (Appendix N). Alternative D would be similar to Alternative C, however, Tularosa Creek SRMA, which is not proposed in Alternatives B or C, would be closed to firearms. Also, the Doña Ana Mountains SRMA and Dog Canyon Road would be closed only to dispersed recreational target shooting, which has posed a safety threat to the recreating public.

Lands and Realty: Impacts from utility corridors across 225,000 acres would be the greatest under Alternative D.

Minerals: Impacts from mineral development would be the same as under Alternative B.

4.5 CUMULATIVE IMPACTS

Cumulative impacts are the effects on the environment that result from the impact of implementing any one of the alternatives in combination with other actions outside the scope of this plan, either within the *Planning Area* or outside it. The Council on Environmental Quality regulations for implementing NEPA defines cumulative impacts as follows:

...the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR 1500-1508)

Cumulative impact analysis is required to evaluate the environmental conditions that result from many different factors that act together. The real effect of any single action cannot be determined by considering that action in isolation, but must be determined by considering the likely result of that action when operating in conjunction with many others. Management decisions may well be influenced by activities and conditions on intermingled nonpublic land and on adjacent land beyond the *Planning Area* boundary. Assessment data and information may span multiple scales, land ownerships, and jurisdictions.

4.5.1 CUMULATIVE ANALYSIS METHODOLOGY

The cumulative impacts discussion that follows considers the alternatives in the context of the broader human environment and, specifically, actions that occur outside the scope and geographic area covered by the *Decision Area*. Because of the comprehensive nature of the RMP, this assessment is broad and generalized to address potential effects that could occur from the alternative management actions when combined with other activities or projects.

Cumulative impact analysis is limited to important issues of national, regional, or local significance. Therefore, not all issues identified for direct or indirect impact assessment in this EIS are analyzed for cumulative effects. Because of the wide geographic scope of a cumulative impact assessment and the variety of activities assessed, cumulative impacts are commonly examined at a more qualitative and less detailed level than are the direct and indirect impacts presented previously in this chapter.

The spatial boundaries of each resource’s cumulative analysis, known as the cumulative impact analysis area, vary by resource and are larger for resources that are mobile or migrate (e.g., air quality or wildlife species) compared to resources that are stationary (e.g., paleontological resources or minerals). The spatial boundaries of resources and resource uses may be contained within the *Decision Area* or *Planning Area* or may extend beyond the *Planning Area*. Evaluation of potential impacts considers incremental impacts that may result from the proposed project, while also considering impacts from past, present, and reasonably foreseeable future actions. Reasonably foreseeable future actions are those future actions that have been committed to or that are known proposals that could take place within the 20-year planning period. These projections, which have been developed for analytical purposes only, are based on current conditions and trends and represent best professional estimates.

Projects and activities are evaluated based on proximity, connection to the same environmental systems, potential for subsequent impacts or activities, similar impacts, and whether the project is reasonably foreseeable. Descriptions of past, present and reasonably foreseeable actions are included in Table 4-8.

TABLE 4-8 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS¹	
PROJECT/ACTION	DESCRIPTION OF THE ACTION
PAST ACTIONS (1800S SETTLEMENT TO 1950)	
COMMUNITY SETTLEMENT	<p>The Mesilla Valley has a long and important history in New Mexico. Following its initial population by Native Americans, the Mesilla Valley was inhabited by the Spanish party of Friar Agustin Rodríguez in 1581. After the 1848 Treaty of Guadalupe Hidalgo, which signaled the end of the Mexican War, a colony of individuals not desiring American citizenship moved across the Rio Grande and established the town of Mesilla. The Mesilla area was seen as an ideal location for a railroad route to the Pacific, which would connect the rest of the United States to California.</p> <p>The Gadsden Treaty was signed on December 30, 1853, after the region was purchased for \$10 million, resulting in the addition of Mesilla to Doña Ana County. The railroad was routed through Las Cruces instead, and that city eventually replaced Mesilla as the County seat.</p> <p>Alamogordo was established as a railroad hub in 1898 and is the seat of Otero County. Truth or Consequences, originally known as Hot Springs, grew up around the construction of Elephant Butte Dam in 1912, although the area had long been inhabited by Apache and Spanish settlers.</p>
LIVESTOCK GRAZING AND RANGELAND IMPROVEMENTS	<p>Ranching and livestock grazing has been a predominant use of the land since the 1880s, when railroads arrived in the territory. Historically, grazing on public land has been authorized and numerous rangeland improvements such as fencing and watering sources have been developed.</p>
TAYLOR GRAZING ACT OF 1934	<p>The Taylor Grazing Act of 1934 (Title 43 United States Code Section 315), signed by President Roosevelt, was intended to “<i>stop injury to the public grazing lands by preventing overgrazing and soil deterioration; to provide for their orderly use, improvement, and development; to stabilize the livestock industry dependent upon the public range.</i>” BLM was now required to allot grazing permits to ranchers and monitor and enforce grazing allowances. Additionally, a portion of the fees collected for grazing livestock on public land was returned to the appropriate grazing district to be used for range improvements.</p>

TABLE 4-8

PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS¹

PROJECT/ACTION	DESCRIPTION OF THE ACTION
WATER DEVELOPMENT, ELEPHANT BUTTE AND CABALLO RESERVOIR	The Territorial Legislature of New Mexico passed a law providing for the creation of a water users' association that met the Federal requirements to establish these associations on United States reclamation projects. A convention was held on May 21, 1906, between the US and Mexico determining that 60,000 acre-feet of water would be sent annually to Juárez, Mexico, from the proposed reservoir at Elephant Butte.
RIO GRANDE CANALIZATION PROJECT	The Rio Grande Canalization Project was constructed between 1938 and 1943 in southern New Mexico, continuing west to Texas. The project provides protection against a 100-year flood and assures releases of waters to Mexico from in accordance with the 1906 convention. It extends 106 miles along the Rio Grande from the Percha Division Dam below Caballo Dam in New Mexico southward into Texas below El Paso.
CLIMATIC EVENTS	Severe droughts occurred in 1916-18, 1921-26, 1934, 1951-57, and 2007-2012. The 1951-57 drought and the current drought are believed to have been the most severe in the past 350 years. Floods occurred on the Rio Grande in 1904, 1905, 1929, 1935, and 1941 (NOAA 2012).
ESTABLISHMENT OF JORNADA EXPERIMENTAL RANGE	The BLM Jornada Experimental Range, established in 1911, is an area of 302 square miles located in the Chihuahuan Desert in Doña Ana County. The Jornada is an important site for research on the health of desert rangelands in the western US. These research projects provide important information for the management of desert rangelands in southern New Mexico.
MESCALERO APACHE INDIAN RESERVATION	The headquarters of the Mescalero Apache Indian Reservation is in the town of Mescalero, on U.S. Highway 70, 17 miles northeast of Tularosa. The present reservation was established in 1883, covering 463,000 acres between the White and Sacramento mountains, all in Tribal ownership status.
MILITARY BASES: FORT BLISS, TEXAS; HOLLOMAN AIR FORCE BASE, WHITE SAND PROVING GROUNDS, NEW MEXICO	Established in 1848, Fort Bliss is located on 1.12 million acres of land extending across Texas and New Mexico. With the US entry into the World War I, Fort Bliss was garrisoned by a Provisional Cavalry division. Holloman Air Force Base was established in 1942 as Alamogordo Air Field, 6 miles west of Alamogordo. Located east of Las Cruces and later renamed White Sands Missile Range, the White Sands Proving Grounds was established in July 1945. The 3,200-square-mile range is where the first atomic bomb was tested in 1945.
WHITE SANDS NATIONAL MONUMENT	President Herbert Hoover proclaimed and established the White Sands National Monument on January 18, 1933. The area is in the Tularosa Basin and comprises the southern part of a 275-mile-square field of white sand dunes of gypsum crystals. In its first year, the monument attracted 12,000 people, and by 1948 the number increased to more than 100,000 per year.
PRESENT ACTIONS (1950s THROUGH 2012)	
COPPER FLAT MINE	Copper mining has been pursued in the Copper Flats area northwest of Hillsboro since the mid-1950s, beginning with a small copper leaching operation and exploration. Exploration continued into the 1970s when sufficient reserves were identified. In 1982, an open pit copper mine was developed and operated for just 3 months. In 2010, an MPO was submitted to LCDO from the New Mexico Copper Company and an EIS is underway.
CURRENT RANCHING ACTIVITIES	Ranching continues to take place on public land within the <i>Planning Area</i> . The Federal Rangeland Improvement Act of 1978 improved grazing allotment management for the BLM. Most of the public land in the <i>Planning Area</i> is grazed by livestock. Livestock production has declined in recent years due to the low market and the current drought. Currently in New Mexico livestock grazing on public land is guided by the <i>New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management</i> (USDOI BLM, 2000a)

**TABLE 4-8
PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS¹**

PROJECT/ACTION	DESCRIPTION OF THE ACTION
WILDERNESS ACT OF 1964	Congress passed the Wilderness Act of 1964, which directed the Secretary of Agriculture to establish guidelines for wilderness.
BLM COMMUNITY PIT NO. 1	The BLM closed the rock quarry west of Las Cruces, known as Community Pit No. 1. The "pit" has operated since 1969 and has been a source for building stone of limestone and siltstone. Over the past several years, however, neighbors raised concerns about air and noise pollution, and diminishing property values. BLM has long-term plans to reclaim the quarry; in the meantime the area will remain closed.
PREHISTORIC TRACKWAYS NATIONAL MONUMENT	The Prehistoric Trackways National Monument was established in 2009 to conserve, protect, and enhance the unique and nationally important paleontological, scientific, educational, scenic, and recreational resources and values of the Robledo Mountains in southern New Mexico. The Monument includes a major deposit of Paleozoic Era fossilized footprint megatrackways within approximately 5,280 acres. An RMP is being written for Monument.
RESTORATION ALONG THE RIO GRANDE TO IMPROVE RIPARIAN HABITAT, WATER QUALITY, AND WATER QUANTITY	Restoration improvements along the Rio Grande include reducing the consumptive water use of floodplain vegetation by improving riparian habitat. Current activities include removing salt cedar and planting native vegetation that will enhance riparian habitat and require less water. Other current and ongoing restoration activities include grade control and sediment capture structures, relocating diversions, and reconnecting channels and floodplains.
SANTA TERESA LAND EXCHANGE	In 2008, the BLM Las Cruces District Office and the Roswell Field Offices completed a land exchange with the New Mexico State Land Office. The land exchange involved state lands in Doña Ana and Chaves counties for BLM-managed land in Doña Ana County to be used for possible realignment of county roads, utility line relocations and a proposed railroad facility.
DESALINATION PLANTS	A new water desalination plant was constructed on Fort Bliss, east of El Paso International Airport. The facility has been part of the water-supply system for the City of El Paso. Two other plants are in development in Alamogordo: the Tularosa Basin National Desalination Research Facility and the Alamogordo Municipal Desalination Plant. The Alamogordo Municipal Desalination Plant would process water from a well field proposed on public land about 10 miles north of Tularosa.
NONNATIVE PHREATOPHYTE/ WATERSHED MANAGEMENT PLAN	The <i>Nonnative Phreatophyte/Watershed Management Plan</i> focuses on the prevention and control of tamarisk and associated nonnative invasive plants with the ultimate goal of restoring healthy, productive ecosystems. The plan will facilitate management and implementation of future control practices and rehabilitation efforts in New Mexico's watersheds and riparian areas.
NEW MEXICO ENVIRONMENTAL DEPARTMENT WATERSHED RESTORATION ACTION STRATEGY	The Watershed Restoration Action Strategy grant for the Lower Rio Grande watershed, enabled under the Clean Water Act, Section 319(h), provides an opportunity for the New Mexico Department of Agriculture to list specific water quality problems in the Lower Rio Grande, and it identifies the contaminants that are causing these problems and their sources. Strategies have been developed to improve watershed conditions through best management practices.
MINE RECLAMATION IN THE JARILLA MOUNTAINS	New Mexico's Abandoned Mine Lands Program closed mine features in the Orogrande Mining District that are easily accessible and pose a hazard to the public through 1) backfilling using surrounding waste rock or imported, clean fill; 2) structural closures, or 3) fencing. The project area is located in the south-central portion of the Jarilla Mountains in southwest Otero County.

TABLE 4-8

PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS¹

PROJECT/ACTION	DESCRIPTION OF THE ACTION
NEW MEXICO GAME AND FISH COMPREHENSIVE WILDLIFE CONSERVATION STRATEGY	The New Mexico Comprehensive Wildlife Conservation Strategy identifies species and habitats of greatest conservation concern in the State. Its focus is on Species of Greatest Conservation Need (SGCN), key wildlife habitats, and the conservation of both. The desire is that New Mexico's key habitats persist in the condition, connectivity, and quantity to sustain viable populations of SGCN.
EXTRATERRITORIAL ZONING	The New Mexico State Legislature enacted a statute that allows any municipal governing body or the board of county commissioners of any county to create Extraterritorial Zoning areas around cities. The State law allows for such joint planning in areas outside unincorporated cities. In 1989, the City of Las Cruces and Doña Ana County established an Extraterritorial Zoning for joint City and County planning, zoning, and subdivision approval. Joint planning is necessary due to the rapid suburban growth outside cities.
COUNTY COMPREHENSIVE PLANS	The <i>Doña Ana County Comprehensive Plan</i> was adopted in 1994 and Otero County adopted a final comprehensive plan in 2005. The goals of the comprehensive plan are to provide basic infrastructure, maintain and protect the County's resources, provide community systems or facilities and services, promote economic development and employment opportunities, adopt and implement a land use plan, encourage affordable housing and a variety of housing types, and improve intergovernmental relations.
LAS CRUCES PARKS AND RECREATION MASTER PLAN (2005 DRAFT)	The <i>Las Cruces Parks and Recreation Master Plan</i> (2005) guides operations, maintenance, and recreation programming needs through an extensive needs assessment, a community input process, a citizen's survey, and a comprehensive evaluation of all existing facilities and future land acquisition for park development. One of the goals of the plan is to support the recommendations of the Citizens' Task Force for Open Space Preservation, with input from the Open Space and Trail Network's strategies for this goal, which include creating regional development and conservation guidelines for resources that cross jurisdictional boundaries, such as an arroyo protection plan, a hillside and escarpment protection plan, a wildlife conservation plan, and a farmland conservation plan.
LAS CRUCES DEVELOPMENT	While government is the largest employment sector in Doña Ana County, the economy continues to diversify. As a regional trade, education, and health care center, the county's employment continues to grow in most sectors, with education and health services growing at the lead. Of the county's largest employers, two are government testing facilities, and three are education systems, with one each in local government, health services, and retail trade. Other major employers are in the manufacturing, leisure, hospitality, and information sectors.
LAS CRUCES METROPOLITAN PLANNING ORGANIZATION	The Las Cruces Metropolitan Planning Organization (MPO) was established in 1982 and is a multijurisdictional agency responsible for transportation planning in Las Cruces, Mesilla, and parts of Doña Ana County. Federal regulations require the designation of an MPO to carry out a coordinated, continuing, and comprehensive transportation planning process for urbanized areas with a population of more than 50,000. The MPO also is responsible for planning all aspects of the transportation system, including roads, bicycle and pedestrian systems or facilities, public transit, and the airport. The MPO develops and updates a long-range transportation plan for the Las Cruces area, focusing on mobility and access, efficient system performance, and quality of life.
WATER-SUPPLY PROJECTS	<i>Elephant Butte Irrigation District:</i> In 1979, the Elephant Butte Irrigation District assumed control over the operation and maintenance of ditches and canals within its district. However, the U.S. Bureau of Reclamation remained in charge of the reservoir, dam, and diversion dams.

**TABLE 4-8
PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS¹**

PROJECT/ACTION	DESCRIPTION OF THE ACTION																														
SPACEPORT AMERICA	Spaceport America is being constructed on state land between the Upham exit from I-10 and Engle in the Jornada Basin. Virgin Galactic plans on locating its world headquarters and mission control for its personal spaceflight business at the Spaceport complex. The facility will be built on 27 square miles in Upham, New Mexico, about 45 miles northeast of Las Cruces. All construction, with the exception of improvements to some existing access roads such as County Road A013 and installation of a power transmission line and fiber optic cables to the project site, would take place on New Mexico State Trust Land. Off-site access roads, transmission line, and fiber optic cables would cross a mix of State Trust, BLM, and private lands (FAA 2008).																														
WEST-WIDE ENERGY CORRIDOR PROGRAMMATIC EIS	The <i>West-Wide Energy Corridor Programmatic EIS</i> evaluated potential impacts associated with the proposed action to designate corridors on Federal land in 11 western states for oil, gas, and hydrogen pipelines and for electricity transmission and distribution facilities. The Programmatic EIS did not change any corridor designations in the <i>Planning Area</i> .																														
UNION PACIFIC SANTA TERESA RAIL YARD	Construction of a rail yard in southern Doña Ana County on 2,200 acres includes fueling facilities, crew change buildings, and intermodal yard for unloading containers onto trucks. Up to 600 jobs will be based at the facility.																														
REASONABLY FORESEEABLE FUTURE ACTIONS (2012 TO 2027)																															
PROJECTED POPULATION GROWTH	<p>The population of all three counties is anticipated to increase through the life of the plan. Below are population projections for the <i>TriCountyResource Management Plans/Environmental Impact Statement (EIS) Planning Area</i>.</p> <table border="1"> <thead> <tr> <th colspan="6">Population Projections by Year</th> </tr> <tr> <th>County</th> <th>2010</th> <th>2015</th> <th>2020</th> <th>2035</th> <th>2030</th> </tr> </thead> <tbody> <tr> <td>Sierra</td> <td>12,502</td> <td>12,972</td> <td>13,380</td> <td>13,729</td> <td>14,046</td> </tr> <tr> <td>Otero</td> <td>61,057</td> <td>62,700</td> <td>64,227</td> <td>65,481</td> <td>66,238</td> </tr> <tr> <td>Doña Ana</td> <td>227,009</td> <td>253,548</td> <td>282,152</td> <td>313,073</td> <td>345,458</td> </tr> </tbody> </table> <p>SOURCE: Bureau of Business and Economic Research, University of New Mexico (2002 [revised 2004])</p>	Population Projections by Year						County	2010	2015	2020	2035	2030	Sierra	12,502	12,972	13,380	13,729	14,046	Otero	61,057	62,700	64,227	65,481	66,238	Doña Ana	227,009	253,548	282,152	313,073	345,458
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FORT BLISS EXPANSION	Fort Bliss' mission has changed from primarily air defense artillery training to armored and infantry unit training beginning in 2007. The expansion consists of 300 buildings with 10 million square feet of space including a \$400 million combat aviation brigade. Fort Bliss has grown to 30,000 soldiers over the past 10 years. New and upgraded facilities and infrastructure were added to support the additional personnel, and their dependents.																														
VISION 2040 REGIONAL PLANNING PROJECT	The <i>Vision 2040</i> comprehensive regional plan is the first long-range regional plan to include Doña Ana County and its four municipalities: the City of Las Cruces, Village of Hatch, Town of Mesilla, and City of Sunland Park. The 2012 study addressed growth-related issues, such as transportation, utilities and water, economic development, affordable housing, environmental protection, hazard mitigation, and intergovernmental cooperation. The recommendations from the regional study will be used for the second phase of the project: updates to the City of Las Cruces' and Doña Ana County's comprehensive plans.																														
<p>NOTE: ¹ Refer to Chapter 2 for present management activities and Chapter 3 for additional information on present actions and the affected environment.</p>																															

4.5.2 CUMULATIVE IMPACTS BY RESOURCE

4.5.2.1 Special Designations

As development of public, private, and State land continues, the importance of protecting special designations would increase. The values of ACECs, WSAs, Historic Trails and Back Country Byways, public parks and open space increase as development proceeds in surrounding areas. Population growth and development could increase the number of people drawn to the areas with special designations for their recreational opportunities, open space, and undeveloped characteristics. This could impact wilderness values of naturalness and solitude in WSAs from increased visitation. Use or development of non-Federal land inholdings within WSAs could result in the loss of wilderness characteristics in portions of these areas.

The cumulative impact analysis area for the Lake Valley Back Country Byway is the extent of the route. Cooperating with the managing authorities of the Byway to protect and preserve the associated landscape values would maintain and enhance these values and provide opportunities for heritage tourism. The current and potential future development of wind farms in the area would impact the viewshed from the Byway, and diminish the historical setting. Increases in trucks and other vehicles associated with the Copper Flat Mine would also diminish the experience on the Byway.

4.5.2.2 Air Resources

4.5.2.2.1 Air Quality

Within the *Planning Area*, three potential impacts on air quality are long-range visibility, ambient concentrations of regulated air pollutants, and deposition of soluble air pollutant compounds. Generally, these impacts are the result of long-distance transport of pollutants from larger emission sources in the region. Projects and activities that may cumulatively impact air quality in the *Planning Area* are the anticipated population growth in Doña Ana County and expansion of the U.S. Army installations at Fort Bliss in El Paso, TX and White Sands Missile Range. The population of Doña Ana County is projected to more than double from 1990 to 2015. Growth beyond public land is likely to continue to impact the quality of air resources. In the long-term, fugitive dust, particulates, noise, and engine exhaust contaminants would increase with population. Under the “Grow the Army” initiative the number of military personnel at Ft Bliss has more than doubled in the past 10 years. This growth is likely to result in more transit-related pollution, increased use of recreation areas within the *Planning Area*, and a demand for additional power generation. These projects have the potential to affect visibility and result in increased ambient concentrations and deposition of air pollutants within the *Planning Area*.

The cumulative impact of the existing and future transportation projects and projected motorized travel is difficult to anticipate. Regional transportation projects, vehicle traffic and OHV use could increase criteria pollutant and greenhouse gas emissions and generate dust that would impact visibility.

Ozone is a pollutant of concern, particularly in Doña Ana County, and the growth and expansion described above will result in emission of pollutants that are ozone precursors. The County is in nonattainment for the 2008 8-hour ozone standard and EPA and NMED have imposed stricter air permitting requirements and require offsets for new sources to bring the area back into attainment.

4.5.2.2.2 *Climate Change*

Emission of GHGs is a cumulative issue with potential long-term effects. Although emission of GHGs from activities in the *Planning Area* will contribute to the total greenhouse gases in the global pool, models used by climate scientists are not precise enough to predict impacts on climate or the natural environment from emissions occurring from a specific region, or determine effects in a localized area.

Global mean surface temperatures increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007b). 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 greenhouse gases (GHGs) are likely to accelerate the rate of climate change.

In 2007, the Intergovernmental Panel on Climate Change (IPCC) predicted that by the end of the 21st century, global average surface temperatures would increase 1.1 to 6.4°C (2.0 to 11.5°F) above 1980-1999 levels under a range of potential emissions scenarios (IPCC 2007b). The US Global Change Research Program in its *2009 Report on Global Change Impacts in the United States* explains that where actual warming falls within this range depends on the future level of emissions and the sensitivity of climate systems to those emissions. The *US Global Change Research Program Report* indicates that most of the US will experience greater warming in summer than winter although Alaska will experience more warming in winter. It is not, however, possible to predict with any certainty regional or site-specific effects on climate relative to the proposed lease parcels and subsequent actions.

Potential impacts to natural resources and plant and animal species due to climate change are likely to be varied, including those in the southwestern US. If global climate change results in a warmer and drier climate, increased particulate matter could result from increased windblown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations. Extinction of endemic threatened or endangered plants may be accelerated. Due to loss of habitat or competition from other species whose ranges may shift northward, the population of some animal species may be reduced or increased. Less snow at lower elevations may change snowmelt conditions, which could impact water resources and species dependent on historic water conditions.

When compared to baseline information for 1961-1990, periods between 1991 and 2005 show temperature increases in over 95 percent of the geographical area of New Mexico. Warming is greatest in the northwestern, central, and southwestern parts of the State (Enquist and Gori 2008).

The assessment of GHG emissions, their relationship to global climatic patterns, and the resulting impacts is an ongoing scientific process. The inconsistency in results of scientific models used to predict climate change at the global scale coupled with the lack of scientific models capable of predicting climate change on regional or local scales, limits the ability to quantify potential future impacts of decisions made at this level. Determining the significance of any discrete amount of GHG emissions is beyond the limits of existing science. However, scientists are increasingly able to isolate likely scenarios for climate change and its impacts on a regional scale. The *U.S. Global Change Research Program Report on Impacts of Climate Change in the United States* (2009) focuses on broad areas of the country and greatest points of vulnerability as well as looking at climate change impacts in different sectors of the economy. In the Southwest, a particular concern is the uncertainty around precipitation and the potential for extended periods of drought stressing already uncertain water supplies.

When the Intergovernmental Panel on Climate Change (IPCC) released its Climate Change 2007 Report, it named carbon dioxide (CO₂) the most important human produced greenhouse gas. The report

confirmed that the high levels of CO₂ in our atmosphere are caused by fossil fuel emissions and are a major contributor to global warming. Several options will be needed to moderate CO₂ levels in the atmosphere. One approach to lowering atmospheric CO₂ levels, called *Terrestrial Carbon Sequestration*, includes planting vegetation or enhancing an already present ecosystem to increase CO₂ absorption. This gradual, long-term strategy allows us to absorb CO₂ while rehabilitating ecosystems.

Vegetation and soils are widely recognized as carbon storage sinks. The global biosphere absorbs roughly 2 billion tons of carbon annually, an amount equal to roughly one third of all global carbon emissions from human activity. Terrestrial carbon sequestration is defined as either the net removal of CO₂ from the atmosphere or the prevention of CO₂ net emissions from the terrestrial ecosystems into the atmosphere. There are two fundamental approaches to sequestering carbon in terrestrial ecosystems: Protection of ecosystems that store carbon so that carbon stores can be maintained or increased; and manipulation of ecosystems such as vegetation conversion to increase carbon sequestration beyond current conditions.

These two approaches are carried out within the multiple-use practices of BLM through proper grazing management and treatment of degraded grasslands to restore sites to their natural capability and increase productivity. Proper grazing management has been estimated to increase soil C (carbon) storage on US rangelands from 0.1 to 0.3 Mg C ha⁻¹year⁻¹ and new grasslands have been shown to store as much as 0.6 Mg C ha⁻¹year⁻¹. Grazing lands are estimated to contain 10-30 percent of the world's soil organic carbon (Schuman, et al. 2001). Since 2005 under the Restore New Mexico Program, the Las Cruces District Office has completed approximately 371,000 acres of brush control, including creosote bush, mesquite and piñon/juniper, and grassland restoration projects. Restore New Mexico is an aggressive partnership among BLM, private landowners, and other Federal, State and local agencies and organizations to restore New Mexico's grasslands, woodlands and riparian areas to a healthy and productive condition.

Given the size of the carbon pool in grazing lands there is a need to better understand current and potential effects of management on soil carbon storage (Schuman, et.al.). When further information on the impacts to climate change is known, such information would be incorporated into the BLM's planning and NEPA documents as appropriate. The alternatives in this RMP include performing wildfire management, providing access for recreation, (including OHV use), and implementing a variety of land management practices, which result in emissions of greenhouse gases including CO₂, CH₄, and N₂O. GHG emissions from the *Planning Area* in combination with emissions from other regional and global sources have the potential to influence climate change.

The net effect of these actions would be negligible differences in cumulative impacts on air resources from the BLM activities proposed under each of the alternatives.

4.5.2.3 Soil and Water

Surface disturbance and loss of vegetation are the main contributors to decreased soil productivity and increased soil erosion. With the increase in residential, commercial, and industrial development, OHV users may create new trails in areas that had not previously been disturbed, which could lead to further soil disturbance. In addition, expanded military ground operations and development at White Sands Missile Range and Fort Bliss would directly impact soil resources through surface disturbance and compaction and could increase erosion.

Municipalities and water districts are the major water users within the *Planning Area*, and there would be negligible differences from BLM actions proposed under any alternative on water quantity. Water quality and quantity on public land may be affected by offsite use, recreation activities, development, and agricultural uses regardless of the RMP alternative selected.

Certain technologies for solar energy development can consume large amounts of groundwater. Cumulative impacts could cause a drawdown of the water table in the Mesilla.

4.5.2.4 Vegetation and Woodlands

Current and future county-wide planning would improve vegetation on BLM lands in the *Planning Area*. Long-range planning for community expansion with best management practices and zoning would limit sprawl, improve road placement, and create parks and open space that would concentrate activities in some areas and relieve impacts to vegetation on BLM land such as fragmentation caused by poorly planned roads, trash dumping and off-road vehicle use

Rangeland improvements, such as water and fencing, have improved livestock distribution and reduced livestock concentrations which would have degraded vegetation. Rio Grande restoration projects have reduced invasive species and enhanced native riparian communities. Mine reclamation in the Jarillas has increased vegetation resources throughout the Oro Grande mining district.

Current management of livestock, vegetation and wildlife is intended to facilitate achievement of the standards for public land health. The implementation of BLM's mitigation guidelines, restrictions on surface use, and *New Mexico Standards and Guidelines*; NMDGF's *Comprehensive Wildlife Conservation Strategy for New Mexico*; and the New Mexico Department of Agriculture's Watershed Restoration Action Strategy and *Nonnative Phreatophyte/Watershed Management Plan* would help improve riparian and upland vegetation under all alternatives.

Increased military activities, industrial development, and expanded urban areas disturb soil and vegetation on private, military, and state lands near public lands. Vegetation decreases on adjacent or surrounding lands increase soil erosion and vegetation loss on public land. Increased urban development may lead to increases in cross-country vehicle use which would compact or destroy vegetation in those areas closest to homes and businesses despite comprehensive planning efforts.

4.5.2.5 Fish and Wildlife Habitat

Fish and wildlife resources on public land may be affected by offsite use and development regardless of the RMP alternative selected. Surface-disturbing activities from increased commercial and residential development related to population growth and increased military operations could degrade soils and remove vegetation. Expansion of Fort Bliss and overall growth in the region's population and its commercial and residential development could alter fish and wildlife habitat and introduce more surface disturbances from recreation. Disturbances could be offset somewhat by regional planning efforts such as the Vision 2040 Regional Planning Project in Doña Ana County and the 2005 *Las Cruces Parks and Recreation Master Plan*.

The conversion of land use from agricultural land to residential and commercial uses would decrease the habitat values of the remaining undeveloped land. The change in land use could result in the loss of habitat for some fish and wildlife species. The BLM's implementation of HMPs could offset the effects of growth and surface disturbances, and nongame species management could potentially protect or

improve more types of habitats than management either for native game species alone or for a combination of native and nonnative species.

4.5.2.6 Special Status Species

Appropriation of water for beneficial use (which does not include wildlife) has historically reduced aquatic habitats in the *Planning Area* substantially. On lands managed by the BLM, objectives for maintaining and enhancing the special status species habitat for aquatic and riparian species would contribute to the maintenance of viable populations. Upland restoration projects in Chihuahuan Desert Grasslands would play a substantial role in maintaining populations of species dependent on this ecosystem. Management of ACECs, buffer areas for raptors and prairie dogs and other special species, and seasonal closures to protect species would prevent disturbances caused by rights-of-ways or other activities.

Special status species habitat on public land may be affected by offsite use and development regardless of the RMP alternative selected. Surface-disturbing activities from increased commercial and residential development related to population growth and increased military operations could compact soil; reduce rates of water infiltration; increase wind erosion, water erosion, and sedimentation of streams; and remove vegetation that supports special status species habitat. The change in land use could result in the loss of habitat for some special status species both on and off public land.

Planning efforts to direct urban growth and preserve natural resources, like the NMDGF's *Comprehensive Wildlife Conservation Strategy* (2006), the Vision 2040 Regional Planning Project in Doña Ana County, can help to preserve habitats and populations for special status species.

4.5.2.7 Cultural Resources

Future residential development and construction of infrastructure would disturb cultural resources within the *Planning Area*. The Doña Ana County and Otero County comprehensive plans include provisions to protect and conserve cultural resources.

Future actions that may result in the disturbance of cultural resources include population growth, expansion Fort Bliss and White Sands Missile Range, development of Spaceport America, utility development within the corridors in the *West-Wide Energy Corridor Programmatic EIS*, and construction of desalination plants, roads, highways, and utilities. Recreation could increase on BLM-administered land as a result of population growth, which could result in disturbance of cultural resources, but increased recreation use could increase opportunities for public education and interpretation.

4.5.2.8 Paleontological Resources

Cumulative impacts on paleontological resources may occur through natural processes as well as inadvertent damage from OHV use, casual use, mineral exploration, rockhounding, and recreational collecting of fossils. Unmonitored rockhounding and fossil collecting at known fossil localities have the potential to destroy those localities before they can be scientifically recorded and studied. The designation of the Prehistoric National Monument protects fossil resources within the *Planning Area*. Inventories prior to surface disturbance could decrease the damage from surface-disturbing activities. The transfer of land out of Federal ownership by the BLM and other Federal agencies also has the

potential to cumulatively affect paleontological resources. Once this land is transferred, fossil localities on the land could be damaged and/or destroyed by new developments. Commercial and residential development in response to population growth, road construction, and mineral development on land that is not protected by Federal law or policy could decrease the scientific value of the paleontological resources.

4.5.2.9 Visual Resources

Population growth and its associated development, increases in renewable energy development, construction of military infrastructure, and mineral exploration and developments would have direct impacts on visual resources through increased surface disturbance.

The disposal of BLM land may result in impacts on visual resources through the development of that land. These impacts would likely be localized under Alternatives B, C, and D, since most land that would be available for disposal consists of isolated parcels surrounded by private land that is already developed. The disposal of BLM land through the exchange of other land may offset cumulative impacts on visual resources since the priority for acquisitions includes areas within or adjacent to WSAs and ACECs.

4.5.2.10 Fire and Fuels Management

As development and recreational activities increase, so would the number of potential ignition sources and the probability of wildland fire. This would increase the need for Federal, state, and local agencies to suppress fires to protect life, property, and sensitive resources. Development would increase the amount of wildland-urban interface areas, which would put additional pressure on suppression efforts because these are high-priority areas. The number of accidental ignitions will increase over the life of the plan due to development in areas near Las Cruces, increased human population, and a greater demand for recreation on public land. This cumulative increase would be greatest under Alternative A due to the potential effects of cross-country OHV use. Las Cruces continues to expand into the wildland-urban interface, and the State of New Mexico's Extraterritorial Zoning statute could facilitate development in other unincorporated areas.

Restoration of Chihuahuan semi desert grasslands by the BLM and other agencies would result in plant community changes during the life of the plan. Using only passive or active restoration methods under Alternatives B and D, respectively, could change fire frequency in the *Planning Area*.

4.5.2.11 Wilderness Characteristics

Due to the remote nature of public land identified as containing wilderness characteristics, it is unlikely that impacts on wilderness characteristics would occur from projects such as right-of-way corridors. Mineral activities and motorized recreation use could impact the opportunities to experience naturalness, solitude, and primitive unconfined recreation in land with wilderness characteristics. Mineral activities in areas identified as having wilderness characteristics could increase the likelihood of visitors seeing or hearing other human activities. The sights and sounds of military operations and overhead flight paths could also impact opportunities to experience naturalness and solitude. Other potential impacts on land with wilderness characteristics include the spread of nonnative, invasive vegetation and increased OHV use. As population growth in the *Planning Area* continues, all these activities would degrade areas with wilderness characteristics.

4.5.2.12 Livestock Grazing

Livestock use in the past 10 years has ranged from a low of 288,399 AUMs in 2004 to a high of 439,555 AUMs in 2001. The implementation of BLM's *New Mexico Standards and Guidelines*, mitigation guidelines, vegetation restoration, and monitoring efforts would all provide measures of protection for forage resources. Vegetation, soil and water restoration activities, NMDGF's *Comprehensive Wildlife Conservation Strategy* and rangeland improvements on public could increase available forage and water for wildlife populations and livestock. Rangeland health assessments and the approval of the *NM Standards for Public Land Health* also initiated changes to range management. These management actions would help improve distribution of livestock and wildlife and improve rangeland conditions.

Population growth, industrial developments, and military expansion in the *Planning Area*, particularly near urban areas, could increase recreational and OHV use that would result in disruption of livestock management activities and or injury to livestock. Surface-disturbing activities and construction of roads and infrastructure spread noxious weeds. Vegetation treatments and monitoring efforts would help maintain or improve the quantity and quality of forage.

4.5.2.13 Comprehensive Trails and Travel Management

The recreational use of OHVs would increase as population growth and the popularity of motorized sports vehicles increases. As transmission lines, pipelines, and transportation routes are developed, the access roads to these linear systems or facilities for operations and maintenance could also be used by the public for recreational access. However, land use authorizations, such as public utilities, road construction, and sand and gravel operations, could decrease the amount of public land available for motorized and non-motorized forms of recreation, and impede public access to BLM land. Limitations on cross-country travel on public or state land could increase OHV use and travel opportunities on private land.

The sale of New Mexico State trust land to private parties to support the demand for growth may impact BLM land. These impacts primarily occur when the private land being developed has historically provided access to the public land, and no other access exists. The BLM would attempt to reduce these impacts by obtaining legal access onto public land. Urban population increases may lead to a demand for more hiking trails on public land.

4.5.2.14 Recreation and Visitor Services

The presence of the BLM managed trail and road system, and special recreation management areas, would provide recreation opportunities for the growing urban populations. Recreation based industries would establish. Businesses that seek a quality of life that offers its employees easy access to outdoor recreation would be attracted to the region.

Public land that was formerly remote and used by a small number of people now provides convenient "*backyard*" recreational opportunities that are used on a regular basis. Designating wilderness areas and parks and managing areas for wilderness characteristics and other use-specific land designations may also have small, localized impacts on recreational pursuits due to potential user conflict or incompatibility.

4.5.2.15 Lands and Realty

In communities with substantial population growth, requests for land use authorizations and disposals would increase. Increased population growth would increase the demand for energy and water systems or facilities, such as water-supply projects, and renewable energy developments. This increased demand for

facility development could increase demand for rights-of-way located on BLM-managed land. The development of these services within the *Planning Area* would be precluded on wilderness areas and National monuments and land withdrawn from BLM jurisdiction for military use.

Most development of public utilities and transportation corridors is centralized in the southern portion of the *Decision Area*, north of El Paso, Texas, along Interstate 25 and Interstate 10. In the future, community growth (including military community expansion) and economic development activities would drive the location and types of rights-of-way authorized.

An increase in alternative energy development within the *Planning Area* over the next 25 years could increase the amount of future land use authorization applications received. Depending on the location, size, and design of individual wind energy development projects, wind development would be compatible with a wide variety of existing and future land uses and generally would not preclude other rights-of-way authorizations under any of the alternatives.

4.5.2.16 Minerals: Fluid, Mineral Materials, and Locatable Minerals

The focus of energy resources could shift toward alternative energy development including geothermal energy. It is expected that geothermal leasing and development would likely increase in the future.

4.5.2.17 Socioeconomic Conditions

As statewide and local economies shift towards the services sector and nonlabor sources of income, there is an increased emphasis on the role of public land and its associated recreation and tourism opportunities, as well as on land preservation/open space opportunities with regard to economic development.

The contribution of BLM's proposed actions from the alternatives are unlikely to impact taxes, employment, population growth, relative to long-term development trends or overall development of the area. Long-term demand for recreational use of the *Decision Area* and associated socio-economic activity would increase as a result of population growth.



Chapter 5 Consultation and Coordination

CHAPTER 5 CONSULTATION AND COORDINATION

The Bureau of Land Management (BLM) coordinates and works with the public and agencies (such as other land management and resource management agencies), often continuing relationships established during previous planning efforts and through BLM's day-to-day management activities. The BLM recognizes that the TriCounty Planning Area is valued by many people who are greatly interested in the outcome of the current planning process. The BLM's task, therefore, is to make the planning process as open as practicable and to engage the assistance of all interested parties in identifying relevant issues. The BLM's efforts to determine the level of interest and the issues associated with management of public land began informally before the planning process commenced, and they were formalized during the scoping process once planning started. Based on input from the public, the BLM developed a public participation plan to integrate public and agency participation and collaboration into the entire planning process. The BLM's intent is to extend that collaboration beyond planning and into implementation and maintenance of the resource management plan (RMP).

In the spring of 2003, before planning commenced, representatives of the BLM Las Cruces District Office met informally with community members to learn their opinions, ideas, and concerns about management of public land. As a result of this informal dialogue, the BLM developed an initial community profile, which is documented in the *Preliminary Assessment of Community Interests and Communication Strategies by Geographic Area: The Las Cruces Field Office Planning Area*. This preliminary dialogue gave the BLM an understanding and appreciation of community issues related to public land management and how the citizens issues aligned with the BLM's own management concerns, which assisted the BLM in conceptualizing strategies for effective communication with agencies and the public, and also prepared the community for the planning process and enabled its members to respond with more effective comments during scoping.

The BLM committed to certain guidelines to ensure that the planning process would remain as open and inclusive as possible. These included the following actions:

- Accept public comments for consideration throughout all stages of the planning effort.
- Grant all requests for information (unless the information is unavailable or prohibited by policy or law).
- Assign staff and managers to meet with all groups and individuals that request meetings to discuss the planning process.
- Open internal processes for review by the cooperating agencies and actively invite their comments and assistance.
- Assign managers and staff to prepare planning information for all meetings with agencies, tribes, and organizations (including the BLM's New Mexico Resource Advisory Council).

The BLM used the following means to inform all interested parties about the progress of the planning effort:

- Public scoping
- Partnerships with cooperating agencies
- Planning Bulletins
- Internet Information

- Community-based partnership and stewardship workshops
- Consultation and coordination with American Indian tribes
- Formal consultation with relevant regulatory agencies
- Informal presentations to interested groups

The focus of this chapter is on the coordination and consultation, in the spirit of community-based collaborative planning, that has taken place from scoping, which began early in the planning process in the beginning of 2005, through the development and assessment of alternative planning strategies presented in this draft of the *TriCounty Resource Management Plans and Environmental Impact Statement (TriCounty RMP/EIS)*. This *Draft TriCounty RMP/EIS* document represents the efforts and involvement of the broad range of participants.

5.1 PLANNING BULLETINS AND WEB SITE

As part of the public participation program, the BLM committed to disseminate information about the planning process and its status through a series of informational bulletins and by posting materials on the BLM’s Web site.

The planning bulletins, in a newsletter format, were planned to be distributed to interested parties at key milestones during the planning process to inform them about planning issues and progress and to invite comment. The mailing list for the planning bulletins includes affected Federal, State, and local government agencies, Tribal governments, and interested groups and individuals. To date, three planning bulletins have been distributed (listed in Table 5-1).

TABLE 5-1 PLANNING BULLETINS DISTRIBUTED	
February 2005	Project description, announcement of scoping meetings, comment form questionnaire
July 2005	Summary of predominant issues identified during scoping
November 2006	Description of the preliminary alternatives
April 2010	Current status of RMP, court decision on Fluid Minerals RMP Amendment, request for comments on fluid minerals management, and renewable energy, and livestock grazing

Early in the process, the BLM established a Web site to provide the public with access to current information about the planning process. Information posted on the BLM Web site includes a description of the purpose and need for the *TriCounty RMP/EIS*, a description of the planning process, a schedule, the meeting locations and dates, the scoping report, the planning bulletins, the draft alternative management strategies and associated maps, and a copy of the *Draft TriCounty RMP/EIS*.

5.2 PUBLIC SCOPING

The planning and EIS process, as well as scoping, commenced on January 28, 2005, with the publication in the *Federal Register* (Volume 70, No. 18, page 4,146) of the BLM’s intent to revise the 1986 *White Sands RMP*, amend the 1993 *Mimbres RMP*, and to conduct public scoping meetings. In March 2005, the BLM Las Cruces District Office hosted four open-house scoping meetings in southern New Mexico to provide information and a forum for public input into the plan and the process. The New Mexico communities of Las Cruces, Alamogordo, Truth or Consequences, and Anthony were selected as appropriate meeting sites because of their locations within the Planning Area.

Aside from the Notice of Intent in the *Federal Register*, the commencement of the planning and EIS process and the scoping process was announced in paid advertisements in regional newspapers, media releases, the BLM New Mexico Web site, the Las Cruces District Office Web site, and a planning bulletin mailed to all entities, organizations, and people on the mailing list.

The planning bulletin contained a comment form that prompted responses about activities on or uses of the Planning Area and requested comments to help BLM gain perspective on attitudes about public land. The questions on the comment form were as follows:

- What do you value about public land in Sierra, Otero, and/or Doña Ana counties and why?
- Do you participate in outdoor recreation activities on public land in Sierra, Otero, and/or Doña Ana counties? If so, what types of recreational activities do you participate in or value? If yes, where do you participate in outdoor recreation activities? If no, please let us know why not.
- What activities on or uses of the public land in Sierra, Otero, and/or Doña Ana counties, other than outdoor recreation, are important to you and why?
- We want to know the types of information BLM should provide to educate the public about BLM and its programs. How familiar are you with BLM management policies and programs?
- How would you like to see the natural (e.g., water, soil, wildlife, vegetation) and cultural (prehistoric, historic, traditional cultural places), recreational, scientific resources on public land managed in Sierra, Otero, and/or Doña Ana counties?
- How would you like to see the uses (e.g., grazing, recreation, etc.) of public land and its resources managed in Sierra, Otero, and/or Doña Ana counties?
- Do you have any other comments about management of public land in Sierra, Otero, and/or Doña Ana counties you would like to tell us?

The meetings were attended by approximately 187 people, as summarized in Table 5-2.

**TABLE 5-2
PUBLIC SCOPING MEETING DATES, LOCATIONS, AND ATTENDANCE**

March 15, 2005	Las Cruces	133
March 16, 2005	Alamogordo	18
March 22, 2005	Truth or Consequences	26
March 23, 2005	Anthony	10
TOTAL		187

Each open-house meeting began with a brief presentation by the BLM team leader to provide an overview of the planning and EIS process. Following the presentation, community members were encouraged to review maps and informational display boards arranged in stations around the meeting room and to ask questions about or discuss with the BLM staff their interests in the *TriCounty RMP/EIS*. Members of the planning team were available at the stations to discuss interests related to the Planning Area and to record oral comments from the public. Comment forms, copies of the first planning bulletin, and maps of the Planning Area were available as handouts at each open house. A Spanish-speaking BLM staff member was available to translate at the open houses, if needed. BLM also invited community members to submit comments in written formats other than the comment form, including letters and electronic mail (email) messages.

The period established for scoping was 60 days, rather than the required minimum of 30 days, to ensure that adequate time was allowed for comments to be submitted. Although the BLM Las Cruces District Office welcomes comments at any time during the planning process, comments received during the scoping period were particularly helpful in guiding the scope and direction of the planning studies and analyses. The scoping period ended on March 28, 2005. All the comments received were compiled, reviewed, organized, and analyzed. Issues were derived from the comments and documented in the *TriCounty RMP/EIS Scoping Report* (2005), which is available for review on the BLM's Web site and at the Las Cruces District Office, and summarized in Chapter 1 of the *Draft TriCounty RMP/EIS*.

5.3 COOPERATING AGENCIES

The BLM is required by law to prepare analysis and documentation "*in cooperation with State and local governments*" and other agencies with jurisdiction by law or special expertise as set forth in Title 42 United States Code (USC.) 4331(a), 4332(2). Qualified agencies, tribes, or other governments that enter into formal agreements under this provision are called cooperating agencies. In compliance with this mandate and in the spirit of collaboration, BLM invited a broad range of Federal, State, and local agencies and Tribal governments to become cooperating agencies in the development of the *Draft TriCounty RMP/EIS*. The agencies and local governments formally cooperating in the preparation of the *TriCounty RMP/EIS* are the City of Las Cruces; Sierra, Otero, and Doña Ana counties; New Mexico Department of Agriculture; New Mexico Department of Game and Fish; US Army Fort Bliss; and US Army White Sands Missile Range. A Memorandum of Understanding was developed and signed by these participants to formalize their participation. The responsibilities of cooperating agencies are outline in 40 Code of Federal Regulations Part 1501.6 and summarized in the *TriCounty RMP/EIS Scoping Report* (2005).

Although not cooperating agencies, representatives from other interested Federal and State agencies and Tribal governments have provided BLM with verbal or written comments and have provided resource data or other information beneficial to the planning process.

5.4 TRIBAL CONSULTATION AND COORDINATION

BLM is in the process of developing an agency tribal consultation policy that tiers to the recently released Department of the Interior tribal consultation policy. The BLM will comply with that policy for projects in the Planning Area. At present, consultation conducted pursuant to *BLM Manual Section 8120: Tribal Consultation under Cultural Resources and General Procedural Guidance for Native American Consultation*, the BLM coordinated with tribes that have potential interests in the Planning Area. The following 10 Federally-recognized tribes were contacted to provide information about the *TriCounty RMP/EIS* planning process and asked to provide relevant information, particularly about traditional cultural resources, and identify any concerns that should be addressed during preparation of the *TriCounty RMP*.

- Mescalero Apache Tribe
- Fort Sill Apache Tribe
- White Mountain Apache Tribe
- Ysleta del Sur Pueblo
- Isleta Pueblo

- Hopi Tribe
- Navajo Nation
- Kiowa Tribe
- Comanche Indian Tribe
- Tesuque Pueblo

The BLM also coordinated with the Piro-Manso-Tiwa Indian Tribe, which currently is not Federally-recognized. The Piro-Manso-Tiwa Indian Tribe indicated that they had historical ties to the Planning Area, and the BLM has continued to provide them with information about the planning efforts. The White Mountain Apache Tribe was the only other tribe that responded, and they indicated they had no interest in receiving further information about the *TriCounty RMP/EIS* unless sites with Apache cultural affiliation were discovered in the Planning Area.

During reviews of specific projects, the BLM routinely addresses most tribal concerns, which often focus on disturbance of archaeological sites within their traditional territories and especially disturbance of any associated human burials.

5.5 OTHER FORMAL CONSULTATION

The BLM is required to prepare an EIS in coordination with any studies or analyses required by the Fish and Wildlife Coordination Act (16 USC Section 661 et seq.), Endangered Species Act of 1973 (16 USC Section 1531 et seq.), and the National Historic Preservation Act of 1966, as amended (16 USC Section 470 et seq.).

5.5.1 THREATENED AND ENDANGERED SPECIES

In accordance with Section 7 of the Endangered Species Act of 1973, as amended, formal consultation with the US Fish and Wildlife Service is required when the action agency determines that the preferred alternative of a draft RMP may affect a species listed as threatened or endangered or a designated critical habitat. The consultation process determines whether the preferred alternative is likely to jeopardize the continued existence of a listed species or to destroy or adversely modify critical habitat. The process begins with BLM's written request and submittal of a completed Biological Assessment and, if applicable, concludes with the issuance of a Biological Opinion from the US Fish and Wildlife Service.

The BLM Las Cruces District Office has prepared a Biological Assessment for the *TriCounty RMP/EIS* and has provided that to the US Fish and Wildlife Service for consideration and will continue to consult with them as they develop their Biological Opinion.

5.5.2 CULTURAL RESOURCES

Pursuant to Section 106 of the National Historic Preservation Act, the BLM is required to consider the effects of its undertakings on properties listed in or eligible for the National Register of Historic Places (which can include a diversity of archaeological, historical, and traditional cultural sites, buildings, structures, and districts). The BLM Las Cruces District Office addresses National Historic Preservation Act reviews through a Section 106 Nationwide Programmatic Agreement executed in 1997 and the State of New Mexico implementation protocol. The nationwide agreement replaced a similar agreement that BLM had executed in 1982 for its cultural resource program in New Mexico. In accordance with that protocol, the BLM offered the New Mexico State Historic Preservation Office an opportunity to provide input and to be a reviewer of the *TriCounty RMP/EIS*. The BLM also requested comments about defining the cultural resource component of the planning strategy, including definition of the area of potential

effects, basing the analyses on existing data and identification of other interested parties. The BLM also used the public involvement program for the EIS as an opportunity to solicit public review and comment about issues related to managing cultural resources. The New Mexico State Historic Preservation Office declined to participate as a preparer or reviewer for the *TriCounty RMP/EIS*, but the BLM has continued to provide that agency with updates about the planning process.

5.6 COMMUNITY-BASED COLLABORATIVE PLANNING

In addition to several informal meetings and briefings by the BLM, two formal meetings were conducted—a workshop with planning partners and cooperating agencies to discuss the social and economic conditions of the Planning Area (by county) and an open-house meeting to present the BLM’s preliminary management strategies.

Economic Profile System workshops were held in early 2005 to help the BLM and potential cooperating agencies gain insight into the economic makeup of the Planning Area. The Sonoran Institute assisted the BLM with the workshops, which were held in Alamogordo and Truth or Consequences with invitees attending from all three counties in the Planning Area. The workshops were especially helpful for community members and BLM planning partners to understand the changing economy and its relationship to the environment, including public land. The Economic Profile System, provided free of charge, allows users to automatically and efficiently produce a detailed socioeconomic profile at the state, regional, and county or multicounty level, using a spreadsheet program. The profiles contain tables and figures that illustrate long-term trends in population, employment and personal income by industry, average earnings, agriculture, business development, and retirement and other non-labor income. Much of this same information has been used in developing the economic analysis for the *TriCounty RMP*.

Following the development of preliminary alternative management strategies, the BLM presented and sought input on these preliminary alternatives during three open-house meetings in December 2006. The BLM presented the preliminary alternatives by individual environmental issues and solicited comments. Table 5-3 shows the date and location for each open-house meeting.

**TABLE 5-3
COMMUNITY OPEN-HOUSE MEETINGS**

Date	Location	Number Attending
December 12, 2006	Las Cruces	160
December 13, 2006	Alamogordo	121
December 14, 2006	Truth or Consequences	48
TOTAL		329

To obtain public input during the open-house meetings, participants were asked to consider the following three questions pertaining to the alternatives:

- Are your issues and concerns addressed in at least one alternative?
- Can your uses of public land be accommodated in at least one alternative?
- Are the resources important to you adequately protected through restrictions on other uses in at least one alternative?

Information collected during the open-house meetings was considered in further defining alternatives presented in the *Draft TriCounty RMP/EIS*.

5.7 MEETINGS WITH GRAZING ALLOTTEES

In addition to the open-house meetings to discuss alternatives, the BLM also offered to meet with grazing allottees primarily to inform them about ACEC proposals on their grazing allotments and discuss other aspects of the TriCounty RMP/EIS. On December 8, 2006, the Las Cruces District Office mailed letters to ranchers that had proposed ACECs identified on their allotments inviting them to meet with BLM representatives to discuss the proposed ACECs and the RMP process.

On January 5, 2007, a second letter was mailed to the same list of ranchers (above) to invite them to one of three discussion meeting scheduled for January 12, 16, and 17, 2007 at Bobby Jones' home (Otero Mesa), the BLM office in Las Cruces, and the Sierra Soil and Water Conservation District office in Truth or Consequences, respectively. The forum for those meetings was to provide a brief explanation of the planning process and schedule, and to explain the ACEC nomination process and discuss what impacts, if any, ACEC designations could have on their allotments or operations. A total of 27 individuals met with BLM representatives at these meetings.

An additional meeting in Otero County was requested by the grazing allottees and on January 26, 2007, two BLM representatives met with 12 individuals at the home of Salty and Debbie Hughes in eastern Otero County.

At all meetings, the BLM discussed the TriCounty planning process; described the ACEC nomination, evaluation and designation process; and talked about the draft alternatives for management of areas with wilderness characteristics. Several individuals requested more detailed map showing the allotment boundaries with respect to the proposed ACECs. These were later provided.

5.8 NEWSLETTER #4 AND RESPONSES

Due to the changes in the TriCounty RMP/EIS regarding fluid minerals, renewable energy development, and livestock grazing management, the BLM Las Cruces District Office sent out approximately 1,000 newsletters in April 2010 to update those on the mailing list of changes that were being made to the preliminary draft RMP/EIS. In that newsletter, the BLM asked for comments on those proposed changes. Only comments regarding fluid minerals management, renewable energy development and livestock grazing management were considered during this comment period. A self-addressed, postage paid comment form was included in the newsletter and comments were also accepted by email at nmlcdscomments@blm.gov. The comment period lasted from May 2 until June 1, 2010.

The District Office received approximately 2,500 email messages that were essentially "*form letters*" with same or similar wording and ideas expressed. A sample is shown in the Figure 5-1.

Ten emails and, in most cases, follow-up hard copies were received expressing more substantive comments, concerns, and ideas regarding the three management issues. These came from organizations and individuals.

BLM_NM_LCDO_Comments

From: National Wildlife Federation <NationalWildlifeFederation@nwf.org> on behalf of
Sent: Sunday, October 24, 2010 1:25 AM
To: BLM_NM_LCDO_Comments
Subject: No energy development in wilderness areas

Oct 24, 2010

Dwayne Sykes
1800 Marquess Street
Las Cruces, NM 88005

Dear Sykes,

Thank you for the opportunity to comment on oil and gas and renewable energy development for the TriCounty Resource Management Plans (RMPs).

BLM should close Otero Mesa, other wilderness-quality lands, and Areas of Critical Environmental Concern (ACEC's) to oil and gas development in the RMPs. In its preliminary range of alternatives, BLM found Nutt Mountain, Bar Canyon, part of Otero Mesa, and Sacramento Escarpment ACEC to have wilderness characteristics; these areas should be protected from energy development in the TriCounty RMPs. BLM should defer all new oil and gas leasing actions in the planning area until the programmatic RMP amendment is completed and a broader landscape-level analysis has been completed.

The RMPs also present an opportunity for BLM to consider renewable energy development in the tri-county area. Development of renewable energy should occur on already disturbed lands and more populated areas that are closer to existing transmission lines.

The wilderness areas in southern New Mexico are home to New Mexico's last native population of pronghorn and more than 200 species of songbird, as well as the extremely rare Aplomado Falcon. The integrity of these lands should be preserved for wildlife, and their migration corridors kept intact. The BLM should protect the landscape and ensure that we can continue to enjoy recreational activities in those areas.

Sincerely,

5.9 SUMMARY OF PUBLIC INVOLVEMENT

**TABLE 5-4
SUMMARY OF KEY PUBLIC INVOLVEMENT EVENTS DURING PREPARATION OF THE
TRICOUNTY RMP**

DATE	EVENT
Spring 2003	Informal meetings with community members to learn their opinions, ideas, and concerns about management of public land.
12-15-04	Meeting with representatives of The Wilderness Society (TWS) and New Mexico Wilderness Alliance (NMWA): Discussed NMWA wilderness characteristics inventory and addressing lands with wilderness characteristics, and trails and travel management (OHV) in the RMP.
1-28-05	Public outreach: Notice of Intent (NOI) to prepare RMP/EIS published in the Federal Register.
02-05	Public outreach: Planning Bulletin #1 issued describing the project, announcing public scoping meetings, and requesting comments.
03-02-05	Semi-annual coordination meeting: Update on RMP status.
3-15-05	Public scoping meeting in Las Cruces, NM
3-16-05	Public scoping meeting in Alamogordo, NM
3-22-05	Public scoping meeting in Truth or Consequences, NM
3-23-05	Public scoping meeting in Anthony, NM
4-19-05	Sonoran Institute Economic Profile Workshop held in Truth or Consequences, NM.
4-20-05	Sonoran Institute Economic Profile Workshop held in Alamogordo, NM.
07-05	Public outreach: Planning Bulletin #2 issued summarizing the major issues identified during public scoping.
08-11-05	Meeting with Cooperating Agencies: Overview of the BLM RMP process, role of cooperators, and review of public scoping.
02-16-06	Meeting with TWS representatives: Discussion on addressing lands with wilderness characteristics, trails and travel management, and land disposal in the RMP.
06-13-06	Meeting with Cooperating Agencies: Overview of the BLM RMP process and introduction to developing alternatives.
07-25-06	Semi-annual military coordination meeting: Update on RMP status.
11-06	Public outreach: Planning Bulletin #3 issued describing the preliminary alternatives.
11-07-06	Meeting with Cooperating Agencies: Discussed RMP goals and objectives, draft alternatives, and proposed public workshops on the alternatives.
12-08-06	Public Outreach: Letter mailed to grazing permittees inviting them to meet with BLM to discuss management of proposed and existing Areas of Critical Environmental Concern (ACECs) within their allotments.
12-12-06	Community Open House in Las Cruces, NM to discuss and receive comments on the preliminary alternatives.
12-13-06	Community Open House in Alamogordo, NM to discuss and receive comments on the preliminary alternatives.
12-14-06	Community Open House in Truth or Consequences, NM to discuss and receive comments on the preliminary alternatives.
01-12-07	Meeting with grazing permittees in Otero County to discuss the RMP process and schedule, and potential impacts of ACEC designations on their allotments or operations.
01-16-07	Meeting with grazing permittees in Las Cruces, NM to discuss the RMP process and schedule, and potential impacts of ACEC management on their allotments or operations
01-17-07	Meeting with grazing permittees in Truth or Consequences to discuss the RMP process and schedule, and potential impacts of ACEC management on their allotments or operations
01-26-07	Meeting with grazing permittees in southeastern Otero County to discuss the RMP process and schedule,

**TABLE 5-4
SUMMARY OF KEY PUBLIC INVOLVEMENT EVENTS DURING PREPARATION OF THE
TRICOUNTY RMP**

DATE	EVENT
	and potential impacts of ACEC management on their allotments or operations
03-05-07	Meeting with TWS representatives: Update on RMP status and further discussion of managing lands with wilderness characteristics and vehicle use designations
05-21-07	Meeting with Cooperating Agencies' representatives: Update on RMP process, identified and discussed major issues, and reviewed schedule.
05-21-07	Meeting with City of Las Cruces: Discussed Metropolitan Planning Organization proposed travel routes in relation to proposed disposal and special designations in the vicinity of Las Cruces
06-09-08	Meeting with TWS representatives: TWS presented their Otero Mesa Grassland ACEC proposal. Discussed current status of HEYCO application for permit to drill (APD), status and schedule for RMP, and renewable energy projects and transmission lines
12-09-09	Meeting with TWS and NMWA representatives: Discussed status of RMP, proposed oil and gas decisions, HEYCO APD update, renewable energy applications, and Doña Ana County National Conservation Areas/Wilderness proposed legislation
04-10	Public outreach: Planning Bulletin #4 issued describing changes in RMP regarding fluid minerals management, renewable energy initiatives, and livestock grazing; and requesting comments on these changes
4-07-10	Workshop presented by Sonoran Institute and sponsored DAC County Commission: Coordinating Community and BLM Regional Planning
12-09-10	Meeting with TWS representatives: Update on the TriCounty RMP
10-20-11	Meeting of LCDO Resource Advisory Council: Summary and current status Of the TriCounty RMP

NOTE: This table is a chronological listing of both formal and informal public, group or agency meetings and public outreach. Formal meetings are those that are required by BLM Land Use Planning or NEPA regulations and are advertised in advance. Informal meetings are those that are requested by BLM, an interest group, government agency or other interested party and are not publicly advertised.

5.10 RELATED PLANS

Plans completed by Federal and State agencies, local jurisdictions, and organizations were reviewed to determine whether policies and decisions are consistent or interdependent with resource management in the TriCounty Planning Area. The 2006 *TriCounty Analysis of the Management Situation* highlighted the Federal (other than the BLM), State, and local agency and organization policies, regulations, and planning efforts that may impact BLM decision making for each resource or provide opportunities for coordination toward shared or interdependent goals. Because the Planning Area extends over a significant portion of New Mexico, numerous planning documents were reviewed for the project. Several of these plans are briefly described below. Further descriptions of these decision documents are summarized in Chapter 5 of the *TriCounty Analysis of the Management Situation* (BLM 2006).

The discussion of each resource includes a description of plans completed by other Federal and State agencies, including the US Environmental Protection Agency, Forest Service, USFWS, NPS, New Mexico Environment Department, New Mexico State Land Office, NMDGF, and New Mexico State Parks.

5.10.1 FEDERAL

In 2004, the NPS and the BLM prepared a comprehensive management plan and Final EIS for *El Camino Real Tierra Adentro National Historic Trail*. A 29-mile-long segment of the trail is located on public land in Sierra and Doña Ana counties. The comprehensive management plan and Final EIS envision a multi-use recreational retracement trail and venue for public interpretation.

In response to a request from Congress for an assessment of the need for a unified Federal policy on the collection, storage, and preservation of fossils and for standards that would maximize the availability of fossils for scientific study, the USDI prepared the *Assessment of Fossil Management on Federal and American Indian Lands* (USDI 2000). The assessment provides several recommendations for administrative and Congressional actions pertaining to fossil collections and management on Federal land.

Numerous distinct recreational areas exist in the TriCounty Planning Area. Accordingly, several Federal management plans establish guidance for managing recreational opportunities in the Planning Area. Some of these recreational plans reviewed for the *TriCounty RMP/EIS* are listed below.

Forest land that offers recreational opportunities in the Planning Area is managed by the 1986 *Gila National Forest Plan*, 1985 *Cibola National Forest Land and Resource Management Plan*, and 1998 *Lincoln National Forest Plan*. Generally, these three plans support the establishment of new recreational opportunities in a manner that protects existing resources.

Three Federally-owned properties in the Planning Area provide limited recreational opportunities to the public—McGregor Range, Doña Ana Range, and the San Andres National Wildlife Refuge. The 2000 *Fort Bliss Mission and Master Plan Final EIS* provides recreation management allowing limited public access for recreation, hunting, and cattle grazing to the extent those activities do not conflict with military uses. The San Andres National Wildlife Refuge, established to promote conservation and development of natural wildlife resources, is surrounded by the White Sands Missile Range and is not open to the public.

The *National Management Strategy for Mountain Biking*, established in 1993, provides BLM field offices with guidance for developing a proactive management approach. BLM field offices are directed to coordinate at the National level and with states, local organizations, and volunteers.

The *National Management Strategy for Motorized Off-Highway Vehicle Use on Public Land*, issued in 2001, provides the BLM district and field offices with guidance on providing OHV opportunities while balancing vehicle use with protection of sensitive natural resource values on public land.

5.10.2 STATE

The New Mexico Environment Department (NMED), Air Quality Bureau identifies State air quality regulations, State ambient air quality standards, compliance requirements of State and Federal regulations, and enforcement methods, such as permits required for air pollution sources. Some aspects of the State Implementation Plan require compliance with regulations designed to bring non-attainment areas, which can be found in parts of Doña Ana County, back into attainment of the National Ambient Air Quality Standards. The Las Cruces District Office prescribed burn and wildfire management programs follow the New Mexico Smoke Management Guidance Document (NMED 2005).

The State of New Mexico administers water-planning mechanisms through a series of separate regional water plans initiated by the Office of the State Engineer in conjunction with the Interstate Stream Commission. Sixteen water-planning districts were recognized as a result of legislation enacted in 1987

authorizing the Commission to fund regional water-planning efforts. The following four New Mexico water plans provide guidance for management of water resources:

- The Interstate Stream Commission adopted the *New Mexico State Water Plan* in December 2003 to identify priorities, goals, and objectives for water management in the state that have an impact on the public welfare. Policy statements, implementation strategies, and a brief background discussion and summary of public input are included.
- The New Mexico 2004 *Lower Rio Grande Regional Water Plan* is applicable to the TriCounty Planning Area because the Lower Rio Grande planning region encompasses Doña Ana County and a portion of Sierra County. One conclusion of the plan is that several municipalities in the Mesilla and Jornada del Muerto water basins could exceed their water rights by the year 2012. The plan recommends several water management actions, including public education and water conservation
- The 2003 *Socorro-Sierra Regional Water Plan* guides management of water resources in Socorro and Sierra counties, with the principal river basin of concern being the Rio Grande. Conservation plans and programs, reduced urban and agricultural water demand, and water use efficiency are offered as solutions to the current state of water scarcity in the Sierra County portion of the Planning Area.
- The Otero County portion of the Planning Area is managed by the 2002 *Tularosa, Great Salt, and Sacramento River Basin Regional Water Plan*. This part of the Planning Area is characterized as having even greater water-supply problems than other regions in the state. Solutions to water resource concerns follow those outlined in the previous regional water plans.

In 2001, the State of New Mexico adopted the *New Mexico Historic Preservation Plan*, which provides an overview of the New Mexico's cultural resources; identifies Federal, State, and local agencies included in the New Mexico preservation network; and lists preservation accomplishments from 1996 to 2001. The 2001 Plan recognizes that BLM, as a Federal land management agency, is an important partner in the State's historic preservation network to carry forth goals, objectives, challenges, and opportunities for preservation. The State of New Mexico also is developing a draft Rio Grande Trail Plan. This plan identifies trail development opportunities both in and between state parks along the southern portion of the river (New Mexico State Parks 2006).

The 2004 *New Mexico Statewide Comprehensive Outdoor Recreation Plan 2004-2009* (SCORP) provides State-level recreational use and area information and is the primary means by which the State and USDI, via the NPS, cooperate to provide for outdoor recreation needs. Regional planning districts support the outdoor recreation planning and economic strategies of concentrated areas throughout the state as administered by the SCORP. For instance, the economy of BLM Region VII, which includes Sierra and Doña Ana counties, largely revolves around recreation and tourism. BLM is encouraged to implement management decisions and opportunities found in the SCORP in its planning decisions (New Mexico State Park Division 2004).

The 2006 *Comprehensive Wildlife Conservation Strategy* for New Mexico focuses on species of greatest conservation need (SGCN) and key wildlife habitats, as well as on overcoming the challenges affecting the conservation of both. The overriding desired outcome is that New Mexico's key habitats persist in the condition, connectivity, and quantity necessary to sustain viable and resilient populations of resident SGCN and host a variety of land uses with reduced resource use conflicts.

Future transportation projects in the Planning Area are found in the New Mexico Department of Transportation's *Fiscal Year 2008–Fiscal Year 2011 Statewide Transportation Improvement Program*, published in 2009. The plan identifies various Federal, State, and local transportation corridor plans in the Planning Area, providing BLM with a list of potential roadway projects that could affect BLM-managed public land.

5.10.3 COUNTY

The 2011 *Otero County Comprehensive Plan* describes the community's vision for the physical development of the county over the next 20 years. The plan is intended as a general policy guide concerning the location, character, and type of growth in the community. The plan addresses in detail the county's policies regarding public land. Based on its custom and culture, the county supports the continuous multiple-use of Federal land and resources and seeks to play a major role in the decisions regarding public land use. The document summarizes the major legislation in this area and opportunities for county input and control.

One Valley, One Vision 2040, (2011) is a long-range regional plan for Doña Ana County. It is advisory in nature and looks at growth from various perspectives beyond any one political district or authority. The plan is intended as the vision of the community's future. Through the long range/broad scope approach, the dynamics of the community, particularly land use and growth perspectives, can begin to take shape and be realized. It seeks to address topics that are shared among jurisdictions and communities, grouping identifiable themes for which strategies are then prepared. The time horizon in which the plan seeks to identify and address the issues spans a 30 year period, thus reflecting the communities' desire for long-range planning.

A Vision: Open Space and Trails System for Doña Ana County, New Mexico, a plan developed in 2005 by citizens to propose a network of open space throughout Doña Ana County is neither an official nor an adopted plan but is endorsed by the City of Las Cruces and Doña Ana County. Several areas listed in the plan—including the Organ/Franklin Mountains, Doña Ana Mountains, and Tortugas Mountains—are on BLM-managed public land in Doña Ana County, and the plan proposes that these areas remain under BLM management.

5.10.3 LOCAL

The City of Las Cruces' 2004 *Rio Grande Riparian Ecological Corridor Project* report identifies the Butterfield Overland Trail, El Camino Real, and Los Tules sites as cultural assets along the Rio Grande Corridor that provide public interpretation opportunities as part of the project. These heritage resource sites are located either entirely or partially on public land.

Several local jurisdictions in the Planning Area have established individual development plans with management goals, policies, or objectives related to resources and resource uses. Local jurisdiction planning documents reviewed include the following:

- 1999 *City of Las Cruces Comprehensive Plan*
- 2003 *City of Las Cruces Zoning Code*
- 2005 *City of Las Cruces Strategic Plan 2005-2009*
- 2000 *City of Las Cruces Extraterritorial Zoning Comprehensive Plan 2000-2020*

- 2005 *Las Cruces Metropolitan Planning Organization Transportation Plan*
- 2004 *Town of Mesilla Comprehensive Plan*
- 1999 *El Paso Comprehensive Plan*
- 1999 *City of Truth or Consequences Comprehensive Plan*

5.11 DRAFT RMP/EIS DISTRIBUTION LIST

The following agencies, organizations, and individuals were notified that the *Draft TriCounty RMP/EIS* will be available in paper copy, on compact disc (CD), and on the BLM's Web site. Some have requested and will receive a paper copy or CD of the *Draft TriCounty RMP/EIS* for review and comment. The BLM will send copies of the *Proposed TriCounty RMP/Final EIS* to the same entities listed below and to those who request a copy.

Federal Agencies

- Department of Agriculture
 - Forest Service
 - Gila National Forest
 - Lincoln National Forest
 - Natural Resources Conservation Service, Las Cruces, New Mexico
- Department of Defense
 - Air Force Regional Environmental Office, San Francisco, California
 - White Sands Missile Range, New Mexico
 - Fort Bliss, Texas
 - Holloman Air Force Base, New Mexico
- Department of Energy
- Office of Environmental Compliance (EH-23), Washington, D.C.
- Department of the Interior
 - Bureau of Indian Affairs
 - Albuquerque, New Mexico
 - Reston, Virginia
 - Bureau of Land Management
 - Washington Office, D.C.
 - Albuquerque District Office, New Mexico
 - Pecos District Office, New Mexico
 - Farmington District Office, New Mexico
 - New Mexico State Office
 - Bureau of Reclamation, Albuquerque, New Mexico
 - Fish and Wildlife Service
 - Albuquerque, New Mexico
 - Division of Environmental Quality, Arlington, Virginia
 - Geological Survey, Albuquerque, New Mexico
 - Minerals Management Service
 - Denver, Colorado
 - Herndon, Virginia
 - National Park Service
 - Washington Service Center, Washington, D.C.
 - Pacific West Region, San Francisco, California
 - White Sands National Monument
 - Guadalupe Mountains National Park
 - Carlsbad Caverns National Park

- Office of Environmental Policy and Compliance, Oakland, California
- Office of Surface Mining Reclamation and Enforcement, Washington, D.C.
- Department of Transportation, Federal Highway Administration, Albuquerque, New Mexico
- Environmental Protection Agency
 - Washington, D.C.
 - Denver, Colorado
 - San Francisco, California

State Agencies and Organizations

- Governor, State of New Mexico
- New Mexico Corporation Commission
- New Mexico Department of Agriculture
- New Mexico Department of Commerce
- New Mexico Department of Game and Fish
- New Mexico Department of Transportation
- New Mexico Environment Department
- New Mexico Energy, Minerals, and Natural Resources Department
- New Mexico Office of the State Engineer
- New Mexico State Historic Preservation Office
- New Mexico State Land Office
- New Mexico State Parks
- New Mexico State University

Local Governments

- El Paso County, Texas
- Otero County, New Mexico
- Sierra County, New Mexico
- Doña Ana County, New Mexico
- City of Albuquerque, New Mexico
- City of Las Cruces, New Mexico
- City of Alamogordo, New Mexico
- City of Truth or Consequences, New Mexico

Tribal Governments

- Mescalero Apache Tribe
- Fort Sill Apache Indian Tribe
- White Mountain Apache Indian Tribe
- San Carlos Apache Indian Tribe
- Zuni Indian Tribe
- Acoma Indian Tribe
- Isleta Indian Tribe
- Ysleta del Sur Indian Tribe
- Tesuque Pueblo

Members of Congress

- Senator Tom Udall, State of New Mexico
- Senator Martin Heinrich, State of New Mexico
- Representative Michelle Lujan Gisham, 1st Congressional District of New Mexico
- Representative Steve Pearce, 2nd Congressional District of New Mexico
- Representative Ben Lujan, 3rd Congressional District of New Mexico

New Mexico Libraries

- Alamogordo Public Library, Alamogordo
- Thomas Branigan Memorial Library, Las Cruces
- Truth or Consequences Public Library, Truth or Consequences
- Valley Public Library, Anthony

5.12 COMMENTS ON THE DRAFT RMP/EIS

Concurrent with the distribution of the *Draft TriCounty RMP/EIS*, a notice was published in the *Federal Register* announcing the availability of the draft document for public review and comment, which marked the beginning of the 90-day review and comment period. About midway through the review period for the *Draft TriCounty RMP/EIS*, the BLM will hold public meetings for the purpose of informing the public and soliciting and public comments on the *Draft TriCounty RMP/EIS*. The *Draft TriCounty RMP/EIS* was sent to the cooperating agencies listed in Section 5.3 and entities listed in Section 5.11 and additional agencies with a potential interest, as requested in responses to the April 2008 planning bulletin or through other means. The *Draft TriCounty RMP/EIS* also is available from <http://www.nm.blm.gov>.

Comments, including names and street addresses of respondents, will be available for public review at the BLM Las Cruces District Office, 1800 Marquess Street, Las Cruces, New Mexico 88005, during regular business hours (7:45 a.m. to 4:30 p.m.), Monday through Friday, except holidays, and may be published as part of the *Proposed TriCounty RMP/Final EIS*. Individual respondents may request confidentiality. If a respondent wishes to withhold a name or street address from public review or from disclosure under the Freedom of Information Act, he or she must state this prominently at the beginning of the 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.

All written and oral comments received during the 90-day review and comment period will be compiled, analyzed, and summarized. A *Proposed TriCounty RMP/Final EIS* will be prepared that addresses and provides responses to the comments received on the *Draft TriCounty RMP/EIS*.

5.13 LIST OF PREPARERS

Table 5-5 lists the *Draft TriCounty RMP/EIS* preparers and members of the interdisciplinary team.

**TABLE 5-5
LIST OF PREPARERS AND REVIEWERS**

NAME	TITLE	RESOURCE MANAGEMENT PLAN/ ENVIRONMENTAL IMPACT STATEMENT RESPONSIBILITY
BUREAU OF LAND MANAGEMENT – LAS CRUCES DISTRICT OFFICE		
Jennifer Montoya	Planning and Environmental Coordinator	Team Leadership
Clarence “Dwayne” Sykes	Planning and Environmental Coordinator	Team Leadership
Tom Phillips	Standards and Guidelines Team Lead	Team Leadership/Contract Administration
Tim Sanders	Assistant District Manager for Multi-Resources	Management Oversight
Ray Hewitt	Geographer	Geographic Information System
Bruce Call	Soil Scientist	Soil, Water, Air
Cory Durr	Hydrologist	Surface And Groundwater
Mohammad H Nash	Soil Scientist	Soils
Philip Smith	Rangeland Management Specialist	Vegetation/Rangeland Management/Forest And Woodland Products
Rich LaCasse	Rangeland Management Specialist	Noxious, Invasive Weeds
Margie Guzman	Wildlife Biologist	Wildlife And Special Status Species
Mark Hakkila	Biologist	Wildlife And Special Status Species
Ray Lister	Biologist	Wildlife And Special Status Species
Leticia Lister	Rangeland Management Specialist	Rangeland Management/Forest And Woodland Products
Rena Gutierrez	Writer and Editor	Editor, Document Production
Pam Smith	Archeologist (2005-2006)	Cultural Resources
Mike Smith	Geologist	Minerals
John Besse	Environmental Protection Specialist	Minerals
Joe Sanchez	Natural Resource Specialist	Trails And Travel Management, Recreation
Jacqueline Neckels	Outdoor Recreation Specialist	Wilderness, Recreation
Kathryn Lloyd	Outdoor Recreation Specialist	Wilderness, Visual Resources
Michael Bailey	Outdoor Recreation Specialist	Wilderness, Recreation
Ricky Cox	Fire Management Specialist	Fire And Fuels Management
Ryan Whiteaker	Fire Management Specialist	Fire Management
Steve Bumgarner	Fire Management Officer	Fire And Fuels Management
Frances Martinez	Realty Specialist	Lands
Lorraine Salas	Realty Specialist	Lands
Adam Merrill	Geologist	Geology
Tom Holcomb	Archeologist	Archeology
Angel Mayes	Realty Specialist	Lands
REVIEWERS - NEW MEXICO STATE OFFICE		
Jeanette Pranzo	Socioeconomist	Social and Economic Conditions
Joshua Sidon	Economist, National Operations Ctr.	Social and Economic Conditions
Melanie Barnes	Planning and Environmental Coordinator	Planning And Environmental Coordination
Mark Spencer	Planning and Environmental Coordinator	Planning And Environmental Coordination
David Goodman	Planning and Environmental Coordinator	Planning And Environmental Coordination
Marikay Ramsey	Threatened and Endangered Species Biologist	Special Status Species Wildlife
Megan Stouffer	Planning & Environmental Coordinator	
Debby Lucero	Realty Specialist	Lands And Realty, Land Disposal, Rights-Of-Way
Adrian Garcia	Realty Specialist	Lands And Realty
Sarah Schlanger	Archeologist, National Trails Specialist	Cultural Resource And Historic Trails
James Sippel	Outdoor Recreation Planner	Recreation, Wilderness
Shannon Shaw	Petroleum Engineer	Fluid Minerals

**TABLE 5-5
LIST OF PREPARERS AND REVIEWERS**

NAME	TITLE	RESOURCE MANAGEMENT PLAN/ ENVIRONMENTAL IMPACT STATEMENT RESPONSIBILITY
Bill Dalness	Geologist	Locatable Minerals
Dave Borland	Forester	Woodlands And Vegetation
Roger Cumpian	Range Management Specialist	Livestock Grazing And Vegetation
Mike Howard	Botanist	Special Status Plant Species
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Glossary

GLOSSARY

A

Acre-foot: The volume (as of irrigation water) that would cover 1 acre to a depth of 1 foot (43,560 cubic feet).

Active restoration: Actions taken to reestablish vegetation and ecosystem balance.

Agency: Any Federal, State, or county organization with jurisdictional responsibilities.

Air quality: A measure of the health-related and visual characteristics of the air often derived from quantitative measurements of the concentrations of specific injurious or contaminating substances.

Air quality standard: Levels of air pollutants prescribed by regulations that may not be exceeded during a specified time in a defined area.

Allocated uses: The Bureau of Land Management (BLM) allocates cultural resources to one of five categories including (1) scientific use, (2) conservation for future use, (3) traditional use, (4) public use, or (5) experimental use. If cultural resources are evaluated as lacking significant values, they are categorized as discharged from management.

Allotment (range): A designated area of land available for livestock grazing upon which a specified number and kind of livestock may be grazed under management of an authorized agency. An allotment generally consists of Federal rangeland, but may include intermingled parcels of private, State, or Federal land. BLM and the U.S. Forest Service stipulate the number of livestock and season of use for each allotment.

Allotment management plan (AMP): A written program of livestock grazing management including supportive measures, if required. An allotment management plan is designed to attain specific management goals in a grazing allotment and is prepared cooperatively with the permittee(s) or lessee(s).

All-terrain vehicle: A small motor vehicle with wheels or tractor treads often used for cross-country travel, including traveling over rough ground, snow, or ice. For the purposes of this document, an all-terrain vehicle is defined as a motor vehicle that: (a) is designed primarily for recreational nonhighway all-terrain travel, (b) is 50 or fewer inches wide, (c) has an unladen weight of 800 pounds or less, (d) travels on three or more low-pressure tires, and (e) has a seat designed to be straddled by the operator, and handlebars for steering control. An all-terrain vehicle is a type of off-highway vehicle (OHV)

Ambient (air): The surrounding atmospheric conditions to which the general public has access.

American Indian tribe (or tribe): Any American Indian group in the conterminous United States that the Secretary of the Interior recognizes as possessing Tribal status (listed periodically in the *Federal Register*).

Animal unit: A unit of measure for rangeland livestock equivalent to one mature cow or five sheep or five goats, all over six months of age. An animal unit is based on an average daily forage consumption of 26 pounds of dry matter per day.

Animal unit month (AUM): A standardized unit of measurement of the amount of forage necessary for the complete sustenance of one animal unit for a period of one month; also, a unit of measurement of grazing privileges that represents the privilege of grazing one animal unit for a period of one month..

Aquifer: A water-bearing rock unit (unconsolidated or bedrock) that will yield water in a usable quantity to a well or spring.

Archaeology: The scientific study of the life and culture of past, especially ancient, peoples, by excavation of ancient cities, relics, artifacts, etc.

Archaeological site: A discrete location that provides physical evidence of past human use.

Area of critical environmental concern (ACEC): An area of public land designated by BLM for special management attention to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources; or other natural systems or processes or to protect life or provide safety from natural hazards. Areas designated as areas of critical environmental concern have met criteria for importance and relevance that are outlined in Title 43 Code of Federal Regulations (CFR) Section 1610.7-2(b).

Artifact: A human-made object.

Assessment: The act of evaluating and interpreting data and information for a defined purpose.

Attainment area: An area that meets a Federal primary or secondary ambient air quality standard for a specified pollutant.

Avoidance area: An environmentally sensitive area where rights-of-way may be granted only when no feasible alternative route is available.

B

Backcountry byway: A component of the national scenic byway system which focuses primarily on corridors along backcountry roads that have high scenic, historic, archeological, or other public interest values. The road may vary from a single-track bike trail to a low-speed, paved road that traverses backcountry areas (BLM Handbook H- 8357-1, B 2)

Baseline: The existing conditions against which impacts of the proposed action and its alternatives can be compared.

Basin: A depressed area having no surface outlet (topographic basin); a physiographic feature or subsurface structure that is capable of collecting, storing, or discharging water by reason of its shape and the characteristics of its confining material (water basin); a depression in the earth's surface, the lowest part often filled by a lake or pond (lake basin); a part of a river or widened canal (drainage, river, or stream basin).

Best management practices (BMPs): A suite of techniques that guide, or may be applied to, management actions to aid in achieving desired outcomes and help to protect the environmental resources by avoiding or minimizing the impacts of an action. BMPs are often developed in conjunction with land use plans, but they are not considered a land use plan decision unless the land use plan specifies that they are mandatory. They may be updated or modified without a plan amendment if they are not mandatory.

Bureau of Land Management (BLM): An agency of the U.S. Department of the Interior responsible for managing most Federal government subsurface minerals. It has surface management responsibility for Federal land designated under the Federal Land Policy and Management Act of 1976.

C

Casual Use - activities ordinarily resulting in no or negligible disturbance of the public lands, resources or improvements. Examples of casual use include: Surveying, marking routes, and collecting data to use to prepare grant applications.

Cave: The Federal Cave Resources Protection Act of 1988 defines a cave as any natural occurring void, cavity, recess, or system of interconnected passages that occurs beneath the surface of the earth or within a cliff or ledge (including any cave resource therein, but not including any vug, mine, tunnel, aqueduct, or other humanmade excavation) that is large enough to permit an individual to enter, whether or not the entrance is naturally formed or humanmade.

Chemical treatment: The use of herbicides to target species so as to reduce their competitive effect on more desirable species and to reduce fuel loading and wildfire risk.

Clean Air Act of 1990: Federal legislation governing air pollution. The Clean Air Act established National Ambient Air Quality Standards (NAAQS) for carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide, and lead. Prevention of significant deterioration classifications define the allowable increase in air quality deterioration above legally established levels. They include the following:

- **Class I:** minimal additional deterioration in air quality (certain national parks and wilderness areas)
- **Class II:** moderate additional deterioration in air quality (most land)
- **Class III:** greater deterioration for planned maximum growth (industrial areas)

Clean Water Act (CWA) of 1987: The CWA refers to a series of Federal laws and regulations that attempt to restore the beneficial uses of surface waters of the United States (also referred to as “waters of the United States”). The CWA regulates such programs as the National Pollutant Discharge Elimination System, a permit-based set of regulations that control the discharge of pollution to United States waterways from an individual point (for example, the end of a pipe) and the discharge of concentrated stormwater from highways, cities, and other built environments. The CWA also regulates the placing of “fill-in” streams and washes for the construction of road crossings, pipelines, and power lines. In some cases, the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers have extended responsibilities to the individual states to regulate these programs.

Clean Water Act Section 303(d): Annual report to Congress from EPA that identifies those waters for which existing controls are not sufficiently stringent to achieve applicable water quality standards.

Closed: Generally denotes that an area is not available for a particular use or uses; refer to specific definitions found in law, regulations, or policy guidance for application to individual programs. For example, 43 CFR 8340.0-5 sets forth the specific meaning of “closed” as it relates to OHV use, and 43 CFR 8364 defines “closed” as it relates to closure and restriction orders.

Community (natural community): The living part of an ecosystem. Communities change with succession, thereby forming distinctive ecological units in time and space. The plant community and the animal community together form the biotic community. Size is not implied (i.e., organisms associated with a decaying log or with an entire forest each represent communities).

Cooperating agency: Assists the lead Federal agency in developing an Environmental Assessment or Environmental Impact Statement. The Council on Environmental Quality regulations implementing the National Environmental Policy Act (NEPA) define a cooperating agency as any agency that has jurisdiction by law or special expertise for proposals covered by NEPA (40 CFR 1501.6). Any Federal, State, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency.

Criteria pollutant: The Clean Air Act required EPA to set NAAQS for pollutants known to be hazardous to human health and the public welfare. Six pollutants were identified: ozone, carbon monoxide, particulate matter (defined as having diameters less than or equal to 10 microns or to 2.5 microns), sulfur dioxide, lead, and nitrogen oxides. The term "criteria pollutant" derives from the requirement that EPA must describe the characteristics and the potential health and welfare effects of these pollutants. It is on the basis of such criteria that NAAQS are set or revised.

Cultural resources: Any definite location of past human activity, occupation, or use, identifiable through inventory, historical documentation, or oral evidence. Cultural resources include archaeological, historic, or architectural sites, structures, places, objects, and artifacts.

Cumulative impacts (or effects): An impact on the environment that results from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts are evaluated as part of the Environmental Impact Statement and may include consideration of additive or interactive effects regardless of what agency or person undertakes the other actions.

D

Decision Area: Public land and Federal mineral estate managed by BLM within the Planning Area are referred to in this document as BLM's Decision Area.

Developed recreation: Recreation that requires facilities that result in further concentrated use of the area (e.g., off-road vehicles require parking lots and trails, and campgrounds require roads, picnic tables, and toilet facilities).

Dispersed recreation: Recreation that does not occur in a developed recreation site, such as hunting, backpacking, and scenic driving.

Distance zones: A subdivision of the landscape as viewed from an observer's position. The subdivision (zones) includes foreground-middleground, background, and seldom seen.

- **Foreground-middleground zone:** The area that can be seen from each travel route for a distance of 3 to 5 miles, where management activities might be viewed in detail. The outer boundary of this distance zone is defined as the point where the texture and form of individual plants are no longer apparent in the landscape.
- **Background zone:** The remaining area that can be seen from each travel route to approximately 15 miles. To be included within the distance zone, vegetation should be visible at least as patterns of light and dark.
- **Seldom-seen zone:** Areas that are not visible within the foreground-middleground and background zones, and areas beyond the background zones.

E

Easement: A right afforded a person, agency, or organization to make limited use of another's real property for access or other purposes.

Ecological site: A distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community.

Ecosystem: Any area or volume in which there is an exchange of matter and energy between living and nonliving parts; i.e., the biotic community together with soil, air, water, and sunlight form an ecosystem. Ecosystems are the units defined for studying the flow of energy and matter.

Edge effect: Edge effects occur when natural habitats are interrupted by development or other human-induced disturbances, including roads, structures, and trampling, or vehicle tracks. Edge effects affect wildlife species in different ways, depending on the life history of the species, and they cause behavioral modifications that can lead to fragmentation of habitat. Some disturbance-adapted species, especially shrub-scrub bird species, thrive along edges of roads and other developed areas. Other wildlife species, especially large mammals, avoid human-disturbed areas and do not tend to cross roads. Roads also increase mortality of small mammals from both increased vehicle collisions and increased predation from large mammals, while roads increase mortality of large mammals as a result of vehicle collisions. Pollution and bioaccumulation are secondary effects of roads and other development that increase edge effects on wildlife and wildlife habitats.

Effect (or impact): A modification of the existing environment as it presently exists, caused by an action (such as construction or operation of facilities). An effect may be direct, indirect, or cumulative. The terms effect and impact are synonymous under NEPA.

Endangered species: A plant or animal that is in danger of extinction throughout all or a significant portion of its range.

Environmental Assessment (EA): A concise public document for which a Federal agency is responsible. An Environmental Assessment serves (1) to briefly provide enough evidence and analysis for determining whether or not to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact; (2) to aid an agency's compliance with NEPA when no EIS is needed; and (3) to facilitate preparation of an EIS when one is needed.

Environmental Impact Statement (EIS): An analytical document that portrays potential impacts on the human environment of a particular course of action and its possible alternatives. Required by NEPA, an EIS is prepared for use by decisionmakers to assess the environmental consequences of a potential decision.

Environmental justice: The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, State, local, and Tribal programs and policies (Executive Order 12898).

Ephemeral stream: A stream that flows only in direct response to precipitation in the immediate watershed or in response to the melting of a cover of snow and ice and has a channel bottom that is always above the local water table.

Erosion: The wearing away of the land surface by running water, wind, ice, or other geologic agents and by such processes as gravitation creep.

Exclusion area: An environmentally sensitive area where rights-of-way would be granted only in cases where there is a legal requirement to provide such access.

Extraction: The removal of mineral resources from the land by mining, quarrying, or excavation.

F

Federal land: Land, or interests in land (such as easements and rights-of-way), owned by the United States.

Federal undertaking: A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency including those carried out on or on behalf of the agency, those carried out with Federal financial assistance, those requiring a Federal permit license or approval, and those subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency.

Fire line: BLM often constructs fire lines to contain and stop the spread of wildfire. A fire line is the part of a containment or control line that is scraped or dug to mineral soil.

Fire regime: Periodicity and pattern of naturally occurring fires in a particular area or vegetative type, described in terms of frequency, biological severity, and area of extent.

Fire Regime Condition Class (FRCC): A standardized interagency tool for determining the degree of departure from reference condition vegetation, fuels, and disturbance regimes. Assessing Fire Regime Condition Class can help guide management objectives and set priorities for treatments.

Fire intensity: The effects of fire on the aboveground vegetation, generally described in terms of mortality.

Fire severity: Fire effects at and below the ground surface. Describes the impacts on organic material on the ground surface, changes to soils, and mortality of belowground vegetative buds, roots, rhizomes, and other organisms.

Floodplain: The land that borders a water body and is subject to flooding on a periodic basis.

Fluid minerals: Oil, gas, and geothermal resources.

Fossil: Any remains, trace, or imprint of a plant or animal that has been preserved by natural process in the earth's crust since some past geologic time.

G

Geographic information system (GIS): A system of computer hardware, software, data, and applications that capture, store, edit, analyze, and graphically display a potentially wide array of geospatial information.

Grazing: Consumption of native forage on rangeland or pastures by livestock or wildlife.

Grazing allotment: An area where one or more livestock operators graze their livestock. An allotment generally consists of Federal land but may include parcels of private or State-owned land.

Grazing district: An administrative unit of BLM-managed rangeland established by the Secretary of the Interior under the Taylor Grazing Act of 1934. Grazing units are not the same as BLM administrative districts.

Grazing fee: A charge, usually on a monthly basis, for grazing a specific kind of livestock.

Grazing lease: A document authorizing use of public land outside of an established grazing district. Grazing leases specify all authorized use, including livestock grazing, suspended use, and conservation use. Leases specify the total number of AUMs apportioned, the area authorized for grazing use, or both.

Grazing permit: An authorization that allows grazing on public land. Permits specify class of livestock on a designated area during specified seasons each year. Permits are of two types: preference (10 years) and temporary nonrenewable (1 year).

Grazing preference: The total number (active and suspended nonuse) of AUMs of livestock grazing on public land, apportioned and attached to base property owned or controlled by a permittee.

Grazing season: On Federal land, an established period for which grazing permits or leases are issued.

Grazing system: A systematic sequence of grazing use and nonuse of an allotment (pasture or management unit) to meet multiple use goals by improving the quality and amount of vegetation.

Groundwater: Subsurface water that fills available openings in rock or soil materials to the extent that they are considered saturated.

Guidelines: Actions or management practices that may be used to achieve desired outcomes, sometimes expressed as BMPs. Guidelines may be identified during the land use planning process, but they are not considered a land use plan decision unless the plan specifies that they are mandatory. Guidelines for grazing administration must conform to 43 CFR 4180.2. Guidelines (1) typically identify and prescribe methods of influencing or controlling specific public land uses; (2) are developed and applied consistent with the desired condition and within site capability; and (3) may be adjusted over time.

H

Habitat: A specific set of physical conditions in a geographic area(s) that surrounds a single species, a group of species, or a large community. In wildlife management, the major components of habitat are food, water, cover, and living space.

Habitat corridors: A strip or block of habitat connecting otherwise isolated units of similar habitat that allows the dispersal of organisms and the consequent mixing of genes.

Habitat fragmentation: The division of large, continuous areas of habitat into smaller patches isolated from one another. The effects of habitat fragmentation include loss of habitat area and the creation of smaller, more isolated patches of remaining habitat.

Habitat management plan (HMP): A written and officially approved plan for a specific geographical area of public land that identifies wildlife habitat and related objectives, establishes the sequence of actions for achieving objectives, and outlines procedures for evaluating accomplishments.

Hazardous materials: Substances or mixtures of substances that have the capability of either causing or significantly contributing to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or posing a substantial present or potential risk to human health or the environment.

Hazardous substance: A term used by the EPA for chemicals that must be reported if released into the environment above a certain amount. Depending on the threat to the environment, Federal involvement in handling the incident can be authorized under the Comprehensive Environmental Response, Compensation, and Liability Act.

Hazardous waste: The Resource Conservation and Recovery Act defines hazardous waste as a solid waste that may cause an increase in mortality or serious illness or pose a substantial threat to human health and the environment when improperly treated, stored, transported, disposed of, or otherwise managed. A waste is hazardous if it appears on a series of lists compiled by the EPA or exhibits characteristics of ignitability, corrosivity, reactivity, and/or toxicity.

Heritage tourism: The business and practice of attracting and accommodating visitors to a place or area based especially on the unique or special aspects of that locale's history, landscape (including trail systems), and culture.

High potential: The geologic environment, geologic processes, and reported mineral occurrences or valid geochemical/geophysical anomaly, and known mines or deposits [within the same type of geologic environment] indicate high potential for accumulation of mineral resources.

Hydrology: The study of the movement, distribution, and quality of water throughout the earth. Hydrology addresses both the hydrologic cycle and water resources.

I

Ignitability: A characteristic defining a hazardous waste. A solid waste that is defined as ignitable is one that exhibits any of the capability to ignite under certain regulatory circumstances.

Impairment: Detrimental effect on the biological integrity of a body of water caused by an impact that prevents attainment of the designated use.

Indirect effect (or impact): Secondary effects that occur in locations other than the initial action or later in time, but that are caused by the proposed action.

Interdisciplinary team: A team of land use and resource specialists who provide a coordinated, integrated information base for overall land use planning and management.

Interim Management Policy and Guidelines for Lands Under Wilderness Review: This policy provides guidance for managing existing wilderness study areas to ensure that an area's wilderness values are not impaired prior to the establishment of a wilderness area or an area's release from consideration for this status.

Invasive species: A species that is not native to an ecosystem and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Issue: Describes the relationship between actions (proposed, connected, cumulative, similar) and environmental (natural, cultural, and socioeconomic) resources. Issues may be questions, concerns, problems, or other relationships, including beneficial ones. Issues do not predict the degree or intensity of harm or benefit the action might cause, but alert the reader as to what the environmental concerns might be. The NEPA document should address issues identified through interaction with agencies and/or the public, and/or through resource studies.

J

Jurisdiction: The legal right to control or regulate use of land or a facility. Jurisdiction requires authority, but not necessarily ownership.

K

Karst: An irregular limestone region with sinks, underground streams, and caverns. Karst landscapes owe their existence to the removal of bedrock in solution and to the development of underground drainage without the development of surface stream valleys. Within these broad constraints, karst landscapes show much variation and are usually described in terms of a dominant landform.

Karst feature: Cavities, sinkholes, or other solution features in karst terrain that seem to be a cave, but do not fit the definition given above. Lava tubes and bubbles, while not karst, are included as caves if they meet the cave definition.

L

Landform: A discernible natural landscape that exists as a result of geological activity, such as a plateau, plain, basin, or mountain.

Land use plan: A set of decisions that establish management direction for land within an administrative area, as prescribed under the planning provisions of the Federal Land Policy and Management Act; an assimilation of land use plan-level decisions developed through the planning process outlined in 43 CFR 1600, regardless of the scale at which the decisions were developed. Resource management plans are land use plans.

Landscape: An area composed of interacting ecosystems that are repeated because of geology, landform, soils, climate, biota, and human influence throughout the area. Landscapes are generally of a size, shape, and pattern that are determined by interacting ecosystems.

Leaching: The process of water moving down through the surface of the soil.

Lease: An authorization or contract by which one party (lessor) conveys the use of property, such as real estate, to another (lessee) in return for rental payments. In addition to rental payments, lessees also pay royalties (a percentage of value) to the lessor from resource production.

Leasable minerals: Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. They include coal, phosphate, asphalt, sulfur, potassium, and sodium minerals, as well as oil, gas, and geothermal resources.

Locatable mineral: Any valuable mineral that is not salable or leasable, including gold, silver, copper, uranium, etc., that may be developed under the General Mining Law of 1872.

Low potential: The geologic environment and inferred geologic processes indicate low potential for accumulation of mineral resources.

M

Mechanical treatment: This involves the use of various types of mechanized equipment to clear out understory, brush, and/or trees and then pile and burn them to reduce fuel loading and wildfire risk.

Mineral entry: The location of mining claims by an individual to protect his/her right to a valuable mineral.

Mineral potential: The four categories of mineral potential are defined in *BLM Manual*, Section 3031 and are based on the geologic environment, inferred geologic processes, and reported mineral occurrences. Mineral potential is designated as none, low, moderate, or high. In addition, each mineral potential category is supplemented by a designation of certainty that reflects the level of confidence in the assessed data.

Mineral rights: Outstanding third-party rights or an interest in minerals not owned by the person or party conveying the land to the United States. Mineral rights are an exception in a deed that is the result of prior conveyance separating title of certain minerals from the surface estate.

Mineral withdrawal: A withdrawal of public land that is potentially valuable for leasable minerals. This precludes the disposal of the land except with a mineral reservation, unless the land is found not to be valuable for minerals.

Mitigation: The abatement or reduction of an impact on the environment by (1) avoiding a certain action or parts of an action, (2) employing certain construction measures to limit the degree of impact, (3) restoring an area to preconstruction conditions, (4) preserving or maintaining an area throughout the life of a project, (5) replacing or providing substitute resources to the environment, or (6) gathering data (e.g., archaeological or paleontological) prior to disturbance.

Moderate potential: The geologic environment, inferred geologic processes, and reported mineral occurrences or valid geophysical/geochemical anomaly indicate moderate potential for accumulation of mineral resources.

Multiple-use: Multiple use is defined as follows by the Multiple Use – Sustained Yield Act of 1960, which states: “(1) the management of all the various renewable surface resources so that they are used in the combination that will best meet the needs of the American people; (2) making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; (3) that some land will be used for less than all of the resources; and (4) harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will be given the greatest dollar return or the greatest unit output.”

N

National Ambient Air Quality Standards (NAAQS): The allowable concentrations of air pollutants in the air specified by the Federal government. The air quality standards are divided into primary standards (based on air quality criteria and allowing an adequate margin of safety and requisite to protect the public health) and secondary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public welfare) from any unknown or expected adverse effects of air pollutants.

National Environmental Policy Act of 1969 (NEPA): NEPA encourages productive and enjoyable harmony between man and his environment and promotes efforts to prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man, as well as to enrich understanding of the ecological systems and natural resources important to the nation. NEPA established the Council on Environmental Quality.

National Register of Historic Places (National Register): A listing of architectural, historical, archaeological, and cultural sites of local, State, or national significance. The list of sites was established by the Historic Preservation Act of 1966 and is maintained by the National Park Service.

Native species: With respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

No potential: The geologic environment, inferred geologic processes, and lack of mineral occurrences, do not indicate potential for accumulation of mineral resources.

Nonpoint source pollution: Pollution from diffuse sources caused by rainfall or snowmelt moving over and through the ground.

Notice of Intent: The first formal step in the EIS process, consisting of a written notice that includes proposed actions and alternatives, proposed scoping process, and identification of a lead agency contact person.

Noxious weeds: Plant species that have been legally designated as unwanted or undesirable. This includes national, State, and county, or local designations.

O

Objectives: The planned results to be achieved within a stated time. Objectives are subordinate to goals, narrower in scope, and shorter in range. Objectives must specify time for completion and the products or achievements that are measurable.

Off-highway vehicle (OHV): A vehicle (including four-wheel drive, trail bikes, all-terrain vehicles, and snowmobiles, but excluding helicopters, fixed-wing aircraft, and boats) capable of traveling off road over land, water, ice, snow, sand, marshes, and other terrain. OHV designations are defined in Appendix O.

Open: Generally denotes that an area is available for a particular use or uses. Refer to specific program definitions found in law, regulations, or policy guidance for application to individual programs. For example, 43 CFR 8340.0-5 defines the specific meaning of "open" as it relates to OHV use.

Ozone (O₃): A criteria pollutant regulated under the Clean Air Act. In the troposphere (the layer extending 7 to 10 miles above the earth's surface), ozone is a chemical oxidant and a major component of photochemical smog.

P

Paleontology: The science of animal and plant fossil remains.

Particulate matter: Includes dust, soot, and other tiny bits of solid materials that are released into and move around in the air. Particulates are produced by many sources, including burning of diesel fuels by trucks and buses, incineration of garbage, mixing, application of fertilizers and pesticides, road construction, industrial processes such as steel making, mining operations, agricultural burning (field and slash burning), and operation of fireplaces and woodstoves.

Passive restoration: Allowing resources to naturally regenerate over time without taking direct action.

Perennial plant: A plant that has a life cycle of three or more years.

Perennial stream: A stream or that part of a stream that flows continuously during the calendar year as a result of groundwater discharge or surface runoff.

Permeability: The ease with which gases, liquids (water), or plant roots penetrate or pass through a mass of soil or a layer of soil. Since different soil horizons vary in permeability, the particular horizon under question should be designated.

Permit: Permits are one of three forms of a land use authorization (the others are leases and easements). Permits are short-term, revocable authorizations to use public land for specific purposes that involve either little or no land improvement, construction, or investment that can be amortized within the term of the permit. A permit conveys no possessory interest. The permit is renewable at the discretion of the authorized officer and may be revoked in accordance with its terms and applicable regulations.

Permitted livestock use: The forage allocated by, or under the guidance of, an applicable land use plan for livestock grazing in an allotment under a permit or lease and expressed in AUMs.

Place-based values: Refers to the attachment of an individual or group to a specific geographic area. It relates to the concept of “sense of place,” or a link between social experiences and geographic areas. Contributing qualities include personal memory, community history, physical landscape appearance, and emotional attachment. These values are subjective and may be developed based on perceptions about amenities (such as recreational opportunities), historic or symbolic activities and places, or landscape and scenic vistas.

Planning Area: As used in this document, the Planning Area includes all land within Sierra, Otero, and Doña Ana counties regardless of jurisdiction or ownership.

Planning criteria: The standards, rules, and other factors developed by managers and interdisciplinary teams for their use in forming judgments about decisionmaking, analysis, and data collection during planning. Planning criteria streamline and simplify the resource management planning actions.

Post and pole: The harvest of forest and woodland species 4-9” diameter, used primarily as fence posts, corral or fence rails.

Point-source pollution: Pollution that comes from an identified source or location—“end-of-the-pipe” pollution.

Potable water: Water suitable for drinking.

Prescribed fire: Fire set intentionally in wildland fuels under prescribed conditions and circumstances.

Prevention of significant deterioration: A Clean Air Act requirement to include a permit review process applicable to the construction and operation of new and modified stationary sources in attainment areas.

Primitive Road: A linear route managed for use by four-wheel drive or high-clearance vehicles. These routes do not normally meet any BLM road design standards.

Programmatic EIS: A comprehensive NEPA document prepared to analyze the environmental consequences of alternative programs or management strategies under consideration. A Programmatic EIS is prepared to help determine a consistent, broad management approach that can be used by BLM field-level staff for local land use planning. The Programmatic EIS is intended to support and expedite site-specific analysis or NEPA efforts for individual projects.

Public land: any land and interest in land owned by the United States within the several States and administered by the Secretary of the Interior through the Bureau of Land Management without regard to how the United States acquired ownership. [FLPMA Sec. 103 (e)]

R

Raptors: Birds of prey, such as the eagle, falcon, hawk, owl, or vulture.

Reclaim/reclamation: The process of converting disturbed land to its former use or other productive uses. In some instances, the term is also used for the act of adapting wild or natural resources to serve a utilitarian purpose such as converting riparian habitats to agriculture.

Recreation experience: The psychological outcome realized either by recreation-tourism participants as a direct result of their onsite leisure engagements and activities or by nonparticipating community residents as a result of their interaction with visitors and guests within their community and/or interaction with BLM and other public and private recreation-tourism providers and their actions.

Recreation opportunities: Favorable circumstances enabling visitors' engagement in a leisure activity to realize immediate psychological experiences and attain more lasting, value-added beneficial outcomes.

Recreation settings: The collective, distinguishing attributes of landscapes that influence, and sometimes actually determine, what kinds of recreational opportunities are produced. These include opportunities for engaging in specific recreational activities, attaining both satisfying and unsatisfying recreational experiences, and attaining both beneficial and unbeneficial outcomes.

Rehabilitate: Restore to a state of good condition or operation (e.g., a management alternative and/or practice that restores landscapes to a desired condition).

Reserved mineral rights: The retention of ownership of all or part of the mineral rights by a person or party conveying land to the United States. Conditions for the exercising of these rights have been defined in the Secretary of the Interior's *Conditions, Rules and Regulations to Govern Exercise of Mineral Rights Reserved in Conveyances to the United States* (36 CFR 251.15), attached to and made a part of deeds reserving mineral rights.

Restore/restoration: The process of restoring site conditions as they were before land disturbance. Note: restoration involves restoring a site to a specific point in time.

Resource management plan (RMP): A land use plan that establishes land use allocations, multiple-use guidelines, and management objectives for a given planning area. The resource management planning system has been used by BLM since 1980.

Revision: The process of rewriting the land use plan due to changes in the Planning Area that affect major portions of the plan or the entire plan.

Right-of-way: Land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project, pursuant to a right-of-way authorization.

Riparian: Areas of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence.

Riparian habitat: Riparian habitat is an ecological transition between an in-stream community of plants and animals and the adjacent, upland community. Normally the term is used for perennial streams (those that flow all year). The term “xeroriparian habitat” is used to describe the distinct plant and animal communities that concentrate around dry washes and are sustained by desert storms.

Roadless: Refers to the absence of roads constructed and maintained by mechanical means.

Roads: Vehicle routes that are improved and maintained by mechanical means to ensure relatively regular and continuous use. (A way maintained strictly by the passage of vehicles does not constitute a road.)

S

Sacred sites (American Indian): Defined in Executive Order 13007 as “any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.”

Salable minerals: Minerals that may be sold under the Material Sale Act of 1947, as amended. Included are common varieties of sand, stone, gravel, and clay.

Saturated: When referring to soil, the maximum amount of water that can be held either when the soil is frozen or the spaces between the soils particles are filled with water. Any additional seepage over saturated soil will result in runoff.

Scenic area: An area with a landscape character that exhibits a high degree of variety and harmony among the basic elements that results in a pleasant landscape to view.

Scenic quality: The relative worth of a landscape from a visual perception point of view. The seven factors (landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications) used to evaluate the scenic quality of a landscape. The relative scenic quality (A, B, or C) assigned to a landscape by applying the scenic quality evaluation key factors, with scenic quality A being the highest rating. The rating unit for scenic quality is defined as a portion of the landscape that displays primarily homogenous visual characteristics of the basic landscape features (land and water form, vegetation, and structures).

Scoping: A term used to identify the process for determining the scope of issues related to a proposed action and for identifying significant issues to be addressed in an EIS.

Season of use: The time during which livestock grazing is permitted on a given range area, as specified in the grazing permit.

Sedimentation: The breaking up of soil particles and their deposition on ground surfaces or in water bodies.

Sensitive species: Species not yet officially listed but that are undergoing status review for listing on the U.S. Fish and Wildlife Service official list of threatened and endangered species; species whose populations are small and widely dispersed or restricted to a few localities; and species whose numbers are declining so rapidly that official listing may be necessary.

Site hardening: Site hardening is a measure, or combination of measures, taken to make an archaeological or historic site less vulnerable to effects from visitation. These measures may include surface collection, signing, onsite hosts, vehicle barriers, data recovery, or other means.

Special management area (SMA): An area identified by BLM for the management of a specific resource or resources.

Special recreation management area (SRMA): A public land unit identified in land use plans to direct recreation funding and personnel to fulfill commitments made to provide specific, structured recreation opportunities (i.e., activity, experience, and benefit opportunities). BLM recognizes three distinct types of SRMAs: community-based, intensive, and undeveloped big open.

Special status species: Includes proposed species, listed species, and candidate species under the Endangered Species Act; State listed species; and sensitive species designated by the BLM state director (see *BLM Manual*, Section 6840: Special Status Species Policy).

Split estate: Surface and minerals of a given area in different ownerships. Frequently the surface is privately owned while the minerals are federally owned.

Standard: A description of the physical and biological conditions or degree of function required for healthy, sustainable land (e.g., land health standards). A standard is expressed as a desired outcome (goal).

Structural diversity: The diversity of the composition, abundance, spacing, and other attributes of plants in a community.

Sustainable use (production): The continuation of livestock grazing at a uniform level while maintaining a healthy desired plant community.

T

Terms and conditions: Stipulations contained in livestock grazing permits and leases as determined by the BLM authorized officer to be appropriate to achieve management and resource condition objectives for the public land and other land administered by BLM and to achieve standards for rangeland health and ensure conformance with guidelines for grazing administration. Terms and conditions also apply to fluid-mineral leases, as defined in Appendix B.

Threatened species: Any animal or plant species likely to become endangered within the foreseeable future throughout all of a significant portion of its range. These species are listed by the U.S. Fish and Wildlife Service.

Toxicity: A characteristic defining a hazardous waste. Toxicity refers to the ability of a material to produce injury or disease on exposure, ingestion, inhalation, assimilation by a living organism.

Trail: A linear route managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

Travel and transportation management system: A program to be developed by BLM to manage access for motorized, mechanized, and nonmotorized recreation. Travel would be managed through a network of authorized routes and access points. A management plan would be developed to provide policy and guidance for addressing the regulation, maintenance, and monitoring of the routes and other components of the travel and transportation system.

U

Unclassified area (for air quality): An area that cannot be classified on the basis of available information as meeting or not meeting the Federal primary or secondary ambient air quality standard for the pollutant.

Use of wildland fire: Management of either wildfire or prescribed fire to meet resource objectives specified in Land/Resource Management Plans.

Utility corridor: A linear corridor usually designated for facilities such as power lines, pipelines, fiber-optic cables, roads, etc.

V

Vegetative state: The stage in a flowering plant's life cycle before the appearance of its fruiting structures.

Viable: A wildlife population that has the estimated numbers and distribution of reproductive individuals to ensure its continued existence.

Viewshed: The landscape that can be directly seen, under favorable atmospheric conditions, from a viewpoint or along a transportation corridor.

Visual resources: The visible physical features in a landscape (e.g., land, water, vegetation, animals, structures, and other features). Visual resources are managed by inventory and planning actions taken to identify resource values and to establish objectives for managing those values; and the management actions taken to achieve the visual management objectives.

Visual resource management (VRM): The inventory and planning actions taken to identify visual resource values and to establish objectives for managing those values, and management actions taken to achieve the established objectives.

Visual resource management classes: Categories assigned to public land based on scenic quality, sensitivity level, and distance zones. There are four classes (Class I through Class IV), each having an objective that prescribes the amount of change allowed in the characteristic landscape.

W

Watershed: All land and water within the confines of a drainage divide.

Ways: Primitive two-track trails located within wilderness study areas.

Wetlands: Areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Examples of wetlands include marshes, shallow swamps, lakeshores, bogs, muskegs, wet meadows, estuaries, and riparian areas.

Wilderness area: An area officially designated as wilderness by Congress. Wilderness areas will be managed to preserve wilderness characteristics and shall be devoted to “the public purposes of recreation, scenic, scientific, educational, conservation, and historical use.”

Wilderness study area (WSA): Areas under study for possible inclusion as a wilderness area in the National Wilderness Preservation System.

Wildfire frequency: A general term referring to the recurrence of fire in a given area over time. It can be expressed as the number of fires per unit time in a given area. It can also be expressed as the probability of an element burning per unit time.

Wildfire intensity: The amount of heat released by a wildfire. Intensity is derived from the energy content of the fuel, the mass of fuel consumed, and the rate of spread of the fire. The units of fire line intensity reflect energy release (kilowatts) per unit length (meters) of the fire line and can be described as energy release along a linear front. In general, flame length is positively correlated to intensity (i.e., larger flames indicate a more intense fire).

Wildfire: An unplanned ignition caused by lightning, volcanoes, unauthorized, and accidental human caused actions and escaped prescribed fires.

Wildland fire: A general term describing any non-structure fire that occurs in the vegetation and/or natural fuels.

Wildland-urban interface: The line, area, or zone where structures and other human developments meet or intermingle with wildland or vegetative fuel. Interface is further delineated by (1) developed areas with residential structures where many structures border wildland on a broad front or (2) developed areas with private residential structures where developments are few and are scattered over a large area surrounded by wildland.



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